City of Denton

Meeting Agenda

City Council

City Hall
215 E. McKinney St.
Denton, Texas 76201
www.cityofdenton.com

Tuesday, June 4, 2024 | **2:00 PM** | **Council Work Session Room & Council Chambers**

WORK SESSION BEGINS AT 2:00 P.M. IN THE COUNCIL WORK SESSION ROOM

CLOSED MEETING BEGINS IMMEDIATELY FOLLOWING THE WORK SESSION IN THE COUNCIL WORK SESSION ROOM

REGULAR MEETING BEGINS AT 6:30 P.M. IN THE COUNCIL CHAMBERS

REGISTRATION GUIDELINES FOR ADDRESSING THE CITY COUNCIL

Individuals may speak during a Council meeting under one of the following categories:

Open Microphone:

At regular meetings only, individuals can speak on any topic that is not on the agenda for no longer than four (4) minutes per individual. This portion of the meeting occurs immediately after the start of the regular meeting session. Please note, Council members cannot engage in a discussion on topics presented during this portion and there are limited slots available for this portion of the meeting.

Comments on Agenda Items:

Public comments can be given for any item considered by the Council, EXCEPT work session reports or closed meetings. Individuals are only able to comment one time per agenda item and cannot use more than one method to comment on a single agenda item. Public comments are limited to three (3) minutes per citizen.

Public Hearing Items:

Individuals are limited to four (4) minutes per public hearing item.

Individuals may participate by using one of the following methods:

1. **In Person for Regular or Consent Agenda Items:**

   To provide in-person comments regular or consent agenda items (excluding public hearing items), Individuals must be present at the meeting and submit a speaker card (available at the meeting location) to the City Secretary prior to the item being called.

2. **In Person for Public Hearing Items:**

   For public hearing items, speaker cards are encouraged but not required.

3. eComment:

The agenda is posted online at www.cityofdenton.com/publicmeetings. Once the agenda is posted, a link to make virtual comments using the eComment module will be made available next to the meeting listing on the Upcoming Events Calendar. Using eComment, Individuals may indicate support or opposition and submit a brief comment about a specific agenda item. eComments may be submitted up until the start of the meeting at which time the ability to make an eComment will be closed. eComments will be sent directly to members of the City Council immediately upon submission and recorded by the City Secretary into the Minutes of the Meeting.

4. By Phone:

Individuals may register to provide comments by phone. Instructions and a link to register to comment by phone will be available at www.cityofdenton.com/publicmeetings until noon of the meeting date. Residents will submit contact information using the link provided and receive further instructions via email on how to join the meeting by phone and provide comments.

After determining that a quorum is present, the City Council of the City of Denton, Texas will convene in a Work Session on Tuesday, June 4, 2024 at 2:00 p.m. in the Council Work Session Room at City Hall, 215 E. McKinney Street, Denton, Texas at which the following items will be considered:

WORK SESSION

1. Citizen Comments on Consent Agenda Items

This section of the agenda allows citizens to speak on any item listed on the Consent Agenda prior to its consideration. Each speaker will be given a total of three (3) minutes to address any item(s). Any person who wishes to address the City Council regarding these items may do so by utilizing the "By Phone" registration process as referenced under the REGISTRATION GUIDELINES FOR ADDRESSING THE CITY COUNCIL detailed at the beginning of this agenda. Registration is required prior to the time the City Council considers this item. Registrants may call in and remain on hold or receive a call back at the time the Work Session is called to Order and are encouraged to ensure they remain accessible to accept the call.

2. Requests for clarification of agenda items listed on this agenda for public hearing and individual consideration.

This section allows members of the City Council to ask questions on items listed on this agenda for public hearing and individual consideration. Responses to questions on items listed under the consent agenda that are received prior to the meeting are available by clicking on Exhibit 1 below. The responses will be available prior to the start of the meeting, when applicable. Any handouts distributed at the meeting will also be uploaded to the below link by 12:00 p.m. on the business day following the meeting. Members of the Council may remove items from the consent agenda. When items are removed from the consent agenda and placed on the regular agenda by members of the council, the removed items shall be taken up in the order of removal right after the consent agenda.

A. ID 24-471 Meeting Questions, Responses & Handouts

3. Work Session Reports

A. ID 24-1108 Receive an update from the Denton Chamber of Commerce on fair chance hiring, hold a discussion, and give staff direction regarding the proposed amendment for Chapter 14 of the Code of Ordinances (Non-Discrimination in Public Accommodations, Employment Practices, and Housing) to add a fair chance hiring provision.

[Estimated Presentation/Discussion Time: 30 minutes]

B. ID 24-195 Receive a report, hold a discussion, and give staff direction regarding proposals from the Board of Ethics to 1) repeal and replace Ethics Ordinance Sec. 2-273 (a) Conflicts of Interest, and 2) eliminate Sec. 2-281 (c) (4) Burden of Proof, including amending the Board of Ethics' Rules of Procedure to adjust Evidentiary Hearing procedures to reflect the elimination of the requirement for the Complainant to testify at an evidentiary hearing.

[Estimated Presentation/Discussion Time: 60 minutes]

C. ID 23-1855 Receive a report, hold a discussion, and provide suggestions or recommendations regarding updates to the City of Denton Criteria Manuals.

[Estimated Presentation/Discussion Time: 30 minutes]

Following the completion of the Work Session, the City Council will convene in a Closed Meeting in the Council Work Session Room to consider specific item(s) when these items are listed below under the Closed Meeting section of this agenda. The City Council reserves the right to adjourn into a Closed Meeting on any item on its Open Meeting agenda consistent with Chapter 551 of the Texas Government Code, as amended, or as otherwise allowed by law.

4. Closed Meeting:

A. ID 24-1196 Consultation with Attorneys - Under Texas Government Code Section 551.071.

Consult with the City's attorneys on the legal status, strategy and options for resolution of litigation in Cause No. 24-1005-481 case style: "City of Denton v. State of Texas v. City of Denton Gerard Hudspeth, Mayor of Denton; Brian Beck, Mayor Pro Tem of Denton; Vicki Byrd, Paul Meltzer, Joe Holland, Brandon Chase McGee, and Chris Watts, Members of the City Council of Denton; Sara Hensley, City Manager of Denton; and Doug Shoemaker, Chief of Police of Denton; in their official capacities," in the Denton County Court, Denton County, Texas; where public discussion of these legal matters would conflict with the duty of the City's attorneys to the professional conduct of the State Bar of Texas, or otherwise compromise the City's legal position in pending litigation.

Any final action, decision, or vote on a matter deliberated in a Closed Meeting will only be taken in an Open Meeting that is held in compliance with Texas Government Code, Chapter 551, except to the extent such final decision, or vote is taken in the Closed Meeting in accordance with the provisions of Section 551.086 of the Texas Government Code (the 'Public Power Exception'). The City Council reserves the right to adjourn into a Closed Meeting or Executive Session as authorized by Texas Government Code, Section 551.001, et seq. (The Texas Open Meetings Act) on any item on its open meeting agenda or to reconvene in a continuation of the Closed Meeting on the Closed Meeting items noted above, in accordance with the Texas Open Meetings Act, including, without limitation Sections 551.071-551.086 of the Texas Open Meetings Act.

NOTE: Any item for which a formal action at the Regular Meeting has been taken by Council may be subject to a request for a motion for reconsideration at any time during the meeting, at the Concluding Items Section, or after the meeting. In order to comply with the Texas Open Meetings Act, a request for a motion for reconsideration made during, at the end of, or after a Council meeting will be placed on the agenda and considered at the next official meeting of the City Council.

Following the Closed Meeting, the City Council will reconvene in Open Meeting to take action, if any, on matters discussed in closed session.

AFTER DETERMINING THAT A QUORUM IS PRESENT, THE REGULAR MEETING OF THE CITY OF DENTON CITY COUNCIL WILL CONVENE AT 6:30 P.M. IN THE COUNCIL CHAMBERS AT CITY HALL, 215 E. MCKINNEY STREET, DENTON, TEXAS AT WHICH THE FOLLOWING ITEMS WILL BE CONSIDERED:

1. PLEDGE OF ALLEGIANCE

A. U.S. Flag
B. Texas Flag

"Honor the Texas Flag – I pledge allegiance to thee, Texas, one state under God, one and indivisible."

2. PRESENTATIONS FROM MEMBERS OF THE PUBLIC

A. Review of procedures for addressing the City Council.

B. Reports from members of the public shall be received through the following two (2) methods. A total of up to seven (7) speakers are permitted to provide public comment and may include any combination of prior registration and open microphone speakers.

1) Pre-registration. This section of the agenda permits any person who has registered in advance to make a citizen report regarding a public business item he or she wishes to be considered by the City Council. Each speaker is allowed a maximum of four (4) minutes to present their report. At the conclusion of each report, the City Council may pose questions to the speaker or may engage in discussion. If the City Council believes that a speaker's report requires a more detailed review, the City Council will give the City Manager or City Staff direction to place the item on a future work session or regular meeting agenda and advise staff as to the background materials to be desired at such meeting.

a. ID 24-1117 Mr. Daniel Cowart regarding Palestine.

b. ID 24-1118 Mr. Richard Harris regarding Palestine.

c. ID 24-1119 Ms. Kali Wood regarding issues at property and community concerns regarding children.

d. ID 24-1120 Mr. Justin Weiss regarding Ceasefire Resolution.

e. ID 24-1121 Ms. Amira Rasoul regarding Palestine.

f. ID 24-1122 Ms. Donna Smith regarding elections.

g. ID 24-1127 Ms. Andrea Nichols regarding Council position on Planning and Zoning.

2) Open Microphone. This section of the agenda permits any person who has not registered in advance for a citizen report to make comments about public business items not listed on the agenda. Such person(s) shall have registered using the "Virtual White Card" or "By Phone" process outlined by the City on its website or meeting notice.

During open microphone reports under this section of the agenda, the Council may listen to citizens speak. However, because notice of the subject of the open microphone report has not been provided to the public in advance, the Texas Open Meetings Act limits any deliberation or decision by the Council to: a proposal to place the item on a future agenda; a statement of factual information; or a recitation of existing policy. Council Members may not ask the open microphone speakers questions or discuss the items presented during open microphone reports.

NOTE: If audio/visual aids during presentations to Council are needed, they must be submitted to the City Secretary 24 hours prior to the meeting.

3. CONSENT AGENDA

Each of these items is recommended by Staff or a board, commission, and committee. Approval thereof will be strictly on the basis of the those recommendations. Approval of the Consent Agenda authorizes the City Manager or his designee to implement each item in accordance with the Staff recommendations. The City Council has received background information and has had an opportunity to raise questions regarding these items prior to consideration.

For those items recommended by a specific board, commission, or committee, the agenda item will reference that recommendation. To view the video of the related board, commission, or committee meeting, as applicable, a link can be found within the applicable supporting documentation (Exhibit 1).

Listed below are bids, purchase orders, contracts, and other items to be approved under the Consent Agenda (Agenda Items A – W). This listing is provided on the Consent Agenda to allow Council Members to discuss or withdraw an item prior to approval of the Consent Agenda. If no items are pulled, the Consent Agenda Items will be approved with one motion. If items are pulled for separate discussion, they may be considered as the first items following approval of the Consent Agenda.

A. ID 24-428 Consider approval of the minutes of the May 14, 2024 Special Called Canvassing Meeting and May 21, 2024 Regular Meeting.

B. ID 24-490 Consider nominations/appointments to the City's Boards, Commissions, and Committees: Planning & Zoning Commission.

C. ID 24-1158 Consider approval of a resolution of the City of Denton creating a Charter Review Committee and setting forth the charges of the 2024-2025 Charter Review; and providing an effective date.

D. ID 24-1068 Consider adoption of an ordinance by the City of Denton authorizing the City Manager to execute a reimbursement agreement with the Union Pacific Railroad Company, a Delaware Corporation ("UPRR" for the purpose of preliminary engineering services at mile post 723.03 (Choctaw Subdivision) Denton (Denton County), Texas for the City's Bonnie Brae Phase 2 Vintage Blvd project: providing for the expenditure of funds in the not-to-exceed amount of forty thousand dollars ($40,000.00); authorizing the expenditure

of funds therefor; and providing an effective date.

E. ID 24-958 Consider adoption of an ordinance of the City of Denton, Texas approving a Second Amendment to an Economic Development Program Grant Agreement with NorthStar Bank of Texas, an assignee of Windjammer, LTD., dated March 23, 2004; and providing an effective date.

F. ID 24-946 Consider adoption of an ordinance of the City of Denton approving a grant to Eagle Surveying, LLC for improvements located at 212 W. Sycamore St. from the Downtown Reinvestment Grant Program in an amount not to exceed $50,000.00; and providing for an effective date.

G. ID 24-1089 Consider approval of a resolution of the City of Denton authorizing the submission of an application to the U.S. Department of Transportation (DOT) Federal Highway Administration (FHWA) Fiscal Year 2023 Active Transportation Infrastructure Investment Program (ATIIP) in the not-to-exceed amount of $11,500,000 for the Pecan Creek Trail Shared Use Path; and providing an effective date.

H. ID 24-1091 Consider approval of a resolution of the City of Denton ratifying the submission of an application to the U.S. Department of Justice (DOJ) Office of Community Oriented Policing Services (COPS) FY24 Community Policing Development (CPD) Microgrants Program in the amount of $175,000 for a recruitment and retention program for Police Officers; and providing an effective date.

I. ID 24-1098 Consider adoption of an ordinance of the City of Denton, A Texas Home-Rule Municipal Corporation, authorizing the City Manager to execute an interlocal cooperative agreement with the City of Sanger, Texas, under the Texas Government Code, Section 791.001, to authorize the City of Denton to exchange one remote supervisory electric automatic switchgear; and declaring an effective date.

J. ID 24-173 Consider approval of a resolution of the City Council of the City of Denton, Texas, establishing a date for a public hearing to consider the amendment of Land Use Assumptions, Roadway Capital Improvements Plan, and the imposition of updated Roadway Impact Fees; and providing for an effective date.

K. ID 24-870 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with International Business Machines Corporation, through the Department of Information Resources (DIR) Cooperative Contract No. DIR-CPO-4942, for cyber security services for the Technology Services Department; providing for the expenditure of funds therefor; and providing an effective date (File 8550 - awarded to International Business Machines Corporation, in the not-to-exceed amount of $90,000.00).

L. ID 24-1075 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a Professional Services Agreement with Binkley & Barfield, Inc., for design services for Neighborhood 5A for the Capital Projects Department as set forth in the contract; providing for the expenditure of funds therefor; and providing an effective date (RFQ 7599-019 - Professional Services Agreement for design services awarded to Binkley & Barfield, Inc., in the not-to-exceed

amount of $1,355,840.00). The Public Utilities Board recommends approval (4 - 0).

M. ID 24-1076 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a Professional Services Agreement with Kimley-Horn and Associates, Inc., for engineering services for the conceptual design and due diligence items for the Clear Creek Interceptor project for the Wastewater Department as set forth in the contract; providing for the expenditure of funds therefor; and providing an effective date (RFQ 8213-001 - Professional Services Agreement for engineering services awarded to Kimley-Horn and Associates, Inc., in the not-to-exceed amount of $1,259,400.00). The Public Utilities Board recommends approval (4 - 0).

N. ID 24-1077 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Keasler Sales, LLC, for the purchase of protective relay panels for the Brinker Substation Phase II for Denton Municipal Electric; providing for the expenditure of funds therefor; and providing an effective date (RFP 8473 - awarded to Keasler Sales, LLC, in the not-to-exceed amount of $82,578.00). The Public Utilities Board recommends approval (4 - 0).

O. ID 24-1078 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with SewerAI Corporation, for sewer pipe and manhole rating services for the Drainage and Wastewater Departments; providing for the expenditure of funds therefor; and providing an effective date (RFP 8488 - awarded to SewerAI Corporation, for one (1) year, with the option for four (4) additional one (1) year extensions, in the total five (5) year not-to-exceed amount of $875,000.00). The Public Utilities Board recommends approval (4 - 0).

P. ID 24-1079 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Aerowave Technologies, LLC, for the Aerowave In-Cab Radio subscription for the Solid Waste and Recycling Department, which is the sole provider of this software, in accordance with Texas Local Government Code 252.022, which provides that procurement of commodities and services that are available from one source are exempt from competitive bidding, and if over $50,000, shall be awarded by the governing body; providing for the expenditure of funds therefor; and providing an effective date (File 8536 - awarded to Aerowave Technologies, LLC, for one (1) year, with the option for two (2) additional one (1) year extensions, in the total three (3) year not-to-exceed amount of $122,850.00). The Public Utilities Board recommends approval (4 - 0).

Q. ID 24-1080 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, rejecting any and all competitive proposals under RFP 8429 for Substation Power Transformers; and providing an effective date (RFP 8429). The Public Utilities Board recommends approval (4 - 0).

R. ID 24-1081 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Pethealth Services (USA) Inc., for microchips and cloud-based data management software for Denton Animal Services; providing for the expenditure of funds therefor; and providing an

effective date (RFP 8500 - awarded to Pethealth Services (USA) Inc., for one (1) year, with the option for four (4) additional one (1) year extensions, in the total five (5) year not-to-exceed amount of $207,000.00).

S. ID 24-1088 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Stuart C. Irby Company, for the supply of electric utility fault circuit indicators for Denton Municipal Electric to be stocked in the City of Denton Warehouse; providing for the expenditure of funds therefor: and providing an effective date (RFP 8511 - awarded to Stuart C. Irby Company, for three (3) years, with the option for two (2) additional one (1) year extensions, the total five (5) year not-to-exceed amount of $1,350,000.00).

T. ID 24-1093 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with The MODassic Group, LLC dba CivicBrand, for a mission, vision, and rebranding initiative for the Marketing and Communications Department; providing for the expenditure of funds therefor; and providing an effective date (RFP 8532 - awarded to The MODassic Group, LLC dba CivicBrand, in the not-to-exceed amount of $80,000.00).

U. ID 24-731 Consider adoption of an ordinance of the City of Denton determining the public use, need, and necessity for the acquisition of (I) permanent electric easement, generally located at 3833 Airport Road, Denton, Texas 76207, A 0.408-acre easement tract (526551), Fastenal Addition, Block A, Lot 1 for the Denton West to RD Wells Project, Parcel No 1A, situated in William Neil Survey Abstract No. 970, all in the City and County of Denton, Texas, and more particularly described in the attached Exhibit "A" ("collectively, the property interests"); authorizing the City Manager and City Attorney, to acquire the Property Interests by agreement, if possible, including making all offers required by law; authorizing the use of the power of eminent domain to condemn the property interests if agreement cannot be reached; authorizing the City Attorney, to file eminent domain proceedings if necessary; authorizing the expenditure of funding; making findings; providing a savings clause; and providing an effective date.

V. OPA24-0002a Consider adoption of an ordinance of the City of Denton, a Texas Home-Rule Municipal Corporation, authorizing the City Manager or designee to execute an Oversize Cost Participation Agreement with 4600 Ganzer Investments, LLC, for the construction of a 16" water main for the Water Utilities Department; providing for the expenditure of funds therefor; and providing an effective date (4600 Ganzer Investments, LLC, in the amount not-to-exceed amount of $1,092,497.00).

W. ID 24-1101 Consider approval of a resolution of the City of Denton waiving a condition to creation of Denton County Municipal Utility District No. 16 (OLEX MUD), encompassing approximately 553 acres of land, located north of Old Stoney Road, south of Jackson Road, and west of FM 156 within Division 2 of the extraterritorial jurisdiction of the City of Denton, Texas; and providing an effective date.

4. PUBLIC HEARINGS

A. ID 23-1856 Hold a public hearing and consider adoption of an ordinance of the City of Denton, Texas

repealing the Solid Waste and Recycling Criteria Manual, Stormwater Criteria Manual, Transportation Criteria Manual, Water and Wastewater Criteria Manual, and Streetlight Criteria Manual; combining such documents into the Denton Design Criteria Manual; approving the Denton Design Criteria Manual; providing for a Design Deviation Procedure; and providing for severability, a savings clause and an effective date.

B. DCA23-0002g Hold a public hearing and consider adoption of an ordinance of the City of Denton, Texas amending the Denton Development Code, regarding short-term rental use regulations and definitions, specifically amendments to Section Table 5.2-A- Table of Allowed Uses, Section 5.3.1 Use-Specific Standards - Generally, Section 5.3.5: Commercial Use-Specific Standards, Table 7.9-I Parking, and Section 9.2: Definitions; providing for a penalty in the maximum amount of $2,000.00 for violations thereof; providing a severability clause and an effective date. The Planning and Zoning Commission voted [5-0] to recommend approval of the request. Motion for approval was made by Commissioner Villareal and seconded by Commissioner Pruett. (DCA23-0002g, Short-Term Rentals, Angie Manglaris)

C. DCA24-0006a Hold a public hearing and consider adoption of an ordinance of the City of Denton, Texas amending the Denton Development Code standards and regulations for Donation Boxes; amendments include but are not limited to Table 5.2-A: Table of Allowed Uses, Section 5.4.3: General Standards for Accessory Uses and Structures, Section 5.4.4: Additional Standards for Specific Accessory Uses, and Section 9.2: Definitions related to Donation Boxes; providing for application requirements and process; providing for a penalty in the maximum amount of $2,000.00 for violations thereof; providing savings and severability clauses and an effective date. The Planning and Zoning Commission voted 7-0 to recommend approval of the proposed Code amendment. Motion for approval by Commissioner Villarreal and second by Commissioner Cole. (DCA24-0006a, Donation Boxes, Mia Hines)

D. ID 24-1102 Conduct the first of two public hearings of the City of Denton, Texas regarding the adoption of a strategic partnership agreement between the City of Denton and Denton County Municipal Utility District No. 16.

5. ITEMS FOR INDIVIDUAL CONSIDERATION

A. ID 24-950 Consider adoption of an ordinance of the City of Denton considering all matters incident and related to the issuance, sale and delivery of up to $151,660,000 in principal amount of "City of Denton General Obligation refunding and improvement bonds, Series 2024"; authorizing the issuance of the bonds; delegating the authority to certain city officials to execute certain documents relating to the sale of the bonds; approving and authorizing instruments and procedures relating to said bonds; enacting other provisions relating to the subject; and providing an effective date. The Public Utilities Board recommends 4-0.

B. ID 24-951 Consider adoption of an ordinance of the City of Denton considering all matters incident and related to the issuance, sale and delivery of up to $262,330,000 in principal amount of "City of Denton Certificates of Obligation, Series 2024"; authorizing the issuance of the certificates; delegating the authority to certain city officials to execute certain documents

relating to the sale of the certificates; approving and authorizing instruments and procedures relating to said certificates; enacting other provisions relating to the subject; and providing an effective date. The Public Utilities Board recommends approval 4-0.

C. ID 23-2407 Consider adoption of an ordinance of the City of Denton amending Chapter 14, Article VIII of the Code of Ordinances (Non-Discrimination in Public Accommodations, Employment Practices, and Housing), to add a fair chance hiring provision to Section 14-203-5 setting hiring standards to limit employers' consideration of the criminal history on an initial job application; providing severability; providing a savings clause; providing for publication and codification; providing for a penalty; and providing an effective date.

6. CONCLUDING ITEMS

A. Under Section 551.042 of the Texas Open Meetings Act, respond to inquiries from the City Council or the public with specific factual information or recitation of policy, or accept a proposal to place the matter on the agenda for an upcoming meeting AND Under Section 551.0415 of the Texas Open Meetings Act, provide reports about items of community interest regarding which no action will be taken, to include: expressions of thanks, congratulations, or condolence; information regarding holiday schedules; an honorary or salutary recognition of a public official, public employee, or other citizen; a reminder about an upcoming event organized or sponsored by the governing body; information regarding a social, ceremonial, or community event organized or sponsored by an entity other than the governing body that was attended or is scheduled to be attended by a member of the governing body or an official or employee of the municipality; or an announcement involving an imminent threat to the public health and safety of people in the municipality that has arisen after the posting of the agenda.

B. Possible Continuation of Closed Meeting topics, above posted.

C E R T I F I C A T E

I certify that the above notice of meeting was posted on the official website (https://tx-denton.civicplus.com/242/Public-Meetings-Agendas) and bulletin board at City Hall, 215 E. McKinney Street, Denton, Texas, on May 31, 2024, in advance of the 72-hour posting deadline, as applicable, and in accordance with Chapter 551 of the Texas Government Code.

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OFFICE OF THE CITY SECRETARY

NOTE: THE CITY OF DENTON'S DESIGNATED PUBLIC MEETING FACILITIES ARE ACCESSIBLE IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT. THE CITY WILL PROVIDE ACCOMMODATION, SUCH AS SIGN LANGUAGE INTERPRETERS FOR THE HEARING IMPAIRED, IF REQUESTED AT LEAST 48 HOURS IN ADVANCE OF THE SCHEDULED MEETING. PLEASE CALL THE CITY SECRETARY'S OFFICE AT 940-349-8309 OR USE TELECOMMUNICATIONS DEVICES FOR THE DEAF (TDD) BY CALLING 1-800-RELAY-TX SO THAT REASONABLE ACCOMMODATION CAN BE ARRANGED.

File #: ID 24-471, **Version:** 1

AGENDA CAPTION

Meeting Questions, Responses & Handouts

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: City Secretary's Office

CM: Sara Hensley

DATE: June 4, 2024

SUBJECT

Meeting Questions, Responses & Handouts

BACKGROUND

City Councilmembers direct questions related to items on the agenda to City staff. The questions are assigned to applicable departments and corresponding responses are compiled to a Question & Answer Report (Q&A) which is placed in a file directory for the applicable meeting. Selecting the link above will gain access to the final version of the Q&A for this meeting, which will be available prior to the start of the meeting.

Periodically during a meeting, handouts are distributed to members of the City council. Any information distributed at this meeting will also be added to the directory by 12:00 p.m. on the business day following the meeting.

EXHIBITS

Exhibit 1 – Agenda Information Sheet

Respectfully submitted:

Lauren Thoden
City Secretary

File #: ID 24-1108, **Version:** 1

AGENDA CAPTION

Receive an update from the Denton Chamber of Commerce on fair chance hiring, hold a discussion, and give staff direction regarding the proposed amendment for Chapter 14 of the Code of Ordinances (Non-Discrimination in Public Accommodations, Employment Practices, and Housing) to add a fair chance hiring provision.

[Estimated Presentation/Discussion Time: 30 minutes]

City of Denton

City Hall
215 E. McKinney Street
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AGENDA INFORMATION SHEET

DEPARTMENT: **City Manager's Office**

CM/DCM/ACM: **Sara Hensley, City Manager**

DATE: **June 4, 2024**

SUBJECT

Receive an update from the Denton Chamber of Commerce on fair chance hiring, hold a discussion, and give staff direction regarding the proposed amendment for Chapter 14 of the Code of Ordinances (Non-Discrimination in Public Accommodations, Employment Practices, and Housing) to add a fair chance hiring provision.

BACKGROUND

On June 6, 2023, Council Member McGee presented a 2-minute policy pitch to the Council requesting the draft ordinance be brought to the Council at the next meeting for consideration and vote. That pitch received support from the Council and a proposed Fair Chance Hiring ordinance was brought forward for consideration on June 27, 2023. At that meeting, the Council postponed consideration of the ordinance until the first meeting in January 2024 and requested staff seek community and business feedback on the ordinance prior to that time.

On Jan. 9, 2024, a proposed Fair Chance Hiring ordinance was brought forward for consideration. Council postponed consideration of the ordinance for 120 days to allow for the Denton Chamber of Commerce to propose an alternative to an ordinance. The 120 days expired on May 8, 2024.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

Jan. 9, 2024:	City Council Individual Consideration (Postponement)
Dec. 5, 2023:	City Council Public Hearing
June 27, 2023:	City Council Consideration (Postponement)
June 6, 2023:	Work Session (2-Minute Policy Pitch)
Dec. 6, 2022:	Work Session Discussion
Nov. 3, 2022:	Work Session Discussion
Aug. 2, 2022:	Work Session (2-Minute Policy Pitch)

EXHIBITS

1. Agenda Information Sheet
2. Presentation

Respectfully submitted:
Kristi Fogle
Chief of Staff

Fair Chance Hiring/Second Chance Hiring Program Initiative Update

Erin Carter

Denton Chamber of Commerce

Background

- In brief, the Denton Chamber of Commerce partnered with the City of Denton on listening sessions to address initial concerns regarding the proposed ordinance. At the time of discussion,
  - Feedback included general opposition.
  - Frequent concerns were impacts on competitiveness and lack of a clearly defined need for an ordinance.
- The Denton Chamber of Commerce Board of Directors issued a letter of opposition, including the request for partnership as opposed to ordinance.

DENTON CHAMBER of COMMERCE

Proposed Program

After listening sessions, business and community feedback, and organizational considerations, the Denton Chamber of Commerce proposes the following program to address the rate of employment and retention of employees for justice-involved individuals seeking employment in Denton:

- **Second Chance Hiring Quarterly Workshops for Business Owners** – Host quarterly workshops (with recorded virtual option based on need) to engage Denton businesses in opportunities to understand benefits and/or incentives to hire justice-involved individuals. 2 main focus areas:
  - Recoup wages through tax credits: Work Opportunity Tax Credit is the federal tax credit available to employers for hiring individuals from certain targeted groups who have consistently faced significant barriers to employment.
  - Fidelity Bonding: Details on next twps.
- **Marketing** – Availability of member businesses to list "Second Chance Hiring Friendly" indicator on Denton Chamber website.

DENTON CHAMBER of COMMERCE

Breakdown of Work Opportunity Tax Credit

Breakdown of Work Opportunity Tax Credit (WOTC)

- **The Work Opportunity Tax Credit program offers tax credits based on employee retention and their qualified wages during the first year of employment. For-profit employers can receive a 25% credit for 120 to 399 hours worked, and 40% for 400+ hours. Non-profit employers can receive 16.25% for 120 to 399 hours, and 26% for 400+ hours.**

Target Group	Wage Cap	For-Profit 25%	For-Profit 40%	For-Profit 50%
Long-Term Family Assistance recipients (1st Year)	$10,000	N/A	$4,000	N/A
Long-Term Family Assistance recipients (2nd Year)	$10,000	N/A	N/A	$5,000
TANF recipients	$6,000	$1,500	$2,400	N/A
Ex-felons	$6,000	$1,500	$2,400	N/A
Designated community residents	$6,000	$1,500	$2,400	N/A
Vocational rehabilitation referrals	$6,000	$1,500	$2,400	N/A
SNAP recipients	$6,000	$1,500	$2,400	N/A
Supplemental Security Income recipients	$6,000	$1,500	$2,400	N/A
Long-Term Unemployment Recipients	$6,000	$1,500	$2,400	N/A
Summer Youth program participants	$3,000	$ 750	$1,200	N/A

DENTON CHAMBER of COMMERCE

Proposed Program

Through the Texas Workforce Commission (TWC), the fidelity bonding service helps certain job applicants who have a traditionally had a harder time getting and keeping a job. TWC offers this free service to make companies feel more comfortable when hiring people who may face challenges. This bonding is like an insurance policy. It protects the company if the worker does something dishonest, like theft (as an example from TWC).

- **How it works**–
- The fidelity bond is free for six months. After six months, bonding becomes the companies' responsibility.
- The coverage is typically for $5,000, but can be more, and there is no deductible to pay.
- There are no forms to fill out and no long processing time.
- The coverage can start almost right away.
- We, the Denton Chamber, will walk businesses interested through this process, breaking down barriers and illuminating American's Hidden Workforce.

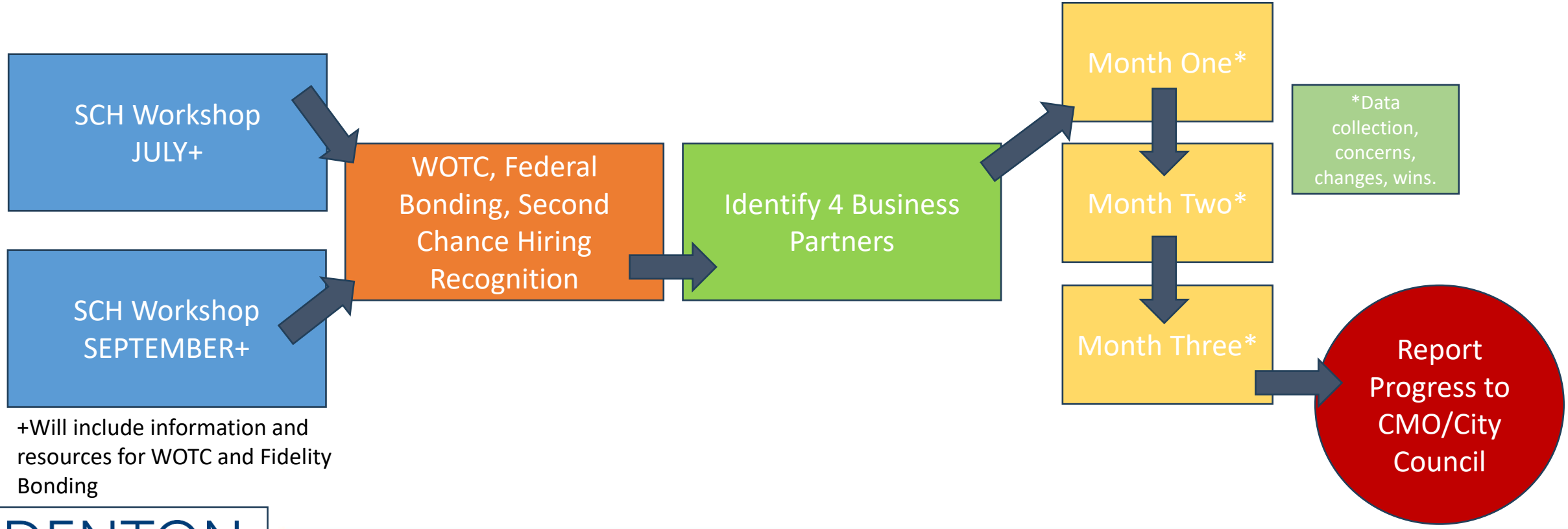
DENTON CHAMBER of COMMERCE

Proposed Program

- **Eligibility for Fidelity Bonding Includes:**
- People who have been involved with the justice system, like those who have been arrested, on probation, or have a police record
  - Additionally: People with a history of poor credit, Veterans who were dishonorably discharged, People on public assistance, People with a history of substance abuse, Disadvantaged youth who don't have a work history, Anyone who was not approved for fidelity bonding through other bonding systems
- People who are self-employed are not covered by this bond. This bond only applies to specific employers and workers. These bonds do not give coverage for poor work skills, work injuries or accidents.

DENTON CHAMBER of COMMERCE

Proposed Program



+Will include information and resources for WOTC and Fidelity Bonding

DENTON CHAMBER of COMMERCE

Next Steps -

- The Denton Chamber of Commerce will host two quarterly workshops (July, September – both prior to fiscal year end), with goal of 4 businesses participating in some aspect of Second Chance Hiring initiative.
- After 3-month window per workshop, provide data back to City Manager's Office for City Council report from engaged businesses on the following:
  - Engagement in WOTC or Fidelity Bonding (if selected)
  - Change in hiring methods, policies, or processes with justice-involved employees in mind
  - Increase in willingness to list "Second Chance Hiring Friendly" on website, additional methods of engagement
- Add all resources, information, and current applicable incentives for second chance hiring on Denton Chamber website.
  - Recruitment of companies with assistance of Texas Workforce Commission, local/regional relationships
  - Evaluate and retool based on initial feedback and employers need, continual improvement.

DENTON CHAMBER of COMMERCE

Next Steps -

- Proposed Programs
  - The proposed programs will require additional time to pilot and collect data.

DENTON CHAMBER of COMMERCE

Questions?

File #: ID 24-195, **Version:** 1

AGENDA CAPTION

Receive a report, hold a discussion, and give staff direction regarding proposals from the Board of Ethics to 1) repeal and replace Ethics Ordinance Sec. 2-273 (a) Conflicts of Interest, and 2) eliminate Sec. 2-281 (c) (4) Burden of Proof, including amending the Board of Ethics' Rules of Procedure to adjust Evidentiary Hearing procedures to reflect the elimination of the requirement for the Complainant to testify at an evidentiary hearing.

[Estimated Presentation/Discussion Time: 60 minutes]

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: **Board of Ethics**

CITY AUDITOR: **Madison Rorschach**

DATE: **June 4, 2024**

SUBJECT

Receive a report, hold a discussion, and give staff direction regarding proposals from the Board of Ethics to 1) repeal and replace Ethics Ordinance Sec. 2-273 (a) Conflicts of Interest, and 2) eliminate Sec. 2-281 (c) (4) Burden of Proof, including amending the Board of Ethics' Rules of Procedure to adjust Evidentiary Hearing procedures to reflect the elimination of the requirement for the Complainant to testify at an evidentiary hearing.

BACKGROUND

City of Denton Code of Ordinances Chapter 2, Article XI (Ethics), Sec. 2-277 (i) states that the Board of Ethics may recommend amendments to Article XI (i.e., the Ethics Ordinance) to the City Council from time to time.

DISCUSSION

Over the last year, the Board of Ethics has reviewed the City of Denton's Ethics Ordinance and the Board's Rules of Procedure. During this time, the Board developed two proposals to amend the Ethics Ordinance and Board of Ethics Rules of Procedure as outlined in Exhibits 3 and 4. In addition, one minor verbiage change is recommended as a clean-up item to clarify in the Ethics Ordinance that a Complainant has the right to be represented by someone other than legal counsel at a hearing held as part of the Ethics Ordinance processes.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

May 1, 2018: Ethics Ordinance Adopted by City Council
Jun. 2, 2020: Ethics Ordinance Amended by City Council based on Board of Ethics Recommendations
Jan. 25, 2022: Ethics Ordinance Amended by City Council to eliminate Member experience requirements
Jul. 19, 2022: Ethics Ordinance Amended by City Council based on Board of Ethics Recommendations
Jul. 18, 2023: Ethics Ordinance Amended by City Council based on Board of Ethics Recommendations
Dec. 12, 2023: Ethics Ordinance Amended by City Council to eliminate Alternate Members
Mar. 4, 2024: Board of Ethics voted to forward the attached Letter of Proposed Amendments to the City Council (4-0 with one absence)

EXHIBITS

1. Agenda Information Sheet
2. Letter of Proposed Amendments
3. Redlined Ethics Ordinance
4. Redlined Board of Ethics Rules of Procedure
5. Presentation

Respectfully submitted:
Madison Rorschach, 940-349-7228
City Auditor

Board of Ethics
., Denton, TX 76201 • (940) 349-7228[Address (Ex. 215 E. McKinney St., Denton, TX 76201)]

June 4, 2024

Denton City Council
2015 E. McKinney Street
Denton, Texas 76201

Honorable Members of the City Council,

The Board of Ethics has met and approved the attached packet of amendments during five meetings over the last year. During these meetings, the Board approved two proposals to amend the Ethics Ordinance, which are briefly outlined below:

1. **Repeal and replace Ethics Ordinance Sec. 2-273 (a) Conflicts of Interest.**

   Primarily, this proposal expands the applicability of the Conflict of Interest section from only requiring recusal from specific votes (i.e., Pending Matters) to prohibiting a City Official to taking any action, failing to act, or influencing someone to act or fail to act, if they know or believe it may result in a Personal Benefit or Financial Benefit for the following persons or entities:
   - Themself;
   - A member of their household including a Domestic Partner, and their dependents, or the employer or business of these people;
   - Certain Relatives (as redefined) of themself, their spouse, or their Domestic Partner, or the employer or business of these people; or
   - A person with whom the City Official has a financial or business relationship as exemplified in the attached redlines.

   In addition, it retains the requirement to file an affidavit with the City Auditor if the City Official must withdraw from participation due to a Conflict of Interest and creates a requirement to notify the appropriate individual or body if the City Official must withdraw from participation due to a Conflict of Interest.

2. **Eliminate Sec. 2-281 (c) (4) Burden of Proof, including amending the Board of Ethics' Rules of Procedure to adjust Evidentiary Hearing procedures to reflect the elimination of the requirement for the Complainant to testify at an evidentiary hearing.**

   Primarily, this proposal eliminates the current requirement for the individual who submits an Ethics Complaint (i.e., the Complainant) to attend and testify at an evidentiary hearing held to determine if a violation of the Ethics Ordinance has occurred. Changes to the Board of Ethics' Rules of Procedure are also included in this proposal to allow for this change.

In addition, the packet of proposed amendments includes the following minor verbiage change for clarity:

- Clarify Sec. 2-281 Meetings subsection (c) Hearings that "both the Complainant and Respondent [of an Ethics Complaint] have a right to be represented by legal counsel <u>or another representative</u>" as stated in the Rules of Procedure.

The proposed language changes can be seen in:

- Exhibit 3 – Redlined Ethics Ordinance
- Exhibit 4 – Redlined Board of Ethics Rules of Procedure

Respectfully submitted,

Annetta Ramsay
Chair, Board of Ethics

CC:
Mack Reinwand, City Attorney
Sara Hensley, City Manager,
Madison Rorschach, City Auditor

Attachment "A"

CITY OF DENTON

CODE OF ORDINANCES

CHAPTER 2: ADMINISTRATION

ARTICLE XI. ETHICS

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DIVISION 1. GENERAL

Sec. 2-265. Authority

This Article is enacted pursuant to the authority granted to the City under Section 14.04 of the Charter.

Sec. 2-266. Purpose

The purpose of this Article is to foster an environment of integrity for those that serve the City of Denton and our citizenry. The City Council enacted this Article in order to increase public confidence in our municipal government. It is the policy of the City that all City Officials and employees shall conduct themselves in a manner that assures the public that we are faithful stewards of the public trust. City Officials have a responsibility to the citizens to administer and enforce the City Charter and City Ordinances in an ethical manner. To ensure and enhance public confidence in our municipal government, each City Official must strive not only to maintain technical compliance with the principles of conduct set forth in this Article, but to aspire daily to carry out their duties objectively, fairly, and lawfully. Furthermore, this Article was enacted to ensure that decision makers provide responsible stewardship of City resources and assets.

It is not the purpose of this Article to provide a mechanism to defame, harass or abuse their political opponents, or publicize personal grudges. Rather, this Article is intended to provide a framework within which to encourage ethical behavior, and enforce basic standards of conduct while providing due process that protects the rights of the Complainant and the Respondent.

Sec. 2-267. Prospective

This Article shall apply prospectively, and shall not sustain any Complaints based on acts or omissions alleged to have taken place prior to May 15, 2018.

Sec. 2-268. Applicability

This Article applies to the following persons:

(a) City Officials;

(b) Former City Officials whose separation from city service occurred less than one (1) year from the date of the alleged violation of this Article. Application of this Article to Former City Officials shall be limited to alleged violations:

(1) that occurred during the term as a City Official;
(2) of the prohibition on representing others for compensation (§2-273(d)(2)); or
(3) of the prohibition of subsequent work on prior projects (§2-273(h));

(c) Vendors; and

(d) Complainant(s), who must comply with this Article's procedures and the prohibition on Frivolous Complaints.

Sec. 2-269. Definitions

The following words, terms, and phrases, when used in this Article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Accepted Complaint: a sworn allegation of a violation of this Article after the required documentation has been submitted to the City Auditor and determined to be administratively complete.

Actionable Complaint: an Accepted Complaint that has been deemed by a Panel to contain allegations and evidence that, if accepted as true, would support a finding that a violation of this Article occurred.

Advisory Opinions: written rulings regarding the application of this Article to a particular situation or behavior.

Article: this Chapter 2, Article XI of the Code of Ordinances for the City of Denton.

Baseless Complaint: a Complaint that does not allege conduct that would constitute a violation of this Article, or that does not provide evidence that, if true, would support a violation of this Article.

Board of Ethics: the oversight entity established by the Council to administer this Article.

Business Entity: a sole proprietorship, partnership, firm, corporation, holding company, joint-stock company, receivership, trust, political subdivision, government agency, university, or any other entity recognized by law.

Candidate: a person who has filed an application for a place on a ballot seeking public office, or one who has publicly announced the intention to do so.

Charged: to be charged with a violation of this Article is to have an Accepted Complaint deemed Actionable.

City: the City of Denton in the County of Denton and State of Texas.

City Auditor: the person appointed to serve in the capacity provided for by Section 6.04 of the City Charter, or their designee and clerical staff acting in the City Auditor's absence.

City Official: for purposes of this Article, the term consists of the Council Members, Department Heads, or member of the Board of Ethics, Planning and Zoning Commission Members, Board of Adjustment, Historic Landmark Commission, or Public Utilities Board.

City Secretary: the person appointed to serve in the capacity provided for by Section 2.12 of the City Charter, or their designee and clerical staff acting in the City Secretary's absence.

Code: the Code of Ordinances of the City of Denton, Texas, as such Code may be amended from time to time.

Complainant: the human individual who submitted a Complaint to the City.

Complaint: written documentation submitted to the City accusing a City Official of violating this Article.

Confidential Information: any written information that could or must be excepted from disclosure pursuant to the Texas Public Information Act, if such disclosure has not been authorized; or any non-written information which, if it were written, could be excepted from disclosure under that Act, unless disclosure has been authorized by the City Council or City Manager.

Council: the governing body of the City of Denton, Texas, including the Mayor and City Council Members.

Customer or Client: any person or entity to which a person or entity has supplied goods or services during the previous twenty-four (24) months or any person or entity to which a City Official's outside employer or business has supplied goods or services during the previous twenty-four (24) months, but only if the City Official knows or has reason to know.

Deliberations: discussions at the dais; voting as a Member of the Board or Commission; or presentations as a member of the audience before any City Board or Commission; conversing or corresponding with other City Officials or Staff. This term does not apply to a general vote on a broad, comprehensive, or omnibus motion, such as approval of the City budget or polling places.

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Department Heads: the employees appointed by the City Council, those being the City Manager, City Auditor, City Attorney, and Municipal Court Judge.

Domestic Partner: An adult, unrelated by blood, with whom an unmarried or separated City Official has an exclusive committed relationship, maintains a mutual residence, and shares basic living expenses.

Financial Benefit: Any money, service, license, permit, contract, authorization, loan, discount, travel, entertainment, hospitality, gratuity, or any promise of any of these, or anything else of value. This term does not include campaign contributions authorized by law. A "financial interest" is a relationship to something such that a direct or indirect financial benefit has been, will be, or might be received as a result of it.

Former City Official: a City Official whose separation from city service occurred less than one (1) year from the date of an alleged violation of this Article.

Frivolous Complaint: a sworn Complaint that is groundless and brought in bad faith, or groundless and brought for the purpose of harassment.

Household: Anyone whose primary residence is in the City Official's home, including non-relatives who are not rent-payers or servants.

Interfere: a person interferes with a process or activity pertaining to this Article when they intentionally and wrongfully take part in, or prevent, a City process or activity from continuing or being carried out properly or lawfully.

Ministerial Act: An Action performed in a prescribed manner without the exercise of judgment or discretion as to the propriety of the act.

Outside Employer or Business: Any substantial business activity other than services to the City; any entity, other than the City, of which the City Official is a member, official, director, or employee, and from which they receive compensation for services rendered or goods sold or produced; any entity located in the City or which does business with the City, in which the City Official has an ownership interest, except a public corporation in which the City Official's ownership interest is the lesser of 1) stock valued at less than fifty-thousand dollars ($50,000) or 2) five percent of the outstanding stock; and entity to which the City Official owes, or by which the City Official is owed, more than ten-thousand dollars ($10,000), either in the form of a note, a bond, a loan, or any other financial instrument. For this definition, "compensation" does not include reimbursement for necessary expenses, including travel expenses.

Panel: an *ad hoc* subcommittee of the Board of Ethics consisting of three (3) members assigned by the Chairperson or designated by the City Auditor (as applicable) on a rotating basis,

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~~*Pending Matter:* an application seeking approval of a permit or other form of authorization required by the City, State, or Federal law; a proposal to enter into a contract or arrangement with the City for the provision of goods, services, real property, or other things of value; a case involving the City that is (or is anticipated to be) before a civil, criminal, or administrative tribunal.~~

Person: associations, corporations, firms, partnerships, bodies politic, and corporate, as well as individuals.

Personal Benefit: Benefits other than those that are directly financially advantageous. These include Financial Benefits to Relatives, business associates, and others listed in Sec. 2-273 (A)(1), as well as non-financial benefits to these people and to oneself, including such things as reputation and the success of one's career. A "personal interest" means a relationship to something such that a personal benefit has been, will be, or might be obtained by certain action or inaction with respect to it.

Recklessly: a person acts recklessly when they are aware of but consciously disregard a substantial and unjustifiable risk that a certain result is probable from either their conduct, or in light of the circumstances surrounding their conduct. The risk must be of such a nature and degree that to disregard it constitutes a gross deviation from the standard of care that an ordinary person would exercise under the circumstances.

Relative: ~~a family member related to a City Official within the third (3rd) degree of affinity (marriage) or consanguinity (blood or adoption) in accordance with Texas Government Code, Title 5, Subtitle B, Chapter 573.~~ A spouse, child, step-child, sibling, parent, step-parent, or a person claimed as a dependent on the City Official's latest individual state income tax return.

Respondent: a City Official who has been charged in a Complaint with having violated this Article.

Shall: a mandatory obligation, not a permissive choice.

Special Counsel: an independent, outside attorney engaged by the City to advise the City as an organization and/or the Board of Ethics.

Vendor: a person who provides or seeks to provide goods, services, and/or real property to the City in exchange for compensation. This definition does not include those property owners from whom the City acquires public right-of-way or other real property interests for public use.

Sec. 2-270. Cumulative & Non-Exclusive

This Article is cumulative of and supplemental to all applicable provisions of the City Charter, other City Ordinances, and State/Federal laws and regulations. Compliance with this Article does not excuse or relieve any person from any obligation imposed by any other Rule. Attempts to enforce this Article shall not be construed as foreclosing or precluding other enforcement options provided by other law.

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DIVISION 2. RULES OF CONDUCT

Sec. 2-271. Expectations

The following list conveys the City Council's expectations for City Officials. These expectations are aspirational, and shall not serve as the basis for a Complaint.

(a) City Officials are expected to conduct themselves in a manner that fosters public trust.

(b) City Officials are charged with performing their public duties in a way that projects a high level of personal integrity and upholds the integrity of the organization.

(c) City Officials must avoid behavior that calls their motives into question and erodes public confidence.

(d) City Officials shall place the municipality's interests and the concerns of those the City serves above private, personal interests.

(e) Those who serve the City are expected to value honesty, trustworthiness, diligence, objectivity, fairness, due process, efficiency, and prudence as values the City professes.

(f) City Officials must balance transparency with the duty to protect personal privacy and preserve the confidential information with which the City has been entrusted.

(g) It is neither expected nor required that those subject to this Article relinquish or waive their individual rights.

Sec. 2-272. Mandates

(a) **Duty to Report.** City Officials shall report any conduct that the person knows to be a violation of this Article. Failure to report a violation of this Article is a violation of this Article. For purposes of this section, submittal of a Complaint or a report made to the Fraud, Waste, or Abuse hotline shall be considered to be a report under this Section. A report to the hotline may remain anonymous unless disclosed by the caller.

(b) **Financial Disclosures.** All Candidates for City Council, including Candidates for Mayor, shall file financial information reports as required by, and in accordance with, State law. All prospective Vendors and City Officials shall file disclosure forms as required by, and in accordance with, State law.

~~(c) **Business Disclosures.** When a Pending Matter is before the City Official, and the City Official has knowledge of being a partner with one of the owners of the Business Interest with the Pending Matter, all City Officials shall file with the City Auditor a report listing the known names of human individuals with whom the City Official or the City Official's spouse is named partner in the following types of businesses: General Partnership, Limited Partnership, Limited Liability Partnership, or Limited Liability Corporation, or Professional Corporation. Annual reports shall be submitted within ninety (90) days of taking office. Failure to submit a report shall not serve as a basis for a Complaint unless the City Official fails to submit a report within thirty (30) days of being provided written~~

~~notification of the omission. Neither the existence of a business relationship as described in this Section, nor the submission of a report required by this Section shall prevent a City Official from participating in Deliberations on matters pending before the City absent a Conflicting Interest.~~

~~(d) **Disclosure Process.** Disclosures mandated by this section shall be filed with the City Auditor and City Secretary at least one business day prior to deliberation of the Pending Matter. Disclosures received shall be distributed by City staff to the relevant body prior to the Pending Matter being deliberated.~~

Sec. 2-273. Prohibitions

(a) **Conflicts of Interest:**

(1) A City Official may not use their official position or office, or take or fail to take any action, or influence others to take or fail to take any action, in a manner which they know, or has reason to believe may result in a Personal Benefit or Financial Benefit, not shared with a substantial segment of the City's population, for any of the following persons or entities (no group of government employees may be considered "a substantial segment" for the purposes of this provision):

a. The City Official;

b. A member of the City Official's household, including a Domestic Partner and their dependents, or the employer or business of any of these people;

c. A sibling or step-sibling, step-child or foster child, parent or step-parent, niece or nephew, uncle or aunt, or grandparent or grandchild of either the City Official or of their spouse or Domestic Partner, or the employer or business of any of these people;

d. A person with which the City Official has a financial or business relationship, including but not limited to:

i. An Outside Employer or Business of the City Official's, or of their spouse or Domestic Partner, or someone who works for such outside employer of business;

ii. A substantial Client or Customer;

iii. A substantial debtor or creditor of the City Official or of their spouse or Domestic Partner;

iv. A person or entity from whom the City Official has received an election campaign contribution of more than two-hundred dollars ($200) in the aggregate during the last twenty-four (24) months (this amount includes

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contributions from a person's immediate family or business as well as contributions from an entity's owners, directors, or officers, as well as contributions to the City Official's party town committee or non-candidate political committee);

v. A person or business entity from which the City Official or their spouse or Domestic Partner has an offer of employment for which the application is still pending, has received an offer of employment that has not been rejected, or has accepted an offer of employment within the past twelve (12) months;

vi. A Business Entity, nongovernmental civic group, union, social, charitable, or religious organization of which they (or their spouse or domestic partner) is an officer or director.

These prohibitions apply equally to attempts to use, act, or influence.

(2) Whenever a City Official has reason to believe that they should withdraw from participation under Sec. 2-273 (A) (1) of this code, they must:

a. Immediately refrain from participating further in the matter, formally or informally;

b. Promptly inform the appropriate individual or body, pursuant to Subsection (4) below, that they have a conflict, and the nature of the conflict; and

c. Promptly file with the City Auditor a signed statement disclosing the reasons for withdrawal, or, if a member of a board or commission, state this information on the public record of the Board or Commission.

(3) Whenever someone suggests or requests (privately or publicly) that a City Official withdraw from participation under Sec. 2-273 (A) (1) of this code, and they choose not to do so, they must promptly file with the City Auditor a signed statement disclosing the reasons for refusing to withdraw or, if a member of a board or commission and if the suggestion was made publicly at a meeting of that board or commission, state this information upon the public record of that board or commission.

(4) A City Official is required to inform the appropriate individual or body pursuant to subsection (2) b. as follows:

a. If a member of a board, commission, committee, or authority, inform the chair or the entire body at a public or executive session (if at an executive session, the disclosure should also be made after going back into regular session); if the chair, inform the vice-chair;

b. If not on such a body and appointed by the City Council, inform the City Council;

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c. If an elected official, inform the mayor; if the mayor, inform the mayor pro tempore.

(5) A City Official with an interest in a contract must disclose this interest prior to the first of any of the following events of which the official has knowledge:

a. The preparation of the contract specifications;

b. The solicitation of the contract;

c. The bidding of a contract;

d. The negotiation of a contract;

e. The approval of a contract.

(6) The provisions of Sec. 2-273 of this Article do not require withdrawal or transaction disclosure as a result of:

a. An action specifically authorized by statute, rule, or regulation of the State of Texas or of the United States;

b. A ministerial act.

(7) A City Official need not make a disclosure pursuant to this section if they, with respect to the same matter, has already made such a disclosure.

~~(1) *Deliberation Prohibited.* It shall be a violation of this Code for a City Official to knowingly deliberate regarding a Pending Matter for which the City Official currently has a Conflicting Interest. City Officials with a current Conflicting Interest in a Pending Matter must recuse themselves and abstain from Deliberations. It is an exception to this recusal requirement if the City Official serves on the City Council, Planning and Zoning Commission, Board of Ethics, Historic Landmark Commission, Public Utilities Board, or Board of Adjustment; where a majority of the members of that body is composed of persons who are likewise required to file (and who do file) disclosures on the same Pending Matter.~~

~~(2) *Disclosure Required.* If a City Official has a Conflicting Interest in a Pending Matter, the City Official shall disclose the nature of the Conflicting Interest by filing a sworn statement with the City Auditor. Disclosures under this subsection shall be for the time period, including the previous calendar year, and up to date where the Conflicting Interest arises before the City Official.~~

~~(3) *Definition of Conflicting Interest.* For purposes of this Article, the term is defined as follows:~~

~~*Conflicting Interest:* a stake, share, equitable interest, or involvement in an undertaking in the form of any one (1) or more of the following:~~

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~~(A) ownership of five percent (5%) or more voting shares or stock in a Business Entity;~~

~~(B) receipt of more than six-hundred dollars ($600.00) in gross annual income from a Business Entity, as evidenced by a W-2, 1099, K-1, or similar tax form;~~

~~(C) ownership of more than six-hundred dollars ($600.00) of the fair market value of a Business Entity;~~

~~(D) ownership of an interest in real property with a fair market value of more than six-hundred dollars ($600.00);~~

~~(E) serves on the Board of Directors or as an Officer of a Business Entity, unless the City Official was appointed to that position by the City Council;~~

~~(F) serves on the Board of Directors (i.e., governing body) or as an Officer of a nonprofit corporation or an unincorporated association, unless the City Official was appointed to that position by the City Council; and/or~~

~~(G) direct or indirect solicitation of an offer of employment for which the application is still pending, receipt of an offer of employment that has not been rejected, or acceptance of an offer of employment from or to a person or Business Entity within the past twelve (12) months;~~

~~(H) A City Official is considered to have a Conflicting Interest if the City Official's Relative has a Conflicting Interest.~~

~~The term Conflicting Interest does not include ownership of an interest in a mutual or common investment fund that holds securities or assets unless the City Official participates in the management of the fund.~~

(b) **Gifts.**

(1) *General.* It shall be a violation of this Article for a City Official or a City Official's Relative to accept any Gift that might reasonably tend to influence such Officer in the discharge of official duties.

(2) *Specific.* It shall be a violation of this Article for a City Official to accept any Gift for which the fair market value is greater than fifty dollars ($50.00). It shall be a violation of this Article for a City Official to accept multiple Gifts for which the cumulative fair market value exceeds two hundred dollars ($200.00) in a single fiscal year. It shall be a violation of this Article for a Vendor to offer or give a Gift to a City Official or a City Official's Relative exceeding fifty dollars ($50.00) per Gift, or multiple Gifts cumulatively valued at more than two hundred dollars ($200.00) in a single fiscal year.

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(3) *Definition of Gift.* Anything of monetary value, including but not limited to cash, personal property, real property, services, meals, entertainment, and travel expenses, except those provided in 2-273(b)(3) below.

(4) *Exceptions.* For the purposes of this Article, the term Gift does not include any of the following:

(A) a lawful campaign contribution;

(B) meals, lodging, transportation, entertainment, and related travel expenses paid for (or reimbursed by) the City in connection with the City Official's attendance at a conference, seminar or similar event, or the coordinator of the event;

(C) meals, lodging, transportation, or entertainment furnished in connection with public events, appearances, or ceremonies related to official City business, nonprofit functions, or charity functions, or community events, if furnished by the sponsor of such events (who is in attendance);

(D) complimentary copies of trade publications and other related materials;

(E) attendance at hospitality functions at local, regional, state, or national association meetings and/or conferences;

(F) any gift that would have been offered or given to the City Official because of a personal, familial, professional relationship regardless of the City Official's capacity with the City;

(G) tee shirts, caps, and other similar promotional material; and

(H) complimentary attendance at political, nonprofit, or charitable fund raising events.

(5) *Donations.* It is not a violation under this Article for a City Official to accept a Gift prohibited by this Article on behalf of the City of Denton. Conveyance of a Gift prohibited by this Article to the City of Denton or a nonprofit corporation cures any potential violation.

(6) *Reimbursement.* It is not a violation under this Article for a City Official to accept a Gift prohibited by this Article and promptly reimburse the Person the actual cost or fair market value of the Gift.

(7) *Disclosure Required.* If a City Official chooses to accept a Gift, the City Official shall disclose the value of the Gift and the nature of the Gift's acceptance by filing an affidavit with the City Auditor.

(c) **Outside Employment.**

(1) *Applicability of Section.* This subsection applies to Department Heads.

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(2) *Prohibition.* It is a violation of this Article for a Department Head to solicit, accept, or engage in concurrent outside employment which could reasonably be expected to impair independence of judgment in, or faithful performance of, official duties.

(3) *Disclosure and Consent.* It is a violation of this Article for a Department Head to accept employment from any Person other than the City without first disclosing the prospective employment arrangement in writing to the Mayor and receiving the Mayor's written consent.

(d) **Representation of Others.**

(1) *Current City Officials.* It shall be a violation of this Article for a City Official to represent for compensation any person, group, or entity before a board or commission of the City. For purposes of this subsection, the term compensation means money or any other thing of value that is received, or is to be received, in return for or in connection with such representation.

(2) *Former City Officials.* It shall be a violation of this Article for a City Official to represent for compensation any person, group, or entity before the City Council or a board, commission, or staff of the City for a period of one (1) year after termination of official duties. This prohibition applies to representation in the form of advocacy or lobbying regarding discretionary approvals of the City, not routine, ministerial actions. For purposes of this subsection, the term compensation means money or any other thing of value that is received, or is to be received, in return for or in connection with such representation. The prohibition in this subsection solely applies to the Former City Official, and shall not be construed to apply to other affiliated Persons. This subsection does not apply to Former City Officials who represent others for compensation in the course of applying for non-discretionary, ministerial permits and routine approvals. It shall be an exception to this Article when the Former City Official is employed by or owns a small business which existed before the Former City Official commenced service as a City Official and is the sole source of specialized knowledge or expertise necessary within that small business, and that knowledge or expertise is necessary to transact business with the City.

(e) **Improper Influence.** It shall be a violation of this Article for a City Official to use such person's official title/position to:

(1) secure special privileges or benefits for such person or others;

(2) grant any special consideration, treatment, or advantage to any citizen, individual, business organization, or group beyond that which is normally available to every other citizen, individual, business organization, or group;

(3) assert the prestige of the official's or employee's City position for the purpose of advancing or harming private interests;

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(4) state or imply that the City Official is able to influence City action on any basis other than the merits; or

(5) state or imply to state or local governmental agencies that the City Official is acting as a representative of the City, as an organization, or as a representative of the City Council without first having been authorized by the City Council to make such representation (except the Mayor, City Manager, and City Attorney).

(f) **Misuse of Information.**

(1) *Personal Gain.* It shall be a violation of this Article for a former City Official to use any confidential information to which the City Official had access by virtue of their official capacity and which has not been made public concerning the property, operations, policies, or affairs of the City, to advance any personal or private financial interest of any Person.

(2) *Confidential Information.* It shall be a violation of this Article for a City Official to intentionally, knowingly, or recklessly disclose any confidential information gained by reason of the City Official's position concerning the property, operations, policies, or affairs of the City. This rule does not prohibit the reporting of illegal or unethical conduct to authorities designated by law.

(g) **Abuse of Resources.** It shall be a violation of this Article for a City Official to use, request, or permit the use of City facilities, personnel, equipment, software, supplies, or staff time for private purposes (including political purposes), except to the extent and according to the terms that those resources are generally available to other citizens and the City Officials for official City purposes.

(h) **Abuse of Position.** It shall be a violation of this Article for any City Official to engage in the following:

(1) *Harassment & Discrimination.* Use the Official's position to harass or discriminate against any person based upon ethnicity, race, gender, gender identity, sexual orientation, marital status, parental status, or religion.

(2) *Interference.* Interfere with any criminal or administrative investigation alleging the violation of any provision of this Article, the City Charter, administrative policy, or executive order in any manner, including but not limited to seeking to persuade or coerce City employees or others to withhold their cooperation in such investigation is a violation of this Article.

(i) **Subsequent Work on Prior Projects.** It shall be a violation of this Article for any former City Official, within one (1) year of the cessation of official duties for the City, to perform work on a compensated basis relating to a City contract or arrangement for the provision of goods, services, real property, or other things of value, if while in City service the former City Official personally and substantially participated in the negotiation, award or administration of the contract or other arrangement. This Section does not apply to a City Official whose involvement with a contract or arrangement was limited to Deliberations

as a member of the City Council, Planning and Zoning Commission, Board of Adjustment, Historic Landmark Commission, or Public Utilities Board.

DIVISION 3. IMPLEMENTATION

Sec. 2-274. Staffing

(a) **City Auditor.** The City Auditor's Office shall be responsible to provide staff and clerical support to the Board of Ethics to assist in the implementation and enforcement of this Article. The degree of support required shall be at the discretion of the City Auditor. Nothing herein creates a duty for the City Auditor to enforce this Article. Furthermore, this Article shall not be construed as requiring the City Auditor to investigate allegations of violations of this Article submitted via the Fraud, Waste, or Abuse hotline.

(b) **Conflicts Log.** The City Auditor's Office shall, in cooperation with the City Secretary's Office, maintain a Conflicts Log on an ongoing basis listing the Conflicting Interests disclosed by City Officials in accordance with this Article. The log is a public record. The City Auditor is neither authorized nor required to inspect or act upon the content of the Conflicts Log.

(c) **City Manager.** If a Complaint accuses the City Auditor of violating this Article, the duties of the City Auditor under this Article shall be performed by the City Manager for purposes of processing that Complaint.

Sec. 2-275. Legal Counsel

(a) **City Attorney.** The City Attorney shall provide legal support to the City Auditor and the Board of Ethics in the administration of this Article. Nothing herein shall be construed to limit the authority of the City Attorney to render legal guidance in accordance with the City Attorney's professional obligations and standards.

(b) **Special Counsel.** Independent, outside legal services shall be engaged by the City Attorney on the City's behalf to provide legal support to the City Auditor and the Board of Ethics when:

(1) in the City Attorney's discretion it is necessary in order to comply with the Texas Disciplinary Rules of Professional Conduct (for lawyers), or is in the best interest of the City;

(2) when the City Council deems Special Counsel is necessary; or

(3) when action is being taken by the Board of Ethics regarding any council member.

Sec. 2-276. Training

(a) **Curriculum.** The City Auditor shall approve a training program that provides an introduction and overview of the expectation, mandates, and prohibitions provided for by this Article.

(b) **Orientation.** City Officials shall complete a training session regarding this Article within ninety (90) days of commencing their official duties.

(c) **Annual.** City Officials shall complete an annual training session regarding this Article.

(d) **Exiting Officials.** Information shall be provided to City Officials terminating their City service regarding the continuing restrictions on the representation of others by certain former City Officials.

Sec. 2-277. Board of Ethics

(a) **Creation.** There is hereby created a Board of Ethics for the City of Denton.

(b) **Appointment.** The Board of Ethics shall be appointed by majority vote of the City Council.

(c) **Number.** The Board of Ethics shall consist of seven (7) regular members.

(d) **Terms.** Board of Ethics members shall be appointed for two (2) year, staggered terms. Members may be reappointed for successive terms. Appointment to fill a vacancy shall be for the remainder of the unexpired term. Members of the inaugural Board of Ethics shall draw straws to determine which three (3) members shall receive an initial term of one (1) year in order to stagger terms. In total, members may only serve three (3) consecutive terms. A member may be reappointed no sooner than one (1) year after expiration of a previous term.

(e) **Eligibility.** Membership on the Board of Ethics is limited to residents of the City of Denton.

(f) **Ineligibility.** The following shall disqualify a person from serving on the Board of Ethics:

(1) current service as a City Official;

(2) separation from city service as a City Official within two (2) years of the appointment;

(3) familial relations to a City Official within the third (3rd) degree of affinity (marriage) or consanguinity (blood or adoption);

(4) current service as an elected official in Denton County; and / or

(5) conviction of a felony or crime of moral turpitude.

(g) **Scope of Authority.** The Board of Ethic's jurisdiction shall be limited to implementation and enforcement of this Article, and shall include the authority to administer oaths and affirmations, issue and enforce limited subpoenas to compel the attendance of witnesses and the production of testimony, evidence, and/or documents as is reasonably relevant to the Actionable Complaint, as provided by the City Charter. The issuance and enforcement of subpoenas shall be only upon a majority vote of the Board of Ethics, in accordance with the Rules of Procedure, and enforcement shall be through any of the Sanction options listed herein.

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(h) **Amendments.** The Board of Ethics may recommend amendments to this Article. A recommendation from the Board of Ethics is not required for the City Council to exercise its discretion in amending this Article.

(i) **Officers.** At the first meeting of each fiscal year the Board of Ethics shall select from among its members a Chairperson and Vice-Chairperson.

(j) **Rules of Procedure:** The Board of Ethics shall adopt rules of procedure governing how to conduct meetings and hearings. Such procedural rules are subject to confirmation or modification by the City Council.

(k) **Removal:** The City Council may, by a vote of two-thirds (2/3), remove a member of the Board of Ethics for cause. Justifications warranting removal for cause shall include neglect of duty, incompetence, gross ignorance, inability or unfitness for duty, or disregard of the Code of Ordinances.

Sec. 2-278. Advisory Opinions

(a) **Requests.** Any City Official may request an Advisory Opinion on a question of compliance with this Article. Requests shall be submitted in writing to the City Auditor, who shall assign the request to a Panel or Special Counsel.

(b) **Issuance.** A Panel of the Board of Ethics shall issue Advisory Opinions upon request. Advisory Opinions shall be issued within thirty (30) days of receipt of the request. This time limitation is tolled and shall not run until the Board of Ethics is empaneled and its Rules of Procedure are confirmed by the City Council.

(c) **Reliance.** It shall be an affirmative defense to a Complaint that the Respondent relied upon an Advisory Opinion. In making a determination on the proper disposition of a Complaint, the Board of Ethics may dismiss the Complaint if the Board finds that:

(1) the Respondent reasonably relied in good faith upon an Advisory Opinion;

(2) the request for an Advisory Opinion fairly and accurately disclosed the relevant facts; and

(3) less than five (5) years elapsed between the date the Advisory Opinion was issued and the date of the conduct in question.

Sec. 2-279. Complaints

(a) **Complainants.** Any person who has first-hand knowledge that there has been a violation of Sections 2-272 and/or 2-273 of this Article may allege such violations by submitting a Complaint. The persons who may submit Complaints includes (but is not limited to) members of the Board of Ethics.

(b) **Form.** Complaints shall be written on, or accompanied by, a completed form promulgated by the City Auditor.

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(c) **Contents.** A Complaint filed under this section must be in writing, under oath, must set forth in simple, concise, direct statements, and state:

(1) the name of the Complainant;

(2) the street or mailing address, email address, and the telephone number of the Complainant;

(3) the name of each person Respondent of violating this Article;

(4) the position or title of each person Respondent of violating this Article;

(5) the nature of the alleged violation, including the specific provision of this Article alleged to have been violated;

(6) a statement of the facts constituting the alleged violation and the dates on which, or period of time in which, the alleged violation occurred; and

(7) all documents or other material available to the Complainant that are relevant to the allegation.

(d) **Violation Alleged.** The Complaint must state on its face an allegation that, if true, constitutes a violation of this Article.

(e) **Affidavit.** A Complaint must be accompanied by an affidavit stating that the Complaint is true and correct or that the Complainant has good reason to believe and does believe that the facts alleged constitute a violation of this Article. The Complainant shall swear to the facts by oath before a Notary Public or other person authorized by law to administer oaths under penalty of perjury.

(f) **Limitations Period.** To be accepted, a Complaint must be brought within six (6) months of the Complainant becoming aware of the act or omission that constitutes a violation of this Article. A Complaint will not be accepted more than two (2) years after the date of the act or omission. Notwithstanding the foregoing, nothing in this subsection shall be construed to extend the one (1) year limitation of activity applicable to Former City Officials. The time for filing a Complaint regarding an alleged violation of this Article where the alleged violation occurred after the Effective Date but before the Board of Ethics is empaneled shall be tolled and not begin to run until such time as the Board of Ethics is empaneled and its Rules of Procedure are confirmed by the City Council.

(g) **Filing.** Complaints shall be submitted to the City Auditor. Submission of Complaints may be made by hand delivery, U.S. Mail, or email directed to an email address publicly listed by the City Auditor.

(h) **Acceptance of Complaint.** Within five (5) business days of receiving a Complaint, the City Auditor shall determine if it is administratively complete and timely.

(1) *Administratively Complete.* A Complaint is administratively complete if it contains the information described above. If the Complaint is administratively complete, the City Auditor shall proceed as described in this Article. If the

Complaint is incomplete, the City Auditor shall send a written deficiency notice to the Complainant identifying the required information that was not submitted.

The Complainant shall have ten (10) business days after the date the City Auditor sends a deficiency notice to the Complainant to provide the required information to the City Auditor, or the Complaint is automatically deemed abandoned and may not be processed in accordance with this Article. Within five (5) business days of a Complaint being abandoned, the City Auditor shall send written notification to the Complainant and the Respondent.

(2) *Timely*. To be timely, a Complaint must be brought within six (6) months of the Complainant becoming aware of the act or omission that constitutes a violation of this Article. A Complaint will not be accepted more than two (2) years after the date of the act or omission.

(i) **Notification of Acceptance.** Within five (5) business days of determining that a Complaint is administratively complete and timely, the City Auditor shall send a written notification of acceptance and a copy of the complaint to the Complainant, the Respondent, and the City Attorney.

For purposes of this provision, a Complaint shall be considered Accepted when the City Auditor has deemed the submittal administratively complete and timely.

(j) **Confidentiality.** A Complaint that has been submitted to the City is hereby deemed confidential until such time as the Complaint is either dismissed or placed on an agenda for consideration by the Board of Ethics in accordance with this Article. Clerical and administrative steps shall be taken to identify and manage confidential information in accordance with this Article. The confidentiality created by this Article includes the fact that a Complaint was submitted and the contents of that Complaint. It shall be a violation of this Article for a City Official to publicly disclose information relating to the filing or processing of a Complaint, except as required for the performance of official duties or as required by law. Requests for records pertaining to Complaints shall be responded to in compliance with the State law. The limited confidentiality created by this Article is limited in scope and application by the mandates of the Texas Public Information Act, Chapter 552 of the Texas Government Code.

(k) **Ex Parte Communications.** After a Complaint has been filed and during the pendency of a Complaint before the Board of Ethics, it shall be a violation of this Article:

(1) for the Complainant, the Respondent, or any person acting on their behalf, to engage or attempt to engage directly or indirectly about the subject matter or merits of a Complaint in *ex parte* communication with a member of the Board of Ethics or any known witness to the Complaint; or

(2) for a Member of the Board of Ethics, to knowingly allow an *ex parte* communication about the subject matter or merits of a Complaint, or to communicate about any issue of fact or law relating to the Complaint directly or indirectly with any person other than a Member of the Board of Ethics, the City Auditor's office, the City Attorney's office, or Special Counsel.

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(l) **Retaliation Prohibited.** After a Complaint has been filed, and during or after the pendency before the Board of Ethics, it shall be a violation of this Article:

(1) For a City Official, Former City Official, or Vendor to directly or indirectly discriminate against, harass, threaten, harm, damage, penalize, or otherwise retaliate against any person who:

(A) Files a complaint regarding an alleged violation of this Article, or

(B) Testifies, assists, or participates in any manner in a proceeding or hearing under this Article.

(2) The outcome of the original ethics complaint shall not be deemed relevant to the complaint of retaliation itself.

Sec. 2-280. Preliminary Assessment

(a) **Referral to Chairperson.** Accepted Complaint(s) shall be referred to the Chairperson of the Board of Ethics within five (5) business days of being determined administratively complete.

(b) **Assignment of Panel.** Within five (5) business days of receiving an Accepted Complaint, the Chairperson of the Board of Ethics shall assign the Complaint to a Panel for Preliminary Assessment. Board members who have previously submitted an Ethics Complaint against the Respondent in a Preliminary Assessment shall not be assigned to the Panel unless a majority of the Board members have previously submitted an Ethics Complaint against the Respondent. The Chairperson shall order a meeting of the Panel, which shall be conducted in compliance with the Texas Open Meetings Act. Each Panel shall select a Presiding Officer to conduct Panel deliberations.

(c) **Panel Determination.** Within ten (10) business days of being assigned an Accepted Complaint, the Panel shall review the Complaint on its face and determine whether the Complaint is:

(1) *Actionable:* the allegations and evidence contained in the Complaint, if true, would constitute a violation of this Article.

(2) *Baseless:* the allegations and evidence contained in the Complaint, if true, would not constitute a violation of this Article.

Actionable Complaints shall be returned to the Chairperson for listing on an agenda for a public hearing to be held within thirty (30) calendar days of a Panel's Actionable determination. Baseless Complaints shall be dismissed. Written notification of the Panel's determination shall be filed with the City Auditor and sent to the Chairperson, the Complainant, the Respondent, and the City Attorney within two (2) business days. Written notifications of dismissal shall include notice of the right to appeal.

(d) **Recommendation to Determine Frivolity.** Before filing notification of its determination, the Panel may consider recommending a hearing first be held to determine

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if an Accepted Complaint is frivolous. Written notification of the Panel's recommendation to hold a hearing to determine frivolity shall be filed with the City Auditor and sent to the Chairperson, the Complainant, the Respondent, and the City Attorney within two (2) business days. Hearings to determine frivolity shall be held within thirty (30) calendar days of a Panel's recommendation.

(e) **Appeals.** A Panel's preliminary assessment under this Section 2-280 may be appealed to the Board of Ethics by either the Complainant or the Respondent, as applicable. An appeal shall be perfected by filing a written notice of appeal with the City Auditor within ten (10) business days of the date of the written notification.

Sec. 2-281. Meetings

(a) **Calling Meetings.** Meetings of the Board of Ethics shall be called upon request of the Chairperson, three (3) members, or the City Auditor.

(b) **Quorum.** The quorum necessary to conduct meetings of the Board of Ethics shall be four (4). The Chairperson (or acting chairperson) shall count toward the establishment of a quorum and retains the right to vote.

(c) **Hearings:**

(1) *Scheduling:* Hearings shall be scheduled by the City Auditor upon the filing of:

(A) a Panel determination that a Complaint is Actionable;

(B) an Appeal challenging a Panel's dismissal of a Complaint as Baseless; or

(C) a Panel recommendation that a hearing be held to determine if an Accepted Complaint is Frivolous.

(2) *Purpose:* The purpose of the hearing(s) shall be solely to determine whether:

(A) a violation of this Article occurred, and if so to assess the appropriate sanction;

(B) an Accepted Complaint was erroneously dismissed as Baseless by a Panel; and/ or

(C) an Accepted Complaint is Frivolous.

(3) *Sworn Testimony:* All witness testimony provided to the Board of Ethics shall be under oath.

~~(4) *Burden of Proof:* Because the burden of showing that a violation of this Article occurred is placed on the Complainant, it is the Complainant that has the obligation to put forth evidence, including testimony, supporting the Complaint. The Complainant is required to testify at the hearing unless it is held to determine if an Accepted Complaint is frivolous. A Complainant's failure to testify at a hearing,~~

~~other than a hearing to determine frivolity, shall be grounds for dismissal of a Complaint.~~

~~(5)~~(4) *Representation:* The Respondent shall have a right to present a defense. Both the Complainant and the Respondent have a right to be represented by legal counsel or another representative.

(d) **Open Meetings.** All meetings and hearings of the Board of Ethics, including Panel deliberations, shall be conducted pursuant to the Texas Open Meetings Act. The Board of Ethics may convene in Executive Session (i.e., conduct a closed meeting) as allowed by the Act. All final actions of the Board of Ethics shall take place in open session.

(e) **Postponement in Certain Instances.**

(1) *Board:* Proceedings may be postponed upon majority vote by the members of the Board of Ethics.

(2) *Parties:* The Complainant and the Respondent are each entitled to one (1) postponement without cause. Additional postponements shall be solely for good cause and at the discretion of the Board of Ethics.

(3) *Criminal Proceedings:* If a Complaint alleges facts that are involved in a criminal investigation or a criminal proceeding before a grand jury or the courts, the Board of Ethics may, when a majority of its members deem appropriate, postpone any hearing or any appeal concerning the Complaint until after the criminal investigation or criminal proceedings are terminated.

Sec. 2-282. Disposition

(a) **Dismissal.** If the Board of Ethics determines at the conclusion of a hearing by simple majority vote of its members that a Complaint should be dismissed, it may do so upon finding:

(1) the Complaint is Baseless;

(2) the alleged violation did not occur;

(3) the Respondent reasonably relied in good faith upon an Advisory Opinion, as provided in this Article; or

(4) the Complainant failed to testify at the hearing.

(b) **Sanctions.** If the Board of Ethics determines by simple majority vote of those present and voting at the conclusion of a hearing that a violation has occurred, it may within ten (10) business days impose or recommend any of the following sanctions:

(1) *Letter of Notification.* If the violation is clearly unintentional, or when the Accuser's action was made in reliance on a written Advisory opinion, a letter of notification shall advise the Respondent of any steps to be taken to avoid future violations.

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(2) *Letter of Admonition*. If the Board of Ethics finds that the violation is minor and may have been unintentional, but calls for a more substantial response than a letter of notification.

(3) *Letter of Reprimand*. If the Board of Ethics finds that the violation:

(A) was minor and was committed knowingly, intentionally, or in disregard of this Article; or

(B) was serious and may have been unintentional.

(4) *Recommendation of Suspension.* If the Board of Ethics finds that a violation was committed by a member of the Planning & Zoning Commission, Zoning Board of Adjustment, Board of Ethics, Public Utilities Board, Historic Landmark Commission, or a Department Head, and it:

(A) was serious and was committed knowingly, intentionally, or in disregard of this Article or a state conflict of interest law; or

(B) was minor but similar to a previous violation by the Person, and was committed knowingly, intentionally or in disregard of this Article.

The final authority to impose a suspension rests with the City Council.

(5) *Ineligibility*. If the Board of Ethics finds that a Vendor has violated this Article, the Board may recommend to the City Manager that the Vendor be deemed ineligible to enter into a City contract or other arrangement for goods, services, or real property, for a period of one (1) year.

Notice of all sanctions imposed by the Board of Ethics shall be transmitted to the Respondent, Complainant, City Auditor, City Attorney, and City Council.

(c) **Frivolous.**

(1) *Prohibition.* It is a violation of this Article for a Person to submit a Frivolous Complaint.

(2) *Hearing.* A hearing shall be scheduled on frivolity if the Preliminary Panel recommends an Accepted Complaint first be considered for frivolity. The Complainant is not required to testify at a hearing to determine if their submitted Complaint is frivolous.

(3) *Super-Majority Vote.* If the Board of Ethics determines at the conclusion of a hearing by a vote of two-thirds (2/3) of its Members that a Complaint was Frivolous, the Board may impose a sanction as provided by Section 2-282(b).

Upon finding that a Complaint is Frivolous, the Complaint is dismissed.

(4) *Factors.* In making a determination on frivolity, the Board of Ethics shall consider the following factors:

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(A) the timing of the sworn Complaint with respect to when the facts supporting the alleged violation became known or should have become known to the Complainant, and with respect to the date of any pending election in which the Respondent is a Candidate or is involved with a candidacy, if any;

(B) the nature and type of any publicity surrounding the filing of the sworn Complaint, and the degree of participation by the Complainant in publicizing the fact that a Complaint was filed;

(C) the existence and nature of any relationship between the Respondent and the Complainant before the Complaint was filed;

(D) if the Respondent is a Candidate for Election to Office, the existence and nature of any relationship between the Complainant and any Candidate or group opposing the Respondent;

(E) any evidence that the Complainant knew or reasonably should have known that the allegations in the Complaint were groundless; and

(F) any evidence of the Complainant's motives in filing the Complaint.

(5) *External Remedies.* Complainants who submit Frivolous Complaints are hereby notified that their actions may subject them to criminal prosecution for perjury (criminal prosecution), or civil liability for the torts of defamation or abuse of process.

Sec. 2-283. Reconsideration

The Complainant or Respondent may request the Board of Ethics to reconsider its decision. The request must be filed with the City Auditor within five (5) business days of receiving the final opinion of the Board of Ethics. The request for reconsideration shall be sent to the Chairperson of the Board of Ethics and the non-filing party (Complainant or Respondent). If the Chairperson finds, in the Chairperson's sole discretion, that the request includes new evidence that was not submitted at a prior hearing, and that the new evidence bears directly on the Board of Ethic's previous determination, the Chairperson shall schedule a hearing on the request for reconsideration to occur within thirty (30) business days after filing with the City Auditor. Absent new evidence, the Chairperson shall unilaterally dismiss the request for reconsideration and provide notice to the Parties.

Sec. 2-284. Nepotism

(a) **City Council.** No Person shall be employed by the City who is a relative of any member of the City Council within the third (3rd) degree of affinity or consanguinity.

(b) **Preexisting Employment.** The prohibitions of this Section do not apply to a Person who was employed by the City more than six (6) months prior.

Sec. 2-285. General Procedural Matters

(a) **Deadlines.** Any deadline provided in this Article shall be construed as expiring at 5:00 p.m. local time on the last day.

(b) **Mailbox Rule.** Under this Article, a deadline for any response or request for appeal is met when the date the response or request for appeal is mailed falls within the timeline requirements of this Article. The posted date of any mailing will control whether it meets the timeline requirements of this Article.

Sec. 2-286. Lobbyists [*reserved*]

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Rules of Procedure for Conducting Meetings & Hearings

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City of Denton, Texas
Board of Ethics

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CITY OF DENTON
BOARD OF ETHICS

RULES OF PROCEDURE FOR
MEETINGS & HEARINGS

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A. GENERAL

1. CONFIDENTIALITY

The City of Denton shall strive to maintain a level of confidentiality during the preliminary phases of processing Complaints in order to avoid unduly tarnishing of peoples' reputations while striving to provide due process. Confidentiality shall be limited by law, including the Texas Public Information Act.

Under the Code of Ethics, a Complaint submitted to the City is confidential until it is either dismissed or placed on an agenda subject to Code of Ethics Section 2-279(i).

The Board of Ethics shall maintain the confidentiality of any document it receives that is categorized as being subject to common law privacy as defined by Section 552.101 of the Texas Government Code; trade secrets, audit working papers, certain commercial or financial information as defined by Section 552.110 of the Texas Government Code; confidentiality of certain private communications of elected officers as defined by Section 552.109 of the Texas Government Code; and all other information considered confidential and protected under the Texas Public Information Act or other law, as applies to Section 552.022 of the Government Code.

Code of Ethics §2-279(j),(i).

2. EX PARTE

The Complainant and the Respondent are prohibited by the Code of Ethics from communicating (directly or indirectly) about the subject matter or merits of the Complaint, or any issue of law or fact about a Complaint, with the Board, any of its members, or witnesses identified in the Complaint (or filed supplements). Similarly, the Board is prohibited from communicating about the subject matter or merits of a Complaint, or any issue of law or fact about a Complaint with the parties or other persons (except for members of the Board, the City Auditor's Office, City Attorney's Office, or Special Counsel).

3. AMENDMENTS

The Board of Ethics may recommend amendments to City of Denton Code of Ordinances, Chapter 2, Article XI, or to its own Rules of Procedure to the City Council by a simple majority vote.

Code of Ethics §2-279(k).

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B. MEETINGS

1. **Calling Meetings.** Board meetings shall be called by the Chairperson, or upon request of three (3) board members, or the City Auditor, at least annually.

2. **Call to Order.** The Chairperson shall call the hearing to order, announce the time the hearing is called to order, and state whether a quorum of the board is present. The quorum is four (4) board members, which can include the Chairperson.

3. **Open Meetings.** Board meetings shall be conducted in compliance with the Texas Open Meetings Act.

4. **Participation.** Public comment may be provided at regular meetings of the Board of Ethics on any matter of concern to the Board of Ethics during the public comment period designated on the meeting agenda. Up to five (5) speakers are permitted to provide public comment at each meeting, and each speaker shall speak for no more than three (3) minutes. Additionally, during a regular meeting of the Board of Ethics, any citizen or interested person may comment on a specific item posted on the agenda for final action. Each speaker on a specific agenda item shall speak for no more than three (3) minutes per item. Individuals may sign up to provide public comment or to comment on a specific agenda item by filling out the sign-up sheet at the location of the meeting immediately before the meeting begins.

5. **Adjournment.** Meetings of the Board may be adjourned by the Chairperson's initiative or upon vote of a majority of the members.

6. **Alternate Members.** Alternate members of the Board of Ethics shall attend meetings only upon request by the City Auditor's Office. The role of an alternate is to participate in meetings of the Board of Ethics as a replacement for a regular member who is absent or abstaining.

7. **Notice of Absence or Abstention~~Abstainment~~.** Upon receipt of an agenda for meeting or hearing, each member of the Board shall immediately (within twenty-four (24) hours) inform the City Auditor if the member is planning to: (a) not attend; or (b) abstain from participation. The matter of determining which alternate shall be designated to attend a hearing shall be at the discretion of the Chairperson.

Code of Ethics §2-281, §2-277(g).

C. ADVISORY OPINION

1. **Assignment.** The City Auditor shall refer requests to either a Panel or to Special Counsel as follows:
   (a) If a request is received more than ten (10) business days before deliberation of the Pending Matter, the City Auditor shall assign it to a Panel;

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(b) If a request is received more than five (5) business days before deliberation of the Pending Matter, the City Auditor shall assign it to a Panel or Special Counsel if a Panel cannot be formed at least five (5) business days before deliberation of the Pending Matter;

(c) If a request is received less than five (5) business days before deliberation of the Pending Matter, the City Auditor shall inform the City Official that the Advisory Opinion cannot be issued prior to deliberation and at which point the City Official may choose to withdraw the Advisory Opinion request. If a request is withdrawn the City Auditor shall provide information about the prohibitions of Sec. 2-273 and report the withdrawal to the Board of Ethics at the next regular meeting.

Panels shall be designated by the Chairperson consisting of three (3) board members on a rotating basis. Three (3) board members must be in attendance.

2. **Calling Meetings.** Panel meetings shall be called by the City Auditor.

3. **Open Meetings.** Panel meetings shall be conducted in compliance with the Texas Open Meetings Act.

4. **Notice.** The City Auditor shall send a written notification of the Panel meeting to the requesting City Official at least five (5) calendar days prior.

5. **Participation.** While the requesting City Official and other persons may attend the meeting, no testimony or public comments will be accepted.

6. **Scope.** When assembled, Panels shall respond to a request for an Advisory Opinion by issuing written guidance regarding how the Code of Ethics applies (if at all) to a particular situation or behavior. The opinion may contain conclusions and / or recommendations.

7. **Basis of Opinion.** A Panel's opinion shall be limited to the facts presented in writing by the requestor. No additional material will be considered. The opinion shall reflect the majority position of the Panel.

8. **Deadline.** A Panel must issue its Advisory Opinion within thirty (30) days of the City Auditor's receipt of the request.

Code of Ethics §2-278.

D. PRELIMINARY ASSESSMENTS

1. **Assignment**. The Chairperson shall designate panels consisting of three (3) board members on a rotating basis. Board members who have previously submitted an Ethics Complaint against the Respondent in a Preliminary Assessment shall not be assigned to the Panel unless a majority of the Board members have previously submitted an Ethics Complaint against the Respondent.

2. **Calling Meetings.** Panel meetings shall be called by the Chairperson.

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3. **Open Meetings**. Panel meetings shall be conducted in compliance with the Texas Open Meetings Act.

4. **Notice.** The City Auditor shall send a written notification of the Panel meeting to the Complainant, the Respondent, and the City Attorney at least five (5) calendar days prior.

5. **Participation.** While the Complainant, the Respondent, and other persons may attend the meeting, no testimony or public comments will be accepted.

6. **Scope.** When assembled, Panels shall determine if a Complaint is Actionable or Baseless, as defined by the Code of Ethics.

7. **Basis.** A Panel's review is limited to the contents of the Complaint which includes all additional documents, hyperlinks, video, and audio submitted along with the original Ethics Complaint Form. The Panel may consider whether the action(s) alleged within the contents of the Complaint are a violation of any provision of the Ethics Ordinance, regardless of a provision specified by the Complainant. No extraneous information may be considered, unless the Panel wishes to review information as part of a consideration of the accuracy of the statements made in the Complaint in conjunction with the making of a recommendation that a hearing be first held on an accepted Complaint to determine if it may be frivolous.

Code of Ethics §2-280.

E. HEARINGS

1. Preliminary Hearing

If a Complaint proceeds to a hearing, the Board of Ethics may conduct a preliminary hearing to:

(a) issue a subpoena requesting the production of data or other evidence from a City Official needed for the performance of the board's duties and including the board's exercise of its powers of investigation., subject to Section E(11) of these Rules.

(b) rule on any procedural requests from the parties, such as Motions for Continuance.

~~(b)~~(c) Request additional evidence be produced by the Complainant or Respondent. Within three (3) calendar days of the Preliminary Hearing, the City Auditor shall send requests for additional evidence to the Complainant and Respondent. The City Auditor shall be available to facilitate the submission of an Open Records Request.

2. Evidentiary Hearing

If a Complaint proceeds to a hearing, the Board of Ethics may:

(a) allow witnesses to attend and testify;

(b) admit evidence; and
(c) make determinations.

3. Scheduling / Calling

Hearings shall be scheduled by the City Auditor upon the filing of:

(a) a Panel determination that a Complaint is Actionable;
(b) an Appeal challenging a Panel's dismissal of a Complaint as Baseless; or
(c) a Panel recommendation that a hearing be held to determine if an Accepted Complaint is Frivolous.

The City Auditor shall send a written notification of the hearing to the Complainant, the Respondent, and the City Attorney at least seven (7) calendar days prior.

Code of Ethics §2-281(c).

4. Purpose

The purpose of evidentiary hearing(s) shall be solely to determine whether:

(a) a violation of the Code of Ethics occurred, and if so to assess the appropriate sanction;
(b) an Accepted Complaint was erroneously dismissed as Baseless by a Panel; and/ or
(c) an Accepted Complaint is Frivolous.

5. Authority of Chair

The Chair will control discussion at all times so that only one (1) person speaks at a time. The Chair will enforce these rules through the following measures:

(a) by calling a person to order, advising them of the rules and requesting compliance;
(b) by ending a person's opportunity to speak on an agenda item; and/or
(c) by ordering a person to leave a meeting and barring the person's presence during the remainder of the meeting.

The Chair may reasonably extend time limits provided under these rules, either at their own discretion or by a simple majority vote of the Board. At the expiration of a party's time, the chair shall ask the party if they feel they have had a full and fair hearing, and if they feel they have had an opportunity to present all of the relevant evidence and testimony in their hearing.

6. Call to Order

The Chairperson shall call the hearing to order, announce the time the hearing is called to order, and state whether a quorum of the board is present. The chair shall identify the Complaint being considered by the board.

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7. Recusals

At any point prior to the commencement of deliberations, members of the Board can recuse themselves. It is preferred that recusals be communicated to the Chairperson prior to a hearing so that alternate members can be designated. Grounds for recusal shall include prohibitions listed in City of Denton Code of Ordinances, Chapter 2, Article XI, Section 2-273(a) (Conflicts of Interest), or any other ethical basis deemed compelling by the recusing member. Board members shall recuse themselves if the City Council member who nominated them is a party to a Complaint pending before the Board member.

8. Enter Appearance of the Parties

The Chairperson shall call the parties to announce if they are present. ~~If the Complainant is not present, the Chairperson shall dismiss the Complaint, close the hearing, and issue a Letter of Dismissal unless the hearing is being held to determine if an Accepted Complaint is frivolous.~~

9. Procedural Request

All procedural motions that the Complainant or person charged in the complaint wishes the board to consider at the evidentiary hearing must be filed with the City Auditor's Office at least four (4) calendar days prior to the evidentiary hearing. The board shall determine whether to grant requests that had not been submitted in time for the Preliminary Hearing.

Within one (1) business day after receipt, the City Auditor's Office will promptly forward the procedural motions to the board members, the city attorney's office, and the opposing party.

In addition to other procedural matters, the board may consider a request for a reset or continuance of a hearing. The board may also, on its own motion, reset or continue a hearing. At the beginning of the hearing, the board will consider and rule upon any such request and procedural motions.

10. Evidence & Witnesses

No later than by seven (7) calendar days prior to the hearing, the Board of Ethics shall in writing request the parties to submit to it the identities of their witnesses, briefly describing the matter each will be expected to testify about, and any sworn statements and documentary evidence they desire to be considered. The parties shall submit their aforementioned evidence to the City Auditor within the time specified in the notice (that being no less than four (4) calendar days prior to the hearing), who shall forward to the parties, Board members and the City Attorney no less than three (3) calendar days prior to the hearing.

11. Subpoena

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Periodically, the need for additional information may be needed when considering a Complaint. The Board of Ethics has the authority under the Code of Ethics to issue subpoenas for witnesses and/or records in furtherance of its investigatory and enforcement power under the Code. When deemed necessary by simple majority, the Board may issue subpoenas to City Officials compelling their attendance and/or their production of data or other evidence deemed relevant to the pending Complaint. The scope of the Board's authority to subpoena records is limited to those under the direct control and in possession of City Officials. Subpoenas will not be issued for persons who would serve as character witnesses. The subpoena shall be on a form provided by the City Auditor's Office. Service of subpoenas shall be by the City Auditor's Office.

The Board may consider a party's failure to comply with a subpoena in its deliberations and/or exclude evidence related to the subject matter of the subpoena offered by the party which fails to comply.

A record subpoenaed and produced under the Code of Ethics (as provided by the City Charter) that is otherwise privileged or confidential by law remains privileged or confidential and shall not be released to the public unless release is ordered by the Attorney General's office in a ruling issued pursuant to Section 552.306 of the Texas Government Code or a court of competent jurisdiction.

At the conclusion of all proceedings regarding a Complaint, records subpoenaed and produced that are otherwise privileged or confidential by law shall be returned to the producing source and all copies shall be destroyed in accordance with the City's Records Retention Schedule.

Code of Ethics §2-277(h).

12. Exhibits

All exhibits submitted by the parties shall be numbered sequentially. Complainant's exhibits shall be pre-marked with the letter "C" followed by a dash, followed by a number; for example, "C-1". The Respondent's exhibits shall be pre-marked with the letter "~~A~~R," followed by a dash, followed by a number, for example "~~A~~R-1".

13. Decorum

Speakers must confine their remarks to the subject under discussion. Personal attacks and remarks are prohibited.

14. Sworn Testimony

Each witness before testifying at the final hearing shall be duly sworn by the Chair or Presiding Member.

Code of Ethics §2-281(c)(3).

15. Order of Presentations

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~~Complainant shall open the presentation of the evidence and argument. Respondent may then elect to present evidence and argument in response to the evidence presented to support its defense but will not be required to do so. Complainant shall be permitted to present rebuttal evidence on any defense raised in Respondent's case presentation.~~

15~~6~~. Opening Statement

Before presenting any evidence, each party ~~shall~~ may present their positions with an initial statement in a narrative form including a summary of documents and witness testimony to be presented. Initial statements shall not exceed three (3) minutes. Complainant shall go first.

1~~7~~6. Presentation of Evidence

The parties may offer such evidence as is relevant and material to the complaint or any defense. All exhibits submitted in advance of the final hearing shall be admitted at the start of final hearing except those that the Board finds, after objection by a party, to be inadmissible as hearsay or speculative. Parties are restricted to evidence submitted in the board packet except if good cause is shown and granted by the majority of the Board members present.

If the parties choose to offer evidence and argument, the Complainant shall open the presentation. Respondent may then elect to present evidence and argument in response to the evidence presented to support its defense but will not be required to do so. Complainant shall be permitted to present rebuttal evidence on any defense raised in Respondent's case presentation if Complainant initially chose to present evidence and argument.

17~~8~~. Witness Testimony

Parties may proffer testimony of their witnesses if the witness is present and available for further examination, if needed. Testimony of witnesses at hearing shall be in question and answer format. Opposing parties shall be permitted to cross-examine the witnesses. Members of the Board may question witnesses, subject to reasonable time limits imposed by the Chair. Questioning by the Board shall not count against a party's allotted time.

1~~9~~8. Representation

The parties may be accompanied or represented by legal counsel or another representative. A party's representative may present evidence and conduct examination of witnesses. A party's representative may not testify on behalf of a party. If a party designates a representative to present evidence on the party's behalf, then only the representative may present evidence at the hearing (i.e., the party cannot also present evidence) (e.g., A witness offered by the Complainant can be questioned by the Complainant, or the Complainant's representative, but not both). Nothing herein relieves the Complainant of the obligation to testify.

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~~20~~19. Time Limitations

The parties shall be permitted thirty (30) minutes per side to present all their witness testimony, cross-examine opposing witnesses, and present documentary evidence unless otherwise modified by the Board.

2~~1~~0. Closing Statements

Each party shall be permitted five (5) minutes to make a closing statement summarizing what they believe the evidence at the final hearing proved or failed to prove. Complainant shall go first. Of the five (5) minutes allotted for closing, the Complainant may reserve a portion of that time to provide a rebuttal.

2~~2~~1. Closing of Hearing

Upon expiration of the timelines allotted and being satisfied that the record is complete, the Chairperson shall declare the hearing closed. If additional evidence is required, the Chairperson may seek to continue the hearing.

2~~3~~2. Executive Session

The Board can go into executive session (i.e., conduct a closed-door meeting) at any point during a meeting or hearing in accordance with the Texas Open Meetings Act, pursuant to Texas Government Code § 551.071 (Consultation with Attorney), and/or § 551.074 (Personnel Matters). However, all decisions must be made in open session.

2~~4~~3. Deliberations

Upon the closing of a public hearing, the Board shall conduct deliberations. During deliberations, the Board may discuss the Complaint, any evidence and testimony that was submitted, and the opinions of the Board members about the credibility of the information before the Board, and the applicability of the Code of Ethics. Deliberations may be in open or closed session, but all decisions must be made in open session.

2~~5~~4. Reliability of Evidence

The Board shall rely on evidence of which a reasonably prudent person commonly relies in the conduct of the person's affairs. The amount of weight given to any evidence or testimony shall solely be at the discretion of the Board.

26. Burden of Proof

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~~Because the burden of showing that a violation of the Code of Ethics occurred is placed on the Complainant, it is the Complainant that has the obligation to put forth evidence, including testimony, supporting the Complaint. The Complainant is required to testify at the hearing unless it is held to determine if an Accepted Complaint is frivolous. A Complainant's failure to testify at a hearing, other than a hearing to determine frivolity, shall be grounds for dismissal of a Complaint.~~

~~*Code of Ethics §2-281(c)(4).*~~

2~~7~~5. Determinations

Upon conclusion of deliberations, the Chairperson shall call for a motion. All votes will be voice vote, with the option for any member to request a roll call vote at any time.

If at any point during any proceeding or hearing of the Board, the Board determines that the complaint was erroneously accepted because it was filed more than two (2) years after the date of the act or omission (unless tolled pursuant to the ordinance), the Board shall dismiss the complaint and the Chairperson shall issue a Letter of Dismissal.

The Board is obligated to render its decision (i.e., imposing or recommending a sanction) within ten (10) business days after the conclusion of a hearing at which the Board determined that a violation occurred.

The dismissal of a Complaint for any other reason must be communicated by the Chairperson in a Letter of Dismissal which sets forth the reasons for the dismissal.

Code of Ethics § 2-282(b).

26~~8~~. Reconsideration

Requests for reconsideration shall follow the procedure established in City of Denton Code of Ordinances, Chapter 2, Article XI, Section 2-283.

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2024 Ethics Ordinance Proposed Amendments

Madison Rorschach

June 4, 2024

City Auditor

Ethics Ordinance Overview & Amendment Process

- The Ethics Ordinance provides:
  - Ethical guidelines and rules for certain City Officials; and
  - A mechanism (i.e., the Board of Ethics) for holding these City Officials accountable to those rules.
- Amendments to the Ethics Ordinance can be proposed by the Board of Ethics or the City Council, but must be adopted by Council.

Covered City Officials

City Council

- Mayor & Council Members

Boards & Commissions

- Board of Ethics Members
- Planning & Zoning Commissioners
- Board of Adjustment Members
- Historic Landmark Commissioners
- Public Utilities Board Members

City Council Appointees

- City Manager
- City Attorney
- Municipal Judge
- City Auditor

Discussion Today

- The Board of Ethics unanimously recommended (4-0-1) adopting the following proposed amendments:
  1. Repeal and replace Ethics Ordinance Sec. 2-273 (a) Conflicts of Interest; and
  2. Eliminate Sec. 2-281 (c) (4) Burden of Proof and adjust the Board of Ethics' Rules of Procedure as needed.

- For each proposal, Council can:
  - Give direction to adopt the amendment as recommended;
  - Give direction to adopt the amendment with changes; or
  - Reject the amendment and provide relevant direction to the Board of Ethics.

Proposal 1: Conflicts of Interest

- Expands the time conflict of interests can occur from only during a "Pending Matter" to <u>any time</u> an official is taking or failing to take an action <u>using their official position or office</u> that would result in a personal or financial benefit not shared with the public.
  - A Pending Matter includes: an application seeking approval (e.g., permit); a proposal to enter into a contract or arrangement for goods, services, property, etc.; and a case involving the City that is before a civil, criminal, or admin, tribunal.

Sec. 2-273. Prohibitions

(a) **Conflicts of Interest:**

(1) A City Official may not use their official position or office, or take or fail to take any action, or influence others to take or fail to take any action, in a manner which they know, or has reason to believe may result in a Personal Benefit or Financial Benefit, not shared with a substantial segment of the City's population, for any of the following persons or entities (no group of government employees may be considered "a substantial segment" for the purposes of this provision):

Proposal 1: Conflicts of Interest

- Personal Benefits (i.e., created by a personal relationship):
  - Remaining: Official or their spouse/domestic partner's parent or step-parent, children or step-children, siblings or step-siblings, grandparents or grandchildren, siblings' children, and parent's siblings.
  - Adding: Domestic Partners, foster children, and anyone whose primary residence is in the City official's home including non-relatives who are not rent payers or servants.
  - Removing: Official or their spouse's first cousins, great grandparents, and great grandchildren.
- Also includes reputational benefits to yourself.

Personal Benefit: Benefits other than those that are directly financially advantageous. These include Financial Benefits to Relatives, business associates, and others listed in Sec. 2-273 (A)(1), as well as non-financial benefits to these people and to oneself, including such things as reputation and the success of one's career. A "personal interest" means a relationship to something such that a personal benefit has been, will be, or might be obtained by certain action or inaction with respect to it.

Proposal 1: Conflicts of Interest

- Financial Benefits (i.e., created by a financial relationship):
  - Remaining:
    - Business entity, civic group, union, social, charitable, or religious organization of which the City Official or their spouse/domestic partner is an officer or board member.
    - A person or business from which the City Official or their spouse/domestic partner has received in the last 12 months or may receive an offer of employment.
  - Expanding:
    - City Official or their spouse/domestic partner's employer (i.e., receives any compensation) or business (i.e., has any ownership interest – some exceptions for public corps.).
  - Adding:
    - A Client or Customer (i.e., person or entity to a City Official or their outside employer, has supplied goods/services in the last 24 months) that is substantial (not defined).
    - A substantial (not defined) debtor or creditor of the spouse/domestic partner.
    - A person (or including immediate family) or entity (including owners/directors/officers) that the City Official received >$200 in campaign contributions from in the last 24 months.
  - Removing: None.

Financial Benefit: Any money, service, license, permit, contract, authorization, loan, discount, travel, entertainment, hospitality, gratuity, or any promise of any of these, or anything else of value. This term does not include campaign contributions authorized by law. A "financial interest" is a relationship to something such that a direct or indirect financial benefit has been, will be, or might be received as a result of it.

Proposal 1: Conflicts of Interest

- Disclosure Requirements:
  - Expanding: Still required to submit a signed affidavit to the City Auditor if you are required to recuse yourself from a decision – even if this occurs off the dais.
  - Adding: Would also be required to inform the Chair of the body you serve on of the instance. If you are the Chair, would inform the Vice-Chair.

(2) Whenever a City Official has reason to believe that they should withdraw from participation under Sec. 2-273 (A) (1) of this code, they must:

a. Immediately refrain from participating further in the matter, formally or informally;

b. Promptly inform the appropriate individual or body, pursuant to Subsection (4) below, that they have a conflict, and the nature of the conflict; and

c. Promptly file with the City Auditor a signed statement disclosing the reasons for withdrawal, or, if a member of a board or commission, state this information on the public record of the Board or Commission.

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Proposal 2: Burden of Proof

- Proposal to eliminate the current requirement for the individual who submits an Ethics Complaint to appear and testify at an evidentiary hearing held to process the Complaint.
  - Would still be allowed to attend and present.

Proposed Ethics Hearing Procedures

Step	Current Procedure	Proposed Procedure	Time Limit
Complainant Opening Statement	Shall Present	May Present	3
Respondent Opening Statement	Shall Present	May Present	3
Complainant Presentation	Shall Present	May Present	30
Respondent Presentation	May Present	May Present	30
Complainant Rebuttal	May Present	May Present	If Reserved
Complainant Closing Statement	Shall be Permitted	Shall be Permitted	5
Respondent Closing Statement	Shall be Permitted	Shall be Permitted	5
Complainant Rebuttal	May Provide	May Provide	If Reserved

Questions?

Annetta Ramsay

Chair

Board of Ethics

Madison Rorschach

Board of Ethics Staff Liaison

File #: ID 23-1855, **Version:** 1

AGENDA CAPTION

Receive a report, hold a discussion, and provide suggestions or recommendations regarding updates to the City of Denton Criteria Manuals.

[Estimated Presentation/Discussion Time: 30 minutes]

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: **Development Services/Engineering Services**

ACM: **Cassandra Ogden**

DATE: **June 4, 2024**

SUBJECT

Receive a report, hold a discussion, and provide suggestions or recommendations regarding updates to the City of Denton Criteria Manuals.

BACKGROUND

To assist developers and design professionals in preparing and submitting required plans and permits for proposed developments, staff has prepared updates to the Criteria Manuals listed below. Staff has taken the approach to provide yearly updates and modifications to the Criteria Manuals to keep the documents up to date with current design and construction standards, as well as address issues observed during construction, and operation and maintenance of public facilities. In 2022 the following Criteria Manuals were updated.

- Solid Waste and Recycling Criteria Manual – last update December 2022
- Stormwater Design Criteria Manual – last update December 2022
- Transportation Design Criteria Manual – last update December 2022
- Water and Wastewater Criteria Manual – last update December 2022
- Streetlight Design Criteria Manual – last update November 2023

Part of the 2024 updates has been to combine these four manuals into a single document formatted to be consistent with the Denton Development Code. The combined document is called the Denton Design Criteria Manual and contains all the requirements formerly included in the five separate manuals for solid waste, stormwater, transportation, water/wastewater and streetlight design criteria. This provides uniformity across the design criteria.

Solid Waste and Recycling Criteria Manual

- Simplified minimum container enclosure requirements guidance to be more easily understood by applicants.

- Provided additional guidance on solid waste collection routes such as a 30-foot minimum turning radius and a minimum of 50 feet of unobstructed area in front of each container.

- Added language specifying that no parking spaces or obstructions can be placed within the swing radius of an enclosure gate.

Stormwater Design Criteria Manual

- Added guidance on what constitutes an adverse impact to other properties.

- Added required engineering analysis for stormwater diversions to another outfall.

- Lowered the maximum spacing of access junction boxes to 500 feet to allow for improved maintenance.

- Increased allowable bends in pipes from 30 degrees up to 45 degrees.

- Provided criteria for underground detention facilities.

- Provided clarifying language on the process for floodplain development/reclamation, when a fully developed flood study will be required, and when a downstream assessment will be required.

- Recommendations on addressing the water quality of storm runoff for developments larger than 1 acer. It is staff's recommendation that these criteria become mandatory next year.

- Added requirements for Stormwater Facility Maintenance Agreements for any private stormwater structure which affects the public interest, such as a detention pond. These agreements are intended to ensure that these structures have a clear maintenance plan provided by an engineer and that the City can request maintenance records from the owner.

Transportation Design Criteria Manual

- Reordering of sections throughout the document to present the information in a more organized manner.

- Added limitations on driveway profile grade changes without a vertical curve.

- Minimum intersection spacing requirements are now measured from the curb line rather than the right-of-way line.

Water and Wastewater Criteria Manual

- Consolidated multiple tables into a single table for clarity.

- Prohibited the placement of manholes in sidewalks, ramps, or driveway approaches.

- Provided additional guidance on sizing of water meters.

- Required manholes to be located at all sewer line ends, not just a sewer cleanout.

- Required a 5-foot minimum separation between sewer manholes and other utilities to allow for maintenance and repair.

- Lift stations must be accessible during the 100-year flood rather than the 25-year flood.

Streetlight Design Criteria Manual

- Lighting study required for all streets except residential roads with speeds less than 30 mph.

- Lighting required every 250’ for residential roads with speeds less than 30 mph.
- Provides lighting requirements for intersections, cul-de-sacs, railroad crossings, etc.
- Provides approved luminaries, hardware, and pole types.

Design Deviations:

Additionally, a new section has been added to the Design Criteria Manual to address the process by which developers may request a deviation or variance from the design requirements in the manual and establishes the criteria for granting a design deviation request. These requests will be reviewed and approved or denied by an engineer employed within the City with subject matter expertise relevant to the request. To be approved, a proposed design deviation must not be detrimental to the public welfare and have not adverse impact on any public system or facility. If a request is initially denied by the City’s Engineer an applicant may resubmit a similar request with additional information to support their request.

PUBLIC OUTREACH

To give an opportunity for the public to provide feedback on the draft Criteria Manual updates, staff hosted a Developer Town Hall meeting on September 14, 2023. At the Town Hall meeting, the same Criteria Manual updates were presented to the attendees who had the opportunity to ask questions and/or provide comments.

On Nov. 3, 2023, the Draft Denton Design Criteria Manual was published online on the City of Denton website.

On Nov. 9, 2023, staff presented to the Denton Chapter of the Texas Society of Professional Engineers and held a discussion regarding the proposed changes.

On Jan. 10, 2024, the Planning and Zoning Commission received a presentation, held a discussion and provided suggestions or recommendations regarding updates to the City Criteria Manuals.

On Jan. 22, 2024, the Public Utilities Board received a presentation, held a discussion and provided suggestions or recommendations regarding updates to the Criteria Manuals.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

Jan. 10, 2024 – Planning and Zoning Commission Work Session
Jan. 22, 2024 – Public Utilities Board Work Session

EXHIBITS

Exhibit 1 – Agenda Information Sheet
Exhibit 2 – Draft Denton Design Criteria Manual Clean Version
Exhibit 3 – Draft Denton Design Criteria Manual Redline Version
Exhibit 4 – Presentation

Respectfully submitted:
Brett Bourgeois, PE
City Engineer

Design Criteria Manual

DRAFT

Published: July 2024

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Section 1: Introduction

1.1 Title and Effective Date

1.1.1 This document is the Design Criteria Manual of the City of Denton, Texas. It shall be officially known and cited as the "Denton Design Criteria Manual," and is referred to internally in this document as "this DCM" and "this Manual."

1.1.2 This DCM shall become effective on July 1, 2024.

1.2 Purpose

The purpose of the Denton Design Criteria Manual (DCM) is to provide minimum, non-exhaustive guidelines for the design and construction of ***solid waste, stormwater, transportation, water and wastewater, and streetlight infrastructure*** within the City of Denton, Texas and its extraterritorial jurisdictions. The criteria established in this Manual have been developed from a review of various applicable publications, regulatory requirements, and City of Denton offices which oversee the design, construction and maintenance of the facilities.

These guidelines are to be used by design engineers in the City of Denton Capital Projects Engineering Division, consulting engineers employed by the City, and engineers of subdivision and land development infrastructure projects proposed for construction and acceptance by the City, within the City and its extraterritorial jurisdictions.

Along with this Manual, the Denton Development Code (DDC) should be consulted for additional criteria. ***The criteria established in this Manual do not supersede the criteria contained in the DDC.*** In the case of conflict among this Manual, City of Denton Standard Details, or other cited regulations and standards, the more stringent requirement shall apply.

This DCM is ***not*** intended to be an all-inclusive design document for all circumstances and conditions. The DDC and City of Denton Code of Ordinances must be consulted for possible impacts to the proposed design. The Federal Government, the State of Texas, NCTCOG, Denton County, Denton County Transit Authority (DCTA), and other related organizations and resources should be consulted for additional criteria, as may be deemed necessary.

1.3 Organization

In addition to the design criteria established in this DCM, guidance is also provided for design deviations from the required design criteria. The contents of this Manual are categorized into sections shown below:

A. Section 1: Introduction

B. Section 2: Abbreviations and Definitions

C. Section 3: Solid Waste Design

D. Section 4: Stormwater Design

E. Section 5: Transportation Design

F. Section 6: Water and Wastewater Design

G. Section 7: Streetlight Design Criteria

H. Section 8: Design Deviations

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Section 2: Abbreviations and Definitions

2.1 Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
APBP	Association of Pedestrian and Bicycle Professionals
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
BFE	Base Flood Elevation
BMP	Best Management Practices
CCN	Certificate of Convenience and Necessity
cfs	cubic feet per second
CLOMR	Conditional Letter of Map Revision
COA	Condominium Owner's Association
CP	Cathodic Protection
cu. ft.	cubic feet
DCAD	Denton Central Appraisal District
DCM	Design Criteria Manual
DCTA	Denton County Transit Authority
DDC	Denton Development Code
DFW	Dallas-Fort Worth Metroplex
DIP	Ductile-Iron Pipe
DRP	Development Review Process
DSA	Down Stream Assessment
EOL	End-of-Line
ESA	Environmentally Sensitive Area
ft.	foot or feet
FEMA	Federal Emergency Management Agency
FFE	Finished Floor Elevation
FHWA	Federal Highway Administration
FIRM	Federal Insurance Rate Map
FIS	Flood Insurance Study
FM	Farm to Market

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fps	feet per second
gal.	gallon(s)
GPCD	gallons per capita per day
GPD	gallons per day
GPM	gallons per minute
GPS	Global Positioning System
HDPE	High Density Polyethylene
HEC-HMS	Hydrologic Engineering Center's Hydrologic Modeling System
HEC-RAS	Hydrologic Engineering Center's River Analysis System
HGL	Hydraulic Grade Line
HOA	Home Owners' Association
IBC	International Building Code
ID	Inner Diameter
IFC	International Fire Code
IH	Interstate Highway
in.	inch(es)
IPC	International Plumbing Code
ITE	Institute of Transportation Engineers
*i*SWM™	Integrated Stormwater Management
kg.	kilogram(s)
lb.	pound or pounds
LOMR	Letter of Map Revision
LOS	Level-of-Service
MEP	Mechanical, Electrical, and Plumbing
MGD	Million Gallons per Day
mL	milli-liter(s)
mph	miles per hour
NAVD	North American Vertical Datum
NCHRP	National Cooperative Highway Research Program Report
NCTCOG	North Central Texas Council of Governments
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NGVD	National Geodetic Vertical Datum

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NOAA	National Oceanic and Atmospheric Administration
PHT	Peak-Hour Trips
PMF	Probable Maximum Flood
PMP	Probable Maximum Precipitation
POA	Property Owners' Association
POTW	Publicly Owned Treatment Works
PROWAG	Public Rights of Way Accessibility Guidelines
psi	pounds per square inch
PUCT	Public Utilities Commission of Texas
PUE	Public Utility Easement
PVC	Polyvinyl Chloride
PZC	Planning and Zoning Commission
RCP	Reinforced Concrete Pipe
ROW	Right-of-Way
RPBA	Reduced Pressure Backflow Assembly
SCADA	Supervisory Control and Data Acquisition
SCS	Soil Conservation Service
SDR	Standard Dimension Ratio
SFE	Single-Family Equivalent
SETP-PD	Safety End Treatment Plan – Parallel Drainage
SFHA	Special Flood Hazard Area
SH	State Highway
sq. ft.	square feet
sq. mi.	square mile(s)
SWFMA	Stormwater Facility Maintenance Agreement or Maintenance Agreement
TAC	Texas Administrative Code
TAS	Texas Accessibility Standards
TCEQ	Texas Commission on Environmental Quality
TDLR	Texas Department of Licensing and Registration
TIA	Traffic Impact Analysis
TMUTCD	Texas Manual on Uniform Traffic Control Devices
TSS	Total Suspended Solids
TxDOT	Texas Department of Transportation

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U.S.	United States of America
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
VPD	Vehicle-trips per day
WOTUS	Waters of the United Stated of America
WMP	Water Master Plan
WSEL	Water surface elevation
w.s.f.u.	Water-Supply Fixture-Unit(s)
ZOI	Zone of Influence

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2.2 Definitions

20-Year Horizon
The estimated traffic volume for the study area based on a 20-year growth period.

100-year Event
Event (rainfall or flood) that has a 1% chance of being equaled or exceeded in any given year.

Abutment
A wall supporting the end of a bridge or span and sustaining the pressure of the bordering earth.

Applicant
Any firm, entity, partnership, company, public utility company, or individual that submits a formal request or application.

Apron
A floor or lining of concrete, timber, or other suitable material at the toe of a dam, entrance or discharge side of a spillway, a chute, or other discharge structure, to protect the waterway from erosion from falling water or turbulent flow.

Area of Special Flood Hazard
The area designated as subject to flooding from the 1% chance flood on the flood insurance rate map. For purposes of these criteria, the term "special flood hazard area" is synonymous in meaning with the phrase "area of special flood hazard" and may be referred to as "SFHA".

Backwater
The rise of the water level upstream due to an obstruction or constriction in the channel.

Backwater Curve
The term applied to the longitudinal profile of the water surface in an open channel when flow is steady but non-uniform.

Baffles
Deflector vanes, guides, grids, gratings, or similar devices constructed or placed in flowing water, to: (1) check or effect a more uniform distribution of velocities; (2) absorb energy; (3) divert, guide, or agitate the stormwater flow; and (4) check eddy currents.

Baffle Chute
A drop structure in a channel with baffles for energy dissipation to permit the lowering of the hydraulic energy gradient in a short distance to accommodate topography.

Base Flood Elevation
The elevation shown on the Flood Insurance Rate Map (FIRM) and found in the accompanying Flood Insurance Study (FIS) for Zones A, AE, AH, A1-30, AR, V1-30, or VE that indicates the water surface elevation resulting from the flood that has a 1% chance of equaling or exceeding that level in any given year.

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Calibration
Process of checking, adjusting, or standardizing operating characteristics of instruments and model appurtenances on a physical model or coefficients in a mathematical model. The process of evaluating the scale readings of an instrument in terms of the physical quantity to be measured.

Carrier Pipe
A pipe used to carry stormwater, water, or wastewater, as opposed to an exterior protective casing pipe.

Casing Pipe
An exterior protective pipe that encases a carrier pipe for various types of crossings, including roadways, creeks, and railroads. Also known as encasement pipe.

Channel
A man-made drainageway or watercourse, generally constructed to straighten a stream or increase its capacity.

Channel Roughness
Irregularities in channel configuration which attenuate the flow of water and dissipate its energy.

Chute
An inclined conduit or structure used for conveying water to a lower level.

City's Engineer
A Professional Engineer, licensed by the State of Texas, who is the subject matter expert of the relevant topic of discussion, and employed by the City of Denton.

Conduit
Any open or closed structure for conveying flowing water.

Corner Clip
ROW dedication at intersection corners to provide sufficient room for intersection visibility, pedestrian access, and other street facilities.

Critical Flow
The state of flow for a given discharge at which the specific energy is a minimum with respect to the bottom of the conduit. The Froude Number is equal to 1.0 for critical flow conditions.

Crown
The highest point on a transverse section of conduit or the highest point of a roadway cross-section.

Culvert
Large pipe or other conduit through which a small stream passes under a road or street.

Curb
A vertical or sloping structure located along the edge of a roadway, normally constructed integrally with the gutter, which strengthens and protects the pavement edge and clearly defines the pavement edge to vehicle operators.

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Dam
A barrier constructed across a watercourse for the purpose of creating a reservoir or diverting water from a conduit or channel.

Degradation
The progressive general lowering of a stream channel by erosion, other than that caused by a constriction.

Department Reviewer
A member of a City of Denton department, designated by the Department Director, with subject matter expertise related to the Design Criteria Manual who is designated as being responsible for the review of design deviation requests.

Depression Storage
Collection and storage of rainfall in natural depressions after exceeding infiltration capacity of the soil.

Design Storm or Flood
The storm or flood which is used as the basis for design.

Detention
The storage of storm runoff for a controlled release during or immediately following the design storm.
1. Off-site detention - A detention pond located outside the boundary of the area it serves.
2. On-site detention - A detention pond which is located within and serves only a specific site or subdivision.
3. Regional detention - Detention facilities provided to control excess runoff based on a watershed-wide hydrologic analysis.

Development
Any man-made change to improved or unimproved real estate, including but not limited to, buildings or other structures, paving, drainage, or utilities. Development activities include: subdivision of land; construction or alteration of structures, roads, parking, fences, pools, signs, temporary uses, utilities, and other facilities; installation of septic systems; grading; excavation, mining or drilling operations; deposit of refuse, debris, or fill materials; and clearing of natural vegetative cover (with the exception of agricultural activities as defined and as permitted). Routine repair and maintenance activities are exempted.

Development Project Facilitation
Division within the City of Denton that assists developers move projects through the City's various development review process and authorized to process the review of design deviation requests.

Drop Structures
A sloping or vertical section of a channel designed to reduce the elevation of flowing water without increasing its velocity.

Energy Dissipaters
Engineered devices such as riprap aprons or concrete baffles placed at the outlet of storm water conveyance systems for the purpose of reducing the velocity, energy and turbulence of the discharged flow.

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Entrance Head
The head required to cause flow into a conduit or other structure; it includes both entrance loss and velocity head.

Entrance Loss
Head lost in eddies or friction at the inlet to a conduit, headwall or structure.

Existing Traffic
Existing traffic conditions based on the most recent traffic counts. Existing traffic conditions do not include the traffic created or associated with the development.

Flash Flood
A flood of short duration with a relatively high peak rate of flow, usually resulting from a high intensity rainfall over a small area.

Flood Control
The elimination or reduction of flood losses by the construction of flood storage reservoirs, channel improvements, dikes and levees, by-pass channels, or other engineering works.

Flood Hazard Area
Area subject to flooding by 1% chance floods.

Flood Management or Flood Hazard Mitigation
Any program or activity designed to reduce damages from flooding, including stream erosion.

Floodplain
The area that is subject to flooding from the 1% chance flood. The floodplain includes the regulatory floodway and floodway fringe.

Floodway
The channel and adjacent lands of a watercourse that must be reserved in order to discharge the base flood without increasing the water surface elevation more than the regulatory designated height.

Floodway Fringe
The area located within the floodplain and outside the floodway.

Freeboard
The distance between the normal operating level and the top of the side of an open conduit left to allow for wave action, floating debris, or any other condition or emergency without overtopping the structure.

Frequency (of storms, floods)
Average recurrence interval of events, over long periods of time. Mathematically, frequency is the reciprocal of the exceedance probability.

Froude Number
A flow parameter, which is a measure of the extent to which gravitational action affects the flow. A Froude number greater than one (1) indicates supercritical flow and a value less than 1 subcritical flow. The simplest

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form of the Froude number is given by the following equation:

$$F = V / (g\ D)^{0.5} \qquad \textbf{[Eqn. 2.1]}$$

Where:
V = Velocity
g = the acceleration due to gravity (32.2 ft/s^2)
D = depth

Fully Developed Conditions
A description of hydrologic conditions in a watershed, if the watershed has been completely built out based on the zoning and future land use maps of the City. If there is no designated future land use, the runoff coefficient will be assumed to be (0.6) for purposes of determining fully developed water surface elevations. This term is interchangeable with the term "Ultimate Developed Conditions". This is not to be confused with a Developed Floodplain as defined in Subchapter 9.2 of the DDC, which refers to the character of the streambed itself.

Gabion
A wire container filled with rock and used in the construction of dams, retaining walls, and protection against erosion.

Grade
1. The inclination or slope of a channel, canal, conduit, etc., or natural ground surface, usually expressed in terms of the percentage of number of units of vertical rise (or fall) per unit of horizontal distance.
2. The elevation of the invert of the bottom of a conduit, canal, culvert, sewer, etc.
3. The finished surface of a canal bed, road bed, top of an embankment, or bottom of excavation.

Gutter
A generally shallow waterway adjacent to a curb used to convey stormwater.

Headwater
1. The upper reaches of a stream near its sources;
2. The region where ground waters emerge to form a surface stream;
3. The water upstream from a structure.

Hydraulic Control
The hydraulic characteristic which determines the stage-discharge relationship in a conduit. The control is usually critical depth, tailwater depth, or uniform depth.

Hydraulic Grade Line
A line representing the pressure head available at any given point within the system.

Hydraulic Gradient
A hydraulic profile of the piezometric level of the water, representing the sum of the depth of flow and the pressure head. In open channel flow it is the water surface.

Hydraulic Jump
The hydraulic jump is an abrupt rise in the water surface which occurs in an open channel when water

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flowing at supercritical velocity is retarded by water flowing at subcritical velocity. The transition through the jump results in a marked loss of energy, evidenced by turbulence of the flow within the area of the jump. The hydraulic jump is sometimes used as a means of energy dissipation.

Hydraulics
A branch of science that deals with practical applications of the mechanics of water movement.

Hydrograph
A graph showing stage, flow, velocity, or other property of water versus time at a given point on a stream or conduit. Examples include: Dimensionless Unit hydrograph, Unit Hydrograph.

Hydrology
The science dealing with the properties, distribution, and circulation of water on and below the Earth's surface and in the atmosphere.

Hyetograph
A histogram or graph of rainfall intensity versus time of storm.

Impervious
A term applied to a material through which water cannot pass or passes with great difficulty.

Infiltration
1. The entering of water through the interstices or pores of a soil or other porous medium.
2. The entrance of water from the ground into a sewer or drain through breaks, defective joints, or porous walls.
3. The absorption of water by the soil, either as it falls as precipitation, or from a stream flowing over the surface.

Inlet
Inlets are drainage structures used to collect surface water through grate or curb openings and convey it to storm drains or direct outlet to culverts.
Inlets used for the drainage of roadway surfaces can be divided into four major classes:
1. Grate Inlets – These inlets include grate inlets consisting of an opening in the gutter covered by one or more grates, and slotted inlets consisting of a pipe cut along the longitudinal axis with a grate or spacer bars to form slot openings.
2. Curb-Opening Inlets – These inlets are vertical openings in the curb covered by a top slab.
3. Combination Inlets – These inlets usually consist of both a curb-opening inlet and a grate inlet placed in a side-by-side configuration, but the curb opening may be located upstream of the grate.
4. Drop Inlet (Y-Inlet) -A storm drain intake structure typically located in unpaved areas. The inlet may extend above the ground level with openings on one or more sides of the inlet or it may be flush with the ground with a grated cover.

Intensity
As applied to rainfall, a rate usually expressed in inches per hour.

Interception
As applied to hydrology, refers to the process by which precipitation is caught and held by foliage, twigs,

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and branches of trees, shrubs and buildings, never reaching the surface of the ground, and then lost by evaporation.

Invert
The floor, bottom, or lowest portion of the internal cross-section of a conduit.

Lag Time
The time difference between two occurrences such as between rainfall and runoff or pumping of a well and effect on the stream. *See* Time of Concentration.

Level of Service
A qualitative measure of traffic flow and congestion, representing quality of service. It describes operational conditions within a traffic stream, generally described in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety.

Lining
Impervious material such as concrete, clay, grass, plastic, puddled earth, etc., placed on the sides and bottom of a ditch, channel, and reservoir to prevent or reduce seepage of water through the sides and bottom and/or to prevent erosion.

Lip
A small wall on the downstream end of an apron to break the flow from the apron.

Major Stream
Waterways with a contributing drainage area of one square mile or more.

Manning's Coefficient
The coefficient of roughness used in Manning's Equation for flow in open channels.

Manning's Equation
A uniform flow equation used to relate velocity, hydraulic radius and the energy gradient slope.

Median
The portion of a divided roadway separating the opposing traffic flows. A median may be traversable or non-traversable.

Median Opening
An opening in a non-traversable median that allows accessing or crossing the opposing traffic lanes.

Minimum building elevation
The elevation to which new and substantially improved structures within the floodway or within 200 feet of the floodplain or SFHA are required to be elevated or floodproofed. This elevation would be equal 18 inches above the 100-year water surface elevation based on fully developed conditions or 30 inches above the BFE as indicated in the flood insurance study or, if the BFE is unavailable, 30 inches above the 100-year flood elevation based on current development watershed conditions.

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Model
Mathematical systems analysis by computer, applied to evaluate rainfall-runoff relationships; simulate watershed characteristics, predict flood and reservoir routings, or use other aspects of planning.

Nappe
The sheet or curtain of water overflowing a weir or dam. When freely overflowing any given structure, it has a well-defined upper and lower surface.

Open Channel
A conduit in which water flows with a free surface.

Orifice
1. An opening with closed perimeter, and of regular form in a plate, wall, or partition through which water may flow.
2. The end of a small tube, such as a Pilot tube, piezometer, etc.

Peak Flow (Peak Rate of Runoff)
The maximum rate of runoff during a given runoff event.

Percolation
To pass through a permeable substance such as ground water flowing through an aquifer.

Permeability
The property of a material which permits movement of water through it when saturated and actuated by hydrostatic pressure.

Pervious
Applied to a material through which water passes relatively freely.

Pilot Channel
A constructed pathway that guides base streamflow or runoff along a specified route through a drainage facility or drainage feature.

Porosity
1. An index of the void characteristics of a soil or stratum as pertaining to percolation; degree of perviousness.
2. The ratio, usually expressed as a percentage, of (a) the volume of the interstices in a given quantity of material, to (b) the total volume of the material.

Positive Overflow
When the inlets do not function properly, or when the design capacity of the conduit is exceeded, the excess flow must be conveyed overland along a paved course. This could mean along a street or alley but could require a concrete flume and the dedication of special drainage easements on private property.

Post-development
The condition of the given site and drainage area after the anticipated development has taken place.

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Precipitation
Any moisture that falls from the atmosphere, including snow, sleet, rain and hail.

Pre-development
The condition of the given site and drainage area prior to development.

Probable Maximum Flood
The flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible in the region.

Probable Maximum Precipitation
The critical depth-duration-area rainfall relationship for a given area during the seasons of the year which would result from a storm containing the most critical meteorological conditions considered probable of occurring.

Projected Growth Rate
The estimated growth rate per year for the study area based upon the average growth in the previous 5-year period along arterials in the vicinity of the proposed project.

Proposed Site Traffic Volumes
The number of vehicles per day and per hour projected to be generated by the development.

Rainfall Duration
The length of time over which a single rainfall event occurs.

Rainfall Frequency
The average recurrence interval of rainfall events.

Rainfall Intensity
The rate of accumulation of rainfall, usually in inches or millimeters per hour.

Rational Formula
A traditional method of computing peak flow using intensity of the storm rainfall.

Reach
Any length of river or channel. Usually used to refer to sections which are uniform with respect to discharge, depth, area or slope, or sections between gaging stations.

Recurrence Interval
The average interval of time within which a given event will be equaled or exceeded once. For an annual series (as opposed to a partial duration series) the probability of occurrence in anyone year is the inverse of the recurrence interval. Thus, a flood having a recurrence interval of 100 years has a 1% probability of being equaled or exceeded in any one year.

Regulatory Floodway
The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a

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designated height.

Retention
The storage of a portion or all of the storm runoff for purposes of permanent use of the retained water. Retention facilities are similar to detention facilities with the main difference being that all of the storm runoff will not be released to the downstream drainage network.

Return Period
See Recurrence Interval

Reynold's Number (Re)
A flow parameter which is a measure of the viscous effects on the flow. Typically defined as shown in the equation below:

$$Re = (V.\ D) / v \qquad \text{[Eqn. 2.2]}$$

Where:
V = Velocity
D = Depth
v = kinematic viscosity of the fluid

Riprap (Revetment)
Forms of bank protection, usually using rock or concrete.

Routing
Routing is a technique used to predict the temporal and spatial variations of a flood wave as it traverses a river reach or reservoir. Generally, routing technique may be classified into two categories - hydrologic routing and hydraulic routing.

Right-of-Way
A designated section of a street, sidewalk, alley, waterway or utility easement and/or related facilities, that is dedicated for municipal usage.

Right-of-Way Width
The shortest horizontal distance between the lines which delineate the right-of-way of a street.

Runoff
That part of the precipitation which reaches a stream, drain, sewer, etc., directly or indirectly.
1. Direct Runoff - The total amount of surface runoff and subsurface storm runoff which reaches stream channels.
2. Overland Runoff - Water flowing over the land surface before it reaches a definite stream channel or body of water.

Runoff Coefficient
A decimal number used in the Rational Formula which defines the runoff characteristics of the drainage area under consideration. It may be applied to an entire drainage basin as a composite representation or it may be applied to a small individual area such as one residential lot.

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Runoff Total
The total volume of flow from a drainage area for a definite period of time such as a day, month, or a year, or it may be for the duration of a particular storm.

Scour
The erosive action of running water in streams or channels in excavating and carrying away material from the bed and banks.

SCS Runoff Curve Number
Index number used by the National Resource Conservation Service, formerly the Soil Conservation Service, as a measure of the tendency of rainfall to run off into streams rather than evaporate or infiltrate.

Sediment
Material of soil and rock origin transported, carried, or deposited by water.

Sedimentation Basin
A sediment control basin required to catch runoff from common drainage areas with 10 acres or more disturbed at one time during any phase of development that dewaters from the surface unless infeasible.

Sidewalk
A paved area within the street ROW or sidewalk easement specifically designed for pedestrians and/or bicyclists.

Sight Distance
The distance visible to the driver of a passenger vehicle measured along the normal travel path of a roadway from a designated location and to a specified height above the roadway when the view is unobstructed by traffic.

Slope, Critical
The slope or grade of a channel that is exactly equal to the loss of head per foot resulting from flow at a depth that will give uniform flow at critical depth; the minimum slope of a conduit which will produce critical flow.

Slope, Friction
The friction head or loss per unit length of channel or conduit. For uniform flow the friction slope coincides with the energy gradient, but where a distinction is made between energy losses due to bends, expansions, impacts, etc., a distinction must also be made between the friction scope and the energy gradient. The friction slope is equal to the bed or surface slope only for uniform flow in uniform open channels.

Soffit
In a stormwater pipe, the uppermost point of the interior of the pipe wall. The crown is the uppermost point on the outside of the pipe wall.

Spillway
A waterway in or about a dam or other hydraulic structure, for the overflow of excess water.

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Standard Details
A collection of uniform detail drawings of structures or devices adopted as standard construction details by the City of Denton.

Steady Flow
Open channel flow is said to be steady if the depth of flow does not change or if it can be assumed to be constant during the time interval of consideration.

Stormwater Facility Maintenance Agreement or Maintenance Agreement
A legal agreement between the City of Denton and a property owner, including HOAs and POAs, for perpetual maintenance of a structural BMP.

Stream
A natural drainageway that conveys stormwater, may also be referred to as a creek. References to a stream or creek in this Manual refer to the entire stormwater carrying component of the stream to the limits of the floodplain, not just to the streambed.

Stilling Basin
Pool of water conventionally used, as part of a drop structure or other structure, to dissipate energy.

Stopping Sight Distance
The distance required by a driver of a vehicle, traveling at a given speed, to bring the vehicle to a stop after an object on the roadway becomes visible. It includes the distance traveled during driver perception time, reaction time, and the vehicle braking distance.

Storage Length
The portion of an auxiliary lane required to store the number of vehicles expected to accumulate in the lane during an average peak period.

Storm Hydrology
The branch of hydrology that concentrates on the calculation of runoff from storm rainfall.

Stormwater Management
The control of storm runoff on-site or on small streams, by means of land use restrictions, detention storage, erosion control, and/or drainage measures.

Stormwater Model
Mathematical representation of a stormwater network.

Study area
The boundaries of the assessment area as determined by the City's Engineer.

Subcritical Flow
The Froude Number is less than 1.0 for subcritical flow conditions.

Supercritical Flow
The Froude Number is greater than 1.0 for supercritical flow conditions.

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Tailwater
The depth of flow in the stream directly downstream of a drainage facility.

Time of Concentration
The estimated time in minutes required for runoff to flow from the most remote section of the drainage area to the point at which the flow is to be determined.

Total Head Line (Energy Line)
A line representing the energy in flowing water. The elevation of the energy line is equal to the elevation of the flow line plus the depth plus the velocity head plus the pressure head.

Traffic Queue
Vehicles within a storage queue awaiting traffic movement in a single lane, within one traffic signal cycle.

Trash Rack
Racks, gratings, or mesh designed so as to prevent leaves and rubbish from plugging the outlets from a dam or detention basin.

Trip Distribution
An estimate of the spatial pattern of trips or other flows between given sets of origins and destination pairs. Trip distribution models connect the trip origins and destination, estimated by the trip generation models to create estimated trips based on the Base year and Buildout years (24 hour counts or turning movement counts). Different trip distribution models are developed for each of the trip purposes for which trip generation has been estimated.

Trunk Line
The main line of a storm drain system extending from manhole to manhole or from manhole to outlet structure.

TxDOT Highways
State-operated highways that include Farm to Market (FM) roadways, State Highways (SH), Interstate Highway (IH), IH Frontage Roads, and United States (US) Highways.

Uniform Channel
A channel with a constant cross-section and roughness.

Uniform Flow
Open channel flow is said to be uniform if the depth of flow is the same at every section of the channel.

Unit Hydrograph
The direct runoff hydrograph resulting from one inch of precipitation excess distributed uniformly over a watershed for a specified duration.

Valley Storage
Refers to the water storage capacity of a stream and is a volume that is measured below the base flood elevation. Restrictions on loss of valley storage refer to compensation for the loss of storage caused by fill below the base flood elevation.

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Velocity Head
The energy per unit weight of water due to its velocity (v). The velocity head also represents the vertical distance water must fall freely under gravity to reach its velocity (v). The velocity head can be computed from the following equation:

$$\textbf{Velocity Head} = v^2 / 2g \qquad \textbf{[Eqn. 2.3]}$$

Where: v = velocity
g = acceleration due to gravity (32.2 ft/s^2)

Water Year
The water year commonly used in the United States is the period from October 1 to September 30 of the following calendar year.

Watershed
The area contributing storm runoff to a stream or drainage system. Other terms are drainage area, drainage basin and catchment area.

Zone of Influence
A point downstream where the increased discharge from a proposed development results in 0.00' increase in flood elevation.

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Section 3: Solid Waste Design Criteria

3.1 Overview

The purpose of Section 3 - Solid Waste Design Criteria of this DCM is to provide basic criteria and standards for the development and maintenance of solid waste and recycling container enclosures.

The Solid Waste Design Criteria established in this Manual shall apply as set forth in:

A. City of Denton Code of Ordinances – Chapter 24,

B. DDC Subchapter 7, Section 7.2 – Applicability, and

C. DDC Subchapter 7, Section 7.12 – Solid Waste and Recycling Design Standards.

The City Code of Ordinances states that the City of Denton shall be the exclusive provider of solid waste collection and disposal services within the Cty Limits including, but not limited to, services provided for preconstruction activities, construction activities, and residential, multifamily, and commercial activities. All contractors and sub-contractors should call City of Denton Customer Service (940-349-8700) to initiate service. Third-Party solid waste providers may not be used for any onsite solid waste services within the City Limits.

3.2 Design Standards

3.2.1 General

A. Nonresidential on-site solid waste and recycling container enclosures shall be located on each platted lot of non-residential property and shall be constructed and maintained by the property owner or developer and made available for use by the City of Denton Solid Waste Department or commercial recycling service provider.

B. Nonresidential on-site solid waste and recycling container enclosures shall be available for the storage of all municipal solid waste and recyclables generated for each platted property. The City reserves the ability to determine whether any parcel or area (For example, Downtown Square, strip centers, multifamily residential, etc.) must have shared container service or an alternative service. Container enclosures shall be of adequate size to contain all solid wastes, liquid wastes, and recyclables generated on the property, including, but not limited to, municipal solid waste, recyclables, grease and oils, process by-products and wastes, hazardous waste, medical waste, and any special wastes, contained in accordance with Chapter 24, City of Denton Code of Ordinances.

C. The container enclosures shall meet the Container Enclosure and Storage Space Dimensional Requirements prescribed in Section 3.2.2 of this Manual, as well as Chapter 469 of the Texas Government Code, as amended.

D. New nonresidential uses of 999 square feet ("sq. ft.") or less will be evaluated by City staff to determine the applicability of constructing an enclosure. Trash and recycling carts may be appropriate, thereby eliminating the need for construction of an enclosure.

E. Cart storage may be utilized on property converted from a residential to non-residential use if the converted property is a structure of less than 2,500 gross sq. ft., has a waste generation rate applicable for cart service, and is in an area where commercial cart service is available.

F. Proposed future building expansion (evaluated at 50% or more of the current square footage) and

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phased development shall be considered in site design with regards to sizing, location(s), and access of future solid waste and recyclables container enclosures. Solid waste and recycling areas necessary for future building expansion shall be available , but need not be utilized, nor container enclosures constructed, until future building expansion occurs.

G. Containers for solid waste and recycling service shall be screened from the public right-of-way ("ROW") and from adjacent property owners.

H. Proper construction of the container enclosures shall be completed prior to final approval of the development or property by the City's Solid Waste Department.

I. Container enclosure designs shall be consistent with the engineering drawings and specifications shown in the Solid Waste and Recycling Container Enclosure Construction Drawings in the City of Denton Standard Details.

3.2.2 Container Enclosure and Storage Space Dimensional Requirements

A. All single container enclosures shall have inside walls with dimensions measuring a minimum of 13 feet wide and 11.5 feet deep. The Rear face of the bollard must be three (3) feet from the rear of enclosure and the front of bollard must be eight (8) feet from the front of enclosure, leaving six (6) inches of space equal to the size of the bollard. Only solid waste and recycling containers are allowed in the enclosures. Other storage containers such as grease and oil receptacles, and other items shall be stored and located in a different enclosure. These enclosures shall be located where they will not impede the service of the solid waste and/or recycling containers.

B. All dual container enclosures shall have inside walls with dimensions measuring 26 feet wide and 11.5 feet deep. The Rear face of the bollard must be three (3) feet from the rear of the enclosure and the front of bollard must be eight (8) feet from front of enclosure, leaving six (6) inches of space equal to the size of the bollard. Only solid waste and recycling containers are allowed in the enclosures. Other storage containers such as grease and oil receptacles, and other items shall be stored and located in a different enclosure. These enclosures shall be located where they will not impede the service of the solid waste and/or recycling containers.

C. All roll-off compactor enclosures shall have inside walls with dimensions measuring a minimum of 16 feet wide. The depth of inside walls must accommodate the compactor size selected.

D. The City of Denton Standard Details contain the required construction specifications for container enclosures and storage spaces.

E. All developments shall be required to install container enclosures as specified in Table 3.2-A .

F. Nonresidential uses which are not required to meet the above storage space and enclosure requirements, will be reviewed for adequate solid waste and recyclables enclosures based on site-specific information and the following Solid Waste and Recycling Design Factors:

1. Type of business;
2. Waste generation potential;
3. Waste generation of similar businesses;
4. Square footage of the development and structures;
5. Number of floors;
6. Location of the business;

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7. Hours of business operation;
8. Business site plan; and
9. Phased development and future use plans.

Table 3.2-A: Minimum Container Enclosure Requirements

Development Use	Required Enclosure(s) or Container(s)
RESIDENTIAL	
Single-family	Residential curbside cart pick-up
Townhomes – 4 units and fewer	
RESIDENTIAL - MULTIFAMILY	
5 – 48 units	2 front-load containers enclosed
49 – 64 units	3 front-load containers enclosed
65 – 200 units	1 compactor and 1 front-load container for recycling or 4 front-load containers enclosed
200+ units	1 compactor and 1 front-load containers enclosed
GENERAL COMMERCIAL	
1 – 15,000 sq. ft.	2 front-load containers enclosed
15,001 – 50,000 sq. ft.	3 front-load containers enclosed
50,001 – 200,000 sq. ft.	1 compactor and 1 front-load container for recycling or 4 front-load containers enclosed
Over 200,000 sq. ft.	1 compactor and 1 front-load container enclosed

Notes:
[1] For industrial/warehouse development, container(s) do not require enclosures, but container(s) must be screened from public view.

3.2.3 Container Enclosure Design Requirements

A. Materials used for container enclosure construction shall be compatible with the architecture and appearance of the main building and may include the following materials:
   1. Concrete Block – Tinted, colored, painted, or with textured facing;
   2. Concrete – Poured or tilt wall construction;
   3. Brick - Double brick thickness minimum;
   4. Stone;
   5. Metal;
   6. Wood;
   7. Vinyl;
   8. Composite Material; or
   9. Any combination of materials 1-8.

B. Front-load enclosures shall have walls constructed to a minimum height of six (6) feet, or as tall as

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required to conceal the container. Compactor enclosure walls must be a minimum height of eight (8) feet, in order to conceal the compactor and mechanical equipment.

C. Gates shall be required when the interior of the enclosure is visible from the public ROW or when it is visible from the lot of an adjacent property owner.

D. Personal access side gates are recommended as a feature of all gated enclosures. These gates should be fitted with emergency egress strike bars.

3.2.4 Enclosure Access, Placement, Ingress, and Egress Requirements

A. The required number of enclosures will be determined based on the type and size of the development.

B. Dumpster enclosures must be angled no more than 30 degrees from the center line of the solid waste collection vehicle route.

C. There must be 50 feet or more of unobstructed truck access in front of each container.

D. For safety purposes, solid waste collection vehicles will not back up more than 100 feet after servicing a container and will not make any turns while backing up.

E. Turn Radii Requirements: The turn radii must be a minimum of 30 feet for any intersection to accommodate occasional turning trucks for weekly pick-up.

F. The collection vehicle will travel through a site once without backtracking. For an example of a typical solid waste collection route, take note of the Typical Solid Waste Collection Route Schematic shown in Figure 3.1 below.

G. Container enclosures shall not be located in a fire lane, public ROW, public utility easements, or sidewalk area.

H. No solid waste container enclosure shall be located within the required front yard or protrude in front of any buildings along the designated lot frontage.

I. Parking spaces shall begin after enclosure gates open. No obstructions permitted around enclosure or gate openings equivalent to the length of gate.

J. The location of container enclosures may not cause the obstruction of traffic for excessive lengths of time while being serviced.

K. The solid waste service truck shall be on the property owner's property during service operations, if the site design permits.

L. Ingress and egress routes shall be designed to facilitate exiting the property in a forward driving direction for all interstate and state roads, arterial streets, and collector streets with four lanes. *See* the Backing Clearance Schematic in Figure 3.2 below.

M. Utility wires and structure overhangs should have a minimum height clearance of 20 feet along the ingress and egress route. No utility wires shall extend over the enclosure approach and service area.

N. Container enclosures shall be located a minimum of 30 feet away from any storm drain or drainage flow areas. Where site configuration allows, container enclosures shall also be placed downslope of any storm drain.

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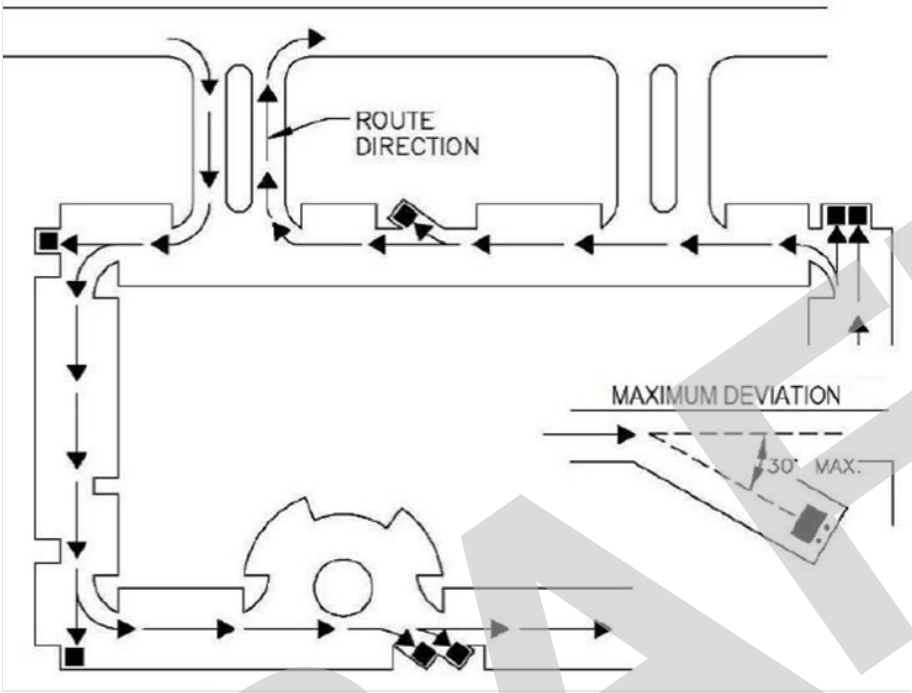

Figure 3.1 Typical Solid Waste Collection Route Schematic

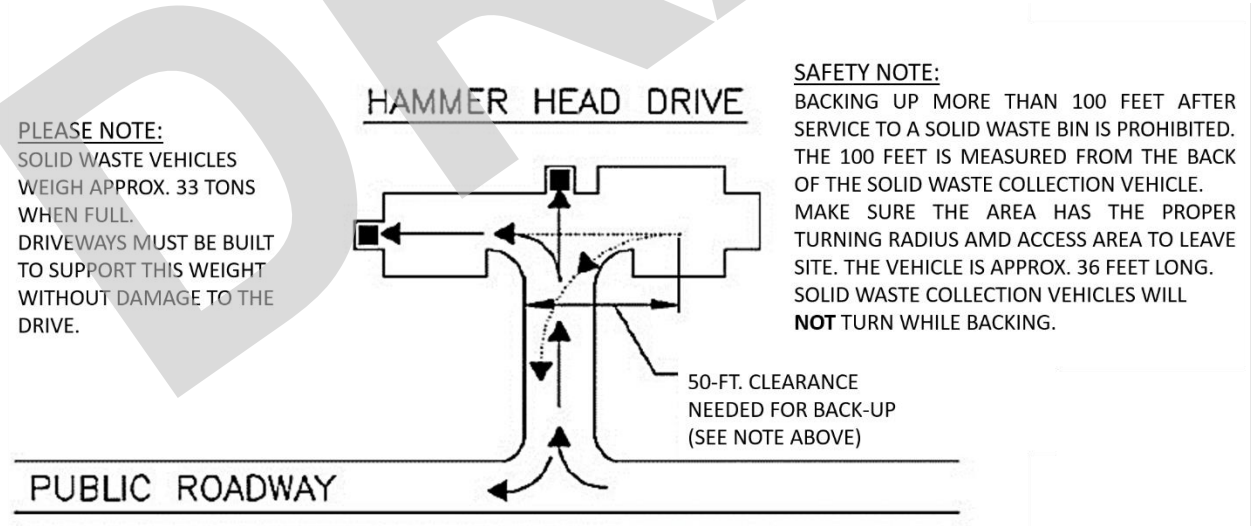

Figure 3.2 Backing Clearance Schematic

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3.2.5 Alleyway Access

An alley (residential or commercial) is a private street designed to provide fire and solid waste collection access to the rear of or side of a lot. Dead-ends are not permitted in alleys. Alleys used for solid waste collection must comply with the Transportation Design Criteria in Section 5 of this Manual. Alleyway access must comply with the following criteria:

A. Design Factors:
   1. Turn Radius;
   2. Street Widths;
   3. Horizontal and Vertical Clearances;
   4. Pavement; and
   5. Multifamily Units

B. Turn Radii Requirements: Texas Department of Transportation (TxDOT) recommends, via AASHTO, that the turn radii be a minimum of 30 feet for alley-to-alley intersections with occasional turning trucks for weekly trash pick-up per TCEQ regulations. Turn radii must be sufficient for side-load residential collection vehicles to navigate alleyways lined with trash and recycle carts on both sides. *See* Figure 3.3 below.

C. Alley Width Requirements: Alleys must be paved and a minimum of 15-ft. wide. Additionally, alleys must be wide enough to accommodate carts, to allow vehicles to safely service carts, and to comply with the Transportation Design Criteria in Section 5 of this Manual.

D. Horizontal and Vertical Clearance Requirements: Balconies, landscaping, or other elements shall not encroach into approved horizontal or vertical clearances for vehicle travel, backing, loading, or other operations along any alley.
   1. The horizontal operating travel clearance must be 20 feet.
   2. The vertical operating travel clearance must be 15 feet.

E. Pavement Requirements: Pavement must be built to standards that allow two (2) 33-ton vehicles to travel down all alleys twice each service day. Alternatively, a responsible party, HOA, or POA must provide a waiver recorded with the property for potential damage caused over time by normal hauler operations.

F. Multifamily Unit Requirements: Any attached residential arrangement of five (5) or more dwelling units per lot will fall under the Commercial Business Category as defined by City of Denton Code of Ordinances 24-2 Definitions (Commercial), which requires a solid waste and recycling storage facility (container enclosure). *See* the Site Plan Criteria for Municipal Solid Waste & Recyclables Storage & Enclosure Requirements in the City of Denton Standard Details.

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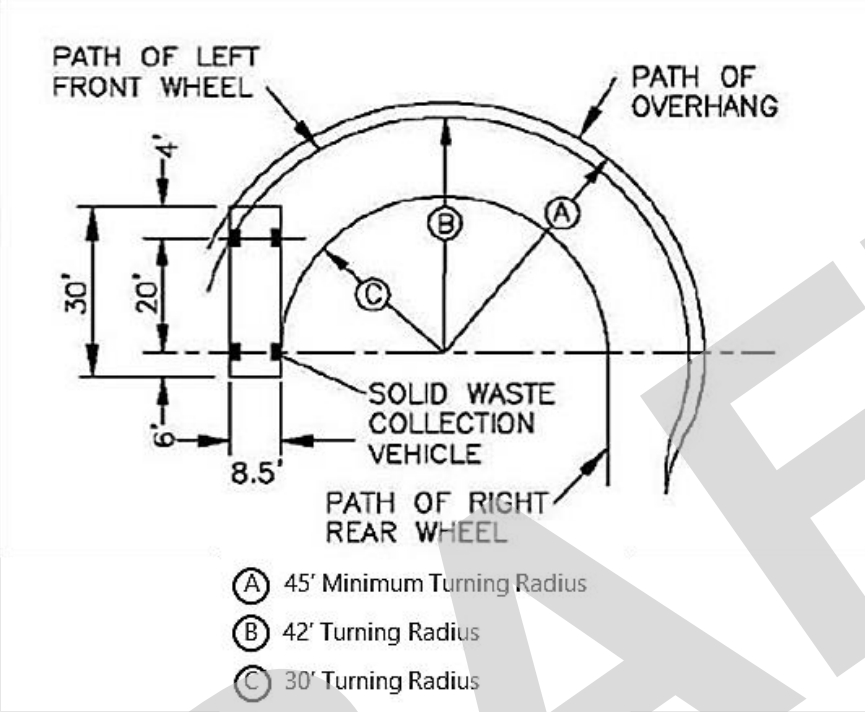

Figure 3.3 Solid Waste Collection Vehicle Turn Radius Schematic

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Section 4: Stormwater Design Criteria

4.1 Overview

The purpose of Section 4 - Stormwater Design Criteria of this DCM is to establish standard principles and practices for the design and construction of storm drainage systems, to implement the policies set forth in the DDC and the City of Denton Code of Ordinances, Subpart B, Chapter 30 (Denton Flood Prevention and Protection Ordinance) within the City of Denton, Texas and its extraterritorial jurisdictions.

The following documents govern the design and construction of stormwater drainage systems:

A. City of Denton Code of Ordinances, Chapter 30, Flood Prevention and Protection;

B. DDC Subchapter 7.4 – Environmentally Sensitive Areas;

C. DDC Subchapter 7.5 – Drainage Standards;

D. *i*SWM™ Planning Technical Manual Document;

E. *i*SWM™ Water Quality Technical Manual Document;

F. *i*SWM™ Hydrology Technical Manual Document;

G. *i*swm™ Hydraulics Technical Manual Document;

H. *i*SWM™ Site Development Controls Technical Manual Document;

I. *i*SWM™ Construction Controls Technical Manual Document;

J. *i*SWM™ Construction Control Standard Details Technical Manual Document; and

K. *i*SWM™ Landscape Technical Manual Document.

The design factors, formulae, graphs, and procedures specified in this document are intended for use as minimum engineering criteria for the design of drainage systems with regards to the quantity, rate of flow, method of collection, storage, conveyance, detention, and disposal of storm water. ***Responsibility for actual design remains with the design engineer. Users of this Manual should be knowledgeable and experienced in the theory and application of drainage engineering.***

The stormwater criteria contained in this Manual supersede any design criteria contained in the *i*SWM™ Planning, Water Quality, Hydraulics, and Hydrology Technical Manual Documents. The stormwater design criteria contained in this Manual ***do not*** supersede the criteria contained in the DDC or Chapter 30 of the City of Denton Code of Ordinances. Any revisions to the DDC or Chapter 30 of the City of Denton Code of Ordinances shall supersede the criteria in this Manual. In case of any conflict, the more stringent requirement shall apply.

The requirements of this Manual shall apply to all public facilities and to private facilities when the performance of such private facility has an effect on the public interest, health, or welfare.

4.1.0 Organization

Section 4 - Stormwater Design Criteria is categorized as follows:

A. Overview

B. Design Focus

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C. Design Storms
D. Hydrologic Methods
E. Acceptable Downstream Conditions for Open Channels and Floodplains
F. Stormwater System Design
G. Culverts
H. Bridges
I. Detention Facilities
J. Energy Dissipation
K. Floodplain
L. Drainage and Floodplain Easements
M. Water Quality
N. Stormwater Facility Maintenance Agreements

4.2 Design Focus

The design criteria for stormwater management primarily focus on:

4.2.1 Streambank Protection - Regulate discharge from the site to minimize downstream bank and channel erosion;

4.2.2 Flood Mitigation and Conveyance - Control runoff within and from the site to minimize flood risk to people and properties for the conveyance storm and the 1% chance storm; and

4.2.3 Water Quality - Reduce pollutants from stormwater by either infiltrating the water quality volume, or removing 80% of TSS from any "*Water Quality*" storm event discharge.

4.3 Design Storms

Design is typically based on four (4) storm events, as detailed in Table 4.3-A.

Table 4.3-A: Design Storm Events

Storm Event Name	Storm Event Description
"Water Quality"	Criteria based on a volume of 1.5 inches of rainfall, not storm frequency
"Streambank Protection"	1-year, 24-hour storm event
"Conveyance"	25-year, 24-hour storm event
"Flood Mitigation"	100-year, 24-hour storm event

Notes:
[1] Throughout the manual, the storms will be referred to by their storm event names.

Drainage facilities shall be designed utilizing the "*Flood Mitigation*" storm event. Replacement or modification of existing drainage facilities shall not reduce capacity, but such facility replacements or modifications may be designed according to the requirements of the specific project and may utilize the "*Conveyance*" storm as the design storm event, through an approved design deviation request.

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4.4 Hydrologic Methods

4.4.1 Types of Hydrologic Methods

The following empirical hydrologic methods support hydrologic site analysis for the design methods and procedures included in this Manual:

A. Rational Method;

B. SCS Unit Hydrograph Method;

C. Modified Rational Method;

D. Snyder's Unit Hydrograph Method; and

E. USGS & TxDOT Regression Equations

Table 4.4-A lists the hydrologic methods and the circumstances when they may be used in various analysis and design applications. Table 4.4-B provides some additional constraints on the use of several methods.

Table 4.4-A: Applications of the Hydrologic Methods

Method	Rational Method	SCS Method	Modified Rational	Snyder's Unit Hydrograph Method	USGS & TxDOT Equations
Streambank Protection Volume (SP_v)		✓		✓	
Flood Mitigation Discharge (Q_f)		✓		✓	✓
Storage Facilities		✓	✓	✓	
Outlet Structures		✓		✓	
Gutter Flow and Inlets	✓	✓			
Storm Drain Pipes	✓	✓		✓	
Culverts	✓	✓		✓	✓
Bridges		✓		✓	
Small Ditches	✓	✓		✓	
Open Channels	✓	✓		✓	✓

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Table 4.4-B: Constraints on Using Hydrologic Methods

Method	Size Limitations [1]	Used for Estimating
Rational [2]	0 – 100 acres	Peak flows and design of small site or subdivision storm sewer systems.
Modified Rational [3]	0 – 200 acres	Runoff volumes for storage design.
Unit Hydrograph (SCS) [4]	Any Size	Peak flows and hydrographs for all design applications.
Unit Hydrograph (Snyder's) [5]	1 acre and larger	Peak flows and hydrographs for all design applications.
TxDOT Regression Equations [6]	10 – 100 sq. mi.	Peak flows for rural design applications.
USGS Regression Equations [6]	3 – 40 sq. mi.	Peak flows for urban design applications.

Notes:
[1] Size limitation refers to the drainage basin for the stormwater management facility (e.g., culvert, inlet).
[2] Acceptable for small, highly impervious drainage areas, such as parking lots and roadways draining into inlets and gutters.
[3] Used for conceptualizing; the engineer of record must use *i*SWM™ Hydrology Technical Manual Document when using this method.
[4] Refers to SCS routing methodology included in many readily-available programs (such as HEC-HMS or HEC-1) which utilize it.
[5] Refers to Snyder's methodology included in many readily-available programs (such as HEC-HMS or HEC-1) which utilize it.
[6] The USGS and TxDOT equations should not be used when there are significant storage areas within the drainage basin or where other drainage characteristics indicate general regression equations are not appropriate.

4.4.2 Rainfall Estimation

Rainfall intensities, provided in Table 5.3 of the iSWM™ Hydrology Technical Manual, are based on Atlas 14 and shall be used for all hydrologic analysis within Denton County.

4.5 Acceptable Downstream Conditions for Open Channels and Floodplains

Storm water discharge from a development shall not cause adverse impacts to adjacent, upstream, or downstream properties or facilities. The design of a storm drain facility must account for the offsite flows that are routed through the development, flows generated by the development, and the impacts of the development and the drainage system on downstream facilities.

4.5.1 Downstream Assessments

The downstream impacts of development must be carefully evaluated for the two (2) focus areas of Streambank Protection and Flood Mitigation (*See* Section 4.2 of this Manual). The purpose of the downstream assessment is to protect downstream properties from increased flooding and downstream channels from increased erosion potential due to upstream development. The importance of the downstream assessment is particularly evident for larger sites or developments that have the potential to dramatically impact downstream areas. The cumulative effect of smaller sites, however, can be just as dramatic and, as such, following the Focus Areas is just as important for the smaller sites as it is for the larger sites.

A downstream assessment will be required for all developments which alter flow patterns or increase the amount of impervious surface and do not limit the peak discharge to pre-development conditions at each outfall from their site. The assessment shall extend from the outfall of a proposed development to a point downstream where there is no calculated increase in WSEL (water surface elevation) or mean velocity within the receiving stream or storm drainage system. The City shall be consulted to obtain records and maps related to the National Flood Insurance Program (NFIP) and the availability of Flood Insurance Studies (FIS)

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and Flood Insurance Rate Maps (FIRMs) which will be helpful in this assessment. The assessment must include the following properties:

A. Hydrologic analysis of the pre- and post-development on-site conditions.
B. Drainage path that defines extent of the analysis.
C. Capacity analysis of all existing constraint points along the drainage path, such as existing floodplain developments, underground storm drainage systems culverts, bridges, tributary confluences, or channels.
D. Offsite undeveloped areas are considered as "fully developed" for both the pre- and post-development analyses.
E. Evaluation of peak discharges and velocities for three (3) 24-hour storm events:
   1. "*Streambank protection*" storm
   2. "*Conveyance*" storm
   3. "*Flood Mitigation*" storm
F. Separate analysis for each major outfall from the proposed development.

Once the analysis is complete, the designer must answer the following questions at each determined junction downstream:

A. Are the post-development discharges greater than the pre-development discharges?
B. Are the post-development velocities greater than the pre-development velocities?
C. Are the post-development velocities greater than the velocities allowed for the receiving system?
D. Are there any increases in post-development flood heights above the pre-development flood heights?

These questions shall be answered for each of the three (3) storm events. The answers to these questions will determine the necessity, type, and size of non-structural and structural controls to be placed on-site or downstream of the proposed development.

Section 2.0 of the iSWM™ Hydrology Technical Manual, as amended, gives additional guidance on calculating the discharges and velocities, as well as determining the downstream extent of the assessment.

4.5.2 Adverse Impacts

Downstream Assessments shall evaluate the capacity of the downstream system within the Zone of Influence (ZOI). If the downstream system has less than fully developed capacity, the study shall demonstrate the development will produce no adverse impacts during the one (1), 25, and 100-year storm events. No adverse impacts may include, but are not limited to:

A. No new or increased flooding of existing structures;

B. Zero increases (0.00') in water surface elevations unless contained within the banks of an existing channel including 1-ft. freeboard. Dry lane requirements set forth in Section 4.6.2 shall also be met;

C. Increasing channel velocity is prohibited where existing velocities are erosive. Any increase in channel velocity in other areas must remain below the maximum allowable velocity as defined in Table 4.6-E;

D. No increases in downstream discharges caused by the proposed development that, in combination with off-site discharges, exceeds the existing capacity of the downstream storm drainage system;

E. The *Downstream Assessment* shall extend to a point downstream, known as the ZOI, where the proposed development creates no adverse impacts. The ZOI will be defined by a detailed hydrologic and hydraulic modeling analysis. The City's Engineer may require analysis beyond the ZOI

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established by the Engineer of Record based on the criteria above and known flooding issues. ZOI does not automatically end based the rule of thumb known as the "10% rule"; and

F. If the subject development is part of a larger development, the *Downstream Assessment* must include the larger development, and the ZOI shall be determined based on the entire property.

4.5.3 Stormwater Diversions

Diversion of storm water away from the natural watercourse or existing discharge points will not be allowed, except within the property boundaries controlled by the developer under the following conditions:

A. The storm water is returned to its natural flowing watercourse prior to leaving the developer's property, or

B. A timing analysis of the existing and diverted hydrograph must be performed to confirm that the peak flow rate has not been increased at the point that it reenters the watercourse, as a result of the diversion. The City's Engineer may require additional downstream analysis if there are known downstream flooding or volume-sensitive areas.

4.5.4 Streambank Protection

There are two (2) options by which a developer can provide adequate streambank protection downstream of a proposed development. The first step is to perform the required downstream assessment as described earlier in Section 4.5.1 of this Manual. If it is determined that the proposed project does not exceed acceptable downstream velocities or the downstream conditions are improved to adequately handle the increased velocity, then no additional streambank protection is required. If the downstream assessment shows that the velocities are within acceptable limits, then no streambank protection is required. Acceptable limits for velocity control are provided in Table 4.6-D and Table 4.6-E of this Manual. If existing stream velocities exceed the maximum allowable velocities, then no increase in velocities will be permitted. If the downstream assessment shows an increase in velocity beyond the acceptable limits, then on-site or downstream improvements are required for streambank protection, easements or right-of-entry agreements will need to be obtained in accordance with Section 4.12 of this Manual, and one of the two options below must be utilized for streambank protection.

Option 1: Reinforce/Stabilize Downstream Conditions

If the increased velocities are greater than the allowable velocity of the downstream receiving system, then the developer must reinforce/stabilize the downstream conveyance system. The proposed modifications must be designed so that the downstream system is protected from the post-development velocities. The developer must provide supporting calculations and/or documentation that the downstream velocities do not exceed the allowable range once the downstream modifications are installed.

Allowable bank protection methods include stone riprap, gabions, and bio-engineered methods. Sections 3.2 and 4.0 of the *i*SWM™ Hydraulics Technical Manual give design guidance for designing stone riprap for open channels, culvert outfall protection, riprap aprons for erosion protection at outfalls, and riprap basins for energy dissipation.

If the downstream receiving system is designated as an Environmentally Sensitive Area (ESA) this option may not be a viable option. *See* Section 7.4 of the DDC for more information about the various types of ESAs, permitted encroachments, and processes for assessing and modifying ESAs.

Option 2: Install Stormwater Controls to Maintain Existing Downstream Conditions

The developer must use on-site controls to keep downstream post-development discharges at or below

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allowable velocity limits. The developer must provide supporting calculations and/or documentation that the on-site controls will be designed such that downstream velocities for the three (3) storm events (*"Streambank Protection", "Conveyance",* and *"Flood Mitigation"*) are within an allowable range once the controls are installed.

4.5.5 Flood Mitigation

A. Introduction

Flood analysis is based on the *"Flood Mitigation"* storm event (see Table 4.3-A). The intent of the flood mitigation criteria is to provide for public safety; minimize on-site and downstream flood impacts from the *"Flood Mitigation"* storm event; maintain the boundaries of the mapped 100-year floodplain; and protect the physical integrity of the on-site stormwater controls and the downstream stormwater and flood mitigation facilities.

Flood mitigation must be provided for on-site conveyance systems, as well as downstream outfalls as described in the following sections.

B. Flood Mitigation Design Options

There are three (3) options by which a developer may address downstream flood mitigation as discussed below. When on-site or downstream modifications are required for downstream flood mitigation, easements or right-of-entry agreements will need to be obtained.

The developer will provide all supporting calculations and/or documentation to show that the existing downstream conveyance system has capacity (Q_f) to safely pass the fully-developed flood mitigation storm discharge.

Option 1: Provide or Document Adequate Downstream Conveyance Systems

When the downstream receiving system does not have adequate capacity, then the developer shall provide modifications to the off-site, downstream conveyance system. If this option is chosen, the proposed modifications must be designed to adequately convey the full build-out stormwater peak discharges for the *"Flood Mitigation"* storm event. The modifications must also extend to the point at which the discharge from the proposed development no longer has an impact on the receiving stream or storm drainage system.

The developer must provide supporting calculations and/or documentation that the downstream peak discharges are safely conveyed by the proposed system, without endangering downstream properties, structures, bridges, roadways, or other facilities, and no increase in water surface elevation.

Option 2: Install Stormwater Controls to Maintain Existing Downstream Conditions

When the downstream receiving system does not have adequate capacity, then the developer shall provide stormwater controls to reduce downstream flood impacts. These controls include on-site controls such as detention, regional controls, and, as a last resort, local flood protection such as levees, floodwalls, floodproofing, etc.

The developer must provide supporting calculations and/or documentation for each existing discharge point indicating that the controls will be designed and constructed so that there is no increase in downstream peak discharges or water surface elevations due to development.

Option 3: In lieu of a Downstream Assessment, Maintain Existing On-Site Runoff Conditions

Lastly with Option 3, on-site controls shall be used to maintain the pre-development peak discharges for each existing discharge point from the site. The developer must provide

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supporting calculations and/or documentation that the on-site controls will be designed and constructed to maintain on-site existing conditions.

It is important to note that Option 3 may not require a downstream assessment. It is a detention-based approach to addressing downstream flood mitigation after the application of the integrated site design practices. However, a downstream assessment may be required for sites adjacent to or near streams in which delayed release of flows from detention facilities could potentially increase the peak flow in the stream due to coincident peaks. This assessment of the impact of coincident peaks is required for all sites with a contributing drainage area greater than or equal to 10% of the stream drainage area at the subject discharge point.

4.6 Stormwater System Design

4.6.1 Introduction

Stormwater system design is an integral component of both site and overall stormwater management design. Good drainage design must strive to maintain compatibility and minimize interference with existing drainage patterns; control flooding of property, structures, and roadways for design flood events; and minimize the potential environmental impacts of stormwater runoff.

Stormwater collection systems must be designed to provide adequate surface drainage while at the same time meeting other stormwater management goals such as water quality, streambank protection, habitat protection, and flood mitigation. Fully developed watershed conditions shall be used for determining runoff for the *"Flood Mitigation"* storm event.

4.6.2 Hydraulic Design Criteria for Streets and Closed Conduits

A. Introduction

This section is intended to provide criteria and guidance for the design of on-site flood mitigation system components including:

1. Street and roadway gutters;
2. Stormwater inlets;
3. Storm drainpipe systems; and
4. Parking lot sheet flow.

B. Streets and ROW

1. Design Criteria
   a. Flow spread limits for curbed streets are shown in Table 4.6-A below.
   b. Inverted crown sections are permitted only in alleys.
   c. Street crowns shall be reduced for approximately 100 feet on each side of the valley gutters. No valley gutters will be permitted across collectors or arterials.
   d. For non-curbed streets the "*Flood Mitigation*" storm event shall be contained within paralleling roadside ditches, within the public ROW (Figure 4. 1 below).
   e. Roadside ditches shall be designed to carry the "*Flood Mitigation*" runoff below the roadway elevation.
   f. Streets or alleys adjacent to an open channel shall have the edge of the pavement

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designed with a minimum elevation of one (1) foot above the "*Flood Mitigation*" elevation or as directed by the City's Engineer.

g. Where additional hydraulic capacity is required on the street, the proposed street gradient must be increased, or curb inlets and storm sewers installed to remove a portion of the flow.

h. The maximum concentrated flow directed into the street (from a driveway or flume, etc.) is three (3) cubic feet per second (cfs).

2. Flow Spread Limits

a. Inlets shall be spaced so that the spread of flow in the street for the *"Flood Mitigation"* storm shall not exceed the guidelines listed below in Table 4.6-A, as measured from the gutter or face of the curb:

Table 4.6-A: Flow Spread Limits

Street Classification	Allowable Encroachment
Collectors	one travel lane remains open
Arterials	one travel lane in each direction remains open
Residential Streets	curb depth

b. The allowable drainage flow across street intersections for the *"Flood Mitigation"* storm event shall be as shown in Table 4.6-B as follows:

Table 4.6-B: Permissible Flow Across Street Intersections

Street Classification	Cross-Flow
Arterial Street (divided and undivided)	None
Non-Residential Collector Street	None
Residential Street and Residential Collector	Gutter Flow of 2 inches or less

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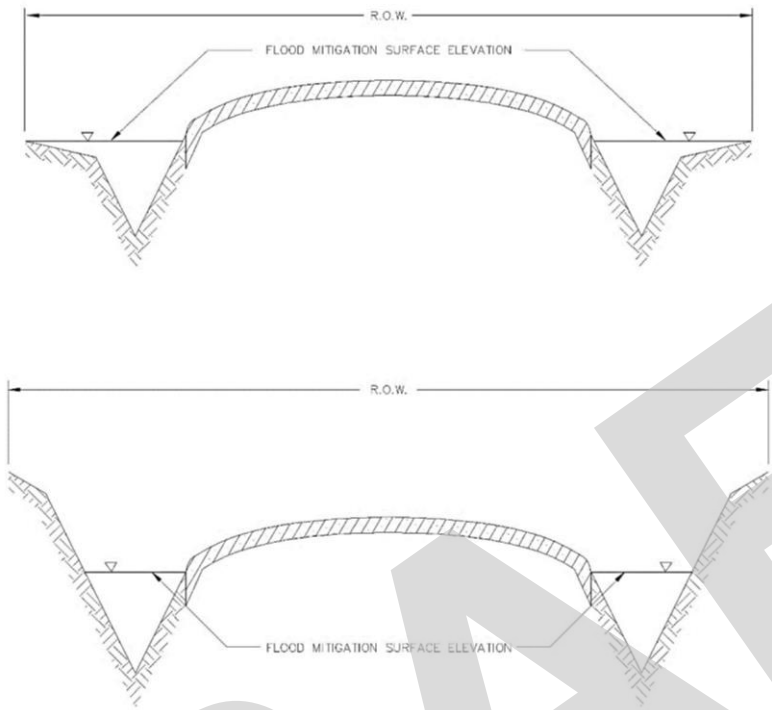

Figure 4.1 Water Spread Limits for Non-Curbed Roadways

3. Minimum Street or Alley Elevations

   No lowering of the standard height of street crown shall be allowed for the purposes of obtaining additional hydraulic capacity. Street crowns shall be in accordance with the City of Denton Standard Details.

C. Drainage Related Minimum Elevations

1. For lots in the influence of a sag area and a positive overflow, the finished floor elevation (FFE) will be at least one (1) foot above the sag area top of the curb, or one (1) foot above the possible maximum pool elevation when the positive overflow is functioning, whichever elevation is higher.
2. New and substantially improved structures within the floodplain or within 200 feet of the floodplain or SFHA must have their finished floor elevated to the minimum building elevation as defined in the City's Chapter 30 Flood Prevention and Protection Ordinance.
3. In all other areas, the minimum FFE shall be a minimum of one (1) foot above the street curb, edge of alley, or rear property line (at the midpoint of the lot), whichever is lower.

D. Storm Inlet Design

1. Permissible Types of Inlet
   a. Drop Inlets (Y-inlet) – Drop inlets are sump inlets which are not located along the curb line of a roadway.
   b. Grate Inlets – The use of grate inlets is not allowed on public drainage systems unless through an approved design deviation request. If allowed, the inlet opening shall be designed twice as large as the calculated opening to compensate for clogging. Grate

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inlets may be used on private systems.

c. Curb Inlets – Curb inlets may be located at roadway low points (sumps) or on grade at such points as to meet the water spread limitations and cross-flow depth requirements. Curb inlets may be one of the following:

   i. Recessed curb inlet – Recessed curb inlets are curb inlets constructed such that the front of the inlet is two (2) feet behind the normal face of curb and the depression does not extend into the traffic lanes.

   ii. Standard curb inlet – Standard curb inlets are curb inlets that are in line with the roadway curb.

   iii. Type 2 curb inlet – Type 2 curb inlets are standard curb inlets where the inlet box is located underneath the outer roadway lane instead of behind the curb. They are only to be utilized in situations where there is insufficient parkway area or an encumbered parkway area for a standard curb inlet.

2. Design Criteria

   a. Public curb inlet size shall be 10, 15, or 20 feet. Maximum length of inlet at any one (1) curb location shall be 20 feet on each side of the street. Inlets will be placed only in straight sections of curb and at least 10 feet from any curb return. Inlets required in cul-de-sacs are the only exceptions to the straight curb section requirement. Curb inlets are not allowed in intersection or curb returns.

   b. Recessed inlets will be required on arterial and non-residential collector streets.

   c. The maximum inlet opening shall be six (6) inches. Openings larger than six (6) inches shall require approval through a design deviation request and shall contain a bar or other form of restraint.

   d. Inlets shall be located in the following locations:

      i. At low points;

      ii. Upstream of pavement crown transitions at intersections (or the developer may identify flow patterns and depths to show these inlets are not needed); and

      iii. Where street flow spread limits or permissible intersection depths are exceeded.

   e. Where possible, inlets at intersections shall be located on the street with the lesser classification or on alleys.

   f. A bypass of no more than 5% of the inlet capacity will be allowed for the *"Flood Mitigation"* storm event.

   g. To prevent water flowing across the street for the "*Flood Mitigation*" storm event, water flowing in gutters of arterials should be picked up prior to reaching super-elevated sections.

   h. In super-elevated sections of divided arterials, inlets placed against the center medians shall have no gutter depressions. Interior gutter flow (flow along the median) shall be intercepted at the point of superelevation transition to prevent street cross-flow.

   i. At bridges with curbed approaches, water should be intercepted before flowing onto the bridge to prevent icing during cold weather.

   j. New inlets shall not be constructed within a sidewalk of other pedestrian path.

   k. The use of recessed inlets shall only be allowed where they do not adversely impact the

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access or functionality of existing utility facilities.

l. Design and location of inlets shall take into consideration pedestrian and bicycle traffic.

m. The use of slotted drains is discouraged except in instances where there is no alternative. Any use of slotted drains requires approval through a design deviation request. If used, the manufacturer's design guidelines should be followed.

n. Depressed inlets are recommended on continuous grades that exceed 1%, although their use in traffic lanes should be avoided whenever possible.

o. A redundant, flanking inlet is required wherever a sag point or low point inlet is identified and no positive overflow path is provided. The redundant inlet shall have the same size as the sag or low point inlet but will not be considered in the hydraulic capacity calculations. The redundant inlet shall have a maximum inlet elevation of six (6) inches above the sag or low point inlet elevation to ensure ponding does not overtop the curb.

3. Inlet Computations

a. Sump Inlets and Drop Inlets

Curb inlets and drop inlets in a sump or low point can be considered to function as a rectangular broad-crested weir with a coefficient of discharge of 3.06. The capacity shall be based on the following weir equation:

$$Q / L \text{ or } Q / P = 3.06\ H^{3/2} \qquad \textbf{[Eqn. 4.1]}$$

Where:
Q = Capacity of curb opening inlet or capacity of drop inlet (*cfs*)
H = Head at the inlet (*feet*)
L = Length of curb opening inlet (*feet*); or
P = Length of portion of perimeter of inlet opening, through which water enters the drop inlet (*feet*)

Inlets should be located such that the inlet openings do not become submerged. In some cases where this is not possible and the inlet operates under completely submerged conditions, the orifice equation [Eqn. 4.2] should be used to compute the inlet capacity, rather than the weir formula [Eqn. 4.1]. The capacity of a completely submerged inlet shall be based on the following orifice equation:

$$Q = 4.84\ A\ H^{1/2} \qquad \textbf{[Eqn. 4.2]}$$

Where: A = Area of inlet opening

The curves shown in Figure 4.2 and Figure 4.3 provide for direct solution of the above equations.

In order to facilitate the computations required in determining the various hydraulic properties for curb inlets and drop inlets in sump conditions, Figure 4.4 Computation Sheet has been prepared.

Column 1	Inlet number and designation.
Column 2	Total flow in *cfs* to inlet. For inlets other than the first inlet in a system, flow is the sum of runoff from the contributing area plus carry-over flow from inlet or inlets upstream.
Column 3	Assumed length of inlet opening or perimeter in feet.

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Column 4	Total area of inlet opening based on assumed inlet opening length and opening height.
Column 5	Discharge per unit foot of inlet opening. Column 2 divided by Column 3.
Column 6	Computed head at inlet for weir flow conditions based on Figures 4.2 or 4.3 or the following equation:

$$H = (q / 3)^{2/3} \quad \text{[Eqn. 4.3]}$$

Column 7	Computed head at inlet for orifice flow conditions (submerged inlet) based on Figures 4.2 or 4.3 or the following equation:

$$H = [(Q / A) / 4.82]^2 \quad \text{[Eqn. 4.4]}$$

Column 8	Maximum allowable head at sump inlet. This value is determined from topographic conditions at the sump inlet site.
Column 9	Width of spread of water for curb inlets in sump.

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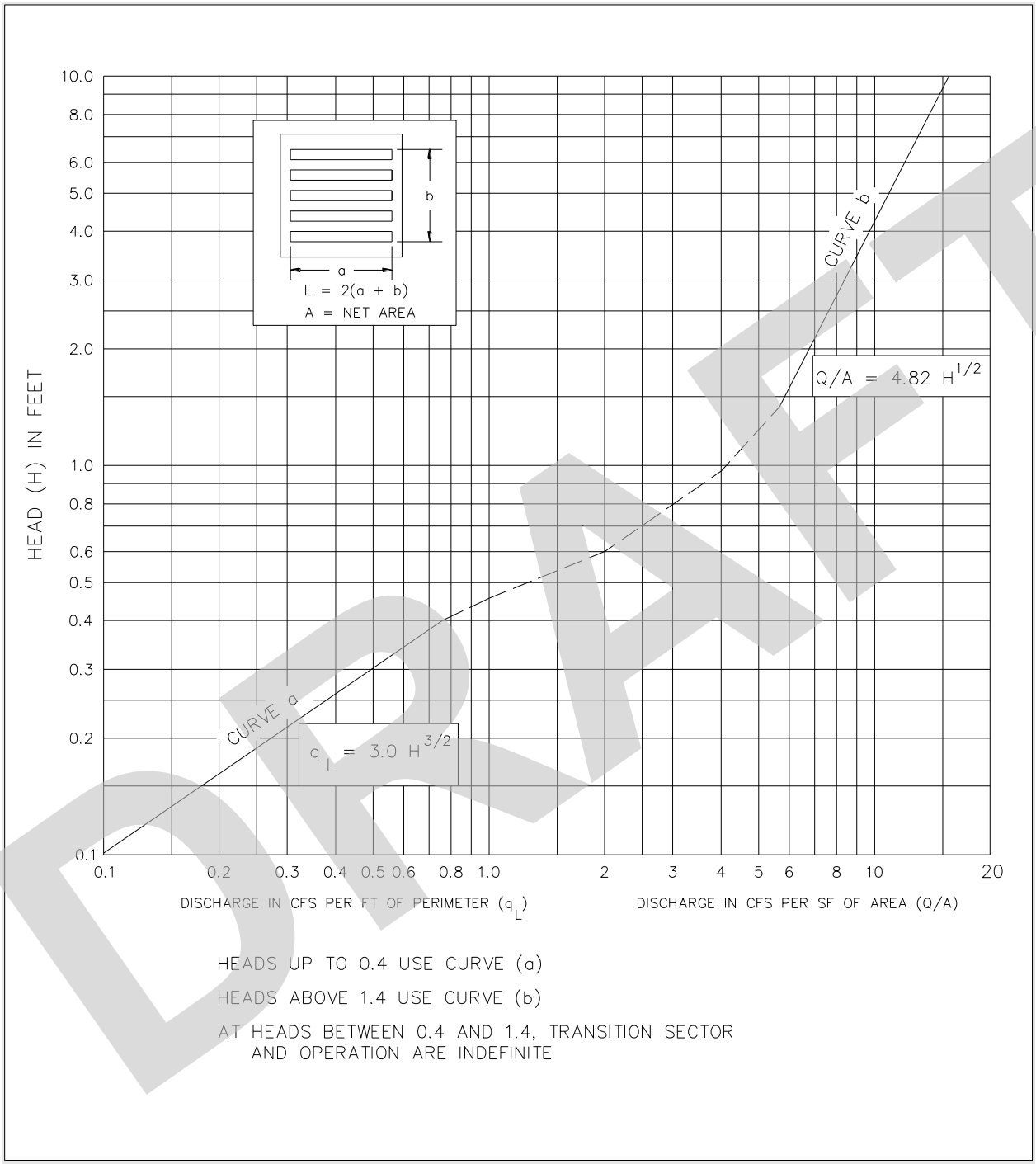

Figure 4.2 Capacity of Grate Inlet in Sump

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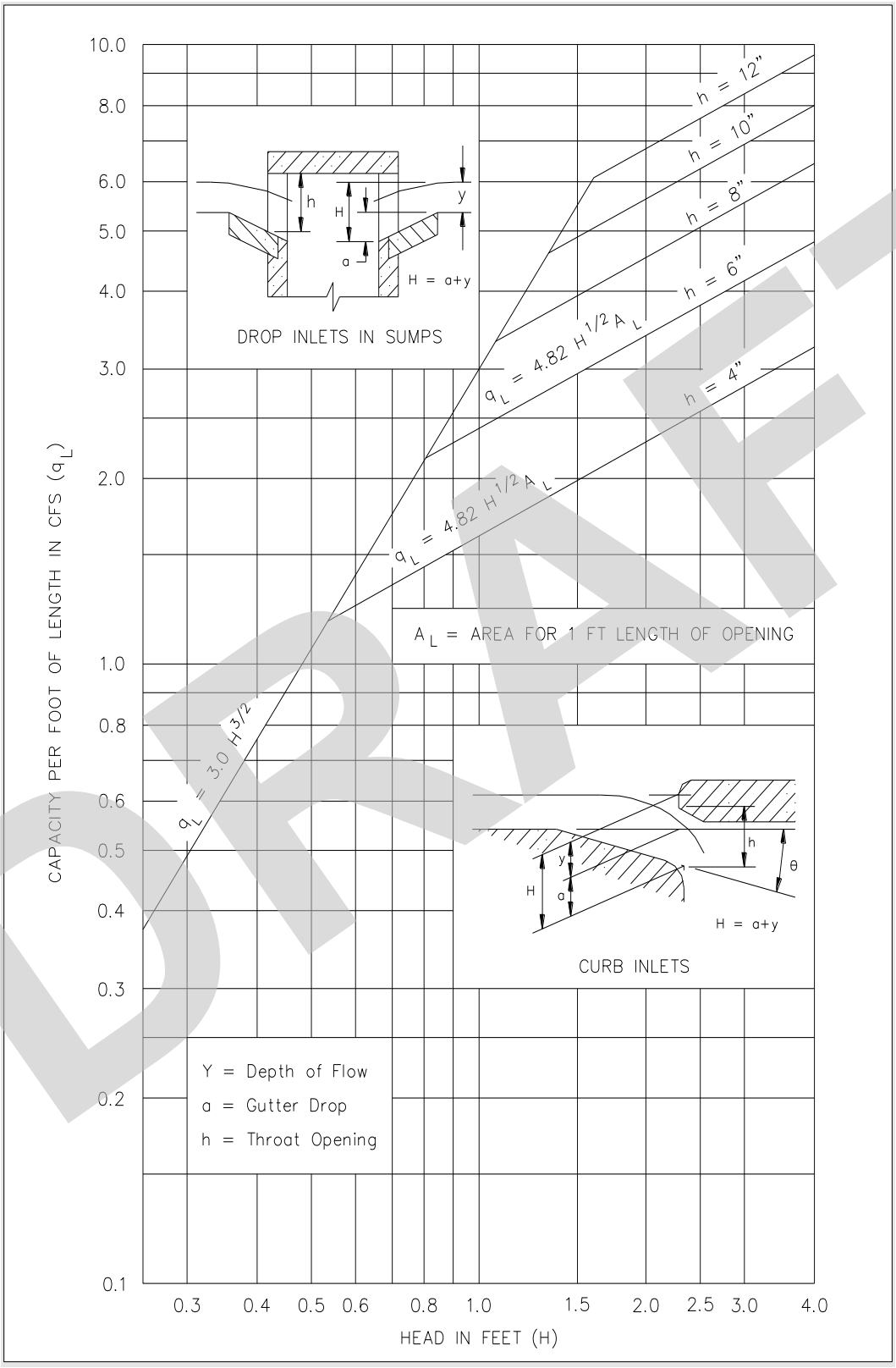

Figure 4.3 Capacity of Drop Inlets and Curb Inlets in Sumps

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CURB INLETS AND DROP INLETS IN SUMPS

INLET NO.	FLOW TO INLET Q (cfs)	LENGTH OF INLET OPENING L (ft)	AREA OF INLET OPENING A (sq ft)	DISCHARGE PER UNIT FOOT OF OPENING q = Q/L (cfs/ft)	COMPUTED HEAD AT INLET		MAXIMUM ALLOWABLE HEAD H (ft)	WATER SPREAD LIMITS S_p (ft)	NOTES
					WEIR FLOW $H = (q/3)^{2/3}$ (ft)	ORIFICE FLOW $H = [(Q/A)/4.82]^2$ (ft)			
1	2	3	4	5	6	7	8	9	10

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Figure 4.4 Computation Sheet for Curb Inlets and Drop Inlets in Sumps

b. Inlets on Grade

The capacity of a curb inlet on grade will be based on the following equation:

$$Q / L_o = 0.7 [1 / y_o] [(H)^{5/2} - (a)^{5/2}] \quad \text{[Eqn. 4.5]}$$

Where:
Q = Discharge into inlet (cfs)
L_o = Length of inlet opening (feet)
a = Gutter depression (feet)
y_o = Depth of flow in approach gutter (feet)
$H = a + y_o$

The curve shown in Figure 4.6 provides for the direct solution of the above equation when the value of y_o is known. The curve shown in Figure 4.7 provides for the determination of the ratio of the intercepted flow by the inlet to the total flow in the gutter.

In order to facilitate the computations required in determining the various hydraulic properties for curb inlets on grade, Figure 4.5 shows Computation Sheet prepared.

Column 1 Inlet Type and number.
Column 2 Location of inlet by station number.
Column 3 Drainage Area designation of area entering between the previous pick up point and the inlet being designed.
Column 4 Peak Discharge (Q_p) from area of Column 3.
Column 5 Carry-over flow (q) which has been passed by the last preceding inlet to the inlet under consideration.
Column 6 Total gutter flow (Q_o) in cfs. For inlets other than the first inlet in the system, total gutter flow is the sum of the runoff from the contributing area plus carry-over flow from the inlet or inlets upstream. Column 4 plus Column 5.
Column 7 Reciprocal of the pavement cross slope for pavements with straight crown slopes.
Column 8 Reciprocal of the pavement cross slope (Z) divided by the pavement roughness coefficient (n).
Column 9 Slope of approach gutter (S_o) in feet per feet.
Column 10 Depth of gutter flow "y_o" in approach gutter direct from Manning's equation for triangular gutters:

$$y_o = 1.245 (Q^{3/8})[n^{3/8} / S^{3/16}] [1 / Z]^{3/8} \quad \text{[Eqn. 4.6]}$$

Column 11 Spread of water (S_p) or width of ponding in the gutter measured from the face of curb. Column 7 times Column 10.
Column 12 Width of street and height of parabolic crown.
Column 13 Slope of approach gutter (S_o) in feet per feet.
Column 14 Depth of gutter flow " y_o " in approach gutter. Column 15 Spread of water (S_p) or width of ponding in the gutter measured from face of curb.
Column 16 Discharge (Q) in cfs which will be intercepted by an inlet one (1) foot in length for a given depth of flow in the approach gutter (y_o).

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Determined from Figure 4.6 or from the solution of the following equation:

$$Q / L_o = 0.7 [1 / y_o] [(H)^{5/2} - (a)^{5/2}] \quad \text{[Eqn. 4.7]}$$

Column 17 Length of inlet (L_o) in feet which is necessary to intercept a given discharge Q_o. Column 6 divided by Column 16.

Column 18 Actual length (L) in feet of inlet which is to be provided.

Column 19 Ratio of the length of inlet provided (L), to the length of the inlet required for 100% interception (L_o). Column 18 divided by Column 17.

Column 20 Percentage of discharge intercepted by the inlet in question determined from Figure 4.7 using the values determined in Column 19 and Column 10 or Column 14.

Column 21 Discharge (Q) in cfs which the inlet in question actually intercepts. Column 6 times Column 20.

Column 22 Carry-over flow (q) is the amount of water which passes any inlet, and is the difference between the total flow (Q_o) of Column 6 and the intercepted flow (Q) of Column 21.

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CURB INLETS ON GRADE

INLET		DRAINAGE AREA NO.	SUB-AREA PEAK FLOW Q_a (cfs)	CARRY-OVER FROM UPSTRM INLET q (cfs)	TOTAL FLOW Q (cfs)	STRAIGHT CROWN SLOPES					PARABOLIC STREET SLOPES				CAPACITY PER FOOT OF INLET Q/L_a (cfs/ft)	LENGTH OF INLET REQ'D FOR Q_a (ft)	INLET LENGTH L (ft)	L/L_a	Q/Q_a	FLOW INTRCPTD $Q = Q_a \cdot Q/Q_a$ (cfs)	CARRY-OVER FLOW q (cfs)	COMMENTS
TYPE & NO.	STATION					CROWN SLOPE Z	Z/n	STREET SLOPE S_o (ft/ft)	FLOW DEPTH Y_o (ft)	WIDTH OF SPREAD S_p (ft)	TYPE OF STREET SECTION	STREET SLOPE S_o (ft/ft)	FLOW DEPTH Y_o (ft)	WIDTH OF SPREAD S_p (ft)								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

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Figure 4.5 Computation Sheet for Curb Inlets On Grade

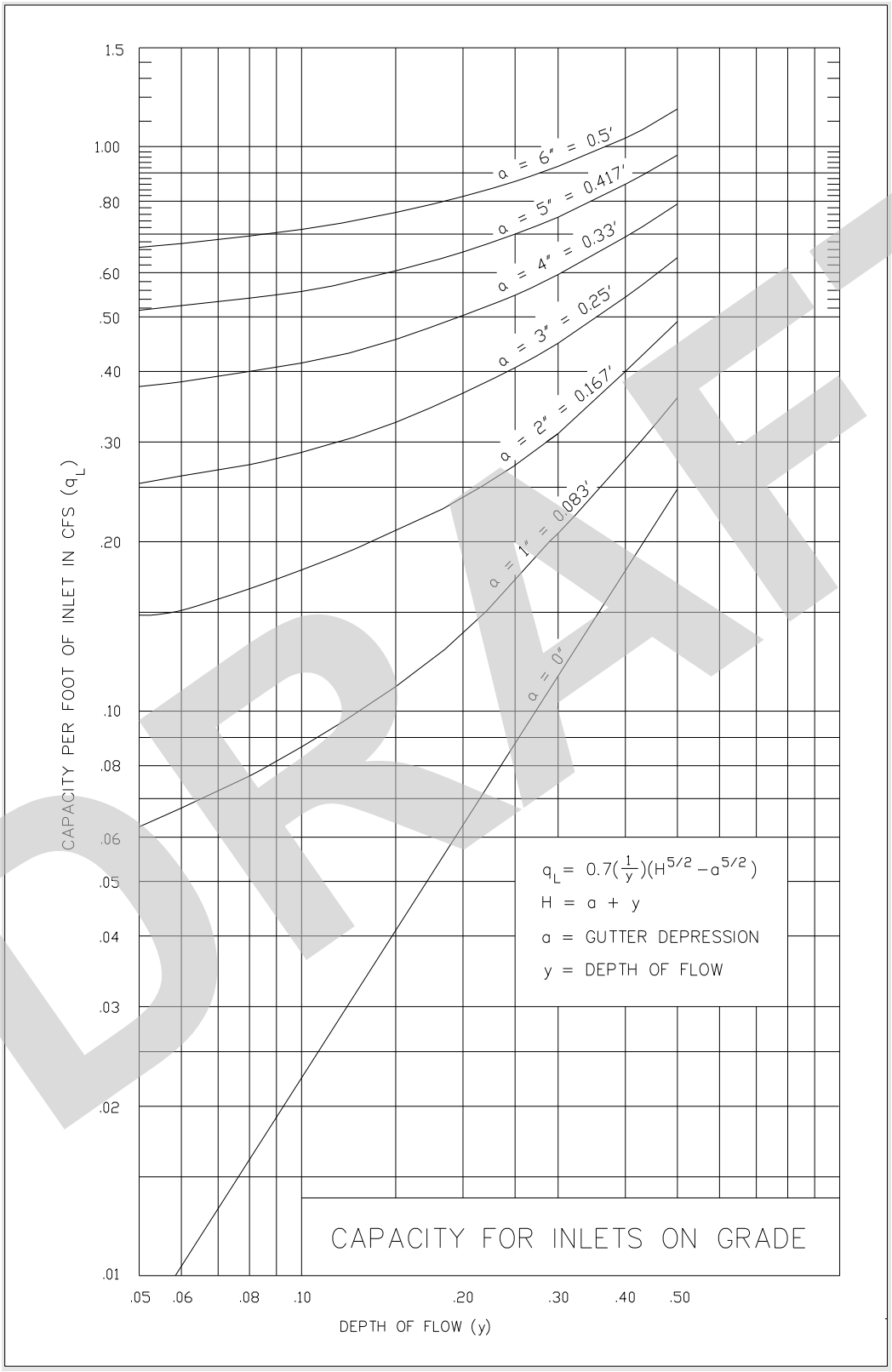

Figure 4.6 Capacity for Inlets On Grade

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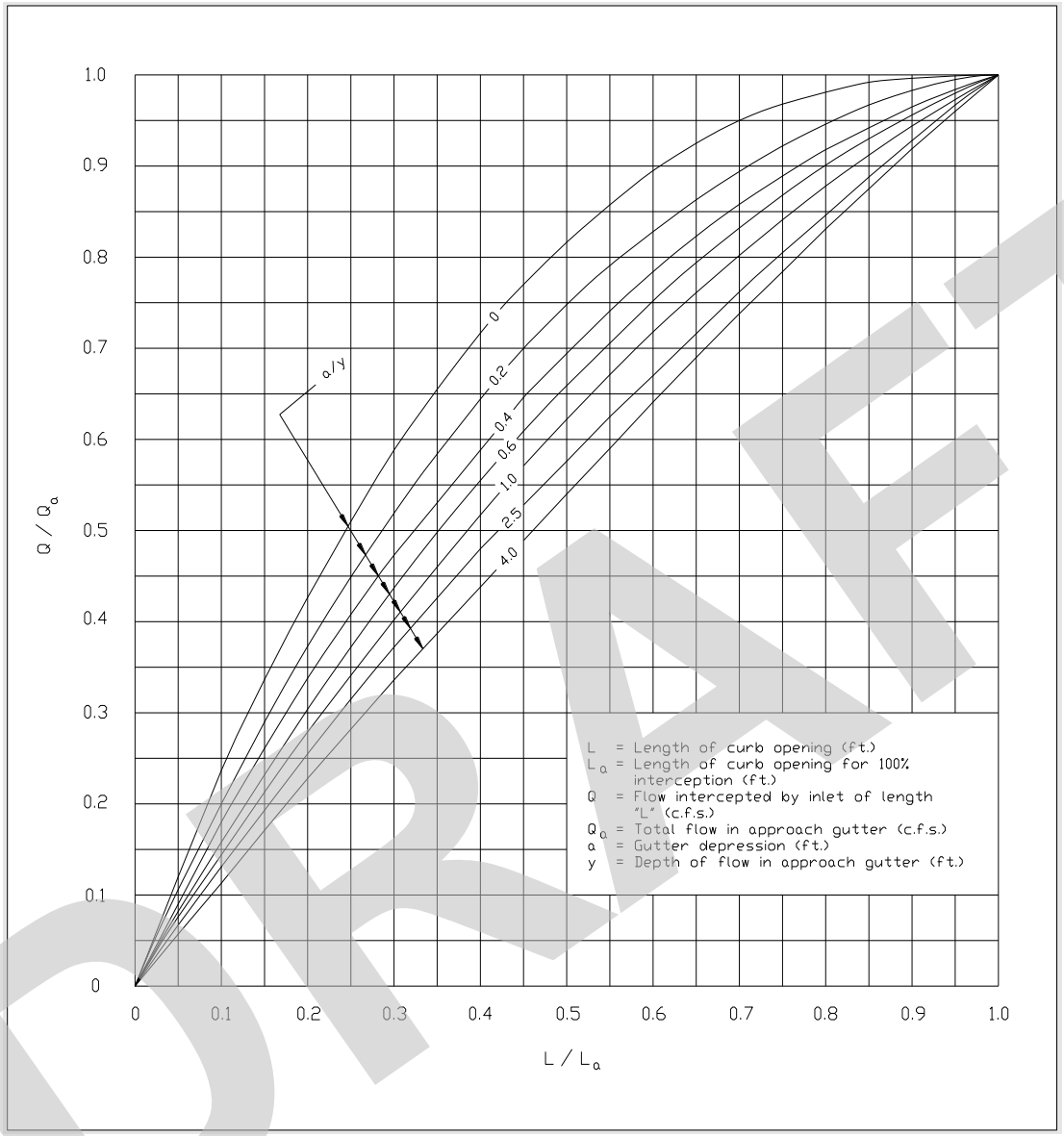

Figure 4.7 Ratio of Intercepted Flow to Total Flow for Inlet On Grade

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E. Storm Drain Pipe Design

1. Design Frequency

Pipe Design: *"Flood Mitigation"* storm event.

2. Design Criteria

a. Storm drain systems capable of conveying the *"Flood Mitigation"* storm event are required when water spread, intersection cross-flow, and lot-to-lot drainage flow limits are exceeded, or when the minimum time of concentration shown in *Table 1.5 of the iSWM™ Hydrology Technical Manual Document* are reached. Closed pipe systems are required for discharges up to and including 300 cfs in public systems.

b. Pipe material in a public storm drain system or in public ROW shall be reinforced concrete for all pipe sizes with appropriate bedding and class type depending on cover.

c. Proposed storm drains may discharge into existing watercourses. *See Section 1.2.10 of the iSWM™ Hydraulics Technical Manual Document* for guidance related to the Tailwater elevation to be used for hydraulic grade line calculations.

d. The maximum hydraulic gradient shall not produce a velocity that exceeds 15 fps. Table 4.6-C shows the desirable velocities for most storm drainage design. Storm drains shall be designed to have a minimum mean velocity flowing full at 2.5 fps.

Table 4.6-C: Desirable Velocity in Storm Drains

Description	Max. Desirable Velocity (fps)
Culverts (All types)	15
Inlet laterals	No Limit
Collectors (≤ 24 inches)	15
Mains (> 24 inches)	12

e. The minimum desirable physical slope shall be 0.5% or the slope that will produce a velocity of 2.5 fps as required for the *"Streambank Protection"* storm event when the culvert is flowing partially full, whichever is greater.

f. The potential hydraulic grade line elevation shall not exceed ground elevation or the gutter flow line, whichever is lowest.

g. Access junction boxes are required along straight runs of closed conduits, with a maximum spacing of 500 feet for all pipe and box sizes.

h. Junction Boxes shall also be located at:

i. any point where three (3) or more drainage conduits (laterals or trunk lines) come together;

ii. any point where a trunk line size changes;

iii. grade changes;

iv. the upstream end of the storm drain system;

v. Bends greater than 45 degrees;

vi. Pipe junctions greater than 45 degrees; and

vii. At the connection point between public and private storm sewer pipes or boxes. If this connection point is in the public ROW, pipe materials on the private system

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must meet public storm drain system materials requirements. If the connection point is on private property, then the public portion of the system must be contained in an easement.

i. Inlets will not be allowed to serve as a junction box, except through an approved design deviation request. Where inlets are permitted to serve as a junction box, the width of the inlet, at a minimum, shall be doubled in size. Storm drain systems parallel to the street will not be permitted to run directly through inlets.

j. Bends without junction boxes shall be limited to 45 degrees or less.

k. Pipe junctions without junction boxes shall be limited to 45 degrees or less.

l. The minimum storm drain pipe diameter shall be 18 inches.

m. Pipe diameters shall not decrease downstream.

n. Laterals shall be connected to trunk lines using a junction box or manufactured wye connections. Cut-in or punch-in connections to trunk lines are prohibited.

o. All cut-in or punch-in connections to precast inlets, junction boxes, box culverts, etc. will require a concrete collar to be poured around the connection.

p. Vertical or horizontal curves/deflections in the conduit will not be permitted.

F. Parking Lot Design

Parking lots shall be designed for the *"Flood Mitigation"* storm not to exceed top of curb with a maximum depth at low points of one (1) foot. The *"Flood Mitigation"* storm shall be contained on-site or within dedicated easements. The portion of the parking lot detaining water during the *"Flood Mitigation"* storm may be considered as part of the detention calculation for the site.

4.6.3 Open Channels

A. Design Frequency

1. Open channels, including all natural or improved channels, swales, and ditches shall be designed for the *"Flood Mitigation"* storm event.

B. Design Criteria

1. Depending on velocities (See Table 4.6-E), constructed or improved channels shall be designed with either an earthen channel or a 10-ft. minimum concrete pilot channel section and appropriate side slope protection up to the *"Streambank Protection"* storm event elevation, as described in Section 4.3.

2. All channels with contributing drainage basins larger than one (1) square mile (sq. mi.) shall remain in their natural condition.

3. Channels with a contributing drainage area of less than one (1) sq. mi. shall remain in their natural condition if they are identified as being within an ESA by the current City of Denton ESA map. Channels not identified as being within an ESA may be channelized, with the channelization method being determined by analysis of the erosive velocities.

4. All improved channels shall be designed to carry the flood mitigation flow and shall have one (1) foot of freeboard as illustrated in Figure 4.8. Freeboard requirements at bends in all improved channels shall be the greater of the following:

   a. One (1) foot; or

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b. 10% of the flow depth

5. At a minimum, channels that require concrete lining shall be lined up to an elevation of the water surface resulting from the *"Flood Mitigation"* storm event.

6. Concrete lining of a stream channel is adding fill material into Waters of the United States (WOTUS) and must comply with Section 404 of the Clean Water Act, and all requirements outlined in DDC Section 7.4. Provide either proof of mitigation or letter of permission from the United States Army Corps of Engineers (USACE).

7. Unlined improved channels that contain bends may be required to be armored if maximum permissible velocities are exceeded.

8. Unlined improved channels shall have side slopes no steeper than 4H:1V and concrete-lined channels shall have side slopes no steeper than 2H:1V.

9. The minimum grade allowed on any channel, outfall channel, or ditch shall be three-tenths (3/10) foot per 100 feet for concrete-lined channels and five-tenths (5/10) foot per 100 feet for grass-lined channels.

10. Geotechnical investigations will be required for open channel designs to determine the type of soils present and allowable velocities shown in Table 4.6-D and Table 4.6-E.

11. For vegetative channels, flow velocities within the channel shall not exceed the maximum permissible velocities given in Table 4.6-D and Table 4.6-E.

12. An evaluation of streambank stabilization shall be included in the design of open channel improvements for areas upstream and downstream of the proposed improvement. Where indicated by the analysis, stabilization of the offsite bank areas shall be included in the proposed design.

13. HEC-RAS, or similarly capable software approved by the City's Engineer, shall be used to confirm the water surface profiles in open channels.

14. The final design of artificial open channels shall be consistent with the velocity limitations for the selected channel lining. Maximum velocity values for selected lining categories are presented in Table 4.6-D below.

15. If relocation of a stream channel is unavoidable, fill material into WOTUS must comply with Section 404 of the Clean Water Act, and all requirements outlined in DDC Section 7.4 . Provide either proof of mitigation or letter of permission from the United States Army Corps of Engineers (USACE).

The design of stable rock riprap lining depends on the intersection of the velocity (local boundary shear) and the size and gradation of the riprap material. More information on calculating acceptable riprap velocity limits is available in Section 3.2.7 of the *i*SWM™ Hydraulics Technical Manual Document.

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Table 4.6-D: Roughness Coefficients (Manning's *n*) and Allowable Velocities for Natural Channels

Channel Description	Manning's *n*	Max. Permissible Channel Velocity (fps)
MINOR NATURAL STREAMS		
Fairly regular section		
1. Some grass weeds	0.030	3 to 6
2. Dense growth of weeds, depth of flow materially greater than weed height	0.035	3 to 6
3. Some weeds, light brush on banks	0.035	3 to 6
4. Some weeds, heavy brush on banks	0.050	3 to 6
5. Some weeds, dense willows on banks	0.060	3 to 6
- For trees within channels with branches submerged at high stage, increase values by	0.010	
- Irregular section with pools, slight channel meander, increase above values by	0.010	
Floodplain - Pasture		
1. Short grass	0.030	3 to 6
2. Tall grass	0.035	3 to 6
Floodplain – Cultivated Areas		
1. No crop	0.030	3 to 6
2. Mature row crops	0.035	3 to 6
3. Mature field crops	0.040	3 to 6
Floodplain – Uncleared		
1. Heavy weeds scattered brush	0.050	3 to 6
2. Wooded	0.120	3 to 6
MAJOR NATURAL STREAMS		
Roughness coefficient is usually less than for minor streams of similar description on account of less effective resistance offered by irregular banks or vegetation on banks. Values of 'n' for larger streams of mostly regular sections , with no boulders or brush	0.028 to 0.060	3 to 6
UNLINED VEGETATED CHANNELS		
Clays (Bermuda Glass)	0.035	5 to 6
Sandy and Silty Soils (Bermuda Glass)	0.035	3 to 5
UNLINED NON-VEGETATED CHANNELS		
Sandy Soils	0.030	1.5 to 2.5
Silts	0.030	0.7 to 1.5
Sandy Silts	0.030	2.5 to 3.0
Clays	0.030	3.0 to 5.0
Coarse Gravels	0.030	5.0 to 6.0
Shale	0.030	6.0 to 10.0
Rock	0.025	15

Notes:
[1] For natural channels with specific vegetation type, refer to Table 4.6-E for more detailed velocity control.

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Table 4.6-E: Maximum Velocities for Vegetative Channel Linings

Vegetation Type	Slope Range [1] (%)	Max. Velocity [2] (fps)
Bermuda Grass	0 – 5	6
Bahia	-	4
Tall fescue grass mixtures [3]	0 – 10	4
Kentucky bluegrass	0 – 5	6
Buffalo grass [4]	5 – 10 > 10	5 4
Grass mixture [4]	0 – 5 5 – 10	4 3
Sericea lespedeza, Weeping lovegrass, Alfalfa	0 – 5	3
Annuals [5]	0 – 5	3
Sod	-	4
Lapped Sod	-	5

Notes:
[1] Do not use on slopes steeper than 10% except for side-slope in combination channel.
[2] Use velocities exceeding 5 fps only where good stands can be maintained.
[3] Mixtures of Tall Fescue, Bahia and/or Bermuda.
[4] Buffalo Grass and Grass Mixture will be required over other vegetation types where the maximum velocity is not exceeded.
[5] Annuals – used on mild slopes or as temporary protection until permanent covers are established.

Source: Manual for Erosion and Sediment Control in Georgia, 1996.

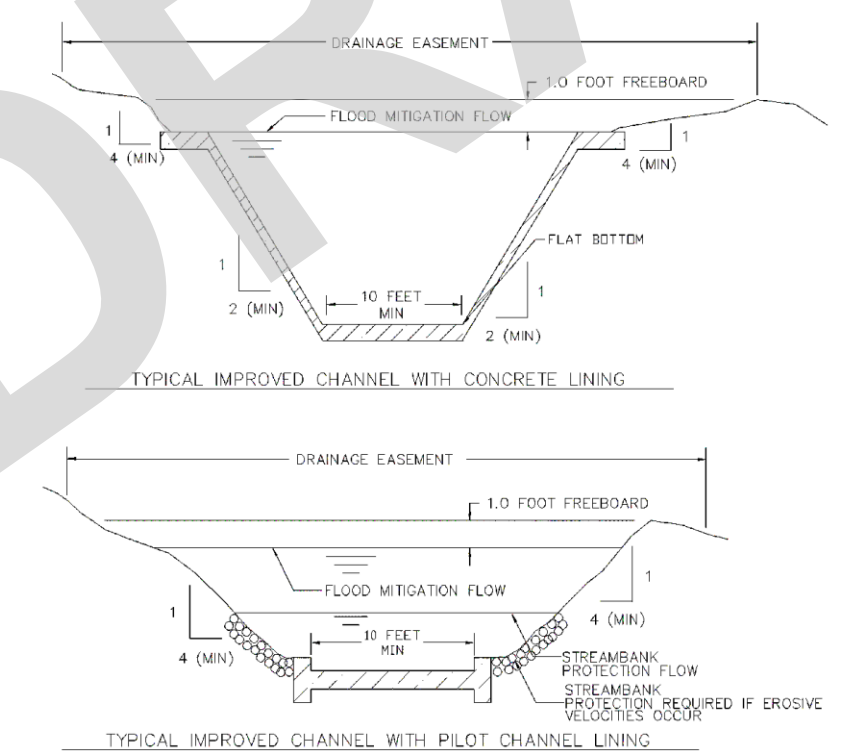

Figure 4.8 Freeboard Requirements and Channel Section Illustrations

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C. Channel Drop Structures

1. Sloping channel drops are permitted and are required to have a maximum slope of 4H:1V. Vertical channel drops are not permitted.
2. The flow velocities in the channel upstream and downstream of the drop structure need to satisfy the permissible velocities allowed for channels (Table 4.6-D). The velocities shall be checked for flows produced by the *"Streambank Protection"* and *"Flood Mitigation"* storm events.
3. An apron shall be constructed immediately upstream of the chute or stilling basin to protect against the increasing velocities and turbulence which result as the water approaches the drop structure. The apron shall extend at least five (5) feet upstream of the point where flow becomes supercritical. In no case shall the length of the upstream apron be less than 10 feet.
4. An apron shall be constructed immediately downstream of the chute or stilling basin to protect against erosion due to the occurrence of the hydraulic jump. The apron shall extend a minimum of 10 feet beyond the anticipated location of the jump.
5. The design of drop structures is based on the height of the drop, the normal depths upstream and downstream of the drop structure, and discharge.
6. When used, channel drop structures shall be located near bridges or culverts, as directed by the City's Engineer.
7. The location of the hydraulic jump should be determined based on the upstream and downstream flow depths, and channel slopes.
8. The length of the hydraulic jump should be calculated to determine the length of the downstream apron required to prevent erosion.

4.7 Culverts

Culverts are cross drainage facilities that transport runoff under roadways or other improved areas.

4.7.1 Design Frequency

A. Culverts shall be designed for the *"Flood Mitigation"* storm.

B. The *"Flood Mitigation"* storm shall be routed through all culverts to ensure building structures (e.g., houses, commercial buildings) are not flooded and damage does not occur to a highway or adjacent property for this design event.

4.7.2 Design Criteria

A. Design Considerations

1. Roadway type;
2. Tailwater or depth of flow;
3. Structures, and property subject to flooding;
4. Emergency access; and
5. Road replacement costs.

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B. Velocity Limitations

1. The maximum velocity shall be consistent with channel stability requirements at the culvert outlet.
2. The maximum allowable velocity is 15 fps, but outlet protection shall be provided where discharge velocities will cause erosion conditions.
3. To ensure self-cleaning during partial depth flow, a minimum velocity of 2.5 fps is required for the "*Streambank Protection*" storm when the culvert is flowing partially full.

C. Headwater Limitations

1. The *allowable headwater* is the depth of water that can be ponded at the upstream end of the culvert during the *"Flood Mitigation"* storm event. The *allowable headwater* will be limited by both of the following constraints or conditions:
   a. The headwater must not damage upstream property.
   b. The culvert headwater plus 12 inches of freeboard shall not exceed (i) top of curb or (ii) pavement for the low point of the road over the culvert, whichever is lower.

D. Tailwater Considerations

1. If the culvert outlet is operating with a free outfall, the critical depth and equivalent hydraulic grade line shall be determined.
2. For culverts that discharge to an open channel, the stage-discharge curve for the channel must be determined. *See* Section 2.1.4 of the *i*SWM™ Hydraulics Technical Manual on methods to determine a stage-discharge curve.
3. If an upstream culvert outlet is located near a downstream culvert inlet, the headwater elevation of the downstream culvert will establish the design tailwater depth for the upstream culvert.
4. If the culvert discharges to a lake, pond, or other major water body, the expected "*Flood Mitigation*" storm event of the water body will establish the culvert tailwater.

E. Other Criteria

1. Culvert skews shall not exceed 30 degrees, as measured from a line perpendicular to the roadway centerline, without approval.
2. Erosion, sediment control, and velocity dissipation shall be designed in accordance with Section 4.0 of the *i*SWM™ Hydraulics Technical Manual Document.
3. Where applicable, culverts must comply with DDC Section 7.4 regarding Environmentally Sensitive Areas.

4.7.3 Driveway Culverts

Driveway culverts are only permitted in non-curbed roadway sections. All driveway culvert construction shall be inspected by the City during construction. All driveway culverts shall meet the following requirements:

A. All new driveway culverts must be designed to convey flows from a "*Flood Mitigation*" storm. Replacement driveway culverts shall be designed to convey the maximum reasonable discharge based on the existing ditch dimensions adjacent to the culvert.

B. Culverts shall have a minimum pipe diameter of 18 inches.

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C. Acceptable culvert material shall be Reinforced Concrete Pipe (RCP) with a diameter of 18 to 42 inches. The RCP must be designated Class III at a minimum.

D. Box culverts shall have a minimum height of 24 inches. Culverts under City streets used for entrances to a subdivision shall be made of approved classes of reinforced concrete pipe or box.

E. The top of pipe elevation must be below the adjacent roadway edge of pavement elevation.

F. Pipe culverts shall utilize a safety end treatment conforming to the most current version of the TxDOT standard detail Safety End Treatment Plan – Parallel Drainage (SETP-PD) with the slope of the riprap being 6H:1V.

G. A driveway approach may utilize a low-water crossing in lieu of a driveway culvert, if all of the following conditions are met:

1. The lowest elevation of the proposed crossing can be no more than eight (8) inches below the road edge elevation.
2. The proposed low-water crossing cannot create a ponding effect on the upstream ditch (i.e., ditch flow line must be equal to or higher than the crossing).
3. Minimum cross slope for the crossing of 1.5%.
4. Low-water crossing shall be constructed of concrete adhering to the City of Denton Standard Details.
5. Toe walls on each side of the crossing shall be extended at least 15 inches below grade to prevent undercutting.

H. Culvert Slope requirements:

1. Culvert slope must provide positive drainage.
2. Culvert slope shall be set as shown on the approved subdivision construction plans.
3. Minimum slope shall be 0.3%.

I. Ditch Slope Requirements

1. The ditch shall be graded upstream and downstream as far as necessary to provide positive drainage with no areas of standing water.
2. Minimum earthen slope is 0.5%.
3. Minimum concrete slope is 0.3% for 2-ft. concrete pilot channels, if 0.5% earthen slope is unobtainable.

4.8 Bridges

4.8.1 Design Frequency

A. *"Flood Mitigation"* storm must be used for all bridges.

4.8.2 Design Criteria

A. A freeboard of two (2) feet shall be maintained between the computed design water surface and the low chord of all bridges.

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B. Design guidance is provided in *Section 3.4 of the iSWM™ Hydraulics Technical Manual Document*.

4.8.3 Other Criteria

A. Where applicable, bridges must comply with DDC Section 7.4 regarding Environmentally Sensitive Areas.

4.9 Detention Facilities

4.9.1 Design Requirements

A. Detention facilities shall be designed for the four storms ("*Water Quality*", "*Streambank Protection*", "*Conveyance*", and *"Flood Mitigation"*) for the critical storm duration that results in the maximum (or near maximum) peak flow.

B. Dry detention basins must be sized to temporarily store the volume of runoff required to provide flood protection up to the "*Flood Mitigation*" storm.

C. Routing calculations must be used to demonstrate that the storage volume and outlet structure configuration comply with Section 4.5.5 of this Manual.

D. A calculation summary shall be provided on construction plans as shown in the computation sheet in Figure 4.9 or its equivalent. Stage-storage-discharge values shall be tabulated and flow calculations for discharge structures shall be shown on the construction plans. Detention design shall follow *i*SWM™ guidelines. It is the responsibility of the Engineer of Record to use appropriate methodologies presented in *i*SWM™ based on specific basin characteristics. Detailed calculations and a design narrative shall be provided for review in a supplemental report that is referenced on the construction plans. In general, the narrative shall provide basic design information, such as the hydrologic method applied, design assumptions, pre- and post-development site conditions, downstream constraints, environmental considerations, and design software version used, if applicable.

E. Storage and dam safety design may be subject to the requirements of the Texas Dam Safety Program based on the volume, dam height, and level of hazard. Earthen embankments six (6) feet in height or greater shall be designed per the TCEQ guidelines for dam safety (*See* Texas Administrative Code, Title 30, Part 1, Chapter 299 Dams and Reservoirs for current dam safety criteria).

F. An Operation and Maintenance Manual must be submitted with the civil engineering plans for all private detention basins. Private detention basins shall be inspected by Public Works Inspection to ensure compliance with the design standards required by Section 7.5.3.F. of the DDC. Inspection fees will apply.

4.9.2 Design Criteria for Above Grade Detention Facilities

A. Grading Standards for Above Grade Detention Facilities:

1. Vegetated channel slopes shall not exceed 4H:1V slope. Concrete-lined embankment slopes shall not exceed 2H:1V slope. Vertical walls may be allowed but must be structurally designed to account for inundation of the base and drawdown upon pond draining and must have a 6-ft. high security fence at the top.

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2. The side slope for any excavated detention basin, which is not in rock, shall not exceed a 4H:1V slope.
3. Bottom slopes of detention facilities should not be less than 1%.
4. Armored slopes shall be no steeper than 2H:1V.
5. The embankment crown width shall be determined based on a geotechnical investigation of the detention facility site. The minimum width of the embankment crown shall be 12 feet.
6. Earthen embankments used to impound detention water must have a non-permeable core and shall be based on a geotechnical investigation of the site. The geotechnical investigation shall be performed by a Professional Engineer, licensed by the State of Texas, and shall include at a minimum the type of material on-site (or other material to be used in the embankment), moisture content, liquid limit, plasticity index, and required compaction.
7. A Concrete pilot channel with a minimum width of 10 feet, and a minimum slope of 0.5% shall be constructed at the bottom of the detention pond. Privately maintained ponds shall have a concrete pilot channel with a minimum width of six (6) feet.
8. Private Detention Basins shall be designed with 10-ft. wide unobstructed maintenance access around the entire perimeter of the pond.
9. Public Detention Basins shall be designed with 20-ft. wide unobstructed maintenance access around the entire perimeter of the pond.
10. Where deemed necessary by the City's Engineer, security fencing with a minimum height of six (6) feet shall encompass the detention storage area if the velocity, depth, or slopes create a potentially dangerous condition. The fence shall be designed to allow access for maintenance and so as not to restrict stormwater flow into or out of the detention basin. A maintenance equipment access ramp shall be provided for all detention facilities. The slope of the ramp shall not exceed 6H:1V and the minimum width shall be 12 feet.

B. Emergency Spillway, Overflow Path, and Freeboard:

1. A freeboard of one (1) foot will be required between the *"Flood Mitigation"* storm water surface elevation and top of bank.
2. An emergency spillway shall be provided at the flood mitigation maximum storage elevation with sufficient capacity to convey *"Flood Mitigation"* storm inflow rates with six (6) inches of freeboard. This is the peak of the inflow hydrograph coming into the pond and must not account for attenuation effects of the pond. Spillway requirements must also meet all appropriate State and Federal criteria.
3. An emergency overflow path, free of structures or obstructions, must be provided to convey the spillway design discharge to a downstream ROW or drainageway with adequate capacity for the discharge. No impediments to flow are allowed within the emergency overflow path (E.g., fences, trees, parking areas, or buildings). If a fence around a detention facility is needed to restrict access, the bottom of the fence must be elevated to provide a minimum of one foot of freeboard above the emergency overflow WSEL where the fence crosses the spillway. Nevertheless, fences across spillways should be avoided whenever possible. Even if the fence is elevated to the freeboard elevation, there is still the potential for the fence to catch debris floating on the water surface.
4. An emergency spillway must be constructed of concrete.

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5. Design calculations shall be provided for all spillways and outlet structures.

C. Landscaping Requirements:

1. All detention basins shall be designed with plantings that minimize erosion based on expected inundation frequencies. Design guidance is provided in the *iSWM™ Landscape Technical Manual Document*.

D. Multiple Use Guidance

Limited recreational equipment (such as picnic tables or playground equipment) and trees may be permitted in private detention facilities with the following restrictions:

1. User access must be provided at a maximum 10% slope in at least two (2) locations, or one (1) location that comprises not less than 20% of the perimeter of the facility.
2. No recreational equipment is permitted in any portion of the facility that lies more than 18 inches below the flood mitigation water surface elevation level of the facility.
3. Recreational structures including, but not limited to, picnic tables and playground equipment, must be rust-resistant and anchored to the ground.
4. Mulch, wood chips, gravel, or rubberized pellets are not permitted within a detention facility due to the likelihood of their floating into the outlet structure.
5. Trees, shrubs, and other woody vegetation will not be permitted in the embankment of any detention facility or in the maintenance access area around such a facility.
6. A maximum of one (1) isolated tree per 5,600 sq. ft. may be permitted in the recreational area of the pond. A trash rack must be used to prevent clogging of the outlet structure. No bark mulch may be used around trees.

E. Retaining Walls

1. Any freestanding retaining wall used to detain water must be designed by a structural engineer to withstand the expected hydraulic forces when the detention area is filled to capacity. These walls must be constructed using reinforced concrete.
2. Any inlet or pipe connections to retaining walls must be designed with a reinforced concrete headwall. The height of this headwall shall match the height of the adjacent retaining wall. The most recent TxDOT details for concrete headwalls shall be used to determine other headwall dimensions and reinforced schedule.

4.9.3 Design Criteria for Underground Detention Facilities

Underground detention is highly discouraged because of the potential for deferred maintenance, the difficult and potentially hazardous nature of access for maintenance, and issues related to anaerobic conditions and pollutant mobility from devices that retain water between events. In any instance where underground detention is contemplated, thorough consideration must be given to the concerns described above to ensure ongoing inspection, maintenance, and functionality. Care should be taken to address material selection for underground detention due to the potential for adverse soil conditions to inhibit the system from functioning properly. A geotechnical engineer shall be consulted to ensure soil and other conditions are appropriate for the selected detention material.

A. Underground detention facilities shall be designed with reinforced concrete and have a minimum pipe diameter of 30 inches to allow for safe access and maintenance of the facility.

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B. If an underground vault has multiple chambers, access openings with a maximum spacing of 500 feet must be provided for each chamber.

C. Underground facilities must be located to enable safe access for maintenance and minimize disruption of aboveground uses during maintenance. Access openings shall not be placed in areas that are routinely used for parking.

D. Easements must be provided for all underground detention facilities. If underground detention facilities are bound by private property, the easements must include an additional four (4) feet from the perimeter of the facilities.

E. Underground detention and water quality facilities are prohibited underneath buildings, walls, or other structures.

F. Every SWFMA involving underground detention and water quality facilities must include inspection and maintenance requirements to be performed quarterly and following any rainfall event of 0.5 inches or more. The inspection and maintenance frequency may be reduced after five (5) years of operation, if the owner demonstrates that a lesser frequency is appropriate.

G. A surface emergency overflow path, free of obstructions, must be provided for all underground detention facilities. The emergency overflow path must have sufficient capacity to convey the *"Flood Mitigation"* storm inflow rates to the underground detention facility. This is the peak of the inflow hydrograph coming into the underground detention facility, and must not account for any attenuation effects from the facility. The criteria for emergency overflow paths for surface detention facilities denoted in Section 4.9.2 above also apply to underground detention facilities.

H. Outlets from underground detention must consist of a pipe that can convey 120% of the 100-year outflow, with a minimum diameter of 12 inches. The invert of the outlet pipe must be at the lowest point in the detention facility to ensure that it fully drains.

4.9.4 Design Criteria for Parking Lot Detention

Parking lot detention may be allowed if the following minimum criteria are met:

A. Use of parking lot surface area as detention is permitted, but only up to the lowest curb elevation of the parking lot.

B. The maximum ponding depth for the 100-year storm must be no more than 12 inches at the deepest point.

C. The outlet must be designed to minimize modifications that affect detention functions. The applicant must evaluate potential future resurfacing activities for impacts to detention volumes and release rates.

D. Ponding water in frequently used portions of parking lots must be avoided. At least two signs are required for all parking lot detention areas. The signs must have a minimum area of 1.5 square feet and contain the following message:

WARNING

This area is a detention basin and is subject to periodic flooding to a depth of (provide design depth).

Sign materials, geometry, and location must be submitted to Development Facilitation and approved by the City's Engineer.

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4.9.5 Design Criteria for Pumped Detention

A. A detention facility may not rely on a pump or other mechanical equipment to drain water during a design storm.

4.9.6 Outlet Structures for Detention Facilities

A. Design Frequency

1. *"Water Quality"* storm
2. *"Streambank Protection"* storm
3. *"Conveyance"* storm
4. *"Flood Mitigation"* storm

B. Design Criteria

1. Outlet structures shall be designed in accordance with section 2.2 of the *iSWM™ Hydraulics Technical Manual*. For water quality, refer to Section 2.2.3 for design of extended detention outlets.
2. The required storage volumes for "*Water Quality*", "*Streambank Protection*", "*Conveyance*", and *"Flood Mitigation"* storm events must be estimated.
3. Outlet velocities shall be within the maximum allowable range based on channel material, as shown in Table 4.6-D and Table 4.6-E.
4. Outlet protection and energy dissipation facilities must be designed to avoid erosion problems downstream from outlet devices and emergency spillway(s).
5. Buoyancy calculations must be performed for the outlet structure and footing to ensure the outlet structure will not float. Flotation will occur when the weight of the structure is less than or equal to the buoyant force exerted by the water.
6. Any outflow structure that conveys water through an embankment in a conduit shall be reinforced concrete designed to support the external loads. The conduit shall be able to withstand the internal hydraulic pressure without leakage under full external load or settlement and must convey water at the design velocity without damage to the interior surface of the conduit.
7. The minimum pipe size and box size shall meet the requirements as shown below in Table 4.9-A. These minimum sizes apply even when used in conjunction with weirs or other flow control devices and must be accessible for maintenance.

Table 4.9-A: Outlet Pipe and Box Size

Discharge Pipe Length	Minimum Pipe Size	Minimum Box Size
100 feet or less	18 inches	2-ft. x 2-ft.
Greater than 100 feet	36 inches	3-ft. x 3-ft.

8. The minimum opening of an inlet shall be six (6) inches in diameter or a 6-in. by 6-in. square. Smaller inlet openings may be used with a junction box and properly sized outlet structure.

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9. Inlet openings less than one (1) sq. ft. in area shall be designed with trash racks to protect from clogging. The face of the trash rack should extend a minimum of six (6) inches from the face of the inlet opening.
10. Any top orifice on an outlet riser must be designed with a grate to prevent fall injuries.
11. A concrete headwall and wingwalls shall be constructed at the outlet pipe opening. Orientation of the wingwalls will be governed by site specific conditions. Headwalls and wingwalls shall be designed to TxDOT standards.
12. Design guidance is in Section 2.2 of the *i*SWM™ Hydraulics Technical Manual.

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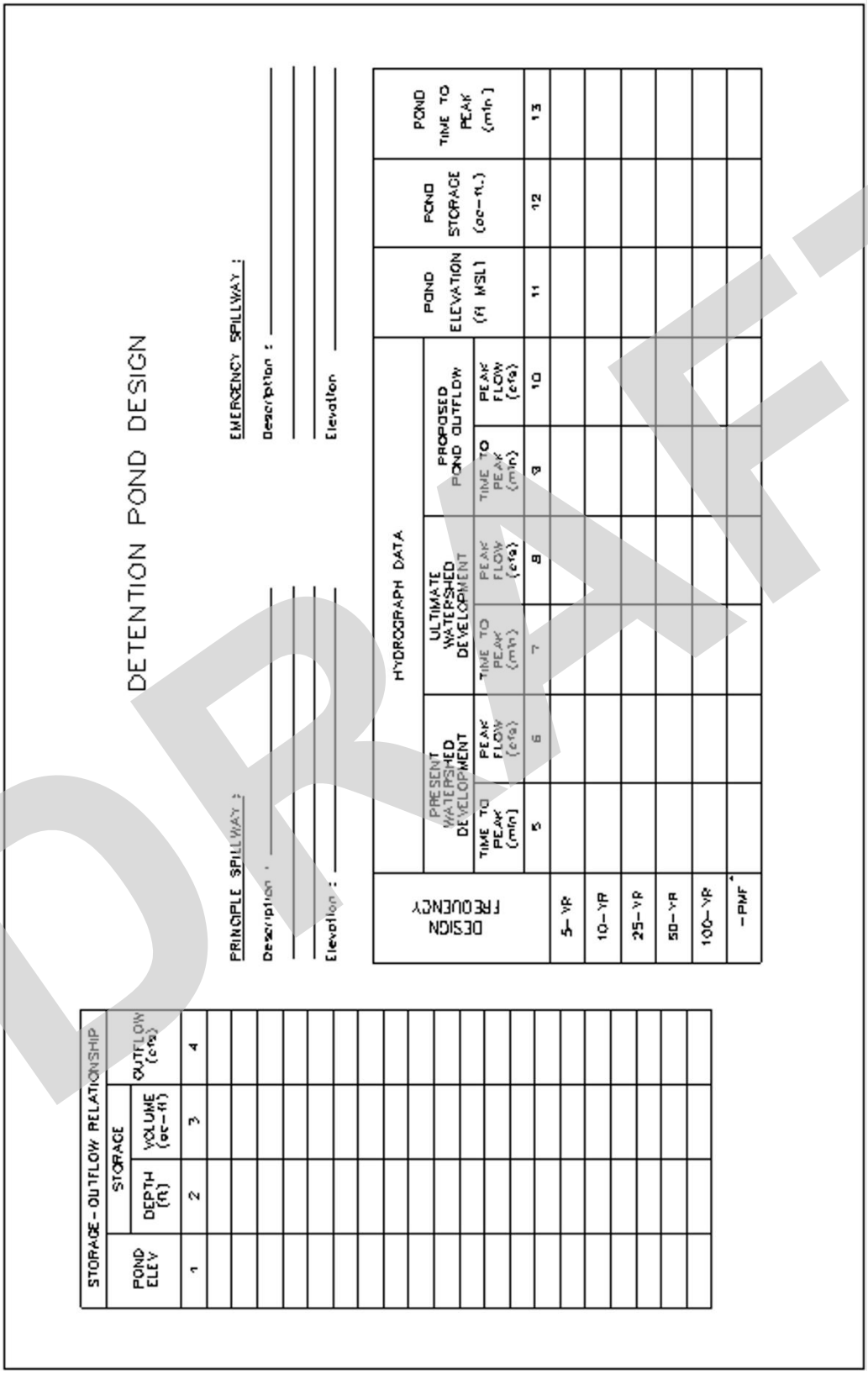

Figure 4.9 Computation Sheet for Detention Pond Design

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4.10 Energy Dissipation

All drainage system outlets, whether for closed conduits, culverts, bridges, open channels, or storage facilities, shall provide energy dissipation when necessary to protect the receiving drainage element from erosion.

4.10.1 Design Frequency

A. *"Flood Mitigation"* storm

4.10.2 Design Criteria

A. Erosion problems at culvert, pipe and engineered channel outlets are common. Determination of the flow conditions, scour potential, and channel erosion resistance shall be standard procedure for all designs.

B. Energy dissipaters shall be employed whenever the velocity of flows leaving a stormwater management facility exceeds the erosion velocity of the downstream area channel system.

C. Energy dissipater designs will vary based on discharge specifics and tailwater conditions.

D. Outlet structures shall provide uniform redistribution or spreading of the flow without excessive separation and turbulence.

4.10.3 Recommended Energy Dissipater for outlet protection

A. Concrete or grouted rock riprap apron

B. Riprap outlet basins

C. Baffled outlets

D. Grade Control Structures

Design guidance is provided in Section 4.0 of the *iSWM*™ Hydraulics Technical Manual.

4.11 Floodplain

4.11.1 Floodplain Development Criteria

A. Floodplain alterations shall be allowed only if all the following criteria are met:

1. An approved Floodplain Development Permit must be issued by the City before any development is done within the floodplain.
2. Flood studies shall include flows generated for existing conditions and fully-developed conditions for the 10, 50, 100, and 500-year storm events.
3. Alterations shall not increase the 100-year fully-developed water surface elevation on other properties.
4. Alterations to the regulatory Floodway shall not increase the 100-year fully-developed water surface elevation at any point.
5. Alterations shall be in compliance with Federal Emergency Management Agency (FEMA) guidelines.

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6. Alterations of the floodplain shall meet the requirements of Section 4.5 of this Manual.
7. Alterations shall result in no loss of valley storage for a Major Creek, as defined by the DDC, and a 15% maximum loss of valley storage for any other tributary for any reach, except at bridge and culvert crossings where it can be proven that there are no detrimental effects upstream or downstream.
8. Alteration of floodplain areas shall not cause any additional expense, including maintenance, related to any current or projected public improvements.
9. The floodplain shall be altered only to the extent permitted by equal conveyance on both sides of the natural channel, as defined by the USACE in a HEC-RAS analysis. The right of equal conveyance applies to all owners and uses, including greenbelt, park areas, and recreational areas. Owners may relinquish their right to equal conveyance by providing a written agreement to the City's Engineer.
10. A grading permit and/or construction plan approval shall be required to perform any grading activities on site.
11. The toe of any fill shall parallel the natural direction of the flow.
12. Floodplain alterations shall incorporate and consider other City planning documents and ordinances such as the Tree Preservation Ordinance (Section 7.7.4 – DDC), , the Subdivision Ordinance (Subchapter 8 – DDC), and the Floodplain Prevention and Protection Ordinance (Chapter 30 – City of Denton, Code of Ordinances).
13. Unless a pre-existing model is in place, USACE's HEC-HMS and HEC-RAS shall be used. A request to use another type of hydrologic or hydraulic model must be submitted for approval through a design deviation request. The Modified Puls method shall be used for flood routing information to ensure that the cumulative effects of the reduction in floodplain storage of floodwater will not cause downstream or upstream increases in water surface elevations and erosive velocities. If the Modified Puls method is not feasible, a request to use another type of flood routing method must be submitted for approval through a design deviation request.

B. The engineer of record is responsible for providing documentation of the relevant USACE approved permits prior to beginning modification of the floodplain and prior to causing any impacts to WOTUS. If applicable, the engineer of record is also responsible for providing a signed and sealed statement detailing why such permits are unnecessary.

C. Verification of Floodplain Alterations:
1. The owner and/or developer shall furnish, at their expense, to Development Services sufficient engineering information to confirm that the minimum FFEs proposed meet the requirements of the Flood Prevention Ordinance.
2. Construction plans will not be released for construction within areas subject to a Conditional Letter of Map Revision (CLOMR) or amendment until such plans are accepted by Development Services and FEMA.
3. Letters of Map Revision (LOMR) applications shall be submitted to Development Services (i) no later than 60-days from the City's final acceptance of the construction and (ii) prior to submittal to FEMA.
4. All submittals to FEMA shall be submitted to Development Services prior to submittal to

FEMA. A copy of all responses to FEMA comments shall be submitted to the City.

D. Development within the floodplain which does not result in any change to the topography, the amount or location of impervious area, or any change in the characteristics of the floodplain cross-section, such as underground utility construction, may not require a flood study, CLOMR, LOMR, or DSA unless requested by the City.

The following decision charts are intended to consolidate the floodplain development criteria in the City of Denton. They reference information found in the DDC Subchapters 7.4 and 7.5, the Code of the City of Denton, Texas, Chapter 30, and this Manual. They are not an exhaustive list of criteria and are only to be used as guidance as to the information provided in the above-referenced documents. Criteria in those documents supersedes the decision charts.

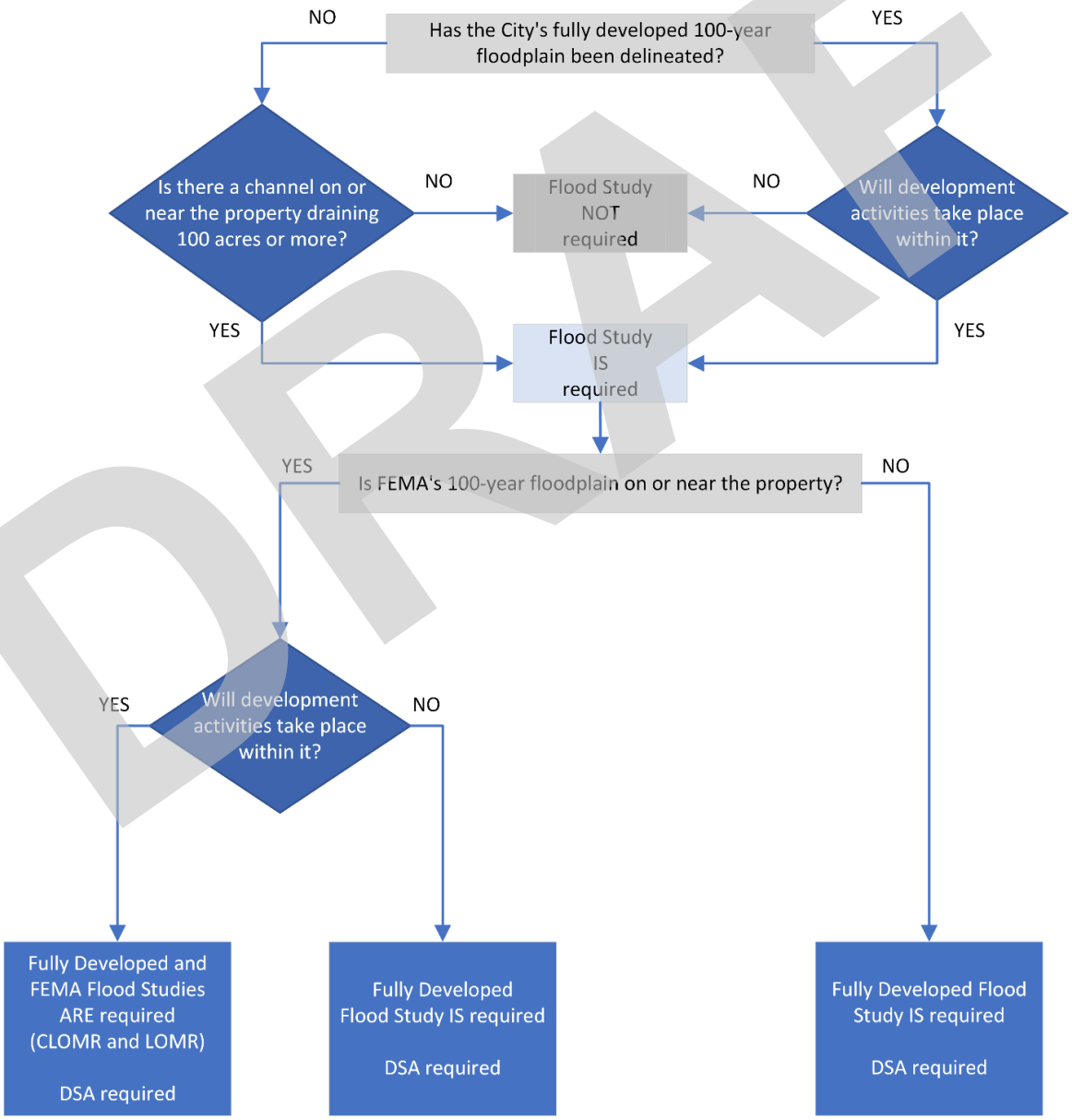

Figure 4.10 Flood Study Decision Chart

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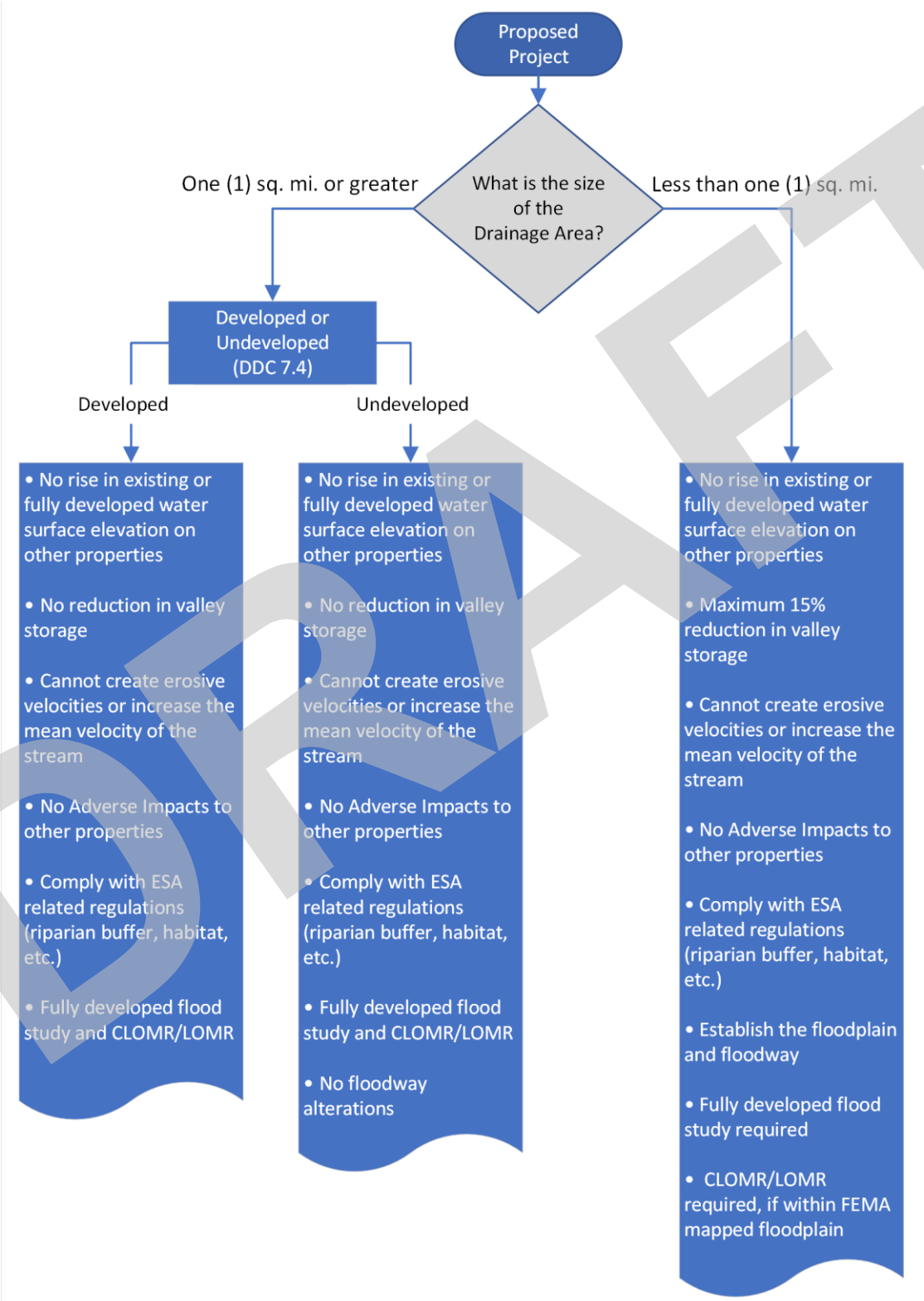

Figure 4.11 Summarized Floodplain Development Procedure

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4.11.2 Procedures for Floodplain Alteration

Floodplain development is permitted when it complies with all requirements of the DDC, Flood Prevention Ordinance, and this Manual. The following are the engineering criteria for such requests.

Developments which impact designated FEMA flood plains in the City (Zones AE, A, and X shaded) shall submit minimum data required by FEMA, indicated on the City's CLOMR submittal checklist, and/or indicated in this Manual to FEMA for conditional approval. The Conditional Letter of Map Revision (CLOMR) shall be submitted to the City prior to approval of any Zoning Compliance Plan. Approval of CLOMR from FEMA will be required prior to acceptance of Civil Engineering Plans.

A. A written description of the scope of the proposed project and the methodology used to analyze the project's effects.

B. Hydraulic backwater models for 10, 50, 100, and 500-year floods for the following:
   1. Duplicate of the effective FIS model. The model must include:
      a. Existing conditions (effective FIS model including cross-sections through the project site. All cross-sections should reflect conditions prior to construction of the project); and
      b. Proposed conditions (existing conditions model reflecting the proposed project).

C. Floodway hydraulic backwater models of the following:
   1. Duplicate effective;
   2. Existing condition; and
   3. Proposed conditions.

D. In all the above hydraulic models, the following rules will apply:
   1. The hydraulic parameters, such as bridge loss coefficients, "*n*" values, etc., used in the effective FIS models will only be changed where obvious errors or changes have taken place and must be documented;
   2. The computed water surface elevation profiles must converge with the existing profiles; and
   3. Information should be shown on a map of suitable scale and topographic definition to provide reasonable accuracy.

E. A copy of the FIRM with the project area indicated.

F. Topographic mapping of the entire area covered by the proposed condition model, indicating the locations of all cross-sections used in the hydraulic model and delineating the proposed 100-year flood plain boundary.

G. Topographic mapping of the entire area covered by the proposed conditions model, indicating the locations of all cross-sections used in the hydraulic model and delineating:
   1. The proposed 100-year and 500-year floodplain boundaries; and
   2. The proposed floodway boundary.

H. Projects must comply with the requirements of 44 C.F.R. § 60.3(d)(2).

I. Upon completion of the proposed project, "as-built" and final LOMR plans certified by a Professional Engineer licensed by the State of Texas shall be submitted to the City for review and subsequent transmittal to FEMA. FEMA requires that individual legal notices be sent to all affected property owners when development (cut or fill) occurs in the regulatory floodway that would cause

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any rise in the 100-year FIS water surface elevation. Public notice in the official community newspaper is required for proposed modifications to the regulatory floodway.

J. All items should be labeled for easy cross-referencing to the hydraulic model and summary data.

K. FEMA may have questions regarding the project. The engineer of record must address all of FEMA's comments. It is not anticipated, but if revisions to the development are required by FEMA, the developer is responsible for making the changes.

4.11.3 Fully Developed Water Surface Elevation Calculations

A. The following hydraulic data should be submitted to the City, preferably using the USACE HEC-RAS program to compute the channel's water surface elevation. The data should be submitted electronically as part of the CLOMR, LOMR, or flood study submittal.

1. Duplicate of the effective City fully developed backwater model or as developed by developer or property owner and approved by the City.
2. Modified existing condition backwater model – this model should include pre-development cross-sections through the project site obtained from field surveys or updated topographic information.
3. Proposed condition reflecting the development's impact on the flood plain area.
4. Water surface elevation and velocity summary tables tabulating the results of the above analysis.
5. Topographic map at a suitable scale with cross-sections that delineates the existing and proposed 1% chance (100-year) fully developed flood plain and shows the area being developed.
6. Analysis of the existing and proposed valley storage conditions of the area.
7. Documentation from the USACE determining if a 404 permit is required for the project.

4.11.4 Floodplain Alteration Guidelines

A. Side Slopes

1. To ensure maximum accessibility to the floodplain for maintenance and other purposes, and to lessen the probability of slope erosion during periods of high water, maximum slopes of filled area shall usually not exceed 4H:1V. Grass cover is required for all cut and fill slopes unless other armoring is required. Concrete riprap or an approved equal erosion protection measure is required on slopes steeper than 4H:1V. Vertical walls, terracing and other slope treatments will be considered only as:
   a. Part of a landscaping plan submission, and
   b. If no unbalancing of stream flow results.

B. Vegetation/Landscaping

1. Engineering plan submission shall include plans for:
   a. Erosion control of cut and fill slopes;
   b. Restoration of excavated areas; and
   c. Tree protection in and below fill areas.

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2. Landscaping should incorporate natural materials (earth, stone, and wood) on cut or fill slopes wherever possible.
3. Applicant shall show in the plan the general nature and extent of existing vegetation on the tract, the location of trees in accordance with the requirements of the tree survey required by Section 7.7.4.E of the DDC, the areas which will be preserved, altered, or removed as a result of the proposed alterations.
4. Locations and construction details should be provided, showing how trees will be preserved in areas which will be altered by filling or paving within the drip line of those trees.
5. Applicant shall also submit plans showing location, type, and size of new plant materials and other landscape features planned for altered flood plain areas.

4.12 Drainage and Floodplain Easements

4.12.1 General

A. Drainage and floodplain easements shall be provided for all open natural streams or manmade drainage facilities. Easements shall encompass all areas lower than a ground elevation defined as being the highest of the following:
   1. 15 feet outside the calculated fully developed water surface elevation and associated flood boundary based on a design storm whose frequency is 100 years. All contributing watersheds are to be treated as fully developed for purposes of calculating the water surface elevation.
   2. The top of the high bank plus a minimum of 20 feet, if higher than stated in A.1. above.
   3. Existing natural banks with a slope steeper than 4H:1V shall have the easement line no closer than the intersection of a 4H:1V line extending from the toe of the slope to the proposed grade at the top of the bank, plus an additional 15 feet.
   4. Additional access area may be required according to the Section 4.12.2 below.

4.12.2 Storm Drain Easements

A. Above Ground Systems

Where an access road is required adjacent to a channel, an additional easement area of a minimum width of 15 feet shall be provided. The maximum cross slope shall be 2%. All access roads adjacent to improved channels shall be located within the drainage easement.

1. No structures, pavement, landscaping, or other above-ground man-made improvement shall be placed in a drainage easement, except where the easement is a public or private open space or park. Any such improvement within a drainage easement must be approved through a design deviation request.

B. Closed Systems

1. Easements for closed drainage systems shall meet the following minimum standards as shown below in Table 4.12-A.

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Table 4.12-A: Easement Requirements for Closed Drainage Systems

Pipe or Box Size	Minimum Easement Width (feet)
36 inches and under	16
42 to 54 inches	20
60 to 66 inches	25
72 inches and above	30

2. Utilities such as water and sanitary sewer lines may share a portion of a drainage easement, containing an underground enclosed drainage system where an additional easement width for a minimum of 10 feet is added to create a public drainage and utility easement. No utilities shall be located in any lined channel, pipe, or box in such a way as to interfere with flow capacity or maintenance of or access to the channel, pipe or box.
3. A drainage easement shall be provided for the area within a required outfall channel or ditch to the point where the flowline "day lights" on natural grade or matches existing topography.
4. To provide for maintenance, a drainage easement shall be provided at least 25 feet beyond any outfall headwall.
5. No structures, pavement, landscaping, or other above-ground man-made improvement shall be placed in a drainage easement containing a closed drainage facility.

4.12.3 Channel Access

A. Access areas and ramps shall be provided for all publicly maintained channels to allow for maintenance of the channels. These access areas and ramps shall be contained within a drainage easement. Access areas shall have a width of at least 12 feet, a minimum cross slope of 2%, and a maximum cross slope of 5%.

B. Access easements shall be provided from the public ROW to the access area, if the access area is not directly connected to the public ROW. Access easements shall remain free of obstacles that block the use of the easement, including ungated fencing across the easement.

C. A concrete drive approach serving the access easement must be available and free of obstructions. Any sidewalk crossing the access easement must be constructed using a residential street cross-section, or otherwise designed to accommodate vehicle loads so that equipment may use the access easement without damaging the sidewalk.

D. Access to all improved earthen channels shall be provided by one (1) of the following methods, depending on the size and depth of the channel:
   1. A clear access area must be provided on one side of the improved earthen channel along the full length of the channel; or
   2. If the channel is deeper than 4 feet or has a top width greater than 25 feet, an access area must be provided on both sides along the full length of the channel. Access areas shall have a width of at least 15 feet, a minimum cross slope of 2%, and a maximum cross slope of 5%.

E. All lined channels, and earthen channels with concrete pilot channels shall have a minimum bottom width of ten (10) feet and shall be provided with concrete access ramps. Concrete access ramps

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shall have a minimum width of 12 feet, maximum slope of 6H:1V, and maximum cross slope of 5%. All access roads shall be located within a dedicated easement. Access road pavement cross-sections shall conform to the standards of the concrete residential street cross-section detail located in the City of Denton Standard Details.

4.12.4 Detention Facilities Easements

A. Detention facility easements must encompass the entirety of the detention facility plus any required maintenance access areas adjacent or leading to the facility.

B. All detention maintenance access easements must be connected to a public ROW, be a minimum of 10 feet wide, and be free of obstructions which could prevent personnel and equipment from accessing the detention facility.

4.12.5 Post-Construction Water Quality Control Structure Easements

A. All post-construction structural stormwater control structures must be located within an inspection access easement. The intent of this easement is to allow City staff to access and inspect the control structure to ensure it is being maintained in accordance with the SWFMA. This easement must be connected to a public ROW, be a minimum of five (5) feet wide, and be free of obstructions which could prevent City staff from accessing the control structure.

4.12.6 Fences

A. Fences in drainage easements are prohibited by the DDC, except as specifically provided for below.

1. Fences in drainage easements that contain an underground stormwater system may contain any type of non-masonry fence if the fence is constructed with knock-out panels to facilitate maintenance.

2. Fences in drainage easements that contain overland flow may cross the easement if the fence is constructed with wrought iron (pickets and rails), pipe, or pipe and cable. Fence height, minimum picket spacing, and maximum ground clearance spacing shall be governed by appropriate child safety measures.

3. No fences are allowed across inlet or outlet structures of drainage detention facilities. Fences are permitted around the detention facility if they do not block or inhibit the flow conveyance of the detention facility.

4. No fencing is allowed across easements which share water or wastewater facilities with the drainage facility.

B. Fences in the floodplain are prohibited.

4.13 Water Quality

4.13.1 Water Quality Protection Volume

It is recommended that all developments with one (1) acre or more of disturbed land include site development controls necessary to remove 80% of the total suspended solids (TSS) from the water quality protection volume (WQ_V). *See* the *i*SWM™ Water Quality Protection Technical Manual for information regarding the design of this WQ_V and appropriate discharge design. *See* the *i*SWM™ Site Development

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Controls Technical Manual for information regarding structural stormwater controls and their ability to remove pollutants in stormwater runoff to protect water quality. Any combination of structural stormwater controls may be used to achieve the recommended 80% TSS removal from all runoff from impervious surfaces on the site.

The percent TSS removal (%TSS) that is achieved on a site can be calculated using equation 4.8 below. This equation is an area-weighted TSS reduction equation that accounts for the TSS reduction attributable to each stormwater treatment best management practice (BMP) that is utilized on the site.

$$\%TSS = \frac{\Sigma_n^1 (TSS_1A_1 + TSS_2A_2 + \ldots + TSS_nA_n)}{\Sigma_n^1 (A_1 + A_2 + \ldots + A_n)} \quad \textbf{[Eqn. 4.8]}$$

Where: TSS_n = TSS removal percentage for each structural BMP located on-site (%);
A_n = the area draining to each BMP (acres).

When two or more BMPs are used in series (stormwater discharges from one BMP into another), a different calculation is necessary. This scenario is called a ***treatment train***. Stormwater discharging from the upper most BMP will be considerably "cleaner" than the influent, meaning TSS particle sizes will be much smaller. Pollutant removal rates for BMPs used in a treatment train are not additive. To calculate the total % TSS removal for a treatment train comprised of two or more structural BMPs, the following equation should be used.

$$TSS_{train} = A + B - \frac{A \times B}{100} \quad \textbf{[Eqn. 4.9]}$$

Where: TSS_{train} = total TSS removal for treatment train (%);
A = % TSS removal of the first (upstream) BMP
B = % TSS removal of the second (downstream) BMP

4.13.2 Water Quality Hotspots

Not all structural stormwater controls are appropriate for receiving runoff from hotspots. Hotspots are land uses or activities which produce higher concentrations of trace metals, hydrocarbons, or other priority pollutants. Examples of hotspots might include gas stations, convenience stores, marinas, public works storage areas, garbage transfer facilities, material storage sites, vehicle service and maintenance areas, commercial nurseries, vehicle washing/steam cleaning sites, landfills, construction sites, industrial sites, industrial rooftops, auto salvage or recycling facilities, and dog parks. Only appropriate structural stormwater controls identified in the *i*SWM™ Site Development Controls Technical Manual may be used for receiving hotspot runoff.

Facilities that discharge stormwater associated with industrial activity permitted under TCEQ Multi-Sector General Permit (TXR050000) may incorporate WQ_v requirements into point source discharge control requirements.

4.13.3 Required Stormwater Facility Maintenance Agreements

All private post-construction structural stormwater controls shall require a SWFMA in accordance with Section 4.14 of this manual.

4.13.4 Construction Erosion and Sediment Control Requirements

All land-disturbing activities must include provisions for erosion and sediment control in accordance with Section 7.3 (Land-Disturbing Activities) of the DDC, the *i*SWM™ Water Quality Technical Manual, the *i*SWM™ Construction Controls Technical Manual, and the *i*SWM™ Site Development Technical Manual.

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A. Two-phased erosion control plans are required for non-linear projects with land-disturbing activities totaling five (5) acres or greater. Plans must be shown on separate sheets, and must also depict both existing and proposed contours.

1. Phase 1 – Initial Land Disturbance: this phase must utilize sediment and erosion controls prior to initial land disturbing activities and include structural controls that address low point runoff.

2. Phase 2 – Construction and Individual Lot Phase with Behind Curb Controls: this phase must require sediment and erosion controls during the installation of public/private infrastructure and include any controls to remain in place from Phase 1.

   a. Behind the curb controls shall be installed upon the completion of street segments and must be included in Phase 2.

B. Drainage area maps (DAMs) and calculations are required for all three (3) phases of development, as detailed below and shown in Figure 4.12.

1. Calculations for each phase shall utilize a two (2)-year, 24-hour storm for the design of any hydraulic component of the erosion control plan including sediment basins, swales, channels, berm height, weir length, or any other outlet or conveyance structure required by the plan.

2. The DAM requirements for each Phase of development are as follows:

   a. Phase 1: Existing Conditions DAM – existing contours and flow arrows reflecting pre-development conditions.

   b. Phase 2: Mass Graded DAM – interim contours and flow arrows reflecting mass graded conditions prior to the public/private infrastructure installation stage.

   c. Phase 3: Proposed Conditions DAM – proposed contours and flow arrows reflecting post-construction, stabilized conditions.

C. A sedimentation basin or similar impoundment is required where 10 or more acres drain to a common area during any phase of development.

1. Sediment basin(s) or impoundments must provide at least 3,600 cubic feet (cu. ft.) of storage per acre drained until final stabilization of the contributing drainage area. Sedimentation basins or impoundments must be capable of controlling runoff at the site. Existing detention or retention ponds at the site may not be appropriate, as determined by City review staff.

   a. Outlet structures shall be designed to provide a minimum dewatering time of 36 hours and a maximum dewatering time of 72 hours.

   b. When discharging from sedimentation basins and impoundments, the permittee shall utilize outlet structures that withdraw water from the surface. If this is infeasible, a reason must be provided to City review staff during planning.

D. Vegetative stabilization is required for all permanent and temporary channels and basins. Plant selection guidance is provided in the *i*SWM™ Landscape Technical Manual.

E. Erosion and sediment control BMP design criteria shall adhere to the most current version of the *i*SWM™ Construction Controls Technical Manual, unless one of the following exceptions applies:

1. Linear projects may follow TxDOT standards; or

2. Proprietary erosion or sediment control devices may be utilized when:

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a. Independent performance data is provided to prove a demonstrated capability of meeting a stormwater management efficiency equivalent to *i*SWM™ methods; and

b. Supplementary data for systems or devices, such as instruction manuals and specification sheets, are provided and are demonstrated to be appropriate for use in North Central Texas site conditions, as determined by City review staff.

3. Filter Tube Inlet Protection and Rock Sock Inlet Protection methods are prohibited.

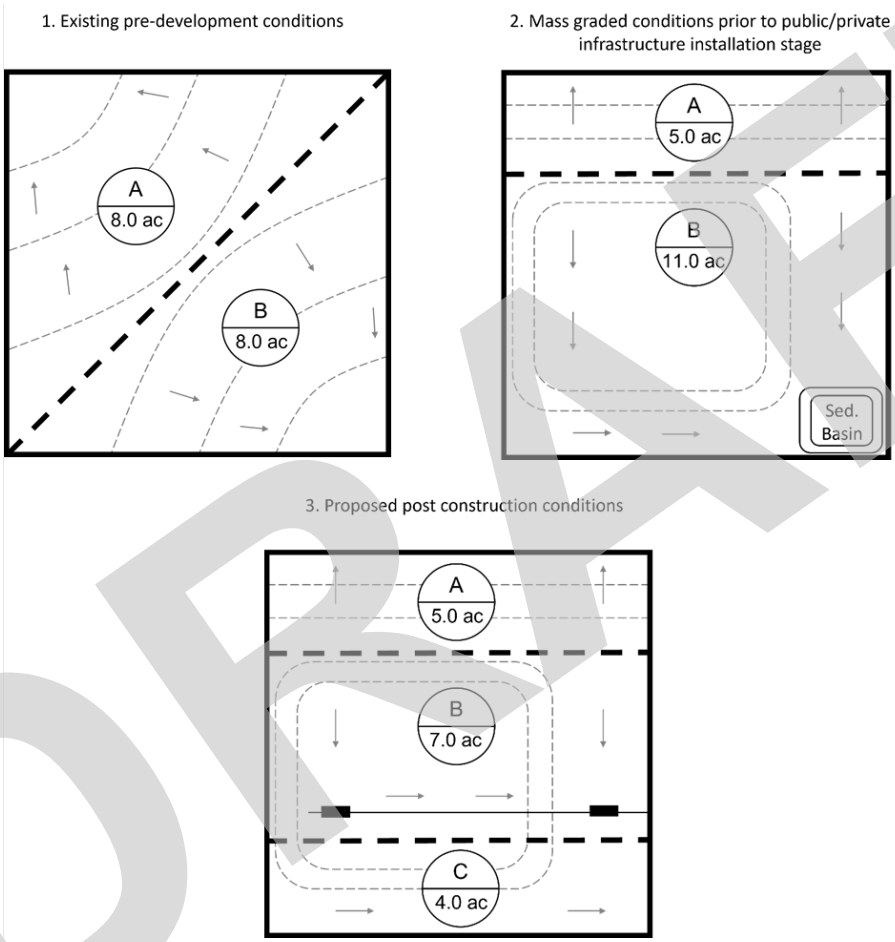

Figure 4.12 Drainage area map examples required for the three (3) development phases

4.14 Stormwater Facility Maintenance Agreements

4.14.1 Maintenance Agreements

All drainage improvements constructed within a development and any existing or natural drainage systems shall require a maintenance agreement that identifies responsible parties for maintenance. The maintenance agreement shall be written such that it remains in force upon sale of transfer of the property.

As part of the Operations and Maintenance Plan submittal, a SWFMA must be prepared by the engineer of record for each stormwater control that will not be wholly maintained by the City. This agreement must outline preventive maintenance tasks and major repairs, identify the schedule for each task, assign clear roles to affected parties, and provide a maintenance checklist to guide future owners, including an annual

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self-inspection to be provided to the City. Multiple stormwater controls may be contained within a single Stormwater Facility Maintenance Agreement. When areas are identified for detention that also serve other purposes for the development (e.g. parking lots, loading docks) the requirement for a SWFMA may be waived.

4.14.2 Private Maintenance (SWFMA Required)

A. Private drainage facilities include those drainage improvements which are located on private property and which serve the needs of private development.

B. Private drainage facilities may also include detention or retention ponds, dams, and retaining walls intended to direct or contain runoff. Such facilities must be designed in accordance with sound engineering practices and reviewed and inspected by the City.

C. All SWFMA exhibits shall be reviewed and approved by the City with the civil engineering plans. The agreement for perpetual maintenance of private drainage facilities shall be executed with the City during per-construction. This agreement shall run with the land and can be tied to commercial property or to an owner's association, but not to individual residential lots.

D. The SWFMA shall provide the City with access to all private drainage facilities.

4.14.3 Maintenance Agreement Requirements

Details of the SWFMA must be set forth in a series of exhibits:

A. Exhibit A Legal Description - This includes the Metes and Bounds, a Surveyor's Drawing of the area occupied by the facility, and a copy of the preliminary or recorded plat containing the facility.

B. Exhibit B Design Plan and Specifications - These are summary documents intended for the use of future owners in conducting routine maintenance, inspections, and repairs. The documents include:

1. Design Data and Calculations - This can be in the form of a letter or statement from the engineer of record which summarizes critical design calculations related to the functionality of the facility, such as storage volume or TSS removal, and attests to the facility conforming to applicable *i*SWM standards;

2. Schematic Plan - This should be prepared by the engineer of record from construction drawings to show the general layout of the facility. Major features requiring regular or special maintenance should be shown and labeled in general terms understandable to a layman. A profile should be given showing critical elevations that control the function and capacity of the facility, and one or more cross-sections should be provided to indicate the general grading of the facility. A typical example of a schematic plan for a simple detention basin is shown in Figure 4.13 below; and

3. Landscaping - Vegetation should be shown consistent with the accepted Landscape Plan, either on the Schematic Plan or as a separate drawing.

C. Exhibit C Operations and Maintenance Plan - Specific maintenance tasks should be defined for each element of the facility. Maintenance tasks specific to the facility should be described in simple terms consistent with terminology contained in the Schematic and Landscape plans. An inspection and maintenance frequency should be established for each task.

D. Exhibit D Maintenance Checklist - A checklist consistent with the Operations and Maintenance Plan shall be provided for the use of future owners in performing routine and special maintenance tasks.

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This list should describe work required and frequency in language that is easy to understand and specific for the facility to be maintained. This form will be completed by the Owner and submitted to the City annually as part of a regular self-inspection program. *See* Appendix A for an example checklist for preparing a SWFMA for a simple detention basin.

Additional facility maintenance guidance for several types of stormwater controls is provided in the *iSWM Technical Manual*. The engineer of record must certify that the construction has been completed in accordance with the general plans and Schematic Plan. After approval of construction by the City, the engineer of record is expected to provide guidance to the owner's representative in implementing the accepted maintenance program and to co-sign the first annual inspection after the construction.

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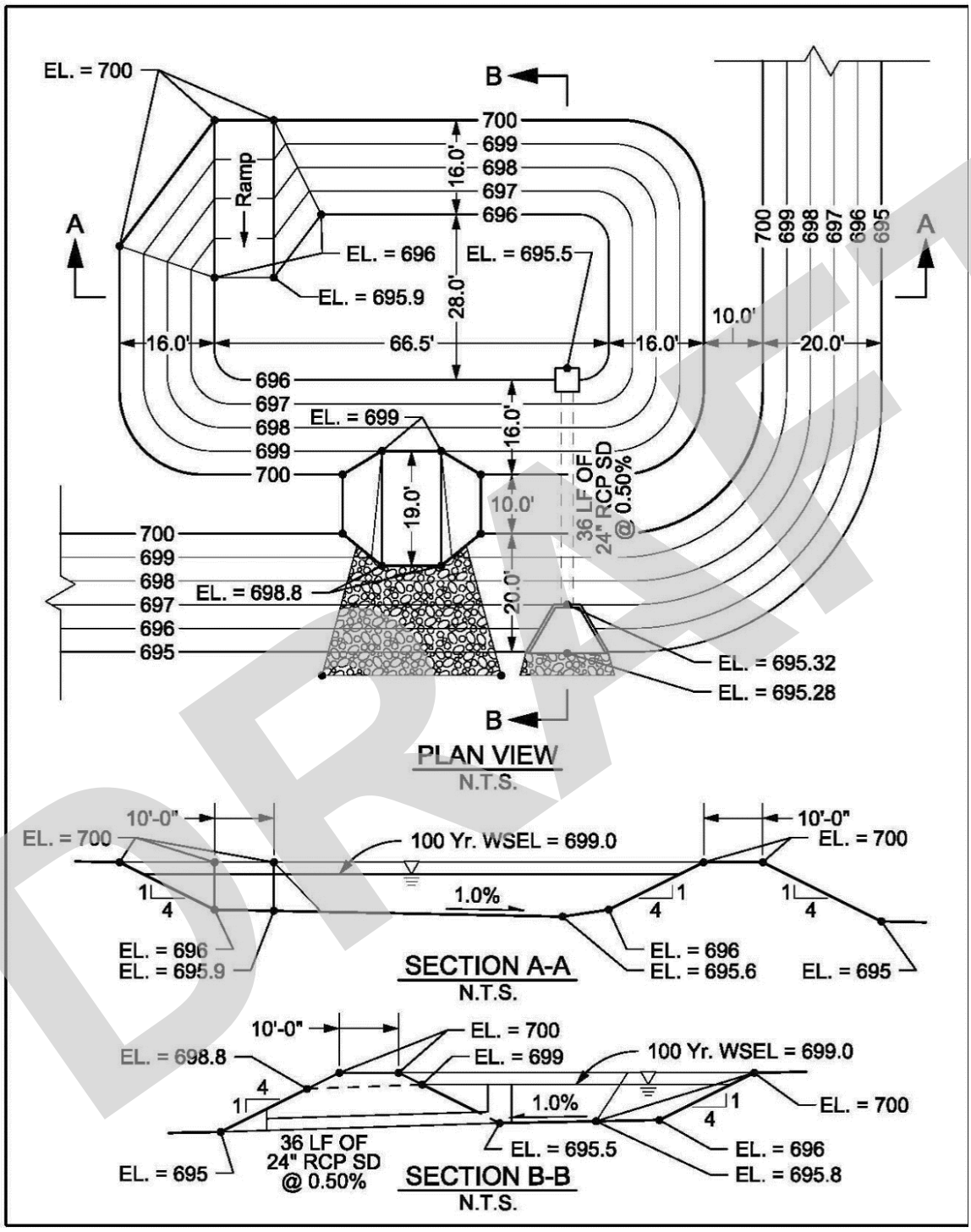

Figure 4.13 Simple Detention Basin Plan Schematic

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Section 5: Transportation Design Criteria

5.1 Overview

The purpose of Section 5 – Transportation Design Criteria is to provide ***minimum guidelines*** for the design and construction of transportation infrastructure within the City of Denton, Texas and its extraterritorial jurisdictions using the complete street and context-sensitive solution approach. The goal is to create safer, more livable places that are consistent with their social, environmental and economic values.

It is the responsibility of the design engineer to ensure the final design of transportation infrastructure are in conformance with the most recently adopted versions of the following documents:

A. City of Denton Mobility Plan,

B. City of Denton Code of Ordinances, Chapter 18 – Motor Vehicles and Traffic, and Chapter 25 – Streets, Sidewalks and Public Places,

C. The North Central Texas Council of Governments (NCTCOG) Public Works Construction Standards,

D. DDC Subchapter 7.8 – Access and Circulation,

E. DDC Subchapter 7.9 – Parking and Loading,

F. Americans with Disabilities Act (ADA) Standards for Accessible Design,

G. Public Right-of-Way Accessibility Guidelines (PROWAG),

H. The International Fire Code (IFC),

I. this Manual, and

J. relevant TxDOT, USDOT, NCHRP, FHWA, and AASHTO publications.

The criteria established in this Manual provide basic guidance for the design of transportation systems within the City of Denton. However, ***full responsibility and liability for proper design remains with the design engineer. Users of this Manual should be knowledgeable and experienced in the theory and application of transportation engineering.***

Other design criteria may be warranted from applicable resources. The Federal Government, the State of Texas, NCTCOG, Denton County, Denton County Transit Authority (DCTA) and other related organizations and resources shall be consulted for additional criteria as may be deemed necessary. Along with this Design Manual, the DDC shall be consulted for additional guidance. The criteria established in this Manual do not supersede the policies contained in the DDC. Any revision to the DDC supersedes the criteria in this Manual.

5.1.1 Organization

Section 5 - Transportation Design Criteria is organized as follows:

A. Overview

B. Mobility Framework

C. Roadway Design

D. Intersection Design

E. Auxiliary Roadway Design

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F. Access Management

G. Bike and Pedestrian Facility Design

H. Transit Facility Design

I. Traffic Impact Analysis Guidelines

J. Pavement Design Standard

K. Complete and Context-Sensitive Streets

5.2 Mobility Framework

The City of Denton Mobility Plan should be reviewed relative to any proposed development.

It should be noted that the City of Denton Mobility Plan is a living document and is periodically updated to reflect the changes in the characteristics of anticipated traffic flow within the City.

5.2.1 Roadway Classification

The City of Denton Mobility Plan provides definitions for the street classifications. These street classifications apply to developments and/or street improvements within the City of Denton and are to be used for design purposes. These classifications were established in the Thoroughfare Plan based upon expected fully developed traffic volumes.

A. Freeway

Freeways are streets that are intended to move large volumes of traffic through and around the City and are typically maintained by the TxDOT. These street types are to have limited access as defined in Section 5.6 Access Management section of this Manual.

Freeways in the region typically have high design speeds and have on- and off- ramps to control access. In urban areas, these freeways have adjacent frontage roads that provide access to adjacent business that may front onto the corridor.

B. Primary Arterial

Arterial streets are streets that serve major routes into and through the City of Denton. Arterial streets are shown on the City Mobility Plan. These street types are to have limited access as defined in Section 5.6 Access Management section of this Manual.

Primary arterials provide regional connectivity between different areas of Denton County and the DFW region. The design of arterial can vary depending on the surrounding land use and development. In urban areas, arterials may have wider sidewalks with smaller building setbacks, while suburban areas may have limited sidewalks with a larger buffer between the edge of the street and the building fronts.

C. Secondary Arterial

Secondary arterials provide shorter connections and carry less traffic. Secondary arterials are still significant to vehicular travel as they serve trips of moderate length and provide more land access.

D. Collectors

A collector street is a street that collects associated traffic from residential streets, rural streets, commercial streets, or industrial streets as designated on the City Mobility Plan.

Collectors in the City of Denton provide local land access and traffic circulation from residential

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neighborhoods to arterials. They typically experience lower traffic volumes and have lower design speeds.

E. Local Streets

A local street is a public street that provides access to adjacent property and are usually contained within the neighborhood. These streets have low speeds and low volumes associated with them. Local streets may be further classified into the following two (2) types:

1. Residential – A residential street is a public street associated with residential development within an urban environment. The residential street may require parking or prohibit parking, dependent on use.
2. Rural – A rural street is a public street that connects rural communities.

Existing or new industrial developments on local streets shall consult with the City's Engineer.

5.2.2 Auxiliary Roadway Classifications

Roadways that cannot be classified as thoroughfare, are grouped together as auxiliary roadways and are classified here as follows:

A. Alleys

An alley (residential or commercial) is designed to provide access to the rear of or side of a lot including solid waste and fire access. Alleys will be required for residential streets prohibiting on-street parking. Alleys are required in non-residential zoning districts where necessary to provide for adequate access for service vehicles, off-street loading or unloading, access for emergency vehicles, fire access or similar reasons consistent with the intent of the DDC.

B. Drives

A drive is an unobstructed paved area providing vehicular access from a street to a developed property. Drives can be classified as follows:

1. Driveway - A driveway is located entirely on private property. It is only for a single-family or a duplex property. It connects a drive approach to a garage, carport, parking pad or the like.
2. Drive Aisle - A drive aisle is located entirely on private property. It is for every other condition other than for a single-family or a duplex property. It connects a drive approach to an area(s) that is to be accessed on the site such as, but not limited to: parking space(s); loading dock(s); loading area(s) (marked or implied - for passengers and/or goods); porte-cochere(s), and/or the like. It can also be a fire lane (in and of itself or in conjunction with other access use[s]). It can also be an access to an adjoining property (in and of itself or in conjunction with other access use[s]).
3. Drive Approach - A drive approach connects a street (city, public or private) or highway (TxDOT) with a drive aisle. Some features of the drive approach may extend into and be a part of the driveway or drive aisle. The drive approach is measured from the face of the roadway curb to the end of the curb return radius on the private property. The following provides the types of drive approaches considered within this Manual:
    a. Single-family residential: A drive approach to a single-family residential lot or one lot duplex.
    b. Multifamily residential: A drive approach to a multifamily lot such as triplexes, fourplexes, and multi-complexes. The drive approach can be either the main entrance

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approach or the secondary entrance approach. Each type has specific design requirements.

c. Commercial: A drive approach to a commercial development. The drive approach can be either the main entrance approach or the secondary entrance approach. Each type has specific design requirements.

d. Industrial: A drive approach to an industrial development. The drive approach can be either the main entrance approach or the secondary entrance approach. Each type has specific design requirements.

e. Mixed-use approach: A drive approach that is a mixed-use development shall consider the more stringent criteria for the approach design.

4. Flag Drives - A flag drive is a private road within a private access easement, which may serve up to three (3) residential dwelling units. Flag drives shall have direct access to a public street other than an alley. They shall not, however, provide direct access to an arterial street.

C. Dead-End Streets & Cul-De-Sacs

A Cul-De-Sac is a dead-end street that has a fire-accessible turnaround at the end of the street. A half Cul-De-Sac is a street bend at 90±5 degrees for residential and collector streets. Dead-end streets have the same general geometric aspects of a cul-de-sac, but has an undefined and abrupt termination. Dead-end streets and cul-de-sac should be avoided if possible to enhance street connectivity.

5.3 Roadway Design

5.3.1 Design Controls

Traffic volumes and speed are necessary for the design of roadways, and assist with the planning and design of ROW, number of lanes, turn-lanes, need of intersections, and bicycle and pedestrian facilities. Guidance on these design controls will be discussed at the pre-design meeting.

5.3.2 Street Sections

Street section standards are provided for arterial, collector, and local streets in Table 5.3-A below. Refer to the City of Denton Standard Details for cross-section details. Options for street sections are dependent upon treatment utilization within the street section. Besides defined lanes, other treatments that can be utilized within the street sections include on-street parking, bike lanes, multi-use paths, and transit facilities. The intent is to provide options in order to develop a "complete street" with "context-sensitive" design; *See* Section 5.11 of this Manual. ROW requirements may vary at intersections based upon turning movement requirements.

In general, street grades shall follow the natural contour of the property and be below the existing grade so that the parkway drains towards the street. Excessive cuts and fills solely for the purpose of balancing earthwork are not permitted.

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Table 5.3-A: Geometric Roadway Standards

Roadway Classification	No. of Lanes [1]	Min. ROW (feet)	Min. B-B Width [2] (feet)	Min. Center Line Radius [3] (feet)	Min. Horizontal Curve Separation (feet)	Min. Grade (%)	Max. Grade [4] (%)
Freeway	As per TxDOT standards						
Primary Arterial	6	135	104	750	100	0.5	7
Primary Arterial – Modified	6	135	88	750	100	0.5	7
Secondary Arterial	4	110	80	575	100	0.5	7
Secondary Arterial – Modified	4	110	67	575	100	0.5	7
Collector – Commercial	2	65	39	575	100	0.5	7
Collector – Residential	2	65	39	400	100	0.5	7
Local – Residential	2	55	33	200	0	0.5	10
Local – Rural	2	65	25 [5]	200	0	0.5	10
Local – Alley [6]	1	20	15 [5]	100	0	0.5	8

Notes:
[1] Number of travel lanes dependent upon TIA and/or City's Engineer's requirements.
[2] *See* Table 5.4-D, Table 5.4-E, and Table 5.4-F for additional ROW requirements at intersections with turn lanes.
[3] Minimum center line radius based on cross slope of -2% (no super elevation).
[4] Maximum grade within 60 feet of an intersection measured from the intersection curb is 2% or less.
[5] Measurement is edge-of-pavement to edge-of-pavement.
[6] If an alley is to be used for waste collection, then it must meet all alleyway access requirements shown in Section 3: Solid Waste Design Criteria of this Manual.

5.4 Intersection Design

Several components of intersection design are addressed in this section. These standards are to work in concert with the Traffic Impact Analysis (TIA) requirements of this Manual. Additionally, the Pedestrian and Bicycle Facility Design, Transit Facility Design, and the City of Denton Standard drawings for accessibility should be reviewed for additional design requirements.

5.4.1 Geometry

A. Street intersections should be designed to be perpendicular; *see* tolerances shown in Table 5.4-A below. All streets shall be aligned with any existing streets by continuation of the centerline thereof.

B. The staggering of street alignment resulting in "T" intersections shall leave a minimum distance of 150 feet between the centerlines of residential streets, and 200 feet between the centerline of collector streets.

C. Table 5.4-A and Figure 5.1 below provide requirements for ROW corner clips and curb return radius at intersections. These standards provide minimum vision clearance areas without consideration to stopping sight distance. Additional sight clearance evaluation should be performed as necessary, as per Section 5.4.3 below.

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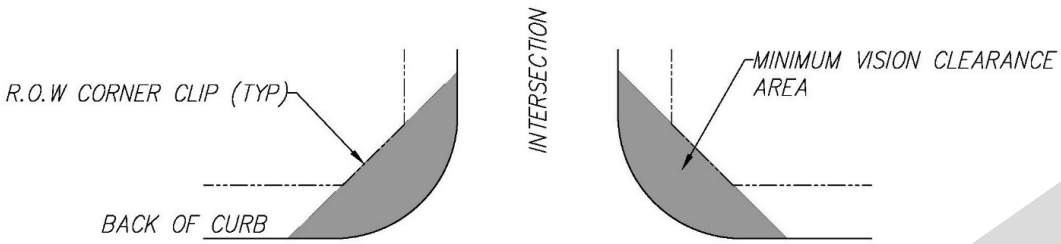

Figure 5.1 Minimum Vision Clearance

Table 5.4-A: Intersection Geometry

Intersection Classification	Intersection Angle (degrees)	ROW Corner Clip [1] (feet)	Curb Return Radius (feet)
Arterial - Arterial	90±5	30	30
Collector - Arterial	90±5	20	30
Collector - Collector	90±5	15	30
Residential Street - Arterial	90±5	15	30
Residential Street - Collector	90±10	15	20
Residential Street - Residential Street	90±10	10	20
Flag Drive - Collector	90±10	5	20
Flag Drive - Residential Street	90±15	5	10
Alley - Collector	90±10	10	30
Alley - Residential Street	90±10	15	30
Alley - Alley	90±10	25	30

Notes:
[1] Shall apply to all corners of the intersection.
[2] Fences must provide a 5-ft. corner clip adjacent to driveways.
[3] Curb Return Radius is for single lane design. Multi-lane and special considerations for truck-turning radius require turn radius analysis, as required by the City's Engineer.

5.4.2 Visibility Standards

Table 5.4-B and Figure 5.2 below shall be used to evaluate the required unobstructed view for motorists at intersections, which are based upon the design speed approaching the intersection. Design speeds are based upon the roadway classification. The values shown in the table are minimum standards. Within the sight line area, no obstruction shall be allowed that will obstruct the view of motorists. A sight visibility easement shall be dedicated to protect and maintain sight visibility.

A. Table 5.4-B below is based upon passenger car right turn and left turn from stop. Where truck traffic warrants additional sight distance, refer to AASHTO Geometric Design of Highways and Streets for single-unit truck and combination truck design requirements, Case B1 and Case B2.

B. Refer to AASHTO Geometric Design of Highways and Streets for multi-lane considerations and other design considerations that may apply for Cases "A" through "F".

C. Lines of sight distance at all intersections shall be clear at an elevation between two (2) feet and nine (9) feet above the nearest gutter elevation.

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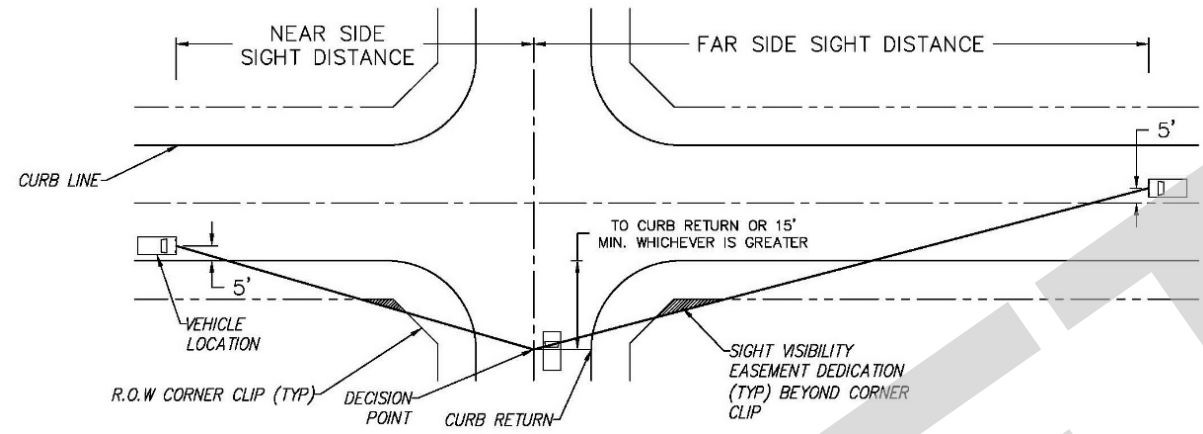

Figure 5.2 Visibility Standards

Table 5.4-B: Visibility Standards

Design Speed (mph)	Intersection Sight Distance Near Side (feet)	Intersection Sight Distance Near Side (feet)
30	290	335
35	335	390
40	385	445
45	430	500

Notes:
[1] Driveways accessing roadways shall use above table to satisfy intersection visibility compliance.

5.4.3 Vertical Curve Standards

Vertical curves are required when two (2) street grades intersect at a point of vertical intersection greater than 1%. Minimum vertical lengths for both crests or sags shall be defined by the design speed for the street and the associated stopping sight distance, as well as the minimum K value. Table 5.4-C below shows the minimum K value for various design speeds.

Table 5.4-C: Minimum 'K' Values for Vertical Curves

Design Speed (mph)	Stopping Sight Distance (feet)	Crest Vertical Curve (K Min)	SAG Vertical Curve (K Min)
30	200	19	37
35	250	29	49
40	305	44	64
45	360	61	79

Notes:
[1] Source: AASHTO Geometric Design of Highways and Streets 'US Greenbook'.

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Vertical curve lengths can be calculated as shown in Equation 5.1 below:

$$L = KA \qquad \text{[Eqn. 5.1]}$$

Where: L = Vertical Curve Length

A = Algebraic Difference in Grade

A. No vertical curve required for "A" equal to or less than 1.0%

B. Minimum spacing between successive vertical curves shall be 50 feet for residential, and 100 feet for collectors and arterials.

C. Resultant vertical curve grade shall be no less than 0.3% for concrete pavement, and no less than 0.5% for asphalt pavement.

D. For drainage purposes, 50-ft. vertical curves are required when "A" is greater than 1.0% and less than or equal to 1.2%. Otherwise minimum vertical curve length is 100 feet.

5.4.4 Turn Lane Requirements

Turning lane requirements shall be based upon the following requirements and/or the requirements of the City's Engineer, and the tables within this section.

A. Left-Turn Lane Warrants

When designing an intersection that provides direct or indirect access to the proposed development, left-turn lanes should be provided at driveways and street intersections along major arterial and collector roads, wherever left turns are permitted. Table 5.4-D below provides criteria which warrant left-turn lanes. Figure 5.3 below provides guidance on left-turn lane requirements.

Conditions for requesting a left-turn lane include large truck volume, high crash history, limited sight distance, and significant delay for motorists to make the turn, as determined by the City's Engineer.

Table 5.4-D: Left-Turn Warrants for Urban and Suburban Roadways

Left – Turn Lane Peak Hour Volume (vehicles per hour)	Three-Leg Intersection, Arterial/Collector Volume (vehicles per hour per lane) that Warrants a Left-Turn Lane	Four-Leg Intersection, Arterial/Collector Volume (vehicles per hour per lane) that Warrants a Left-Turn Lane
5	450	50
10	300	50
15	250	50
20	200	50
25	200	50
30	150	50
35	150	50
40	150	50
45	150	<50
50 or More	100	<50

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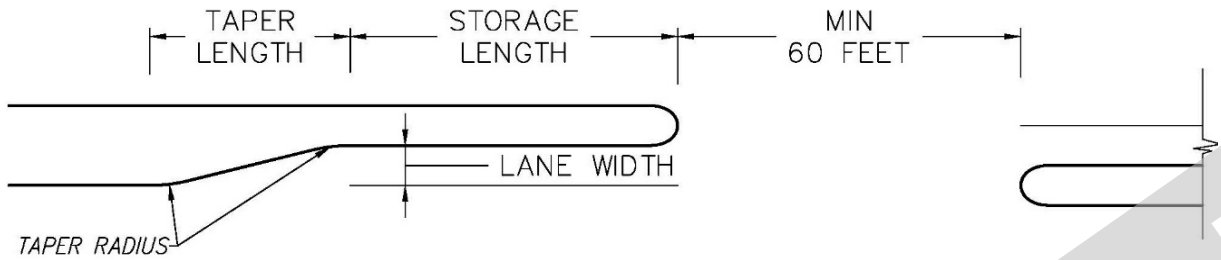

Figure 5.3 Left-Turn Lane

B. Right-Turn Lane Warrants

When designing an intersection that provides direct or indirect access to the proposed development, right-turn lanes should be provided along major arterial and collector roads at driveways when the right turns are permitted and satisfy the following criteria. Table 5.4-E below provides criteria which warrant right-turn lanes. Figure 5.4 below provides guidance on right-turn lane requirements.

Table 5.4-E: Right-Turn Warrants for Urban and Suburban Roadways

Roadway Classification	Speed Limit (mph)	Volume (Vehicles per Hour)
Arterial / Collector	45 or greater	50 or more
Arterial / Collector	Less than 45	60 or more

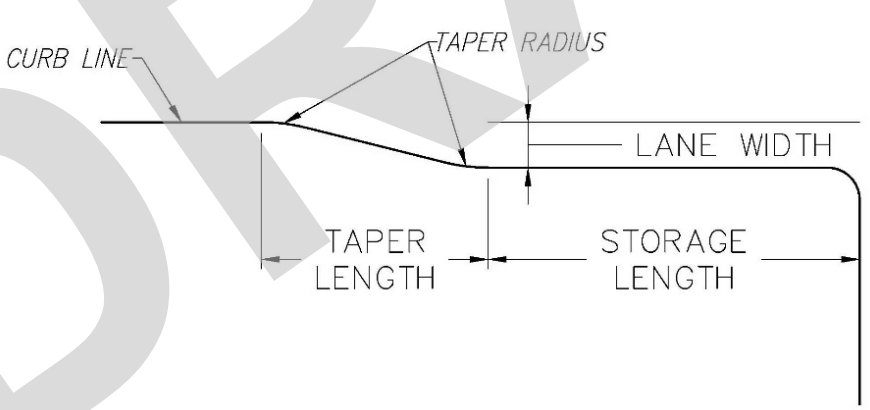

Figure 5.4 Right-Turn Lane

Conditions for requesting an exclusive right-turn lane when right-turn traffic volume projections are less than indicated in Table 5.4-E, include the following, as determined by the City's Engineer:

1. Large volume of truck traffic,
2. High crash history,
3. Roadways with limited sight distance, or
4. Heavier than normal peak flow movements on the main roadway.

C. Turn Lane Geometry

When a turn lane is required, Table 5.4-F below shall be used as the minimum criteria for the turn

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lane geometry. Additional consideration shall be given for unique traffic movements such as excessive tractor trailer utilization, extended length transport vehicle movement, etc. *see* Section 5.4.5 below for additional geometry standards for Collectors and Arterials.

Table 5.4-F: Minimum Turn Lane Geometry

Intersection Type	Lane Width (feet)	Minimum Storage Length (feet)	Minimum Taper (feet)		Additional ROW Required (feet)
			LEFT TURN	RIGHT TURN	
Residential Collector	11	100	100	100	15
Commercial/Industrial Collector	11	150	100	150	15
Secondary Arterial	11	150	100	200	15
Primary Arterial	11	200	100	200	15

Notes:
[1] Required turn lane storage may be greater depending upon the TIA.
[2] The Pedestrian Path shall be taken into account for access across the median by utilizing a leave-out or ramp in accordance with accessibility standards described in this manual.
[3] Cross slope of median openings or turn bays shall not be more than 2% or less than 1%.
[4] On TxDOT Roadways TxDOT standards shall supersede City of Denton Standards.
[5] Taper Radius shall be 200 feet minimum.
[6] Additional ROW required per turn lane bay, if ROW is not sufficient.

5.4.5 Intersection Detail for Collectors and Arterials

Figure 5.5 below provides median location details and specific turn lane radius requirements. Also refer to median details shown in the City of Denton Standard Details.

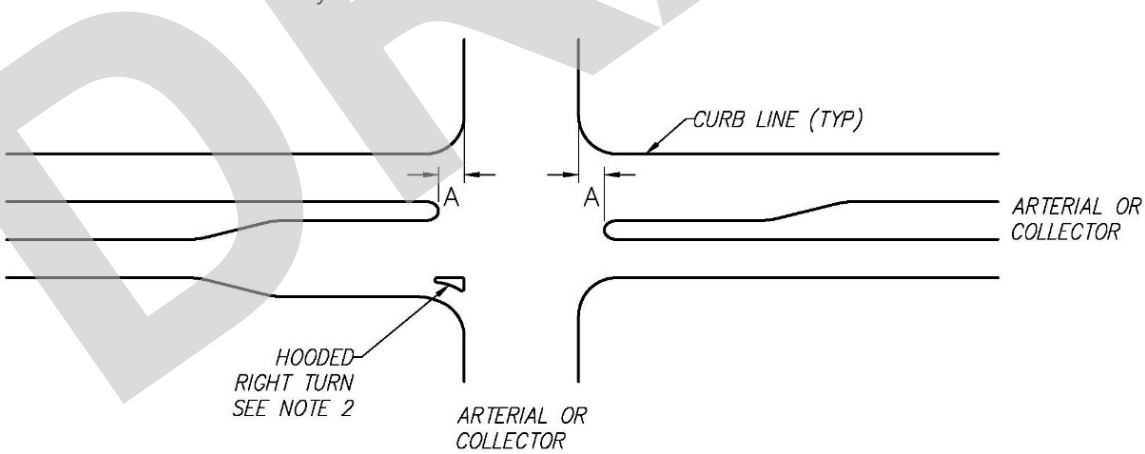

Figure 5.5 Intersection Detail for Collectors and Arterials

Notes:
1. For collector and arterial streets, A = 15 feet minimum.
2. Depending upon traffic flow requirements, the right turn may require a hooded right turn.

5.4.6 Intersection Spacing

Standards for intersection spacing are outlined below in Table 5.4-G.

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Table 5.4-G: Minimum Intersection Spacing [1]					
Roadway Classification	**Alley**	**Flag Drive**	**Residential**	**Collector**	**Arterial**
Alley	100 feet	N/A	100 feet	100 feet	N/A
Flag drive	N/A	N/A	75 feet	75 feet	N/A
Residential	100 feet	75 feet	200 feet [2]	200 feet [2]	400 feet
Collector	100 feet	75 feet	200 feet [2]	200 feet [2]	400 feet
Arterial	N/A	N/A	400 feet	400 feet	1200 feet

Notes:
[1] Spacing will be measured between face of the curbs.
[2] 100-ft. minimum to the first intersection for entrances to subdivisions off of an arterial, where lots back up to the arterial.

5.4.7 Roundabouts

Roundabouts are circular intersections that create counter-clockwise traffic movements around a central island, with entering traffic yielding to circulating traffic.

The design of a roundabout shall be in compliance with the Intersection Control Evaluation provided by the FHWA. Normally, each roundabout will be unique in some way, as such a standard roundabout is not included in this Manual. Also, the various analyses and design considerations involved in roundabout design are beyond the scope of this Manual.

A. The following resources shall be used when designing a roundabout:
   1. NCHRP Report 672 - Roundabouts: An Information Guide, Second Edition (2010)
   2. NCHRP Report 745 - Left-Turn Accommodations at Unsignalized Intersections (2013)
   3. TxDOT Auxiliary Lane requirements for right turn lane
   4. Federal Highway Administration Roundabouts, An Information Guide
   5. Federal Highway Administration Roundabouts, Technical Summary

B. In addition to the resources provided above, the roundabout design shall include the following design review process with the City's Engineer and City Staff:
   1. Have a Pre-Application Conference on the project, which will include a separate meeting with the City's Engineer for proposed roundabout design considerations;
   2. Have a TIA review meeting with the City's Engineer. *See* section on TIA requirements;
   3. Develop Preliminary layout of roundabout considering TIA and Pre-Development meetings;
   4. Preliminary Design review meeting with the City's Engineer;
   5. Develop roundabout design based up comments from the City's Engineer; and
   6. Submit roundabout design through the Development Review Process (DRP).

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5.5 Auxiliary Roadway Design

5.5.1 Alleys

A. Alleys shall have at least two (2) direct access points to public streets and are subject to the block length criteria included in this Manual.

B. Alleys shall be a minimum of 15 feet wide, with edges sloping towards the centerline at 3% slope

C. Alleys that are intended to provide fire apparatus access must meet the design requirements of Section 5.6.3-Fire Apparatus Access Roads of this Manual.

D. Refer to City of Denton Standard Detail T103C for further details.

5.5.2 Drives

The design criteria for drives detailed in this section should be utilized in conjunction with the DDC. The following standards generally apply to all developments. However, there may be unique situations for which these standards may be impractical. In these situations, the City's Engineer will work with the developer to develop a mutually agreeable solution. In the event that a mutually agreeable solution is not reached, the developer may apply to the Planning and Zoning Commission for consideration of the issue.

A. Drive Approach Standards

Table 5.5-A: Drive Approach Dimensions

Development Type [1]	Drive Approach Widths		Radius
	MIN. WIDTH (FEET)	MAX. WIDTH [2] (FEET)	(FEET)
Residential – Single-family or Duplex	12	20	5 [3]
Residential – Multifamily	24	38	10 to 20
Commercial or Industrial [4]	30	38	20 to 25

Notes:
[1] Refer to Figures 5.6 through 5.10.
[2] Maximum drive approach width is a function of traffic volume.
[3] Add five (5) feet to maximum radius for significant truck traffic.
[4] For shared drive approaches, no lot shall contain less than nine (9) feet of the drive approach and driveway or drive aisle (as may apply). Drive approach shall be centered on lot line, such that maximum drive approach width equals 30 feet.

1. Residential

a. One (1) single-family or one (1) duplex residential lot accessing a collector may be permitted to have one (1) full-width or circular drive approach (Figure 5.6 below), when alleys are not practical.

b. Two (2) adjacent single-family or two (2) adjacent duplex residential lots accessing a collector may be permitted to have one (1) shared full-width or circular drive approach, when alleys are not practical.

c. Three (3) or more contiguous single-family or three (3) or more contiguous duplex residential lots accessing a collector will be required to enter the collector by an alley, flag drive, or residential street.

d. One (1) single-family or one (1) duplex residential lot accessing an arterial, will be

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required to have an on-site facility, allowing entrance into the arterial in a forward manner.

e. For homes with a 3-car garage or greater, where the garage door is street-facing and less than 40 feet from the back of curb, the maximum drive approach width shall be 30 feet.

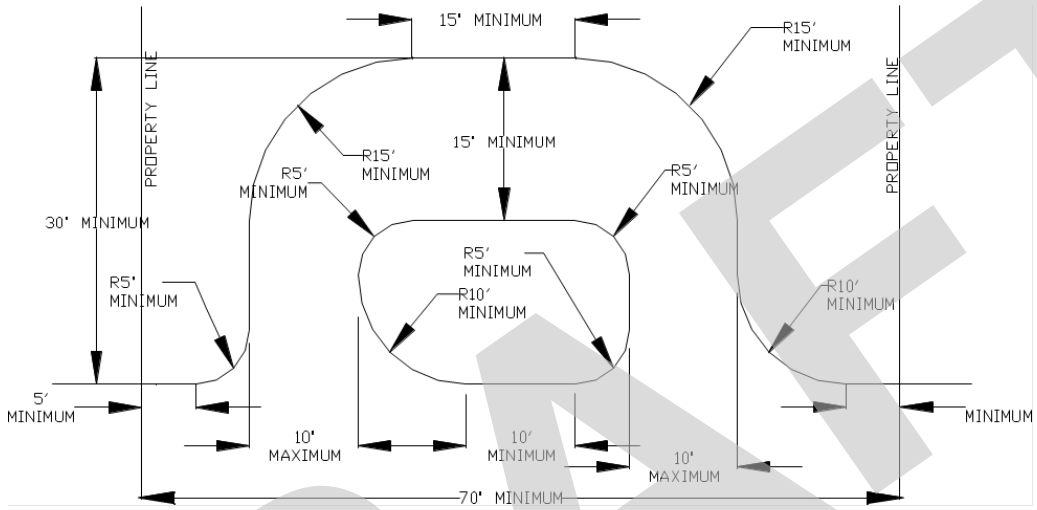

Figure 5.6 Residential Circular Drives

2. Commercial

a. All stop bar markings and stop signs when used shall be on private property, as well as upstream of any pedestrian facility crossing the drive approach and/or drive aisle.

b. All signs and markings should be consistent with TMUTCD.

c. Drive approaches with significant truck traffic may install surmountable curb with textured and colored pavement in the parkway, with a depth equal to or greater than the drive approach pavement requirement.

d. Ingress/Egress Lanes

i. Single Lane Egress/Ingress (Figure 5.7) - The outbound (towards the street) lane shall be a minimum of 12 feet wide; if the width of the driveway is greater than 30 feet, then the inbound (onto the site) lane shall be a minimum of 18 feet wide.

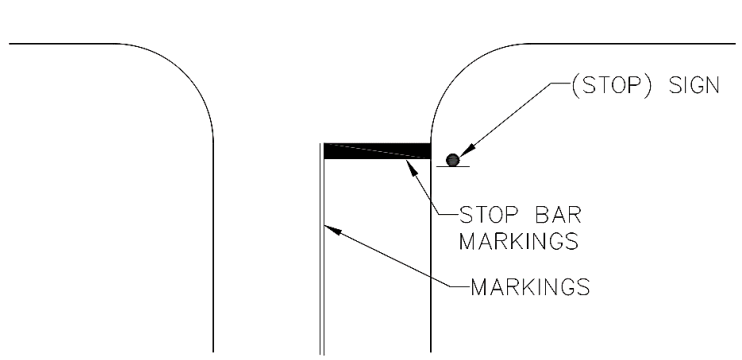

Figure 5.7 Drive Approach: Single Lane Egress/Ingress

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ii. Dual Lane Egress, Single Lane Ingress (Figure 5.8) - The outbound lanes shall be 10 feet wide; if the width of the driveway is greater than 30 feet, then outbound lanes shall remain 10 feet wide while the width of the inbound lane shall be increased.

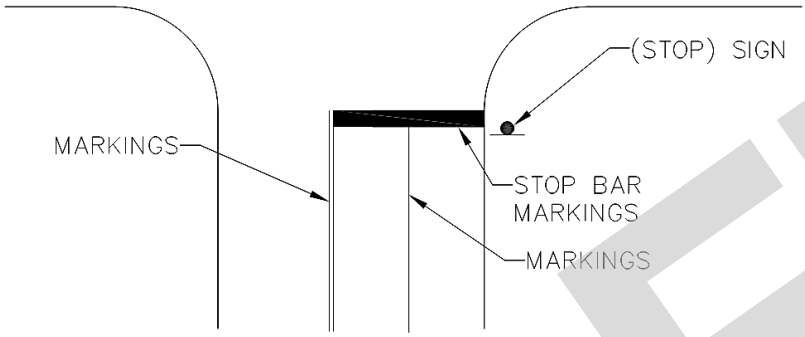

Figure 5.8 Drive Approach – Dual Lane Egress, Single Lane Ingress

iii. Multiple Lane Egress/Ingress (Figure 5.9) - Only allowed when dual left-turn lanes into the site or opposing street/driveway has two (2) or more lanes, of which two (2) are designated as being through lanes.

a) Each of the two (2) outbound and inbound lanes shall be 10 to 12 feet wide.
b) Median shall accommodate any pedestrian facility across the drive approach and/or drive aisle, as projected from both sides thereof.

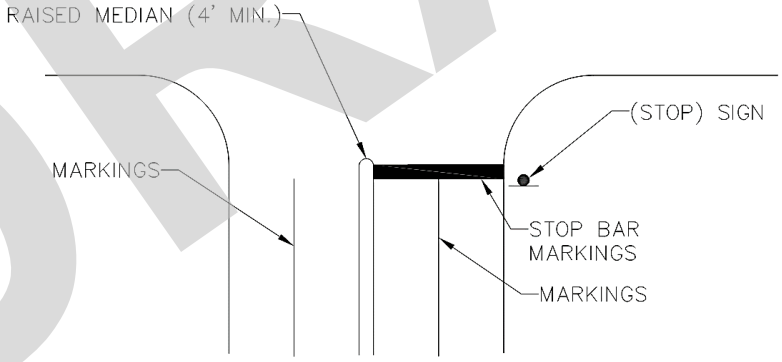

Figure 5.9 Drive Approach – Multiple Lane Egress/Ingress

iv. Right-in or Right-out Egress/Ingress - The minimum width of the drive approach/drive aisle prior to the island, each lane (inbound and outbound) at the island, and the applicable radii shall be determined by the engineer of record, based on expected vehicle type(s), as well as an auto-turn analysis provided to the City's Engineer for review and approval as part of the Civil Engineering Plan submittal.

a) Median/island shall accommodate any pedestrian facility across the drive approach and/or drive aisle as projected from both sides thereof.
b) For "one way in" or "one way out" driveways, the geometry shall be as shown in Figure 5.10 below for the respective side.

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c) Through a Design Deviation request, the minimum drive approach width may be reduced based upon acceptable turning radius for emergency vehicles, and determination that truck traffic requiring the larger width will not occur.

d) When the right in/right out drive approach is part of the fire apparatus access road, the minimum width of each drive shall be 24 feet.

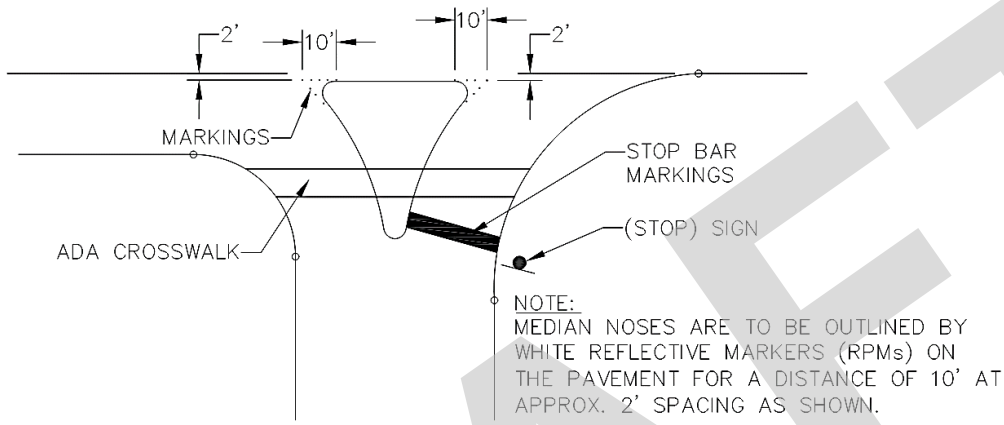

Figure 5.10 Drive Approach – Right in or Right out Egress/Ingress

v. With the exception of multi-lane egress/ingress (shown in Figure 5.9), drive approaches with a median installed in lieu of the double-yellow marking, may exceed the maximum drive approach width by the width of the median only.

B. Drive Approach Spacing

1. Same side of the street

Drive approach spacing shown in Table 5.5-B below applies to drive approaches on the same side of the street, and is measured between the nearest edges of each drive approach, along the back of curb, not including the radius.

Table 5.5-B: Minimum Drive Approach Spacing

Roadway Classification	Min. Spacing [1] (feet)
Primary Arterial	200 [2]
Secondary Arterial	150 [2]
Collector	100 [3]
Residential Street [4]	10
Flag Drive	10
Alley	10

Notes:
[1] Maximum of two (2) drive approaches permitted.
[2] If permitted; drive approaches are not permitted on arterial streets, unless otherwise allowed according to Section 5.6 of this Manual.
[3] If permitted; refer to Section 5.6 of this Manual for permitted access.
[4] For a T-intersection on residential streets, the drive approach shall be offset farthest from the intersection.

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2. Near Intersections

Drive Approach spacing shown in Table 5.5-C below applies to drive approaches near intersections, and is measured between the face of the curb of the intersecting street and the nearest edge (face of curb) of the drive approach not including the drive approach radius; *see* Figure 5.11 below.

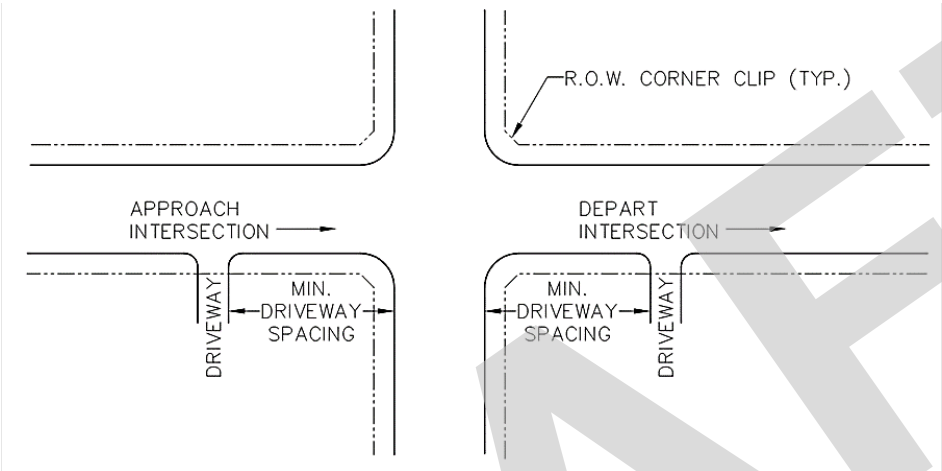

Figure 5.11 Drive Approach Spacing at Intersections

Table 5.5-C: Minimum Drive Approach Spacing at Intersections

Intersection Type	Approaching the Intersection	Departing the Intersection
Arterial - Arterial [1]	150 feet on both streets	200 feet on both streets
Collector - Arterial [1]	75 feet on collector, 150 feet on arterial	100 feet on collector, 200 feet on arterial
Collector - Collector	75 feet on both streets	100 feet on both streets
Residential - Arterial [1]	50 feet on residential, 150 feet on arterial	50 feet on residential, 200 feet on arterial
Residential - Collector	50 feet on residential, 75 on feet collector	50 feet on residential, 100 feet on collector
Residential - Residential [2]	50 feet on both streets	50 feet on both streets
Flag Drive - Collector [1]	20 feet on flag drive, 75 feet on collector	20 feet on flag drive, 100 feet on collector
Flag Drive - Residential [1]	20 feet on flag drive, 50 feet on residential	20 feet on flag drive, 50 feet on residential
Alley - Collector [1]	20 feet on alley, 75 feet on collector	20 feet on alley, 100 feet on collector
Alley - Residential [1]	20 feet on alley, 50 feet on residential	20 feet on alley, 50 feet on residential
Alley - Alley	10 feet on both alleys	10 feet on both alleys

Notes:
[1] If permitted by the City's Engineer.
[2] Driveways across T-intersections on residential streets are exempt.

3. Offset and relative to median openings (See Figures 5.12 and 5.13 below)

   a. For collector streets, drive approaches that do not align across the street from each other must be offset by a minimum of 75 feet between nearest tangent-edge to nearest tangent-edge.

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b. For arterial streets without medians, drive approaches must align across the street from each other, and must be approved by the City's Engineer. When this is not physically possible or practical as determined by the City's Engineer, drive approaches that do not align must be offset across the street from each other by a minimum of 150 feet between nearest tangent-edge to nearest tangent-edge.

c. For arterial streets with medians, drive approaches must align with existing or proposed median openings. Where this is not possible or practical as determined by the City's Engineer, drive approaches must be placed as far away from the existing or proposed median opening as is reasonably possible.

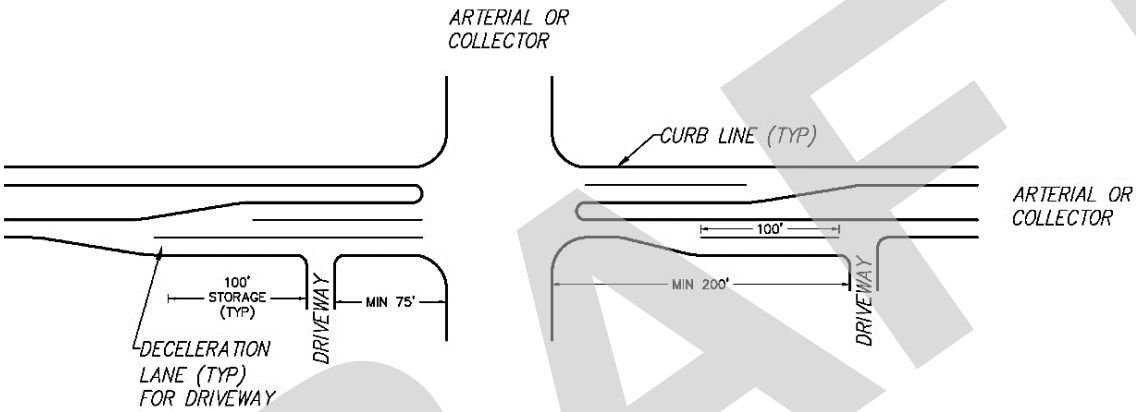

Figure 5.12 Drive Approach Near Turning Movements

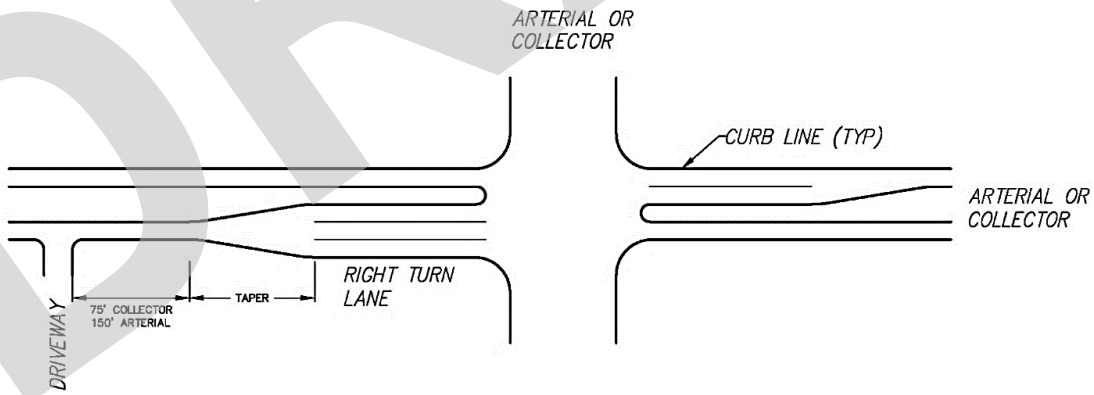

Figure 5.13 Drive Approach Near Turning Movements

C. Drive Approach Grades

1. Minimum Drive Approach Slope:

The minimum drive approach slope shall be determined by:

$$S = (6 + [0.02 \times W \times 12]) / (W \times 12) \qquad \text{[Eqn. 5.2]}$$

Where: W = the width of the parkway in feet as shown on the City of Denton Standard Details.

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2. Maximum Drive Approach Slope: Unless otherwise approved by the City's Engineer through a design deviation request (Section 8), the maximum drive approach slope shall be 12%.

3. Difference in Drive Approach Grade: Driveway profiles shall not have a grade difference greater than 5%, without constructing a vertical curve. A minimum K-value of 4 is recommended for driveways accommodating low ground clearance or long wheelbase vehicles.

4. Sidewalks in Drive Approach: Maximum sidewalk cross slope within the limits of the drive approach shall be 2%.

5. Sidewalk Easement Requirement: Where the parkway width is insufficient to provide appropriate drive approach slope, a sidewalk easement will be required, equal to the balance of the sidewalk width needed outside the ROW plus two (2) feet. The additional two (2) feet requirement is for sidewalk installation and maintenance. The balance of the sidewalk width needed is based upon using the minimum drive approach slope calculated in Section 5.5.2.C.1 above. *See* Figure 5.14 below as well as City of Denton Standard Details.

6. Driveway/Drive Aisle Consideration: The drive approach slope from the bottom of the gutter to the nearest edge of the sidewalk (within the limits of the ROW) shall not exceed the driveway/drive aisle slope beginning at the furthermost edge of the sidewalk. Also, it shall not be less than the minimum slope, nor be greater than the maximum slope as noted herein.

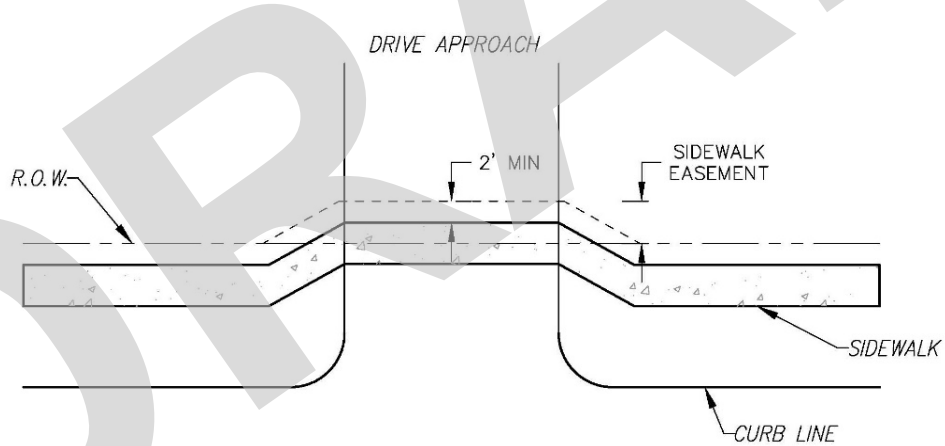

Figure 5.14 Sidewalk Easement to meet Drive Approach Slope

D. Driveway Throat Length Requirements

1. Minimum throat length requirements are shown in Table 5.5-D below. Note that throat length requirement applies to both edges of the drive approach.

2. All drive approaches that access an arterial shall be classified as a primary drive approach. If no drive approaches access an arterial, then the drive approach expected to receive the most traffic is considered to be the primary drive approach.

3. The throat length is measured between the first parking space or drive aisle and the curb line, whichever is closer to the curb line.

4. Parking lots with 10 or less parking spaces may use a minimum throat length of 10 feet for drive approaches accessing a residential or collector street.

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5. Queuing analysis required for gated entrances and drive-throughs.

Table 5.5-D: Minimum Throat Length

No. of Parking Spaces	Min. Throat Length for Primary Drive Aisle (feet)	Min. Throat Length for Secondary Drive Aisle (feet)
0 to 100	20	20
101 to 250	40	20
251 to 500	60	40
501 to 1000	80	60
1001 and above	Queuing Analysis Required	Queuing Analysis Required

E. Driveway Separation

Driveways shall be separated in accordance with Table 5.5-B to ensure that all driveways are separated by sufficient distance so as to avoid interfering with the safe movement of traffic. In interpreting and applying the separation requirements, the following shall apply:

1. The separation requirements shall be determined in reference to any proposed or existing driveways on or off the property. Where applied to a property, which is located adjacent to an undeveloped tract, the separation requirements shall account for the placement of future driveways on the adjacent undeveloped property.

2. The minimum separation specified may be reduced for currently developed property, if the amount of street frontage for the property is insufficient to allow for one (1) driveway access that would have the necessary separation from an existing driveway on adjacent property, and joint access with adjacent properties is not physically possible, as determined by the City's Engineer. If a reduction in the minimum separation specified is allowed, the separation shall be reduced only to the degree necessary to allow for the single driveway.

F. Corner Clearance Standards

Corner clearance standards shall be applied in accordance with AASHTO "Green book" to ensure that the traffic movements from driveways do not unduly conflict with the movement of traffic on intersecting public streets. In interpreting and applying the corner clearance standards, the following shall apply:

1. A reduced requirement may only be used if absolutely necessary to provide driveway access to property where no other means of access meeting the corner clearance requirement is reasonably possible, and joint access with adjacent properties is not physically possible as determined by the City's Engineer. If a reduction in the minimum corner clearance specified is allowed, the corner clearance shall be reduced only to the degree necessary to allow for the single driveway.

2. The specified distances shall be measured at the ROW line from the edge of the driveway nearest the intersecting street to the ROW line of the intersecting street. Where ROW corner clips exist or are proposed, the specified distance shall be measured from the edge of the driveway nearest the intersecting street and the end of the corner clip nearest to the subject driveway.

G. Modifications to Existing Drives

Existing non-compliant drives may be modified to comply with criteria set forth in this Manual, but

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may not be modified in a way that increases the non-compliance with this Manual.

H. TxDOT Drives

All drives connecting to TxDOT roadways shall meet all required TxDOT standards, in addition to meeting City of Denton standards when applicable.

5.5.3 Cul-de-sacs

A. Geometrical Standards

1. Maximum length of a Cul-de-sac shall be 600 feet measured from the centerline of the intersecting street to the Cul-de-sac radius point, and perpendicular to the intersecting street centerline.
2. Minimum length of a Cul-de-sac shall meet Fire Code requirements.
3. Residential Cul-de-sacs shall not have more than 29 residential lots.
4. The center radius of the Cul-de-sac shall be a minimum of 50 feet for residential developments, and 60 feet for commercial and industrial developments measured from the center point to the face of curb or edge of pavement where there is no curb.
5. The Cul-de-sac return radius shall be 30 feet.
6. Cul-de-sac minimum street grades shall be as shown below in Figure 5.15 and Figure 5.16 below for downward gradient and upward gradient, respectively.

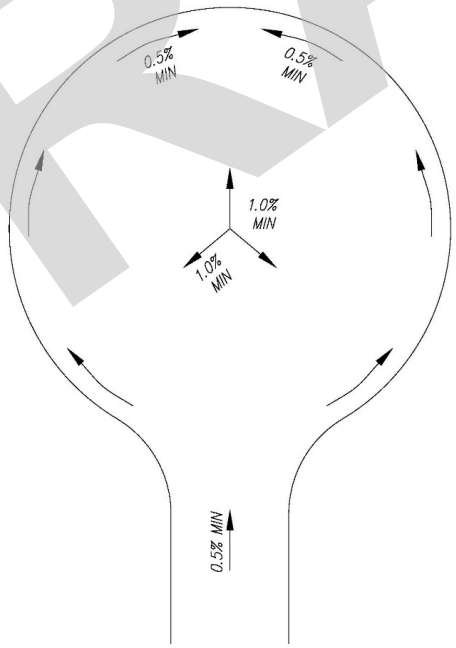

Figure 5.15 Cul-de-sac Minimum Slope - Downward Gradient

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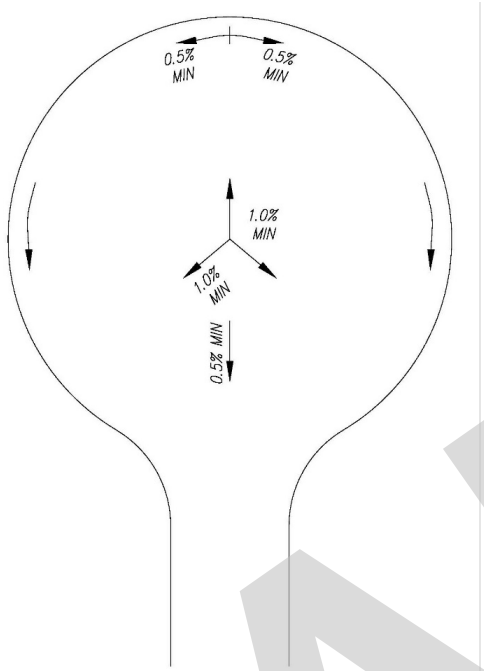

Figure 5.16 Cul-de-sac Minimum Slope - Upward Gradient

B. Offset Cul-de-sacs

1. Offset Cul-de-sacs shall have the same radius and return radius as the standard Cul-de-sac.
2. The length of the offset Cul-de-sac shall be measured from the centerline of the intersecting street to the Cul-de-sac radius point, perpendicular to the intersecting street centerline.

C. Temporary Turn-Around

1. A temporary turn-around shall be limited to approved phase developments where the street will be extended in the future.
2. A temporary turn-around shall meet the requirements of a standard Cul-de-sac for radius and return radius size.
3. The length of street associated with the turn-around shall not be any greater than 600 feet nor less than Fire Code requirements.
4. If the length of street will be greater than 600 feet, then the next block length of street and intersecting streets shall be constructed in order to provide looped traffic flow for emergency vehicles.
5. The turn-around section shall be constructed to the same structural section as the street section less curb and gutter requirements, unless drainage requirements warrant curb and gutter.

5.5.4 Supplementary Design Elements

A. Signage

Signage and pavement markings shall be as shown in the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

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B. On-street Parking

Consistent with the requirements of Public Rights of Way Accessibility Guidelines (PROWAG), the following Americans with Disabilities Act (ADA) on-street parking requirements shall be followed:

1. General
   a. On-street parking is permitted for residential and residential collector streets.
   b. On-street parking for proposed commercial/industrial collectors or arterials is not allowed. Where on-street parking is designated, one (1) on-street parking space for each single-family unit on a block is required on the frontage street within that block.
   c. Areas in front of a driveway, within five (5) feet of a driveway, within 20 feet of a street intersection, or within 15 feet of a fire hydrant shall not be counted toward the required on-street parking.
2. Parallel Parking
   a. For parallel parking spaces where the adjacent sidewalk or available ROW is more than 14 feet wide, an access aisle must be provided at street level for the entire length of each accessible parallel parking space.
   b. The access aisle must be a minimum of five (5) feet wide and connect to a pedestrian access route.
   c. The access aisle must not encroach on the vehicular travel lane and must comply with the technical requirements for surfaces.
   d. In alterations where the street or sidewalk adjacent to the parking spaces is not altered, an access aisle is not required, provided the parking spaces are located at the end of the block face.
   e. Where the adjacent sidewalk or available ROW is less than or equal to 14 feet wide, an access aisle is not required, but accessible parallel parking spaces must be located at the end of the block face.

   Figure 5.17 shows the acceptable parking configuration for on-street parallel parking.

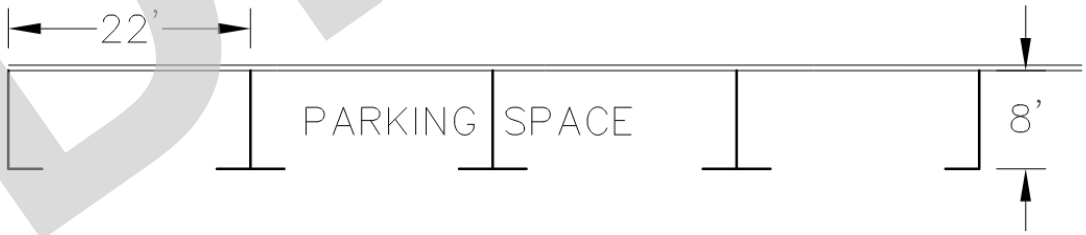

Figure 5.17 Parallel Parking

3. Perpendicular and Angled Parking
   a. For perpendicular and angled parking spaces, an access aisle must be provided at street level for the entire length of each accessible perpendicular or angled parking space.
   b. The access aisle must be a minimum of eight (8) feet wide to accommodate vans with lifts and connect to a pedestrian access route.
   c. Two (2) accessible parking spaces are permitted to share a common access aisle.
   d. The access aisle must be marked to discourage parking in the aisle and comply with the

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technical requirements for surfaces.

Figures 5.18 through 5.21 show the acceptable parking configurations for on-street angled parking.

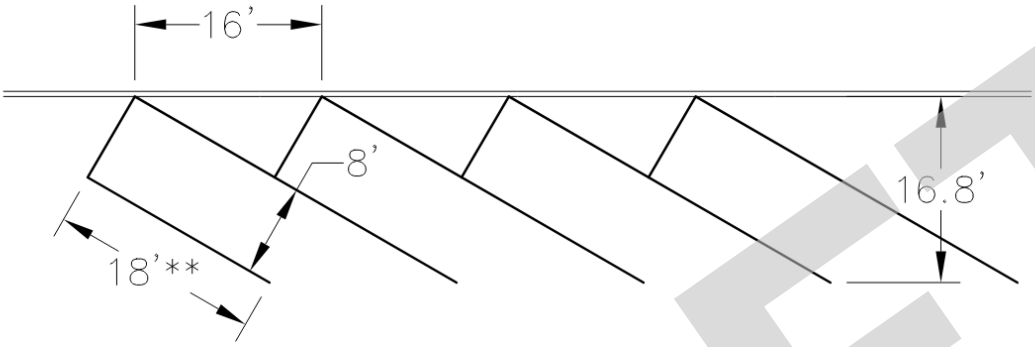

Figure 5.18 Angled Parking – 30 degrees

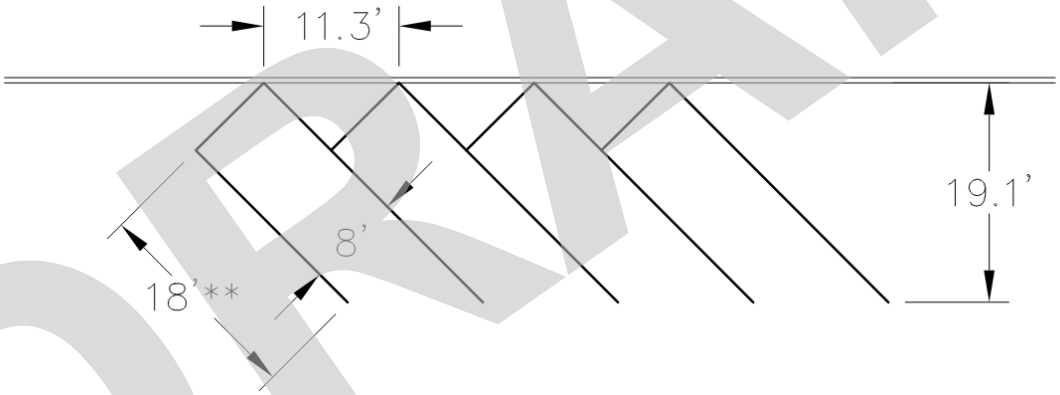

Figure 5.19 Angled Parking - 45 degrees

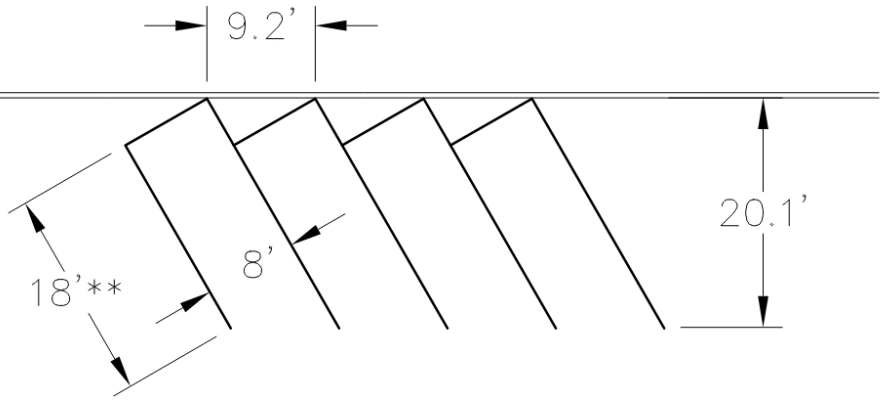

Figure 5.20 Angled Parking - 60 degrees

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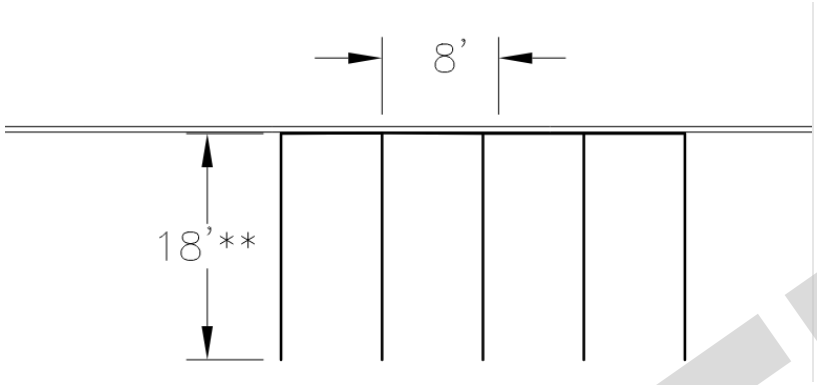

Figure 5.21 Angled Parking - 90 degrees

4. Curb Ramps and Blended Transitions
   a. Curb ramps and blended transitions must connect the access aisle serving each accessible on-street parking space to the pedestrian access route.
   b. Curb ramps are not permitted within the access aisle.
   c. Parking spaces at the end of block face can be served by curb ramps or blended transitions at the pedestrian street crossing.
   d. Detectable warning surfaces are not required on curb ramps and blended transitions that connect the access aisle to the sidewalk, including where the sidewalk is at the same level as the parking spaces, unless the curb ramps and blended transitions also serve pedestrian street crossings.
5. Other
   a. Wheel stops will be required to prevent vehicle overhang into adjacent property, ROW, structures, landscaping or sidewalk (applicable to '**' shown on above figures).
   b. Parking spaces may be reduced to 16.5 feet in length if a two (2) feet overhang is provided.
   c. All standard parking space striping shall be white in color.
   d. On-street motorcycle parking space is half the size of a vehicle parking space.

C. Median Openings

Median openings for collectors and arterials shall be as designated by the City's Engineer. Median opening allowance shall primarily consider the safety and effective flow of traffic within the collector or arterial street, then secondarily consider the effective movement of traffic to and from the development. Whether a median opening is allowed will solely be up to the City's Engineer.

When a development is allowed to have a median opening, it shall be provided in accordance with the following criteria:

1. The width of a median opening shall be 60 feet.
2. Median openings shall center on the intersecting drive.
3. Median openings shall be a minimum of 400 feet apart, measured from nose-to-nose of medians.

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4. Whenever a median opening is constructed, the associated left-turn lane serving the development must be constructed at the same time. In the event that there is an existing intersecting street on the opposite side of the street, the new development constructing the median opening shall be required to install both left-turn lanes.

5. Patterned and colored median noses shall be constructed as shown on the City of Denton Standard Details.

D. Traffic Calming

Traffic calming with respect to speed-control devices are not permitted on public ROW. Speed humps on private property are prohibited unless approved by City Fire Code official, and shall comply with IFC standards.

Appropriate signage and pavement markings are to be provided along with all traffic calming devices. Additional ROW may need to be dedicated in order to accomplish adequate traffic calming.

A separate permit is required for the installation of speed control devices located in a fire lane. These devices shall be constructed of durable rubberized material, molded plastic or of concrete.

5.6 Access Management

5.6.1 Purpose and Goals

The purpose of the access management plan is to promote the health, safety, and general welfare of the present and future residents of the city through managing traffic flow and promoting traffic safety.

5.6.2 Access Standards

A. Compliance

1. No person shall construct, reconstruct, replace, relocate, alter, enlarge, improve or perform any work on or make use of any driveway for any property within the City or its extraterritorial jurisdiction, except in accordance with the Access Management standards provided in this Manual or the TxDOT Access Management Manual, when applicable.

2. All driveways shall be designed, installed, located, and constructed in accordance with the approved specifications, plans, conditions, and requirements of the permit issued for the property, and the requirements of this Manual.

3. No certificate of occupancy shall be issued for any building on any property for which a permit is required, until the construction, improvements, alterations or other work covered by the permit is completed in accordance with the permit issued, the requirements of this Manual, or the provisions of any other applicable ordinance.

4. Where no building permit was required in connection with the requested permit, no driveway on the property for which the permit was issued shall be used until and unless the work is completed in accordance with the permit, and this Manual.

B. Access to Freeways

Access to freeways shall only be provided at entrance ramps. Access to frontage roads may be provided in accordance with the standards for access to arterial streets set forth in this Manual, with the following exceptions:

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1. No access is allowed in areas where TxDOT owns the Control of Access. Such Control of Access may be found on current TxDOT ROW maps.
2. No access is allowed within a paved gore area or 250 feet past painted gore of an exit ramp. Similarly, no access is allowed within a paved gore area or 200 feet upstream of the painted gore of an entrance ramp.

C. Access to Arterial Streets

Access to an arterial street shall not be permitted unless there is no other reasonable means of providing safe access to the property. Unless designated as a freeway, all TxDOT Highways shall be considered arterials. Additionally, the geometric, hydraulic, and pavement designs of all access driveways to TxDOT roadways must be reviewed by TxDOT to ensure compliance with their standards.

1. No development shall be allowed access to an arterial street if property excluded from the development could have been used to provide reasonable access to a lesser classified street, or if the property has been previously subdivided in violation of state law or the DDC and if access could have been provided to a lesser street except for such unapproved subdivision of the property.
2. Existing commercial or industrial lots created prior to adoption of the DDC by legal subdivision procedures with exclusive frontage on an arterial street may take access to the arterial in accordance with the access standards in this Manual.
3. Existing single-family and duplex lots created prior to adoption of the DDC by legal subdivision procedures with exclusive frontage on an arterial street may be developed with a circular drive. Such drives shall be designed and constructed in accordance with standards for circular drives provided in this Manual.
4. When drives access to an arterial street is the only reasonable means of providing safe and adequate access to the property as determined by the City's Engineer, the drive design, number of drives, location and construction shall be in accordance with this Manual.
5. Drives on an arterial shall align with existing median openings, other driveways, and "T" intersections, or be offset in accordance with this Manual.

D. Access to Collector Streets

1. Access to collector streets for commercial, office, or industrial development is required and shall be designed and constructed in accordance with the standards provided in this Manual.
2. Single-family or duplex lots shall not be designed such that there is no other means of access other than a collector street.
3. Existing single-family and duplex lots developed prior to approval of the DDC with exclusive frontage on a collector street and no alley may be developed with a circular drive. Such drives shall be designed and constructed in accordance with the standards for circular drives provided in this Manual.
4. Drives on a collector street shall align with existing driveways and 'T' intersections on the opposite side of the street, or shall be offset in accordance with this Manual.

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5.6.3 Fire Apparatus Access Roads

A. Design

1. Prior to construction, the design of the fire lane shall be submitted to the Fire officials for review and approval.
2. Fire apparatus roads shall have an unobstructed width of not less than 24 feet and unobstructed vertical clearance of not less than 14 feet. These are minimums and may be increased where they are inadequate for fire or rescue operations.
3. Fire lanes shall be constructed to meet the City of Denton's Engineering Standards for a concrete pavement cross-section of a residential street.
4. Fire lane grade shall be no greater than 10%.
5. Fire lanes shall be located so that access to all points of the building served is a maximum of 150 feet, as measured by hose lay. This can be increased to 300 feet, for a building fully equipped with an approved automatic fire suppression system and with the fire code official's approval.

B. Modification of Existing Fire Lanes

Modification of existing fire lanes MUST be approved by the Fire Marshal's Office.

C. Turning Radius

A 24-ft. wide fire lane will require a minimum of a 25-ft. inside turning radius or as approved by a Fire Code Official.

D. Marking

1. Striping

   Fire apparatus access roads shall be marked by painting 6-in. wide red traffic lines at the boundaries of the fire lane, as indicated on the plat. The words "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING" shall be four (4) inches high.

2. Signage

   Signs shall read "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING" and shall be 12-in. wide and 18-in. high. Signs shall be painted on a white background with letters and borders in red, using not less than 2-in. high lettering. Signs shall be permanently affixed to a stationary post, and the bottom of the sign shall be six (6) feet and six (6) inches or 6'-6" above finished grade. Signs shall not be spaced more than 50 feet apart. Signs may be installed on permanent buildings or walls, as approved by the Fire Marshal.

5.7 Bike and Pedestrian Facility Design

The user should be aware of and utilize the DDC Section 7.8.11 Pedestrian and Bicycle Circulation, in conjunction with this section for the design of bike and pedestrian facilities.

5.7.1 Mobility Plan Component

The City of Denton Mobility Plan includes a pedestrian and bicycle component, which should be reviewed, relative to any proposed transportation improvement.

It should be noted that the City of Denton Mobility Plan is a living document and is periodically updated to

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reflect the changes in the characteristics of anticipated traffic flow within the City.

5.7.2 Accessibility Standards

The City of Denton considers sidewalks to be accessible routes according to Section 4.3 of Texas Accessibility Standards (TAS) and considers a public sidewalk a "facility". Sidewalks, landings, ramps, and flares shall comply with the most recently adopted TAS, ADA, PROWAG, and FHWA standards. Also, sidewalks, landings, ramps, and flares are subject to the requirements of the Texas Department of Licensing and Registration (TDLR) for inspection purposes. Prior to construction of sidewalks, the Engineer of Record must show proof of TDLR review and approval for accessibility, if the total cost of the public improvements will exceed $50,000.00. Compliance with the regulations shall be the responsibility of the Engineer of Record for the project. Refer to the City of Denton Standard Details for additional requirements.

5.7.3 Geometric Standards

Table 5.7-A shows the standard width of sidewalks and bike lanes for the various roadway classifications. Refer to the City of Denton Standard Details for the locations of sidewalks and bike lanes within the street ROW. The Denton Mobility Plan should be reviewed for any planned bicycle and pedestrian facilities that may exceed those called for by the standard details. Any portion of the proposed facility extending past the ROW shall be contained within a pedestrian access easement. The recorded easement shall extend two (2) feet beyond the edge of the facility.

Table 5.7-A: Bike and Sidewalk Requirements

Roadway Classification	Min. Sidewalk Width [1]	Min. Bike Lane Width [1]
Freeway	N/A	
Arterials – Primary and Secondary	5	10
Collector – Commercial and Residential	5	10
Local – Residential	5	N/A
Local – Rural	N/A	N/A
Local – Alley	N/A	N/A

Notes:
[1] Refer to the City of Denton Standard Details street cross-sections for specific bike and pedestrian recommendations. A minimum 5-ft. wide sidewalk on one side of the street, and a 10-ft. wide bicycle/pedestrian facility on the other side of street will be required.

A. On Bridges

Sidewalks on bridges shall be a minimum width of six (6) feet or wider, as required by the street classification. All street bridges shall have sidewalks on both sides of the bridge. Dependent upon vehicular and pedestrian traffic considerations, a parapet wall may be required to separate the sidewalk from the travel lane. Parapet walls shall be constructed to TxDOT standards. A pedestrian bridge rail shall be constructed on the outside of the bridge to protect sidewalk traffic. Both bridge rails and parapet walls shall meet accessibility standards.

B. On Drainage Crossings

Sidewalk at drainage crossings shall be a minimum width of six (6) feet or wider as required by the street classification. Sidewalk railing shall be provided to protect the sidewalk traffic from the outside edge of the drainage crossing. Dependent upon vehicular and pedestrian traffic considerations, a parapet wall may be required to separate the sidewalk from the travel lane.

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Parapet walls shall be constructed to TxDOT standards. Railing and parapet walls shall meet accessibility standards.

C. Adjacent to Screen Walls

A minimum additional sidewalk width of two (2) feet shall be required beyond the standard width of sidewalk, for sidewalks adjacent to screen walls.

D. Adjacent to Retaining Walls

A minimum greenspace width of five (5) feet between the sidewalk and the edge of a retaining wall shall be required, for sidewalks adjacent to retaining walls.

5.7.4 Intersection

A. Curb Ramps

The continuation of accessible routes through intersections shall use approved curb ramps that meet accessibility standards. Refer to the City of Denton Standard Details for curb ramps at intersections. Crosswalks through the intersections shall meet accessibility standards.

B. Bike Lanes

Bike lanes at intersections shall consider other traffic movements and facilities such as turn lane movements, transit facilities, parking, and stop bar locations. The current Urban Intersection Design Guide by TxDOT can be used for bike lane design at intersections. The bike lane design at intersections requires the approval of the City's Engineer.

5.7.5 Signage and Pavement Markings

Signage and pavement markings shall be as shown on the TMUTCD Marking & Sign Drawings, and in accordance with the accessibility standards.

A. Crosswalks

Continental type-high visibility crosswalk markings are to be provided in all uncontrolled street crossings, school crossings, downtown areas, or as directed by the City's Engineer.

B. Bike Lane

Traffic control devices such as vertical flex posts, green pavement markings, and wayfinding signage may be required to enhance the proposed bicycle facility, as directed by the City's Engineer.

5.7.6 Amenities

A. Bike Parking

1. Refer to Bicycle Parking Guideline 2nd Edition by the Association of Pedestrian and Bicycle Professionals (APBP) for general guidelines and resources.
2. All bicycle parking facilities/devices shall be constructed to meet commercial grade structural standards.
3. Location Standard:
   a. Bicycle parking must be on the same lot as the principle use.
   b. Bicycle parking must be located in highly visible and well-lit areas.
   c. Bicycle parking must not interfere with accessible paths of travel or accessible parking

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as required by the accessibility standards.

d. Bicycle parking must be located within 50 feet of a main building entrance. In multiple building locations, bicycle parking must be distributed in a manner that serves all entrances.

4. Layout and Design:

a. Bicycle rack design:

i. Support the bicycle in at least two (2) places.

ii. Enable the frame and at least one (1) wheel to be secured.

iii. Designed to accommodate "U" shape locking devices.

iv. Installed to manufacturer's specifications.

v. Each bike rack must be designed to accommodate at least two (2) bikes.

b. Bicycle Parking Space

i. Concrete pad built to City of Denton sidewalk standards.

ii. Must provide clearance of at least two (2) feet from closest wall.

iii. Must provide clearance of at least three (3) feet between bike racks.

iv. Must not interfere with pedestrian pathway.

B. Benches

All benches shall be constructed to meet commercial grade structural standards. Benches shall be secured to prevent displacement. Benches shall not project into any accessible route or alter an accessible route such that it will not meet the accessible route standards.

C. Lighting and Enclosures

Lighting standards and above-ground enclosures shall not extend into any accessible route or alter an accessible route such that it will not meet the accessible route standards.

5.8 Transit Facility Design

5.8.1 General

Bus stops shall meet at a minimum the design standards of the Denton County Transit Authority (DCTA), and the accessibility standards of TAS, PROWAG, and ADA. Figure 5.22 show a general layout of a bus stop at an intersection. Bus stops shall be located on the departing side of a street intersection. The use of a pull-out lane may be considered where the specific site conditions warrant such an arrangement. The determination of the appropriateness of a pull-out lane shall rest with the City's Engineer.

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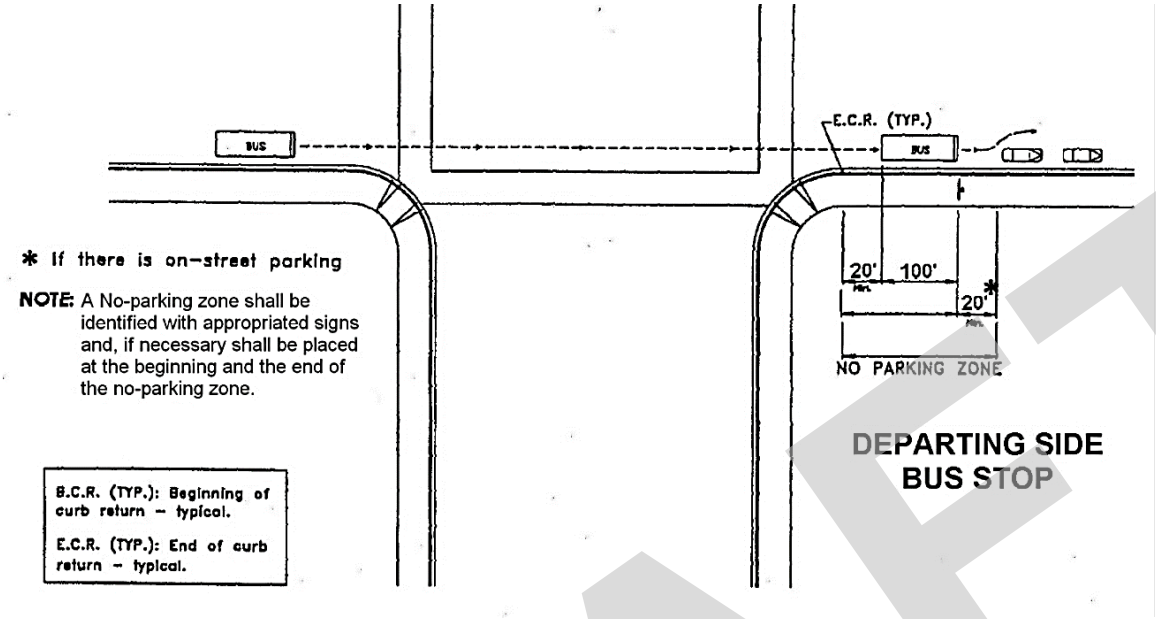

Figure 5.22 Standard Bus Stop Location at Unsignalized Intersection

Note: For signalized intersections an Approach Side Bus Stop is preferred

5.8.2 Bus Stop Placement

Bus stop placement should consider the need for the bus stop, traffic operation concerns, and passenger accessibility. A bus stop should be placed within an area that allows bus stop amenities to be located in the public ROW and where the ingress and egress of the bus does not overly impede the flow of traffic. The warrant for a bus stop shall be as required by the City of Denton in conjunction with DCTA. Elements to consider for bus stop placement include the following:

A. ADA and PROWAG compliance of all elements, including pedestrian routes, shelters, signing, etc.

B. Within Public ROW, or a dedicated access easement.

C. Proximity to major trip generators such as malls, student housing areas, retail commercial zones, park and rides, destination areas, etc.

D. Pedestrian facilities such as sidewalks or multi-use paths, marked cross walks, space provisions for accessibility standards, and curb ramps should be available at the location for a proposed bus stop.

E. Convenient passenger transfers to other routes.

F. Open and visible location for personal security and passenger visibility.

G. Acceptable street illumination or proposed street illumination with placement.

H. Ability to have restrictive parking in bus zone.

I. Adequate space for bus zone.

J. Gentle street grades at bus zone.

K. Return to traffic without overly hindering traffic flow.

L. No interference from driveways.

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5.8.3 Bus Stop Amenities

The following are bus stop amenities that shall be considered during the process of design:

A. Accessibility compliant loading area. All bus stops shall have accessibility compliant loading and offloading area. This area shall be integral to the sidewalk pathway, bench area, and shelter area, if provided. The loading area shall be constructed of reinforced concrete with the same thickness as the adjacent sidewalk.

B. Bench and trash receptacle may be warranted based upon Table 5.8-A. Bench and trash receptacle type and installation shall be as required by the City of Denton.

C. A shelter may be warranted based upon Table 5.8-A The shelter type and installation shall be as required by the City of Denton and DCTA. Shelters shall provide space to meet accessibility standards.

D. Illumination shall be provided if illumination is not provided at the street corner adjacent to the bus stop, or if in the opinion of the City's Engineer the existing illumination is inadequate.

E. Bus stops that accumulate 10 points or more may be considered for shelter placement. Bus stops that accumulate six (6) points or greater may warrant a bench and trash receptacle.

Table 5.8-A: Bus Stop Amenities Warrant

Points	Condition
6 points	25 people per day boarding
4 points	Special needs, i.e., Senior Center, Medical Complex, libraries, high accessibility standard usage such as group residences
4 points	High use location, i.e., Student housing area, schools, hospitals, mall
2 points	Request for improvements by citizens, i.e., multiple requests over a one-year time
6 points	15 people per day or greater boarding
4 points	Adjacent to an arterial roadway

5.8.4 Bus Stop Signage and Markings

Bus stop signage and markings shall be according to the City of Denton and DCTA. Signage shall include a "No Parking Zone" sign and a DCTA bus stop sign.

5.9 Traffic Impact Analysis Guidelines

5.9.1 General

The purpose of the traffic impact analysis (TIA) is to assess the impacts of development on the existing roadway system within the study area of the development and to assess the traffic flow needs within the development. The thoroughfare component of the Mobility Plan and the City of Denton traffic model establishes the base conditions for assessing the impacts. The current traffic model and the assessment is based on a Level of Service D according to the current Highway Capacity Manual. The TIA shall be signed and sealed by a PE Licensed by the State of Texas, and shall be valid for a period of 3 years, unless there is a significant change in the plans or surrounding conditions, as determined by City's Engineer.

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5.9.2 Preliminary Trip Generation Assessment

All developments are required to prepare a Preliminary Trip Generation Assessment for their proposed projects. The need for a TIA shall be determined by the City's Engineer based upon the information included in the Preliminary Trip Generation Assessment and the criteria in Section 5.9.3 below.

5.9.3 When is a TIA required?

Based on the preliminary trip generation assessment for the proposed project, unless otherwise directed by the City 's Engineer, a TIA will be required for the following conditions:

A. Development will generate equal to or more than 100 Peak-Hour Trips (PHT).

B. Development will generate equal to or more than 1,000 vehicle trips per day (VPD).

C. Project area to be developed is equal to or more than 100 acres.

D. Changes or alterations to the City Thoroughfare plan based on the Mobility Plan will be requested.

E. Access is taken from a TxDOT roadway.

F. Zoning changes that will negatively increase estimated traffic volumes above the current zoning estimated traffic volumes.

G. Access is taken from an existing roadway with current traffic flow congestion based upon observed conditions.

H. Development plus recently approved or pending development projects which have not been constructed located adjacent to the site and/or in proximity to the site, meet the above vehicular trip criteria or acreage criteria as determined by the City's Engineer.

I. If access is taken from a TxDOT roadway, check TxDOT TIA requirements.

5.9.4 TIA Requirements

A. TIA Study Criteria

Table 5.9-A shows the number of analysis periods and study area limits for the TIA. Prior to developing the TIA, a Preliminary Trip Generation Assessment shall be developed and reviewed with the City's Engineer, to verify the number of analysis periods and the study area requirements.

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Table 5.9-A: Criteria for Study Requirements

Analysis Category	Site Trips Generated at Full Build-Out	TIA Analysis Periods [1]	Minimum Study Area [3]
I	>50 peak hour driveway trip	1. Existing year 2. Opening year [2]	1. All site access drives
II	100-500 total peak hour trips	1. Existing year 2. Opening year [2] 3. Five years after opening	1. All site access drives 2. All signalized intersections and/or major unsignalized intersections within ½-mile to 1 mile of site boundary, depending on total peak hour trips
III	>500 total peak hour trips	1. Existing year 2. Opening year of each phase 3. Five years after initial opening 4. Twenty years after final opening with full build-out	1. All site access drives 2. All signalized intersections and/or major unsignalized intersections within 1-½ miles of site boundary and/or major intersections along access routes to/from regional corridors

Notes:
[1] Analysis periods shall include build and no-build scenarios. Assume full occupancy when each phase opens.
[2] Assume full build-out.
[3] For certain projects, the City may require an enlarged study area. Land uses within the study area should include recently approved or pending development adjacent to the site and/or in proximity to the site.

B. Specific Requirements of the TIA Report

At a minimum the TIA report will include the following items:

1. Introduction that describes the project and traffic generating modes.
2. Traffic Analysis Map:
   a. Existing and Proposed Land use within Study Area.
   b. Study Area Boundary.
   c. Existing and Proposed Roadways.
   d. Designation of Traffic movement elements.
   e. Thoroughfare Plan Elements within Study Area
3. Trip Generation Calculations as per the most recent ITE Trip Generation Manual:
   a. Daily and Peak Hourly Trip Generation for fully developed project conditions. Include both AM and PM Peak Hours. Provide Summary table and backup tables for calculation methods.
   b. Discount assumptions based upon City's Engineer's approval.
4. Trip Distribution and Assignment Tables and Figures:
   a. For Entrance/Exit from the development.
   b. For boundary streets within study area.
5. Existing and Projected Traffic Volumes for Study based upon Table 5.9-A above:
   a. Average Daily.
   b. Peak Hourly AM and PM.
   c. Additional Traffic Volume Data Provided by the City's Engineer.
6. Traffic Volume Analysis:

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a. Level of Service Evaluation for AM and PM Peak Hours.

b. Turn Lane Evaluation for project site and study area. The extent of evaluation to be determined by the City's Engineer.

c. Signalization Evaluation for project site and study area. The extent of the evaluation to be determined by the City's Engineer.

d. Identification of all thoroughfares, driveways, intersections, and individual movements that do not meet LOS-D.

7. Recommendations:

a. Proposed recommendations to mitigate impacts to transportation system within the study area.

8. Document Requirements: The following provides a general outline for the TIA report:

a. Executive Summary

b. Introduction

i. Purpose

ii. Methodology

c. Existing and Proposed Land Use

d. Site Traffic Generation

e. Existing and Proposed Traffic Flow

i. Transportation System

ii. Transportation Volumes

f. Traffic Analysis

i. Level of Service Evaluation

ii. Turning Movement Evaluation

iii. Signalization Evaluation

g. Active Transportation Impact Evaluation

i. Bicycle Paths/Routes and Trail Connection Assessment

ii. Pedestrian Impact Analysis

h. Safety Assessment

i. Mitigation

j. Conclusions and Recommendations

9. Additional Requirements

Dependent upon the site characteristics, the City's Engineer may require additional information to be included in the TIA.

5.9.5 Submission and Review Procedures

A. A Preliminary Trip Generation Assessment of the proposed development shall be conducted to determine the TIA requirements such as limits of study area, need and type of turning movement evaluation, need for signalization evaluation, discount assumptions that can apply, and criteria to be used. Sufficient base information shall be submitted to the City's Engineer in order to provide

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proper guidance on TIA requirements for the report. Subsequent to the submittal of the preliminary trip generation assessment, a meeting with the City's Engineer should be scheduled to discuss the specific requirements for the TIA.

B. Upon completion of the TIA report, two (2) copies of the report shall be submitted to the City's Engineer for review.

C. After a TIA is approved and if the development proposed land use and/ or proposed traffic generation characteristics change, the TIA shall be updated and re-submitted to the City for approval.

5.9.6 Safety Assessment

Consistent with the recently adopted Mobility Plan, safety is the number one priority for the City of Denton and as such, all new developments will be required to conduct a safety assessment as part of their TIA. The safety assessment will include a review of safety for all road users (vehicles, pedestrians and bicycles) within the project site as well as along existing public ROWs in the vicinity of the project. The assessment will include a review of the following:

A. Within the project site (Site Circulation).

B. All new intersections including project driveways.

C. All existing intersections included in the TIA.

5.9.7 Bike/Ped TIA

All projects are expected to achieve the minimum acceptable LOS standard for onsite and off-site bicycle and pedestrian facilities. Pedestrian and bike facility demand shall be identified and related items for discussion should include:

A. School routing plans per the TMUTCD between the project and all schools within ½-mile of the project boundary.

B. The demand for pedestrian and bike facilities to serve high pedestrian activity areas within the land use.

C. The need for links of bicycle or pedestrian facilities to neighboring land uses or attractions (trails, etc.) within ¼-mile (or greater if applicable to unique pedestrian-oriented destinations) of the project site.

D. Existing and proposed sidewalk width, separation from traffic, and space available for trees, transit stops (if any), or other related elements (if any).

E. Geometric improvements and recommended traffic control devices to accommodate pedestrians and bicyclists.

F. Existing and proposed pedestrian and bike facilities shall be evaluated for compliance with the following elements:

1. Directness. Walking distance to destinations like transit stops, schools, parks, and commercial or activity areas should be direct. Measurement of directness is the ratio of the actual distance to a destination via a sidewalk or pathway divided by the minimum distance characterized by a grid street system.

2. Continuity. The sidewalk/ walkway system should be complete, without gaps. The pedestrian

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corridor should be integrated with the activities along the corridor and should provide continuous access to destinations.

3. Street Crossings. Safety and comfort is essential while crossing streets, intersections and mid-block crossings. Factors that affect the LOS include: number of lanes to cross, crossing delay for pedestrians, signal indication, cross-walks, lighting, raised medians, visibility, curb ramps, pedestrian buttons, convenience, comfort, and security.
4. Visual Interest and Amenity. Pedestrians enjoy visually appealing environments that are compatible with local architecture and include street lighting, fountains, and benches.
5. Security. Pedestrians should be visible to motorists, separated from motor vehicles and bicycles, and under adequate street lighting.
6. Surface Condition. Pedestrian facilities should be free from obstructions, cracks, and interruptions.

The pedestrian Level of Service for the facility/corridor linking these destinations to the project site will be based on the directness, continuity, types of street crossings, walkway surface condition, visual interest/amenity, and security of the selected route(s), as shown in Table 5.9-B below.

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Table 5.9-B: Bike/Ped TIA Criteria

Quality Indicators	A	B	C	F
Security	Well used, good lighting levels and unobstructed lines of sight	Unobstructed lines of sight, good lighting levels	Sidewalk configuration and parked cars present sight problems, moderate lighting	Major pedestrian visibility problems, streetscape is pedestrian intolerant
Directness (Sidewalk Distance/ Minimum Distance)	< 1.4	1.4 - 1.8	1.8 - 2.2	> 2.2
Continuity	Quality, continuous pedestrian networks that are physically separated from street and built to current standards	Continuous sidewalk network on both sides of the street. May not be built to current standards	Sidewalk network where there may not be sidewalks on both side of the street or there are minor interruptions in connectivity	Breakdown in pedestrian network to where each pedestrian chooses a different route
Street Crossings (Signalized Intersections)	3 or fewer lanes to cross, clear indications (striping, etc.), well-marked crosswalks, good lighting, standard curb ramps, automatic pedestrian signal, pedestrian amenities, unobstructed views	4 or 5 lanes to cross, clear indications, well-marked crosswalks, pedestrian refuge area, standard curb ramps, pedestrian amenities, standard curb ramps, unobstructed views	6 or more lanes to cross, clear indications, well-marked crosswalks, pedestrian refuge area, standard curb ramps, pedestrian amenities, unobstructed view	Missing 5 elements of A, 4 elements of B, and 2 elements of C
Street Crossings (Unsignalized Intersections)	Well-marked cross walks, good lighting levels, standard curb ramps, street character suggests pedestrian crossing, unobstructed views	Missing 1 element of A	Missing 2 elements of A	Missing 3 or more elements of A
Visual Appeal and Pedestrian Amenities	Visually appealing and compatible with local architecture and artist themes, wide sidewalks, window shopping, pedestrian lighting, trees and street furniture	Wide sidewalks, visual clarity, some street furniture and landscaping	Functionally operational with less importance placed on visual appeal	Design ignores pedestrian with negative metal image, intimidating
Surface Condition	Smooth asphalt or concrete with few breaks or cracks	Relatively smooth asphalt or concrete with frequent breaks or cracks	Rougher, broken surface such as older concrete or cobblestone	Difficult, unpaved terrain such as hiking trails

Table 5.9-C below can be used to identify the pedestrian destinations within ¼-mile (½ mile for schools) of the project boundary.

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Table 5.9-C: Bike/Ped Destination Identification

		DESTINATION						
		RECREATION	RESIDENTIAL	INSTITUTION	OFFICE/ BUSINESS	COMMERCIAL	INDUSTRIAL	OTHER (SPECIFY)
ORIGIN (project land use)	RECREATION							
	RESIDENTIAL							
	INSTITUTION (SCHOOL, CHURCH, CIVIC)							
	OFFICE/BUSINESS							
	COMMERCIAL							
	INDUSTRIAL							
	OTHER (SPECIFY)							

5.10 Pavement Design Standard

5.10.1 Streets

The minimum pavement section requirements for each classification of roadway are contained within the City of Denton Standard Details for pavement cross-sections.

A. A geotechnical report shall be prepared that documents the existing soil characteristics of the proposed roadway subgrade for any proposed street improvements. Soil testing shall be performed whenever the soil characteristics change or every 500 feet, whichever is less. The report shall include recommendations for the type and treatment level of subgrade stabilization based upon ultimate traffic conditions.

B. Flex-base may be used as an option for subgrade treatment. Depth of flex-base required shall be based upon the geotechnical report for the street improvements based upon ultimate traffic conditions.

C. Alternative pavement sections may be proposed only if supported by a geotechnical report that provides sufficient evidence to demonstrate that the alternate section shall meet the ultimate traffic loading requirements.

5.10.2 Drive Approach

Refer to the City of Denton Standard Details for drive approach section requirements.

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5.11 Complete and Context-Sensitive Streets

Complete streets are transportation facilities that are planned, designed, operated and maintained to provide safe mobility for all users (including bicyclists, pedestrians, transit vehicles, truckers and motorists) appropriate to the function and context of the facility. Context-sensitive solutions formulate a complete street design considering contextual applications. Contextual applications can be of geographical nature such as Urban Core, General Urban, Suburban, University Core and other typical service areas that require unique components to address the overall transportation facilities.

Within the geometric standards are options that relate to developing a complete street that accounts for all transportation facilities within the context of the associate area. Connectivity and context-sensitive solutions are essential to meeting the goals of the standards. Refer to the City of Denton Standard Details for cross-section details, and the pedestrian and bicycle components of the 2022 Mobility Plan for planned facilities, or as required by the City of Denton during development review.

BIKE LANES – Bike lanes shall be six (6) feet wide unless otherwise approved by the City's Engineer. Buffered or separated bike lanes are generally preferred to increase level of comfort in the bicycle facility.

OFF-STREET MULTI-USE PATH – Some development areas will warrant the use of off-street multi-use paths for pedestrian and bicycle traffic connectivity to other facilities as identified by the City of Denton. Multi-use paths shall be 10 feet wide, unless otherwise approved by the City's Engineer.

TRANSIT – Bus stop locations may be required by the City of Denton for connectivity of the transit system. *See* Section 5.8 of this Manual for details.

MEDIAN VS. CONTINOUS LEFT TURN LANE – Selection of a median or continuous left turn lane shall be based upon the TIA, connectivity, adjacent uses, and other factors required by the City's Engineer. Medians shall be 24 feet back of curb to back of curb, unless otherwise approved by the City's Engineer. Continuous left turn lanes shall be 11 feet wide.

MODIFICATIONS TO STANDARDS – Modifications to the standards may have to be considered in some instances based upon context-sensitive use. An example of context-sensitive use which may require the standards to be modified is a roadway corridor restriction that creates limitations that cannot be altered. An example of a roadway corridor restrictions would be existing infrastructure and/or buildings that must remain. Another example is infill development. Modifications to the standards based upon context-sensitive use shall be at the sole discretion of the City's Engineer.

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Section 6: Water and Wastewater Design Criteria

6.1 Overview

The purpose of Section 6 - Water and Wastewater Design Criteria is to provide minimum, non-exhaustive guidelines for the design and construction of water distribution and wastewater collection systems within the City of Denton, Texas and its extraterritorial jurisdictions.

Section 6: Water and Wastewater Design Criteria is organized as follows:

A. Overview

B. Water Design Guidelines

C. Wastewater Design Guidelines

D. Construction Plans

It is the responsibility of the design engineer to ensure the final design of water distribution and wastewater collection systems are in conformance with the most recently adopted versions of the following documents:

A. Texas Administrative Code (TAC) Title 30, Part 1, TCEQ – Ch. 290;

B. Texas Administrative Code (TAC) Title 30, Part 1, TCEQ – Ch. 217;

C. Texas Administrative Code (TAC) Title 16, Part 2, PUCT – Ch. 24;

D. City of Denton Code of Ordinances and the DDC;

E. The City of Denton's Standard Details and Standard Specifications for Construction;

F. City of Denton Water Distribution System Master Plan;

G. City of Denton Wastewater Master Plan;

H. American Water Works Association (AWWA) Standards;

I. The International Building Code (IBC);

J. The International Plumbing Code (IPC);

K. The International Fire Code (IFC); and

L. This Manual.

The criteria established in Section 6 of this Manual provide basic guidance for the design of water and wastewater systems. However, ***full responsibility and liability for proper design remains with the design engineer.*** Users of this Manual should be knowledgeable and experienced in the theory and application of water and wastewater engineering. If criteria established in Section 6 overlap with state statutes, rules, or regulations, –the more stringent requirement shall apply. The criteria established in this Section do not supersede the criteria contained in the DDC. In the case of conflict between this Section, City of Denton Standard Details, or other cited City regulations and standards, the more stringent requirement shall apply.

The Director of Water Utilities reserves the right to require extended review of vertical water utility infrastructure, and large horizontal infrastructure including, but not limited to, water treatment plants, elevated storage tanks, booster pump stations, water transmission mains over 16 inches in diameter,

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wastewater reclamation plants, peak flow detention facilities, sewer lift stations and sewer interceptors over 12 inches in diameter. The Director of Water Utilities reserves the right to deny proposals at his or her discretion.

6.2 Water Design Guidelines

6.2.1 Water Main Separation from Wastewater Mains

Water mains shall be separated from wastewater mains as set forth in 30 TAC § 290.44(e) - Location of Waterlines, as amended.

6.2.2 Size of Water Distribution Mains

A. General

Water mains shall be sized to meet the calculated water demand, fire flow protection requirements, and to conform to the City of Denton's Water Distribution System Master Plan (Water Master Plan or WMP). All residential, commercial, industrial, and any other development connecting to the City's water distribution system shall use the following guidelines:

1. The design engineer shall obtain the record drawing water maps from the Capital Improvement Projects & Engineering Division and use the following criteria, based on the City's WMP, for sizing the water lines.
   a. Average daily demand in gallons per capita per day = 160 GPCD
   b. Maximum daily demand / Average daily demand = 2.0
   c. Peak hour demand / Maximum daily demand = 1.5
   d. For Single-Family Residential – Use 3.2 people/unit
   e. For Multifamily Residential – Use 2.5 people/unit
   f. Refer to 30 TAC § 290.45 (d)(1) Table A - Non-community water systems
2. Water systems shall be provided with sufficient number of connections to the City's existing water system, and shall be of sufficient size to furnish adequate water supply for fire protection to all lots and conform to the City WMP. Every new water system shall include two (2) or more connections to the existing City water system when feasible, to ensure an adequate and reliable water supply in the event of a water main break or routine system maintenance. The City may require two (2) or more meter connections, particularly for larger developments. Good engineering judgement is required to ensure reliability is considered in the design of all proposed water systems
3. Sites that require an irrigation meter shall have two separate service line connections onto the main: one for the domestic meter, the other for the irrigation meter.
4. Water pipe shall be a minimum of eight (8) inches in diameter. The standard pipe sizes that shall be used for water main lines are 8-in., 12-in., 16-in., 20-in., 24-in., 30-in., 36-in., and 42-in. pipes. Pipe sizes of 6-in., 10-in., 14-in., 18-in., 21-in., and 33-in. are considered non-standard by the City and shall not be used for water main lines. A 6-in. pipe may be used for fire hydrant connections.
5. Every development shall provide adequate water capacity for fire protection purposes. Fire flow capacity requirements are in addition to daily demand requirements. The procedure for

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determining fire flow requirements for buildings or portions of buildings shall be in accordance with the version of the IFC adopted by the City. For any platted lot where the end use is not defined, the standards in Table 6.2-A shall apply

6. The cost for modeling a project's impact with the City's distribution system model will be the responsibility of the developer and paid to the City.

B. Distribution System Operational Limits

The City observes the following operational limits for the distribution system under normal usage:

1. Velocity for proposed mains (greater than 16 inches): 3 to 5 fps
2. Maximum velocity for proposed mains (less than or equal to 16 inches): 5 fps
3. Maximum head loss (less than or equal to 12 inches): 5 feet per 1,000 feet
4. Maximum head loss (greater than or equal to 16 inches): 3 feet per 1,000 feet
5. Hazen-Williams Roughness Coefficient (C): 130

Proposed impacts to the City's system determined to, or likely to, cause (through hydraulic modeling or other analysis) these limits to be exceeded, are prohibited without additional improvements to the public system so the system can be operated within these parameters.

Table 6.2-A: Water Capacity for Fire Flow

Area	GPM
One (1) and two (2) family dwellings - less than 3,600 sq. ft.	1,000
Buildings other than one (1) and two (2) family dwellings - less than 3,600 sq. ft.	1,500
Medium-intensity commercial and light industrial	3,000
High-intensity commercial and industrial	4,000

Notes:
[1] All fire flows to be calculated with 20 psi residual pressures.
[2] In addition to the fire flow requirements specified above, all developments shall provide adequate water capacity to satisfy the greater of: (a) Peak Hour demand for the Peak Day, or (b) Average Hour demand plus fire flow for the Peak Day.
[3] Special exceptions to the above standards may be made by the City's Engineer for unique situations.

C. Public Fire Hydrants

Fire flow requirements shall be in accordance with the IFC as adopted by the City of Denton or Denton County, as appropriate.

D. Private Fire Mains

In addition to the requirements of Section 6.2.2.B of this Manual, private fire protection water mains shall be installed in accordance with NFPA 24 and 2021 IFC requirements. Private fire protection mains and associated hydrants shall be permitted by the Fire Marshal's Office with jurisdiction over the area.

E. Fire Flow Tests

Fire flow tests are normally requested by the design engineer, the Mechanical, Electrical and Plumbing (MEP) engineer, and other engineers to determine available water system capacity at or near the point of interest. If a fire flow test on the existing water system is necessary, contact the Water Metering Department at (940) 349-8456 directly.

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6.2.3 Depth of Cover for Water Mains

The following table shall govern depth of cover for water main installations:

Table 6.2-B: Minimum Depth of Cover for Water Mains

Pipe Size	From Surface to Top of Pipe	
	UNDER UNPAVED AREAS	UNDER PROPOSED OR EXISTING PAVEMENT
12-in. and smaller	5 feet	42 inches
16-in.	-	5 feet
16-in. and larger	6 feet	-
20-in. and larger	-	6 feet

Notes:
[1] Additional depth of cover shall be required for low-lying areas where future drainage improvements are anticipated.

6.2.4 Pipe and Fittings

A. Specifying the appropriate pipe material is the responsibility of the design engineer, based on the analysis of specific site and loading conditions, and pressure requirements. The minimum requirements in this Section are based on pipe size only, and in no way relieve the design engineer of the responsibility of specifying the pipe material applicable to the specific project. Pipe gasket material shall be that recommended by the manufacturer for the specified pipe. Special attention shall be given by the design engineer for unique pipe fitting and pipe assembly situations.

B. See Table 6.2-C below for the City's minimum pipe materials, fittings, polywrap, thrust restraint, and embedment requirements, as a function of pipe size.

C. All fittings for pipe sizes less than 30 inches in diameter, including vertical and horizontal bends, shall have concrete thrust blocking. *See* City of Denton Standard Details.

D. All vertical and horizontal fittings and valves shall require restrained joints in addition to concrete thrust blocking. The joint restraints shall be designed as though there is no concrete thrust blocking, and the concrete thrust blocking shall be designed as though there are no joint restraints. Flanged tees should be used to secure all branch valves to fittings. Table 6.2-C below includes the minimum lengths of pipe to be restrained for 8-inch and 12-inch PVC water mains. For water lines greater than 12 inches in diameter, additional restrained joints may need to be installed beyond the fitting (i.e., may need to be installed on several pipe joints on each side of the fitting), depending on the required restrained length calculated. Restrained length calculations shall be included in the lay schedule in the material submittal package and shall use approved methods of joint restraint. *See* City of Denton Standard Details, specific product listings and Table 6.2-C below.

Table 6.2-C: Restraint Lengths for Fittings and Bends

Pipe Size (inches)	Plugs, Tees, and Valves [1]	Bends [1]			
		90°	45°	22.5°	11.25°
8	88 ft	33 ft	14 ft	7 ft	4 ft
12	126 ft	45 ft	19 ft	9 ft	5 ft

Notes:
[1] Length to be restrained on each side of the bend or fitting. Assumptions: 1.5 safety factor, SP soil type, Type 4 trench.

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Table 6.2-D: Minimum Requirements for Pipe and Fittings

Pipe Size and Material	Ductile Iron Fittings	Polywrap (Pipe & Fittings)	Thrust Restraint	Embedment
8-IN. TO 12-IN.				
PVC (AWWA C900, DR – 14)	Mechanical joint; Compact or Full-Body	8-mil V-Bio Enhanced Polywrap (fitting only)	Wedge-action mechanical joint restraint glands, at fittings.	See drawings U201, U202, U203A, U203C in City of Denton Standard Details
16-IN. TO 20-IN.				
Ductile Iron, AWWA C151, Special Thickness Class 52, push-on-joints (where unrestrained; e.g.: American Flex-Ring joint)	Mechanical joint; Full-Body	8-mil V-Bio Enhanced Polywrap (inner layer), plus 4-mil cross-linked (outer layer)	Wedge-action mechanical joint restraint glands, at fittings. Boltless Restrained connections (Example: American Flex-Ring joint), at several pipe joints either side of each fitting, depending on the required restrained length calculated.	See drawings U201, U202, U203A, U203C in City of Denton Standard Details
Reinforced Concrete Steel Cylinder, AWWA C303 Bar Wrapped	N/A	Bonded joint and Cathodic Protection (CP) System required	Full Circle Welded Joints required for thrust restraint	Contact Water Utilities Dept.
24-IN.				
Ductile Iron, AWWA C151, Special Thickness Class 52, push-on joints (where unrestrained; e.g.: American Flex-Ring joint)	Mechanical joint; Full-Body	8-mil V-Bio Enhanced Polywrap (inner layer), plus 4-mil cross-linked (outer layer)	Wedge-action mechanical joint restraint glands, at fittings. Boltless Restrained connections (Example: American Flex-Ring joint), at several pipe joints either side of each fitting, depending on the required restrained length calculated.	Crushed Stone
Reinforced Concrete Steel Cylinder, AWWA C303 Bar Wrapped	N/A	Bonded joint and Cathodic Protection (CP) System required	Full Circle Welded Joints required for thrust restraint.	Contact Water Utilities Dept.
30-IN. AND LARGER				
Ductile Iron, Pressure Class 350; push-on joints (where unrestrained; e.g.: American Flex-Ring joint)	Mechanical joint; Full-Body	8-mil V-Bio Enhanced Polywrap (inner layer), plus 4-mil cross-linked (outer layer)	Wedge-action mechanical joint restraint glands, at fittings. Boltless Restrained connections (Example: American Flex-Ring joint), at several pipe joints either side of each fitting, depending on the required restrained length calculated.	Crushed Stone
Reinforced Concrete Steel Cylinder, AWWA C303 Bar Wrapped	N/A	Bonded joint and Cathodic Protection (CP) System required	Full Circle Welded Joints required for thrust restraint.	Contact Water Utilities Dept.

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6.2.5 Meters and Meters Cans/Vaults

The City allows the following water meters, depending on the volume and nature of the customer flow demands:

Table 6.2-E: Allowable Water Meters

Service Size	Meter Size	Type	AWWA Standard
1-in.	⅝-in. x ¾-in.	Positive Displacement	AWWA C700
1-in.	¾-in. x ¾-in.	Positive Displacement	AWWA C700
1-in.	1-in.	Positive Displacement	AWWA C700
2-in.	1½-in.	Positive Displacement	AWWA C700
2-in.	2-in.	Positive Displacement	AWWA C700
4-in.	3-in. Tru/Flo	Compound	See City Standard Specification 33 14 18
4-in.	4-in. Tru/Flo	Compound	See City Standard Specification 33 14 18
6-in.	6-in. Tru/Flo	Compound	See City Standard Specification 33 14 18
6-in.	6-in. Protectus III Fire Service (Shall be used for combination of domestic and fire service)	Compound	See City Standard Specification 33 14 18
8-in.	8-in. Protectus III Fire Service (Shall be used for combination of domestic and fire service)	Compound	See City Standard Specification 33 14 18

Notes:
[1] Turbine meters shall be allowed for irrigation meters; not for domestic meters.
[2] Venturi meters shall be allowed when recommended by City Water Utilities based on Single-Family Equivalent calculations.
[3] Fire hydrant meters shall only be used for non-potable purposes.
[4] Vaults are required for all meters greater than two (2) inches.
[5] *See* Section 6.2.5.D for Furnishing and Installing meters.
[6] Non-standard sized water services are not allowed. Refer to the water service connection drawings on the City of Denton Standard Details.
[7] Sites that require an irrigation meter shall have two (2) separate service line connections onto the main; one (1) for the domestic meter, and the other for the irrigation meter.

A. Number of Meters

One (1) meter is required for each residential, commercial, or industrial service connection, in accordance with the Code of the City of Denton, Texas, Chapter 26, Article I, Sec. 26-9. An apartment building, condominium, manufactured housing community, or mobile home park may be considered a single commercial facility for the purpose of this section. The City's standard policy is that only one (1) meter for domestic use will be furnished to each lot. Exceptions to that policy are:

1. Commercial, industrial, or institutional sites shall have a separate irrigation meter from the domestic meter;
2. Multifamily developments with greater than 200 units shall be required to have two (2) domestic meters for redundancy and reliability of water service, where each meter is located on a different water main or separated by an inline valve;
3. Multi-building sites where the configuration or size of the site makes a single meter location impractical or infeasible;
4. Institutional Group I-2 Facilities as per IBC Sec. 308.3 and IPC Sec. 609; and
5. Submetering by the property owner to tenants of multifamily developments with a minimum

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of five (5) units per building (or by condominium associations to member) shall be done at the owner's expense, with privately purchased and maintained meters, and in accordance with the Public Utilities Commission 16 TAC Chapter 24 Subchapter I, as amended.

B. Sizing

In commercial and industrial projects, the design engineer shall consult with the owner or the MEP engineer to identify proposed sizes and locations for domestic water meters, fire sprinkler connections, and irrigation meters.

During Building Permit review, the City evaluates adequacy of meter size using Table E201.1, "Minimum Size of Water Meters, Mains and Distribution Piping Based on Water Supply Fixture Unit Values (w.s.f.u.)" of the version of the International Plumbing Code (IPC) as adopted by the City (copy included herein as Table 6.2-F). The City's Building Permit Plans Review uses the version of the International Residential Code as adopted by the City, Table P2903.6, "Water-Supply Fixture-Unit Values for Various Plumbing Fixture and Fixture Groups" (see Table 6.2-G) to estimate w.s.f.u. To facilitate review of the proposed meter size, the design engineer shall submit a tabulation of w.s.f.u.; a sample tabulation is provided herein in Table 6.2-I.

Contact the Water Utilities Department regarding criteria for sizing fire-rated master meters.

For commercial or industrial sites that utilize large amounts of water in their production process, the developer shall provide estimated peak daily demand. Meter to be sized to 1.25 times (1.25x) the peak daily demand.

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Table 6.2-F: Minimum Size of Water Meters, Mains, and Distribution Piping based on water-supply fixture-unit (w.s.f.u) values

Meter and Service Pipe (inches)	Distribution Pipe (inches)	Maximum Development Length (feet)									
PRESSURE RANGE 30 TO 39 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1]	2.5	2	1.5	1.5	1	1	0.5	0.5	0	0
3/4	3/4	9.5	7.5	6	5.5	4	3.5	3	2.5	2	1.5
3/4	1	32	25	20	16.5	11	9	7.8	6.5	5.5	4.5
1	1	32	32	27	21	13.5	10	8	7	5.5	5
3/4	1-1/4	32	32	32	32	30	24	20	17	13	10.5
1	1-1/4	80	80	70	61	45	34	27	22	16	12
1-1/2	1-1/4	80	80	80	75	54	40	31	25	17.5	13
1	1-1/2	87	87	87	87	84	73	64	56	45	36
1-1/2	1-1/2	151	151	151	151	117	92	79	69	54	43
2	1-1/2	151	151	151	151	128	99	83	72	56	45
1	2	87	87	87	87	87	87	87	87	87	86
1-1/2	2	275	275	275	275	258	223	196	174	144	122
2	2	365	365	365	365	318	266	229	201	160	134
2	2-1/2	533	533	533	533	533	495	448	409	353	311
PRESSURE RANGE 40 TO 49 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1]	3	2.5	2	1.5	1.5	1	1	0.5	0.5	0.5
3/4	3/4	9.5	9.5	8.5	7	5.5	4.5	3.5	3	2.5	2
3/4	1	32	32	32	26	18	13.5	10.5	9	7.5	6
1	1	32	32	32	32	21	15	11.5	9.5	7.5	6.5
3/4	1-1/4	32	32	32	32	32	32	32	27	21	16.5
1	1-1/4	80	80	80	80	65	52	42	35	26	20
1-1/2	1-1/4	80	80	80	80	75	59	48	39	28	21
1	1-1/2	87	87	87	87	87	87	87	78	65	55
1-1/2	1-1/2	151	151	151	151	151	130	109	93	75	63
2	1-1/2	151	151	151	151	151	139	115	98	77	64
1	2	87	87	87	87	87	87	87	87	87	87
1-1/2	2	275	275	275	275	275	275	264	238	198	169
2	2	365	365	365	365	365	349	304	270	220	185
2	2-1/2	533	533	533	533	533	533	533	528	456	403
PRESSURE RANGE 50 TO 60 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1]	3	3	2.5	2	1.5	1	1	1	0.5	0.5
3/4	3/4	9.5	9.5	9.5	8.5	6.5	5	4.5	4	3	2.5
3/4	1	32	32	32	32	25	18.5	14.5	12	9.5	8
1	1	32	32	32	32	30	22	16.5	13	10	8
3/4	1-1/4	32	32	32	32	32	32	32	32	29	24
1	1-1/4	80	80	80	80	80	68	57	48	35	28
1-1/2	1-1/4	80	80	80	80	80	75	63	53	39	29
1	1-1/2	87	87	87	87	87	87	87	87	82	70
1-1/2	1-1/2	151	151	151	151	151	151	139	120	94	79
2	1-1/2	151	151	151	151	151	151	146	126	97	81
1	2	87	87	87	87	87	87	87	87	87	87

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Table 6.2-F: Minimum Size of Water Meters, Mains, and Distribution Piping based on water-supply fixture-unit (w.s.f.u) values

Meter and Service Pipe (inches)	Distribution Pipe (inches)	Maximum Development Length (feet)									
1-1/2	2	275	275	275	275	275	275	275	275	247	213
2	2	365	365	365	365	365	365	365	329	272	232
2	2-1/2	533	533	533	533	533	533	533	533	533	486
PRESSURE RANGE OVER 60 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1]	3	3	3	2.5	2	1.5	1.5	1	1	0.5
3/4	3/4	9.5	9.5	9.5	9.5	7.5	6	5	4.5	3.5	3
3/4	1	32	32	32	32	32	24	19.5	15.5	11.5	9.5
1	1	32	32	32	32	32	28	28	17	12	9.5
3/4	1-1/4	32	32	32	32	32	32	32	32	32	30
1	1-1/4	80	80	80	80	80	80	69	60	46	36
1-1/2	1-1/4	80	80	80	80	80	80	76	65	50	38
1	1-1/2	87	87	87	87	87	87	87	87	87	84
1-1/2	1-1/2	151	151	151	151	151	151	151	144	114	94
2	1-1/2	151	151	151	151	151	151	151	151	118	97
1	2	87	87	87	87	87	87	87	87	87	87
1-1/2	2	275	275	275	275	275	275	275	275	275	252
2	2	365	368	368	368	368	368	368	368	318	273
2	2-1/2	533	533	533	533	533	533	533	533	533	533

Notes:

[1] Minimum size of building supply is ¾-in. pipe.

[2] User shall follow the most recently adopted code; above table was the most recent version at the time of publication of this Manual.

Source: 2021 International Plumbing Code – Table E201.1

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Table 6.2-G: Water-supply fixture-unit (w.s.f.u) values for Various Plumbing fixtures and Fixture Groups

Type of Fixtures or Group of Fixtures	Load in w.s.f.u. values		
	HOT	COLD	COMBINED
Bathtub (with/without overhead shower head)	1.0	1.0	1.4
Clothes washer	1.0	1.0	1.4
Dishwasher	1.4	—	1.4
Full-bath group with bathtub (with/without shower head) or shower stall	1.5	2.7	3.6
Half-bath group (water closet and lavatory)	0.5	2.5	2.6
Hose bibb (sillcock)[1]	—	2.5	2.5
Kitchen group (dishwasher and sink with/without garbage grinder)	1.9	1.0	2.5
Kitchen sink	1.0	1.0	1.4
Laundry group (clothes washer standpipe and laundry tub)	1.8	1.8	2.5
Laundry tub	1.0	1.0	1.4
Lavatory	0.5	0.5	0.7
Shower stall	1.0	1.0	1.4
Water closet (tank type)	—	2.2	2.2

Notes:

[1] The fixture unit value 2.5 assumes a flow demand of 2.5 GPM, such as for an individual lawn sprinkler device. If a hose bibb/sill cock will be required to furnish a greater flow, the equivalent fixture-unit value may be obtained from this table or Table P2903.6(1).

[2] Supply loads in the building water-distribution system shall be determined by total load on the pipe being sized, in terms of w.s.f.u., as shown in Table P2903.6, and gallons per minute (GPM) flow rates [see Table P2903.6(1)]. For fixtures not listed, choose a w.s.f.u. value of a fixture with similar flow characteristics.

[3] For SI units: 1 GPM = 3.785 Liters per minute (L/m).

[4] User shall follow the most recently adopted code. The above table was the most recent version at the time of publication of this Manual.

Source: 2021 International Residential Code – Table P2903.6

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Table 6.2-H: Load Values assigned to Fixtures [1]

Fixture	Occupancy	Type of Supply Control	Load in w.s.f.u values		
			COLD	HOT	COMBINED
Bathroom group	Private	Flush tank	2.7	1.5	3.6
Bathroom group	Private	Flushometer-valve	6.0	3.0	8.0
Bathtub	Private	Faucet	1.0	1.0	1.4
Bathtub	Public	Faucet	3.0	3.0	4.0
Bidet	Private	Faucet	1.5	1.5	2.0
Combination fixture	Private	Faucet	2.25	2.25	3.0
Dishwashing machine	Private	Automatic	—	1.4	1.4
Drinking fountain	Offices, etc.	⅜-in. valve	0.25	—	0.25
Kitchen sink	Private	Faucet	1.0	1.0	1.4
Kitchen sink	Hotel, restaurant	Faucet	3.0	3.0	4.0
Laundry trays (1 to 3)	Private	Faucet	1.0	1.0	1.4
Lavatory	Private	Faucet	0.5	0.5	0.7
Lavatory	Public	Faucet	1.5	1.5	2.0
Service sink	Offices, etc.	Faucet	2.25	2.25	3.0
Shower head	Public	Mixing valve	3.0	3.0	4.0
Shower head	Private	Mixing valve	1.0	1.0	1.4
Urinal	Public	1-in. flushometer-valve	10.0	—	10.0
Urinal	Public	¾-in. flushometer-valve	5.0	—	5.0
Urinal	Public	Flush tank	3.0	—	3.0
Washing machine (8-lb.)	Private	Automatic	1.0	1.0	1.4
Washing machine (8-lb.)	Public	Automatic	2.25	2.25	3.0
Washing machine (15-lb.)	Public	Automatic	3.0	3.0	4.0
Water closet	Private	Flushometer valve	6.0	—	6.0
Water closet	Private	Flush tank	2.2	—	2.2
Water closet	Public	Flushometer valve	10.0	—	10.0
Water closet	Public	Flush tank	5.0	—	5.0
Water closet	Public or private	Flushometer tank	2.0	—	2.0

Notes:

[1] For fixtures not listed, loads should be assumed by comparing the fixture to one listed using water in similar quantities and at similar rates. The assigned loads for fixtures with both hot and cold water supplies are given for separate hot and cold water loads and for total load. The separate hot and cold water loads are three-fourths of the total load for the fixture in each case.

[3] For SI units: 1 inch = 25.4 mm, 1 pound = 0.454 kg.

[4] User shall follow the most recently adopted code. The above table was the most recent version at the time of publication of this Manual.

Source: 2021 International Plumbing Code – Table E103.3(2)

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Table 6.2-I: Sample w.s.f.u Tabulation

Fixture	Quantity	Load Values, in Total w.s.f.u (each)	Total Fixture Units
Water Closet (Public; Flush Valve)	9	10.0	90
Water Closet (Public; Flush Tank)	3	5.0	15
Urinal (Public; ¾-in. Flush Valve)	5	5.0	25
Lavatory (Public)	10	2.0	20
Kitchen Sink (Hotel, Restaurant)	2	4.0	8
Service Sink	1	3.0	3
Shower Head (Private)	1	1.4	1.4
		Total	**162.4**

Table 6.2-J: Land Use and Service Units/SFE Equivalencies

Meter Type	Meter Size	Typical Land Use	Single-Family Equivalents (SFEs)
Positive Displacement	⅝-in. x ¾-in.	Residential – Single-Family (Building less than 1,300 sq. ft. per lot size less than 6,000 sq. ft.)	0.5
Positive Displacement	⅝-in. x ¾-in.	Residential – Single-Family	1.0
Positive Displacement	¾-in. x ¾-in.	Residential / Commercial	1.5
Positive Displacement	1-in.	Residential / Commercial	2.5
Positive Displacement	1½-in.	Commercial	5.0
Positive Displacement	2-in.	Commercial	8.0
Compound	3-in.	Commercial / Industrial	22.5
Compound	4-in.	Commercial / Industrial	50.0

Notes:

[1] The total service units for multifamily apartment projects with eight (8) or more units shall be determined by multiplying the total number of bedrooms in the multifamily apartment project by 0.26 Single-Family Equivalents (SFEs).

Source: City of Denton Approved Meter Manufacturer's Specifications;
City of Denton Code of Ordinances Section 26-218 - Water and Wastewater Facilities - Exhibit F

C. Location

Water meters and meter cans and vaults shall be placed within a City ROW, Public Utility Easement or Public Water Easement. Placement shall also satisfy the following requirements:

1. Located as close as possible to the public water main;
2. Easily accessible to City of Denton employees; and
3. Located in an unpaved area that does not conflict with vehicular or pedestrian traffic.

D. Furnishing and Installing

All meters two (2) inches and smaller, shall be furnished and installed by City Water Utilities for fees per the current Fee Schedule. All meter assemblies three (3) inches and larger and their associated vaults, shall be furnished and installed by Contractor at their expense and inspected by Public Works

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Inspection and City Water Utilities.

E. Details

Details of the meter can assemblies for meter sizes two (2) inches and smaller are shown in the City of Denton Standard Details.

Details of the meter vault assemblies for meter sizes three (3) inches and larger are shown in the City of Denton Standard Details.

F. Backflow Prevention

Backflow Prevention Assemblies are required in accordance with the International Plumbing Code, 2021 IFC, 30 TAC § 290.44. Backflow Prevention Assemblies must be utilized:.

1. At each dedicated fire line connection. A flanged fire line valve shall be required to connect to the tee located on the main line and a fire line valve shall be required outside the downstream side of the vault or ROW line whichever applies.
2. After each meter of any site served by redundant domestic meters.
3. At facilities supporting Recreational Vehicle (RV) connections for the purpose of flushing waste tanks.
4. At all services outside City limits, in accordance with 30 TAC § 290.47(f)); and
5. At all properties that have an auxiliary water source. These properties must protect connections to the public water system using a reduced pressure backflow assembly (RPBA).

Backflow prevention devices shall be placed at the ROW or an easement line adjacent to the connection to the public water system.

6.2.6 Water Main Horizontal and Vertical Alignment

The following guidelines should be followed by the design engineer in placement of water lines:

A. In existing streets, water lines shall be placed in the pavement four (4) feet from back of curb. For new residential development, water lines shall be placed on the north and east sides of the streets, where possible, four (4) feet from back of curb. *See* the City of Denton Standard Details.

B. All water lines shall be laid as straight as possible. Avoid excessive number of high points and low points between cross street connections, as they trap air pockets. *See* Section 6.2.16.B of this Manual for placement of air release valves.

C. Minimum radius of curvature and maximum deflection angle of pipe joints are restricted to the manufacturer's recommendation, after which, horizontal or vertical bends are required. Deflection of pipe shall only be permitted through joint deflection; no bending of pipe is allowed.

D. Vertical bends shall be no greater than 45 degrees.

E. Except for transverse pipe crossings, no other utility shall be installed over, under or within five (5) feet horizontally of a water line.

F. There shall be at least two (2) feet of vertical separation between a water line and any utility or storm drain crossing it.

G. Water lines shall not be located closer than 10 feet to any building or structure.

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6.2.7 Highway Crossings

Crossings of State or County-controlled roads shall require the review and approval of the appropriate regulatory agency. Crossings shall meet the requirements provided by the controlling agency and by the City of Denton Standards. In the event of different requirement levels for the same item, the more stringent standard shall apply.

6.2.8 Railroad Crossings

The design engineer shall, prior to the design of any railroad crossing, contact the appropriate railroad company and regulatory agency to determine if there are any special requirements. In the event the City of Denton Design Criteria are more stringent than those of the Railroad Company or regulatory agency, the City's standards shall apply.

6.2.9 Creek Crossings

Where a water main is laid under any flowing stream or semi-permanent body of water, such as a marsh or pond, or an identified ESA (*See* DDC 7.4) the water main shall be installed in a separate watertight encasement pipe, with valves on each side of the crossing to allow for the isolation and testing of that portion of the water main to determine if there are any leaks, and to facilitate future repairs.

A primary consideration in the design of creek crossings is the prevention of soil erosion in the areas of trench backfill. The design engineer shall determine the need and limits of any special embedment, and determine and specify the limits for specialized backfills.

6.2.10 Tunneling, Boring, Jacking and Casing

Tunneling, boring, jacking and casing are methods used for water line placement under restrictive conditions when open-cut construction is not allowed. Only straight pipe alignments for both horizontal and vertical alignment are allowed.

Design engineers should consider the location, size, and depth of boring and receiving pits when choosing the beginning and ending stations for boring. A typical bore pit is between 35 and 40 feet in length to accommodate the boring machine and one (1) joint of pipe. Width of the bore pit can vary depending on the depth and size of pipe, with the narrowest width being approximately 15 feet. Additional size and spacing requirements may be required as outlined in DDC 7.4 when working adjacent to confirmed ESAs. The preferred location for the bore pit is the lower elevation end of the bore; allowing any groundwater and/or boring slurry to drain from the tunnel into the bore pit. The water can then be removed by pumping.

Steel casing pipe, where required for open-cut or other than open-cut installation, shall conform to the City Standard Specification 33 05 07 Steel Casing Pipe, and have an inside diameter (ID) large enough to accommodate a carrier pipe of at least two (2) standard sizes above the pipe being installed. Consult with Water Utilities Department for project specific design, sealed and signed by a Professional Engineer, licensed by the State of Texas.

Carrier pipes may be PVC with external harness restrained joints (requires larger casing than for pipe alone) or ductile iron with restrained joints. All carrier pipes shall be installed in accordance with the pipe manufacturer's recommendations, properly restrained and supported with approved spacers and casing end seals. Pipe joint restraint shall be achieved using only City approved pipe manufacturer externally restrained joint systems. Refer to City of Denton Standard Detail U208A and the current City approved Materials Submittal List.

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6.2.11 Elevated Crossings

Elevated crossings are not permitted for water mains except for special cases approved by the City's Engineer. Design requirements for approved elevated crossings shall be tailored to the specific project characteristics.

6.2.12 Underground Utility Crossing

Where water mains are laid under or over another buried utility line or underground facility (i.e., storm drain, culvert boxes, franchise utilities, etc.), special requirements may be necessary for the protection of the water main. Table 6.2-K provides requirements for different crossing situations. This table is not a replacement for separation requirements for sewer and water lines as governed by 30 TAC §§ 217.53 and 290.44, respectively.

Table 6.2-K: Utility Crossing Requirements

Water Utility	Crossing	Utility Line Size (in.)	Separation (feet)	Special Requirement
New/existing Water	Under	< 24	≥ 2	None
New/existing Sewer	Under	< 24	≥ 2	None
New/existing Water	Under	24 to 42	≥ 2	None
New/existing Sewer	Under	24 to 42	≥ 2	None
New Water	Under	> 42	≥ 2	Encased in 150±psi pressure class pipe
Existing Water	Under	> 42	≥ 2	Encased in split steel casing
New Sewer	Under	> 42	≥ 2	Encased in 150±psi pressure class pipe
Existing Sewer	Under	> 42	≥ 2	Encased in split steel casing
New Water	Under	≥ 10	≥ 2	Cased in steel pipe
Existing Water	Under	≥ 10	≥ 2	Cased in split steel pipe
New Sewer	Under	≥ 10	≥ 2	Cased in steel pipe
Existing Sewer	Under	≥ 10	≥ 2	Cased in split steel pipe
New/existing Water	Over	< 24	≥ 2	None
New/existing Sewer	Over	< 24	≥ 2	None
New/existing Water	Over	≥ 24	≥ 2	None
New/existing Sewer	Over	≥ 24	≥ 2	None

A. To minimize crossing impacts, crossings must be perpendicular, if possible.

B. Utility crossings with less than two (2) feet of separation require a design deviation request (which will include special requirements) after providing a thorough analysis detailing physical and economic factors involved.

C. Pursuant to the Code of the City of Denton, Texas, Chapter 25, Article II, Sec. 25-80-Facility Size and Locations, all ROW user facilities are required to maintain a minimum separation of 24 inches from all City utility system facilities. If a ROW user may encounter a hardship due to this requirement, the ROW user may request a design deviation as detailed in Section 8 of this Manual.

D. Split-steel casing shall follow sizing requirements of pressure-rated casing.

E. See City Standard Specification Section 33 05 07 Steel Casing Pipe.

F. Casing spacers shall be placed not more than five (5) feet apart.

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G. Encasement shall be extended a minimum of three (3) feet beyond the edge of the utility or facility to be crossed. Water mains that cross utility lines in private easements must adhere to the requirements of the easement owner, as well as those listed above.

6.2.13 Fence or Wall Crossings

A. Water mains should be routed to avoid entering private property. In circumstances where it is impractical to avoid doing so, provisions are required to allow City staff to inspect, maintain, and repair its infrastructure. Water mains crossing fences will require a design deviation request as per Section 8 of this Manual, to be reviewed by the City's Engineer, after thorough consideration of the physical and economic factors involved. Design deviations may require additional provisions beyond this Manual.

B. Water mains crossing under privacy fencing (wood, chain-link, or plastic) shall not require any special protection.

C. Water mains crossing under other types of fencing will require the fence to be constructed of easily removable panels or have gates that can be removed from the easement.

D. Water mains may not cross under retaining walls.

E. There must be at least two (2) feet of vertical separation between a water line and any utility or storm drain crossing it.

6.2.14 Existing Water Main Replacement

A. Whenever an existing main is to be replaced by a new main, use the following guidelines for alignment and design:

1. The new line should be located as near as possible to the existing line; while allowing the existing line to remain in service, until the new line is ready to be put into service.
2. If the existing line is in or next to a roadway, the new line should be placed under existing pavement, not behind the curb in the parkway area.
3. The new line should be designed to utilize the existing metering locations where possible.

B. The size of the new line should match the size of the existing line. If the existing line is a non-standard size (i.e., 6-in. or 10-in.) then the new line should be sized for the next larger standard size. The design engineer shall perform field investigations to determine pavement condition over the existing main. The pavement may have been patched due to breaks in the existing main over the years. Based on field investigations, the design engineer shall include additional quantities for pavement replacement, if necessary.

6.2.15 Methods of Connection

A. Pressure Zones

The City of Denton's Water Distribution System is divided into several water pressure zones to ensure even water-pressure gradients. Prior to the design of connection points between a proposed main and any existing main, the design engineer shall investigate and determine if the proposed water main crosses the boundary between different pressure zones.

Even though physical connections of water pipes exist between pressure zones, they are designed with valves which are closed at the boundary points so that each pressure zone is isolated.

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Proposed mains that approach pressure zone boundaries shall be designed to loop within their designated pressure zones and with no or minimum lengths of dead-end mains.

Connections between pressure zones must be approved by the Director of Water Utilities, and may require pressure-reducing valve stations. The design engineer can determine the pressure zone boundaries by consulting the record drawing water maps which show the designated closed valves between pressure zones and by contacting Water Utilities. *See* Figure 6.1 below for a Pressure Zone Map.

Note that the developer will be responsible for all surface rehabilitation associated with connecting to the City's Water Utilities. Surface rehabilitation must match existing site conditions or better.

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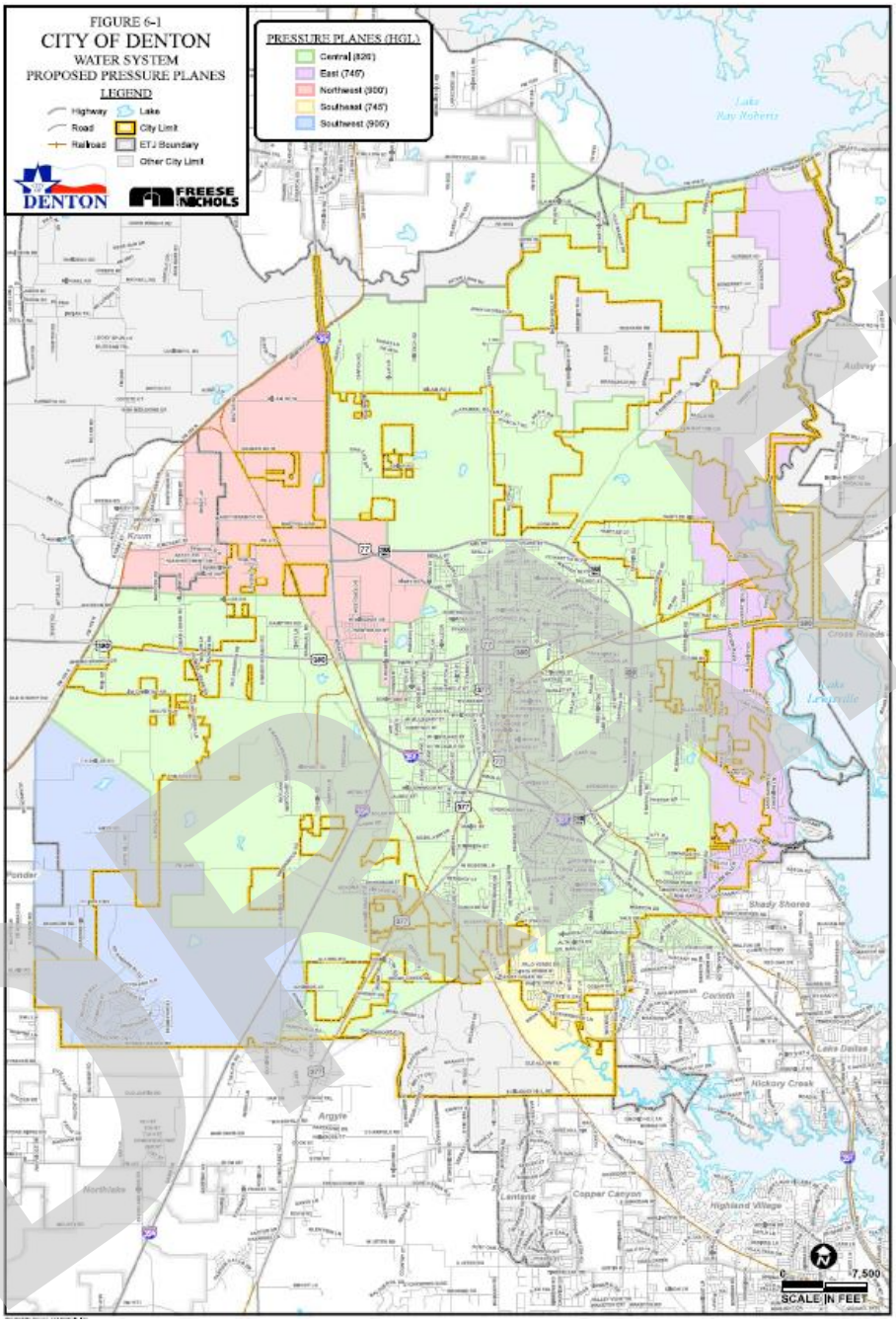

Figure 6.1 2018 Water Master Plan Pressure Zone Map

B. Tapping Sleeve and Valve

Tapping sleeves with tapping valves shall be used whenever possible for connections to existing mains to avoid interruption of water services. *See* Figure 3.1 in Drawing PIAZ13 of the City of Denton Standard Details.

1. As per AWWA C223, size-on-size taps are allowed up to 12 inches (e.g.: 12-in. x 12-in.)
2. Taps on 16-in. and larger pipes must be approved in writing in advance by the City's Engineer. *See* Figure 3.2 in Drawing PIAZ13 of the City of Denton Standard Details. (e.g.: 16-in. x 12-

in., 16-in. x 8-in., and 16-in. x 6-in. taps may be allowed).

3. Connections to fire hydrant leads are not allowed.

4. All water service lines, two (2) inches and smaller, require taps as per City of Denton Standard Details.

C. Cut-in Connection

Cut-in connections are only allowed to existing mains larger than 12 inches, where a size-on-size connection is needed. *See* Figure 3.4 in Drawing PIAZ14 of the City of Denton Standard Details.

D. Main Extensions

A new valve shall be installed at the point of connection for water main extensions. This will facilitate the testing and chlorination of the new main prior to its placement into service. *See* Figure 3.5 in Drawing PIAZ14 the City of Denton Standard Details.

6.2.16 Valves

A. Isolation Valves

1. Location

Isolation valves shall be provided to allow for the proper operation and maintenance of the water distribution system, and to ensure water quality can be maintained for each individual water customer connected to the system.

The location of valves needs to properly address the ability of the Department of Water Utilities to remove a water line from service to perform necessary repairs, while critically minimizing the interruption of service for fire protection and to customers. Isolation of any given section of water line should generally be able to be accomplished by closure of the least number of valves, as would generally be expected under good engineering design practices and utility engineering standards. The Department of Water Utilities reserves the right to require changes to proposed designs to satisfy these objectives.

The design engineer shall place valves on proposed water mains so they may be easily located in the future by operations and maintenance crews.

The following guidelines should be used by the design engineer in placement of isolation valves on proposed water mains:

a. Two (2) valves are to be installed at every main branch tee location, one (1) flanged to the branch of the tee and the other a mechanical joint connection on one (1) of the two (2) runs of the tee. *See* Figure 3.6 in Drawing PIAZ15 of the City of Denton Standard Details. Three (3) valves are to be installed at every cross location, each a mechanical joint connection.

b. Valves for line sizes 12 inches in diameter or less should not be spaced any farther apart than 1,000 feet. For city blocks that are longer than 1,000 feet between street intersections, placement of a valve will be required between street intersections.

c. Valves should be generally located so that no more than four (4) valves are required to isolate a section of main. *See* Figure 3.7 in Drawing PIAZ15 of the City of Denton Standard Details. For mains larger than 12 inches in diameter, valve spacing and placement shall be subject to alternate criteria approved by the City's Engineer.

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d. All fire hydrant leads must be designed with a valve that is flanged to the main line. *See* Drawings W401A and W401B of the City of Denton Standard Details.

2. Specifications

Refer to Table 6.2-L and Standard Specifications 33 14 20 Resilient Seated (Wedge) Gate Valves and 33 14 21 AWWA Rubber-Seated Butterfly Valves.

Table 6.2-L: Isolation Valve Requirements

Size	4-in. to 12-in.	16-in. to 20-in.	24-in.	30-in.	36-in. or larger
Type	Gate Valve (AWWA C509 resilient-seat)	Gate Valve (AWWA C515 resilient-seat)	Gate Valve (AWWA C515 resilient-seat)	Gate Valve (AWWA C515 resilient-seat)	Gate Valve (AWWA C515 resilient-seat) or butterfly, to be determined by City on a case-by-case basis
Orientation	Vertical	Vertical	Vertical	Vertical or horizontal; to be determined by City on a case-by-case basis	Vertical or horizontal; to be determined by City on a case-by-case basis
Gear Operator Required	No	No	Yes	Yes	Yes
Vault Required	No	No	Yes	Yes	Yes
Bypass Required	No	No	No	Yes	Yes

3. Details

Refer to Drawings W104, W105, W106A, W106B, and W601 of the City of Denton Standard Details.

B. Air Release Valves and Air/Vacuum-Air Release Valves

For water mains less than 16 inches in diameter in certain situations where the topography, remoteness, or some other hydraulic factor necessitates it, air release valves are required at local high points to facilitate automatic release of accumulated air.

For water mains 16 inches and larger, the City requires air/vacuum-air release valves at local high points to facilitate automatic release of accumulated air and to facilitate automatic prevention of vacuum conditions within the line. *See* Drawings W801 and W802 of the City Standard Details.

Manholes shall not be placed in sidewalks, pedestrian ramps, driveway approaches, or in the bottom or on the slopes of a drainage channel or drainage structure. Manholes shall be kept a minimum of 40 feet from any railroad track.

6.2.17 Dead-End Mains

A. Dead-end main situations should be avoided whenever possible.

B. In lieu of dead-end mains, the design should loop through public ROW or a dedicated public utility easement (with adequate assurance of access and fencing prohibited) to another nearby water main using the same size pipe.

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C. If a dead-end main situation is unavoidable, it shall be designed so that it may be periodically flushed of stagnant water by locating a fire hydrant or other flushing device near the main's end and past the last service connection. *See* City of Denton Standard Detail W603.

6.2.18 Fire Hydrant Locations and Coverage

A. The design engineer should locate fire hydrants as close as possible to street intersections, but outside of the curb radius. This positioning of fire hydrants provides coverage along several streets. When spacing requirements necessitate the installation of fire hydrants between street intersections, they should be placed at the projection of lot lines between property owners. For main replacement projects in established neighborhoods, fire hydrants should be designed as close as possible to the old fire hydrant location, provided coverage is adequate. Neighborhood residents are familiar with the fire hydrant being at that location and normally expect a replacement fire hydrant to be placed at the same location. Fire hydrants are not to be installed closer than nine (9) feet to any wastewater main, manhole, or appurtenance.

B. Fire hydrant spacing shall comply with the 2021 IFC Appendix C Fire Hydrant Locations and Distribution, and be easily accessible by City staff and First Responders. *See* City of Denton Standard Details W401A and 401B, and Standard Specifications 33 14 40 Fire Hydrants. Fire hydrants shall be placed at a maximum of 500 feet apart in single-family residential areas and a maximum of 300 feet apart in all other areas, unless a closer spacing is required by the IFC.

6.2.19 Requirements for Abandoning Water Mains

The design engineer should note the limits and appropriate conditions for the abandoning of existing water mains which are to be replaced by the construction of any proposed water mains.

The design engineer should also make allowances in the design to provide for the existing and proposed mains to be in service simultaneously, until all customer services are transferred from the old main to the new main with minimum interruption of service. If the construction of a proposed main necessitates the abandoning of the existing main prior to the new main's placement into service, then provisions for a temporary water main with services must be addressed by the design.

Typically, abandoned lines may be left in place with only the ends being plugged with grout or concrete. However, the City may require special abandonment actions including, but not limited to, filling the abandoned water main with grout, removal and proper disposal of all above ground appurtenances, and removal and proper disposal of the abandoned pipe.

A. Replacement Mains

On occasions when connecting to an existing main, it may be desirable to have an additional valve on the existing main. In this situation, the design engineer should consider using a cut-in connection with a tee and valve being cut into the existing main. *See* Figure 3.4 in Drawing PIAZ14 of the City of Denton Standard Details.

B. Extension Mains

A new valve shall be installed at the point of connection for water main extensions. This will facilitate the testing and chlorination of the new main prior to its placement into service. *See* Figure 3.5 in Drawing PIAZ14 the City of Denton Standard Details.

C. Fire Hydrants

A new valve shall be installed at the point of connection for water main extensions. This will facilitate

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the testing and chlorination of the new main prior to its placement into service. *See* Figure 3.5 in Drawing PIAZ14 the City of Denton Standard Details.

6.2.20 Flushing and Disinfection

Prior to making permanent connections to the distribution system, water distribution mains, valves, and appurtenances shall be adequately flushed and disinfected in accordance with the most current revision to AWWA C651, and bacteriological testing shall be completed to meet the standards established by the Water Utilities Department and 30 TAC Chapter 290. Additionally, heavily chlorinated water shall be flushed from all segments of the newly constructed mains before final connections are made.

Before commencement of construction of water distribution infrastructure, the contractor or engineer shall submit a flushing and disinfection plan for review by the Department of Water Utilities. At a minimum the plan shall describe:

A. Flushing procedures;

B. Hydraulic calculations to demonstrate adequate flushing velocities, or demonstrate conformance with the conditions outlined in AWWA C651 Table 3;

C. The method of chlorination;

D. Bacteriological sampling plan;

E. Dechlorinating procedures (Refer to AWWA C655); and

F. Disposal of chlorinated water and methods used to ensure discharges to surface waters or storm sewer systems do not exceed 0.1 mg/L total chlorine.

6.3 Wastewater Design Guidelines

6.3.1 Estimated Wastewater Flows

For sewers in new developments, sewer lines and lift stations shall be designed to accommodate the projected buildout flows from all residential, commercial, industrial, or institutional sources upstream of the proposed sewer improvement. Figure: 30 TAC § 217.32(a)(3) Table B.1. - Design Organic Loadings and Flows for a New Wastewater Treatment Facility (*see* excerpted information in Table 6.3-A) shall be used as a guide to generate wastewater flows. However, minimum flow capacity for sizing of sewers for peak flow condition shall not be less than the results of the following calculation procedures:

A. Delineate the wastewater drainage area that will drain into the sewer main or lift station. Include all upstream offsite areas.

B. For the development site, use the following design parameters:

   1. Table 6.3-A to generate the wastewater loading by type of use.

   2. 3.2 capita per lot for single-family.

   3. 2.5 capita per unit for multifamily.

   4. Apply a 4.0 multiplier to the average daily flow to determine the peak flow.

C. For undeveloped upstream areas, use the following design parameters:

   1. 4 lots per acre.

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2. 3.2 capita per lot.
3. Average daily flow of 90 GPCD.
4. Apply a 4.0 multiplier to the average daily flow to determine the peak flow.

D. For developed residential upstream areas, use the following design parameters:
1. Count number of single-family lots.
2. Obtain number of multifamily units (available through DCAD)
3. 3.2 capita per lot for single-family.
4. 2.5 capita per unit for multifamily.
5. Average daily flow of 90 GPCD
6. Apply a 4.0 multiplier to the average daily flow to determine the peak flow

E. For developed non-residential upstream areas, use the following design parameters:
1. Average daily flow of 1,500 GPD per acre.
2. Apply a 4.0 multiplier to the average daily flow to determine the peak flow.

For replacement of existing sewers and construction of parallel sewers for additional capacity, wastewater flow data may be provided by the City from data generated by City sewershed computer models. The cost for modeling a project's impact with the City's collection system model will be the responsibility of the developer and paid to the City.

Proposed impacts to the City's system determined to, or likely to, cause (through hydraulic modeling or other analysis) these limits to be exceeded, are prohibited without additional improvements to the public system so the system can be operated within these parameters.

Table 6.3-A: Design Flows for a New Wastewater Treatment Facility

Source	Remarks	Daily Wastewater Flow (Gal. per person)[1]
Municipality	Residential	75 - 100
Subdivision	Residential	75 - 100
Trailer Park [2] (Transient)	2½ Persons per Trailer	50 - 60
Mobile Home Park [2]	3 Persons per Trailer	50 - 75
School	Cafeteria & Showers Cafeteria/ No Showers	20 15
Recreational Parks	Overnight User Day User	30 5
Office Building or Factory	Facility must be designed for the largest shift	20
Hotel/Motel	Per Bed	50 - 75
Restaurant	Per Meal	7 - 10
Restaurant with bar or cocktail lounge	Per Meal	9 - 12
Hospital	Per Bed	200
Nursing Home	Per Bed	75 - 100
Alternative Collection Systems, e.g., septic tanks	Per Capita	75

Notes:
[1] City of Denton requires usage of the highest number of the TCEQ ranges.
[2] At the time of updating this Manual, the TCEQ is evaluating criteria for tiny homes, and should be consulted as appropriate.
Source: TCEQ Rules - 30 TAC §217.32(a)(3), Table B.1

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6.3.2 Separation between Water and Wastewater Collection Facilities

Wastewater mains and manholes shall be separated from water mains as set forth in 30 TAC §217.53(d) - Separation Distances and 30 TAC §290.44 - Water Distribution.

6.3.3 Size and Slope of Sewers

After the design engineer has determined the wastewater flows per Section 6.3.1 of this Manual, the sewer size can be determined using the following criteria. However, no sewer, other than service laterals and force mains, shall be less than eight (8) inches in diameter.

The size and grade of the proposed sewer shall be evaluated using Manning's formula

$$V = 1.49/n\ (R)^{0.67}\ (S)^{0.50} \qquad \textbf{[Eqn. 6.1]}$$

Where: V = velocity (in fps)

n = Manning's coefficient of roughness; minimum 0.013

R = hydraulic radius (feet)

S = slope of energy grade line (feet per foot)

Proposed sewers shall be designed with slopes sufficient for velocity of three (3.0) fps, with a minimum required velocity of two (2.0) fps. The minimum acceptable Manning's "*n*" factor for design shall be 0.013, which takes into consideration the slime, grit and grease layers that will affect hydraulics or hinder flow as the pipe matures. The sewer pipe grades shown in Table 6.3-B are based on an "*n*" value of 0.013 and are the minimum acceptable slope for sewer lines.

Table 6.3-B: Minimum and Maximum Pipe Slopes

Size of Pipe - ID (inches)	Minimum Slope (%)	Maximum Slope (%)	Capacity Flowing Full at Min. Slope (MGD)
8	0.335	8.40	0.45
10	0.25	6.23	0.71
12	0.20	4.88	1.03
15	0.15	3.62	1.62
18	0.115	2.83	2.25
21	0.095	2.30	3.07
24	0.08	1.93	4.14
7	0.07	1.65	4.91
30	0.06	1.43	6.23
33	0.055	1.26	7.66
36	0.045	1.12	9.17

The capacity of the sewer pipe flowing full shall be computed by the following equation:

$$C = 0.299/n\ (D)^{2.67}\ (S)^{0.50} \qquad \textbf{[Eqn. 6.2]}$$

Where: C = capacity (million gallons per day-MGD)

n = Manning's coefficient of roughness; minimum 0.013

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D = inside diameter (feet)

S = slope of the energy grade line (feet per foot)

Sewer mains shall be designed to convey peak flow at no more than 80% of full pipe capacity at system buildout.

A. High Velocity Protection

Where velocities greater than 10 fps will occur when a pipe flows full, based on Manning's Equation and an "n" value of 0.013, restrained joint pipe or external restraint systems must be utilized.

6.3.4 Sewer Main Depth

Minimum depth for the design of sewer mains shall be determined by providing a 2% grade for the lateral from the center of the house or building to the center of the proposed main and including an additional two (2) feet drop. Therefore, for a house 100 feet from the proposed sewer main, the designed depth of the main shall be at least four (4) feet below the FFE of the house since:

2 feet + (2% of 100 feet) = 4 feet **[Eqn. 6.3]**

The lateral also must have at least two (2) feet of cover at its shallowest point. The design engineer is responsible for ensuring sufficient depth and grade is maintained to serve all building sites in the sewer shed.

The maximum depth of sewer mains is 30 feet.

6.3.5 Recommended Cover

Recommended cover for all sewer mains is four (4) feet to six (6) feet. Minimum cover shall be three (3) feet and six (6) inches or 3-½ feet. Any main approved to have less than minimum cover shall be encased in Class "B" embedment per City Standard Specifications. *See* Drawing U204 of the City of Denton Standard Details.

When establishing depth for proposed wastewater mains, design engineers shall consider the impact of proposed water and drainage improvements especially on service laterals that cross those improvements to connect to the wastewater main.

6.3.6 Sewer Alignment

Design engineers shall be guided by the following in the alignment of wastewater lines:

A. For new construction in areas not served, sewer mains shall be laid straight between manholes. No horizontal or vertical bends are allowed between manholes;

B. Avoid shifting mains from one side of the ROW to the other side of the ROW between street intersections;

C. Where the bypass of existing flows is feasible, it is recommended that replacement mains be constructed horizontally in the same trench; and

D. Except for pipe crossings, no franchise utility shall be installed within five (5) feet of a sewer main.

6.3.7 Sewer Laterals

A. Water Utilities, Field Operations, or Engineering and Planning staff reserve the right to permit utility-

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supervised connections to the collection system by non-City staff. Note that the developer will be responsible for all surface rehabilitation associated with connecting to the City's Water Utilities. Surface rehabilitation must match existing site conditions or better.

B. Laterals may not serve more than one (1) lot.

C. Minimum lateral sizes from the sewer main to the public cleanout are:

1. 4-in. minimum for single-family
2. 6-in. minimum for residential duplex, triplex, and quadplex
3. 6-in. minimum for local retail, light commercial, apartment, manufacturing and industrial

D. Single-way clean-outs shall be provided on laterals at the public easement or ROW line. Double-way cleanouts are not allowed. *See* Drawings S403 and S404 of the City of Denton Standard Details.

E. Manholes shall be provided for lateral connections when the lateral pipe diameter is equal to the main sewer pipe diameter or if the lateral is eight (8) inches in diameter or larger.

F. Laterals shall be constructed to the property line and shall be located at a point five (5) feet downstream from the center of the lot on unimproved property. For improved property, design engineers should use technical judgement in lateral placement.

G. Preferred grade for lateral construction within the ROW/PUE is 2%. Laterals within ROW/PUE shall not be designed with less than 1% grade.

6.3.8 Gravity and Force Main Sewer Pipe Material

Gravity and Force Main sewer pipe shall meet the following criteria unless special circumstances require an alternative and is approved by the City's Engineer. Slope of grade across cover shall be a maximum of 4H:1V.

Table 6.3-C: Minimum and Maximum Pipe Slopes

Pipe Diameter	Application	Pipe Material
8-in. to 12-in.	Gravity	PVC – ASTM D3034, SDR 26; HDPE – ASTM D3350, DR-17
15-in.	Gravity	PVC – ASTM D3034, SDR 26
18-in. to 24-in.	Gravity	PVC – ASTM F 679, PS115; Fiberglass Reinforced Plastic – ASTM D3262
6-in. to 60-in.	Force Main	HDPE – ASTM D3350, DR-13.5; DIP – AWWA C150/C151, CL52 or PC 350, epoxy interior lining

A. For gravity sewer pipe sizes over 24 inches in diameter, design calculations and pipe selection shall be submitted by the development design engineer for review. Approvals will be provided on a project specific basis.

B. Force main sewer pipe shall be designed to meet the working and surge pressure requirements of the specific application. Design calculations and pipe selection shall be submitted by the development design engineer for review.

C. Different pipe materials shall not be mixed between manholes. If it is anticipated that a mixing of materials will occur, the design engineer shall design a manhole at the point of transition of pipe materials. For previously placed stub-out of a material other than PVC pipe, design engineer shall add a note to the plans calling for removal of the stub-out or change the material of the proposed

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pipe for that section of pipe between manholes.

6.3.9 Sewer Pipe Embedment

The types of embedment and backfill for sewer mains are shown in Drawings U201, U202, U203A, and U203C of the City of Denton Standard Details. Embedment requirements shall be based on sewer mains under proposed pavement, unpaved areas and existing pavement.

6.3.10 Manholes

Manholes constructed on existing or proposed sewer lines shall be sized as follows:

Table 6.3-D: Manhole Sizing

Pipe Diameter	Manhole Diameter
8-in. to 12-in.	4.0 feet (For depths greater than 12 feet, use 5.0 feet)
15-in. to 27-in.	5.0 feet
30-in. to 36-in.	6.0 feet

Notes:
[1] Special manholes shall be designed for mains larger than 36-in. diameter pipe.

The types of manholes allowed by the City are shown in Drawings S101, S102, S103, and S107B of the City of Denton Standard Details. Additionally, connections to manholes must comply with City Standard Specifications.

Generally, manholes shall be stationed on the main run, and where known, the stations of the side mains should also be indicated. When connecting a proposed main to an existing main at a manhole, the connection shall have the top inside elevation of the outfall main level with the top inside elevation of the proposed main. Connections to brick manholes are prohibited.

At the discretion of Water Utilities, Field Operations, or Planning and Engineering Division staff, manholes with known deficiencies will be required to be replaced.

A. Manhole Locations

Manholes shall be provided at the following locations to facilitate maintenance, cleaning, and inspection:

1. At the location of lateral connections that are 8-in. diameter or larger;
2. At 500 feet intervals on sewer mains 15-in. diameter or smaller; at 800 feet internals on mains 18-in. diameter through 30-in. diameter; at 1,000 feet intervals on mains 36-in. diameter through 48-in. diameter; and at 2,000 feet intervals for 54-in. diameter and larger;
3. At all locations where pipe diameter or pipe material changes;
4. At all locations where the horizontal or vertical alignment of the sewer main changes;
5. At the ends of all mains with service connections. Two main upstream ends may not be combined in one manhole;
6. At the end of any pipe segment at least 150 feet long;
7. At the end of every end-of-line (EOL);

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8. Sewer service laterals are to be connected to the sewer main line and not into a manhole unless it is a size-on-size connection;
9. Manholes shall not be placed in sidewalks, pedestrian ramps, driveway approaches, or in the bottom or on the slopes of a drainage channel or drainage structure;
10. At a minimum of 40 feet from any railroad track; and
11. Separation of utilities around manholes shall be a minimum distance of five (5) feet , to allow for maintenance and repair.

6.3.11 Highway Crossings

Crossings of State or County-controlled roads shall require the review and approval of the appropriate regulatory agency. Crossings shall meet the requirements made by the controlling agency and by City of Denton Standards. In the event of different requirement levels for the same item, the more stringent standard shall apply.

6.3.12 Railroad Crossings

The design engineer shall, prior to the design of any railroad crossing, contact the appropriate railroad company and regulatory agency and determine if there are any special requirements. In the event City of Denton Design Criteria are more stringent than those of the Railroad Company or regulatory agency, the City's standards shall apply.

6.3.13 Tunneling, Borings, Jacking, and Casing

A. Tunneling, boring, jacking and casing are methods used for sewer line placement under restrictive conditions when open cut construction is not allowed. Only straight pipe alignments for both horizontal and vertical alignments are allowed.

B. Design engineers should consider the location, size and depth of boring and receiving pits when choosing the beginning and ending stations for boring. A typical bore pit is between 35 and 40 feet in length to accommodate the boring machine and one joint of pipe. Width of the bore pit can vary depending on the depth and size of pipe, with the narrowest width being approximately 15 feet. The preferred location for the bore pit is the lower elevation end of the bore; allowing any groundwater and/or boring slurry to drain from the tunnel into the bore pit. The water can then be removed by pumping.

C. Steel casing pipe, where required for open-cut or other than open-cut installation, shall conform to City Standard Specification 33 05 07 Steel Casing Pipe, and have an ID large enough to accommodate a carrier pipe of at least two (2) standard sizes above the pipe being installed.

D. Force mains through casings shall follow the same requirements as are laid out for water mains in Section 6.2.10 of this Manual.

6.3.14 Underground Utility Crossings

The requirements of Section 6.2.12 of this Manual shall govern the crossing of underground utility lines by wastewater mains.

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6.3.15 Fence or Wall Crossings

The requirements of Section 6.2.13 of this Manual shall govern the crossing of fences or walls by wastewater mains.

6.3.16 Creek Crossings

When a sewer main crosses a creek or channel, the design engineer must evaluate the condition of the creek bed and ensure erosion control is provided. Backfill material and minimum construction criteria are shown in the City of Denton Standard Details S701 and S702. These criteria include creek bed soil and condition, as well as presence of exposed rock. When working in these areas, minimize storage of soil, materials, and equipment near floodways and waterways.

6.3.17 Siphons

For creek or channel crossings where a Low-Water Channel Crossing is not feasible, design of an inverted siphon crossing is permissible when approved by the City's Engineer through a design deviation request. Inverted siphons shall not have less than two (2) barrels, with a minimum pipe size of eight (8) inches, and shall be provided with necessary appurtenances for convenient flushing and maintenance. Access structures are required at each end of the siphon, with adequate clearance for maintenance and cleaning purposes. Bank and channel stabilization may be required to protect the crossing lines and casing of the carrier pipe may be required to meet environmental or other restrictions.

6.3.18 Abandonment of Sewer Mains

A. The design engineer should note the limits and appropriate conditions for the abandoning of existing wastewater mains which are to be replaced by the construction of any proposed wastewater mains.

B. The design engineer should also make allowances in the design to provide for the existing and proposed mains to be in service simultaneously until all customer services are transferred from the old main to the new main with minimum interruption of service. If the construction of a proposed main necessitates the abandoning of the existing main prior to the new main's placement into service, then provisions for a temporary wastewater main with services must be addressed by the design.

C. Typically, abandoned lines may be left in place with only the ends being plugged with grout or concrete. However, the City may require special abandonment actions including, but not limited to, filling the abandoned wastewater main with grout, removal and proper disposal of all above ground appurtenances, and removal and proper disposal of the abandoned pipe. In situations where a manhole is being left in service even though one (1) or more lines into the manhole are being abandoned, the abandoned line shall be cut and plugged outside of the manhole. However, if the City determines that the pavement is in good condition the City may allow the abandoned line to be plugged from inside of the manhole.

6.3.19 Abandonment of Manholes

If a manhole as well as the sewer main is to be abandoned, the method described in ***Abandonment of Sewer Mains***, above, along with the minimum guidelines shown in Drawing S105 of the City Standard Details, shall be used.

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6.3.20 Lift Stations

The need to construct a lift station should be determined only after a thorough analysis of the physical and economic factors involved. A Preliminary Engineering Report is required, which lists all factors and adheres to current state regulations. The City reserves the right to review each proposal and determine whether there is enough merit to justify a lift station. Any lift station located in the City of Denton CCN must adhere to these requirements.

A. Preliminary Design Submittal

A preliminary design submittal is required for each lift station proposed. The submittal shall include a written report and a map prepared by a Professional Engineer, licensed by the State of Texas.

1. The plans submitted shall contain the following information, at a minimum:
   a. Be to scale, with the scale indicated;
   b. A north arrow;
   c. A location map;
   d. Delineation of the boundary of the proposed development;
   e. Delineation of the boundary of the sewershed in which the development lies;
   f. The area in acres of the development;
   g. The area in acres of the sewershed contributing to the lift station;
   h. The proposed land use or uses for the development;
   i. The proposed land use or uses for the sewer basin;
   j. The proposed lift station site, along with the GPS coordinates;
   k. The proposed force main routing and size;
   l. Delineation of the 100-year flood plain and ESAs;
   m. Location and size of the existing collection system at the tie-in point;
   n. Contour lines (2-ft. intervals);
   o. Show how storm drainage is taken off site; and
   p. Property lines.
2. The written report shall include the following information:
   a. A general narrative about the proposed development and the circumstances that warrant a lift station;
   b. Influent hydraulic calculations showing:
      i. Area in acres of the sewer basin and the development;
      ii. The area of each proposed land use for the development and for the projected land use(s) for the basin;
      iii. The design flow for the basin and the development;
      iv. The peak flow for the basin and the development;
      v. Elevation of the proposed lift station site; and
      vi. The elevation of the proposed discharge point of the force main.
   c. Preliminary wet well volume calculations;

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d. Preliminary force main size;

e. Cost estimates for proposed lift station(s) and force main(s), and cost estimates for a gravity line in lieu of the lift station if possible;

f. Ground water levels in proposed site areas; and

g. A copy of the summary transmittal letter to TCEQ showing agency approval of proposed plans.

B. Site Layout

1. Station Siting:

The following are the minimum criteria for station sites:

a. The station shall be protected from the 100-year flood and shall be accessible during a 100-year flood;

b. The station should be located as remotely as possible from populated areas. The entire station site shall be completely enclosed with an 8-ft. high, opaque concrete or masonry wall, with an opaque sliding gate with a minimum width of 16 feet on track flush with the ground. All shall be of an architectural style and colors blending with the development architecture, as approved by the city;

c. The station shall have a minimum 16-ft. wide drive approach and be accessible by City of Denton service trucks, without requiring vehicles to turn after entering the drive approach to the station;

d. The station will include an approved odor-control system;

e. The station site and its access shall be dedicated as a separate lot to the City, as City property;

f. The station site cannot be located within the boundaries of any private entity intended to regulate property including, but not limited to, HOAs, COAs, and POAs;

g. The station site shall be located so it may serve as much as the entire sewer basin as possible. This may require the station to be located off-site of the development. When it is required that the station serve a larger area than the proposed development, the developer may enter into a pro-rata contract with the City to be reimbursed the cost of excess capacity as other developments tie to the system; and

h. The on-site generator must have an unobstructed 36-in. buffer on all sides and be accessible by City service vehicles.

2. Wet Well/ Dry Well Arrangement

a. Orientation shall consider the routing of incoming sewers and force main;

b. Orientation shall allow a 2-ton vehicle to directly access the wet well or the dry well, forwards and backwards;

c. Wet wells and dry wells shall be separated by at least a water and gas tight wall with separate entrances;

d. Wet wells shall have sloped bottoms to avoid excess sludge deposits;

e. The wet well shall have a lockable aluminum door with an aluminum frame and safety grating. The minimum opening size shall be 4-ft. x 6-ft. with two (2) doors large enough to adequately maintain the wet well. Door and frame shall be Bilco Type K, KD or an

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approved equal;

f. The dry well or valve vault shall have a lockable aluminum door with an aluminum frame and safety grating. The minimum opening size shall be 2-ft. x 3-ft. or large enough to adequately maintain the dry well or meter vault. Door and frame shall be Bilco Type K, KD or an approved equal;

g. The wet wells, dry wells, manholes, valve vaults and meter vaults, including decks, shall all be cast-in-place concrete only. No other materials are acceptable. *See* City Standard Specification 33 05 64 Concrete Wet wells, Valve Vaults, and Appurtenances for Lift Stations;

h. The coating for the wet well exterior and interior walls shall be coated as specified in Table 6.3-E and 6.3-F below, respectively;

i. The wet well shall be hydrostatically tested to the top of the wet well for 48 hours prior to placing the lift station into service. Only losses due to evaporation will be acceptable; and

j. Provisions shall be made to remove water from the dry well, valve vault or meter vault without allowing gas or water from the wet well into these structures.

3. Exterior Walls (below grade, to be backfilled)

Table 6.3-E: Exterior Wall Coating

Surface Preparation	Coating System
Clean and Dry	Tnemec Series 46H-413 Polyamide Epoxy – Coal Tar 8 – 10 mils in two coats for a total of 13.0 to 20.0 dry mils

4. Interior Walls (Thick Film System)

Table 6.3-F: Interior Wall Coating

Surface Preparation	Coating System	
	PRIMER	FINISH
Brush-off Blast Cleaning	Tnemec Series 218 Mortarclad ¼-in.	Tnemec Series 436 Perma-Shield 100 – 125 dry mils

Notes:

[1] In addition to this coating system, the lining products listed in Drawing S101 of the City of Denton Standard Details and Standard Specification 33 01 40 Liners for Sanitary Sewer Structures are acceptable.

5. Site Access

a. Access will be provided by an all-weather surface of flex-base or better from a public street to the station site;

b. Access shall be functional during a 100-year flood. The road surface shall be above the water level caused by a 100-year return period storm;

c. Every station more than 100 feet from a public street requires a turn-around adjacent to the lift station, sized large enough to accommodate a City service truck with generator;

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d. The equipment rack shall not obstruct vehicle access to the wet well or the dry well; the location must be approved during the review process. It shall be placed at an easily accessible elevation and include a canopy; and

e. Site inside the fence shall be an all-weather surface, such as ¾-in. crushed rock or flex-base.

6. Passive Ventilation

a. Passive ventilation shall be screened to prevent insect access to the wet well. Minimum diameter of air vents shall be four (4) inches. Vent outlet shall be at least one (1) foot above the 100-year flood elevation. The passive ventilation system must be sized to vent at a rate equal to the maximum pumping rate of a lift station, but not to exceed 600 fpm through a vent pipe.

C. Hydraulic Design

For influent flow, the preliminary design report shall include the design flow and the peak flow for the development and the sewer basin. The design flow shall be calculated in accordance with TCEQ rules. Refer to Section 6.3.1 - Estimated Wastewater Flows herein for peak flow calculations.

1. Pump Capacity

a. Firm pumping capacity is the pumping capacity of the station with the largest pump out of service.

b. The firm pumping capacity shall be greater than the peak flow for the entire sewer basin. If the sewer basin is significantly larger than the proposed development and it is not feasible to design for this flow, the firm pumping capacity may be designed to handle a portion of the basin with approval from the City's Engineer.

c. The pump curves shall be selected so the pumps will run near the best efficiency point during normal operating conditions. The selected curves shall also be such that the pumps do not approach shut-off head when they are running simultaneously.

d. System head curves, pump curves and head calculations shall be submitted. Calculations and pump curves at both minimum (all pumps off) and maximum (last normal operating pump on) static heads, for a C value of both 100 and 140, must be provided for each pump and for the combination of pumps with modified pump curves.

2. Wet Well Volume

a. Wet well volume for a submersible pump station is the volume contained above the top of the motor, or as specified by the pump manufacturer, to the bottom of the influent pipe. TCEQ Rule §217.60(b)(4) (d) A gravity pipe discharging to a wet well must be located so that the invert elevation is above the liquid level of a pump's "ON" setting.

b. Wet well volume for all other non-submersible pump stations is the volume contained in an area from a minimum of two (2) feet above or distance at which vortexing does not occur above the top of the intake of the pump.

c. High level alarm elevation shall be a minimum of 48 inches below the top of the wet well or 48 inches below the flow line elevation of the lowest influent pipe, whichever elevation is lower. Wet well volume shall be calculated by the following method:

$$T = V/(D - Q) + V/Q \qquad \textbf{[Eqn. 6.4]}$$

Where: T = Total time between successive pump starts in minutes (operating cycle)

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D = Rated pump capacity (in GPM)

V = Storage volume between lead pump on and pump off elevations (in gallons)

Q = Inflow to wet well (in GPM)

Note: The operation cycle 'T' shall not be less than 10 minutes for Average Flow and not more than 60 minutes for Minimum Flow conditions.

d. Per TCEQ Rules, 30 TAC § 217.63:

(g) Systems for preventing the discharge of wastewater must operate for a duration at least equal to the longest power outage on record for the past 60 months, or at least 20 minutes, whichever is longer. The design must be based on peak flows, inflow, and infiltration. If the longest power outage on record for the past 60 consecutive months is greater than 48 hours and generators will be used to provide backup power, then the owner must have a contract in place that guarantees fuel supply during an emergency. The owner must also have sufficient storage capacity at the wastewater treatment facility for the fuel required for the duration of the emergency.

(h) For calculation purposes, the owner must assume that the lift station wet well is full to the pump activation level when the power outage period begins.

3. Force Main Capacity

a. Force main capacity shall be sized to meet the capacity of the entire sewer basin. The force main may be designed to handle a portion of the basin with approval from the City's Engineer.

b. The minimum force main size shall be four (4) inches in diameter, except for Grinder Pump lift stations.

c. The minimum recommended velocity is three (3) fps, and the velocity shall not be less than two (2) fps when only the smallest pump is in operation.

d. The maximum velocity through a force main shall not be more than six (6) fps and will require confirmation per 30 TAC §217.67 that the pipeline will not fail.

D. Pumps

Pump specifications are listed in the City of Denton Specification 33 25 02 Sewage Pumps. Substitutions or deviations from the list of acceptable pumps requires the approval of the City's Engineer. The number of pumps must comply with 30 TAC § 217.61(e). If pumps are to have a variable capacity, Variable Frequency Drives (VFDs) are to be specified. Stations requiring three pumps must be equipped with VFDs on at least two of the pumps.

E. Mechanical

1. Force Mains

a. Force mains shall be laid to City of Denton Standard Specifications.

b. Plans shall include plan and profile for the force main, including valves every 2,000 feet per 30 TAC § 217.67.

i. Valves must be resilient wedge gate valves and conform to the Section 33 14 20 Resilient Seated (Wedge) Gate Valves of the City of Denton Standard Specifications;

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ii. Valves must be in a manhole and conform to Section 6.3.10 of this criteria manual and Section 33 05 61 Cast-In-Place Concrete Manholes of the City Standard Specifications; and

iii. The force main shall have an isolation valve immediately downstream of the flow meter vault.

2. Lift Station Interior Piping

a. Piping inside the lift station shall be ductile iron meeting AWWA C-150 and C-151. All fittings shall be ductile iron meeting AWWA C-110 or C-150. Interior of the pipe and fittings shall be lined with American Polybond Plus, which consists of a primer layer of 5 mils thick fusion bonded epoxy and 55 mils thick of modified DuPont Fusabond Polyethylene, or approved equal.

b. All nut and bolt assemblies inside the wet well shall be ASTM 316 stainless steel.

3. Isolation Valves

a. Each pump shall have one (1) isolation valve downstream of the pump, in a separate vault.

b. Isolation valves shall be resilient seat gate valves or plug valves meeting the City of Denton Standard Construction Specifications.

4. Check Valves

a. Check valves shall be controlled closing swing check valves with a lever arm or a ball check. There must be at least 15 feet of vertical head downstream in order to use a ball check valve.

b. A check valve shall be located upstream of the isolation valve in a separate vault.

c. All nuts and bolts shall be stainless steel.

5. Air Release / Vacuum Valves

a. Air release valves of a type suitable for wastewater service shall be installed along the force main where the force main would be prone to trapped air.

b. The type of valve shall be air release or a combination of air release and vacuum breaker (see Drawing S803 on Sheet 6 of the City Standard Details). The design engineer shall determine the type and location, subject to approval of the City's Engineer.

c. Calculations for valve type and valve sizing shall be provided to the City.

d. Locations of the air release/vacuum valves shall be shown on the plan and profile sheets for the force main.

e. Isolation valves for air release valves that are three (3) inches or smaller shall be all bronze or brass. Isolation valves four (4) inches or larger shall meet City of Denton Standard Construction Specification for resilient seat gate valve. The first fitting placed into the force main shall be a brass corporate valve (male corporate fitting).

f. Air release valves shall be fitted with blow off valves, quick disconnect coupling and hose to permit back flushing after installation without dismantling the valve.

g. Air release valves must be located in a vault as shown in Standard Details.

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6. Generators

   a. On-site generators shall be installed to serve as the source of back-up power for lift stations.

   b. Generators shall be mounted on a concrete foundation designed to handle the weight of the generator.

F. Electrical, Instrumentation, and Supervisory Control and Data Acquisition (SCADA) Requirements

The City of Denton Water Reclamation Department performs the build and install of SCADA and telemetry packages. Developers should request the packet and the City of Denton will provide a bill of materials for this service.

6.3.21 Low-Pressure or Alternative Collection Systems

Low pressure collection systems may be allowed with specific approval by the City's Engineer.

6.3.22 On-Site Sewage Facilities

A. General

Planning, design and operation of on-site sewage facilities within the City of Denton must comply with the current 30 TAC Ch. 285 for On-Site Sewage Facilities, as amended. The property owner proposing to use an on-site sewage facility shall comply with the criteria listed in this Section, and Section 7.6.16 of the City of Denton DDC, as amended.

B. Permits Required

Any owner of a residential, commercial, or institutional building who utilizes an on-site sewage facility is required to secure a permit from the City of Denton to construct, alter, repair, or extend an on-site sewage facility regardless of the size of the lot or tract of land. Contact the Environmental Services Division at the Pecan Creek Water Reclamation Plant for details on permit fees and maintenance requirements.

C. Site Evaluations

A Professional Engineer or a professional sanitarian, licensed by the State of Texas, must perform site evaluations.

D. Planning Requirements

A Professional Engineer or a professional sanitarian, licensed by the State of Texas, must prepare on-site sewage facility plans.

E. On-Site Sewage Facility Land Use Requirements

Lots or tracts of land where an on-site sewage facility is proposed must have the following minimum area size.

1. A minimum of one (1) acre when a public water system serves the tract or lot; and
2. A minimum of two (2) acres when a private water well is located on the tract or lot.

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6.3.23 Grease Traps / Grit Traps

A. General

Planning, design, and operation of grease traps within the City of Denton must comply with the most current City of Denton Plumbing Code, Chapter 28; Article VII; Section 26-56 as amended. The property owner proposing to use and operate a grease trap shall comply with the criteria listed in this Section and abide by required responsibilities outlined in City of Denton Code of Ordinances Chapter 26; Article XII – Liquid Waste.

B. Device Required

Any user of the publicly owned treatment works (POTW), as defined by Section 26-153, and meeting the definition of "food service facilities" or "facilities which perform washing, cleaning, or servicing of automobiles, trucks, buses or similar equipment," shall be required to install a grease trap or grit trap in accordance with locally adopted plumbing codes as amended. Food service establishments shall not share grease interceptors unless specifically authorized by the City's Engineer.

C. Sample Port Required

Any pretreatment device must have a sample port allowing for the instantaneous grab sampling of the effluent of the device. The sample port must be solely representative of the process wastewater and sanitary tie-ins must be done down-stream of the sampling port. The proposed sampling port must allow for a wide-mouthed 250-mL amber glass bottle to be submerged / partially submerged into the effluent.

D. Review Required

Plumbing plans for new facilities must be prepared by a plumber or a Professional Engineer, licensed by the State of Texas, and submitted as a part of the development process. These plans must show the fixtures draining into the pretreatment device. Plans must also include the flow-through rating of the pretreatment device as well as the grease or solids retention capacity. Plans must also show the location of the down-stream sampling port.

E. Sizing Requirements

1. Definitions

   a. Heavy Food Preparation: Any area in which foods are prepared utilizing a grill, griddle, deep-fat fryer, commercial type ovens, and/or any similar food preparation equipment; or any area subject to flooding type of wet cleaning procedures due to the cutting or processing of meat, poultry, fish or pork; or any facility subject to rinsing preparation equipment that is exposed to dairy products. Heavy food preparation includes, but is not limited to, cafeterias, coffee shops, fast food restaurants, full service restaurants; pizza preparation, donut preparation, and meat and fish markets, etc.

   b. Light Food Preparation: Any area in which foods are prepared exclusive of the use of fryers, grills or similar equipment. Light food preparation is usually limited to the preparation of hot dogs, sandwiches, salads or other similar foods and fountain-type cold drinks. Light food preparation includes, but is not limited to, sandwich shops, limited-menu concession stands, etc.

   c. No Food Preparation: Any area in which foods are provided pre-wrapped, from an approved source, with microwave oven type heating being the maximum handling involved. No food preparation is limited to pre-packaged sandwiches or similar foods, candies and containerized beverages.

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2. Grease Trap Design Criteria

Table 6.3-G: Grease Trap Design Criteria[1]

Classification	Seating Capacity[2] > 50	Seating Capacity[2] < 50
Heavy Food Preparation	750-gal. gravity grease interceptor	250-gal. grease interceptor
Light Food Preparation	250-gal. gravity grease interceptor	20 GPM flow-through rating or 40-lb. retention capacity
No Food Preparation	No interceptor required	

Notes:

[1] Or the minimum size established by the currently adopted International Plumbing Code; whichever is more stringent.

[2] Seating Capacity is measured using locally adopted Maximum Floor Area Allowances per Occupant, found in the currently adopted version of the International Building Code.

6.3.24 Inspections Required

New installations or existing pretreatment devices must be inspected by the City of Denton Pretreatment Program prior to the issuance of a Certificate of Occupancy for new businesses.

6.4 Construction Plans

6.4.1 General

Before any public works construction relative to a development may begin, City staff will verify the construction plans have been approved. Construction may not begin until the construction plans have been approved, all materials used for public improvements have been submitted and approved, all fees (including review and inspection fees) have been paid, all necessary agreements and bonds have been provided, and a Pre-Construction Conference has been held by the City.

6.4.2 Responsibility

The sealing engineer is responsible for the accuracy, completeness, and conformance of the submitted plans to City standards. The purpose of the City review is to ensure conformance to City policies and standards. The City review is limited to facts as presented on the plans submitted. The City has no project engineering design or quality control review responsibility. The engineer of record certifying the plans is responsible for the accuracy and completeness of the plan documents. The City reserves the right to require plan corrections to fit actual field conditions or meet City standards requirements, which are found to be contrary to or omitted from the plans.

6.4.3 Format

Construction plans shall be digitally drawn on 24-in. x 36-in. size sheets with borders of 22-in. x 34-in., so half-size reproduced plans will be to half-scale fitting 11-in. x 17-in. sheets. Each sheet shall be legible when reduced to half-size. Digital copies of the plans shall also be provided.

6.4.4 Plan Requirements

Construction Plans must contain, as a minimum, information listed in the following sections before they can be approved:

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A. General

North arrow, scale, date, and mean sea level elevations of all improvements, based on North America Vertical Datum 1988 (NAVD 88). Only NAVD 88 shall be used for plan elevations; no assumed or NGVD 29 elevations. Plans shall be drawn with a horizontal scale of one (1) inch equals 40 feet as a minimum, and appropriate corresponding vertical scale. The plans shall provide a reference to the elevation benchmark or monument used in the development of the plans. Show all crossings of existing and proposed underground utilities. Plans shall account for future changes in topography. The construction plans shall be signed and sealed by a Professional Engineer, licensed by the State of Texas, prior to bidding the project for construction.

B. Water Systems

Plan sheets must show the horizontal alignment of the proposed water system within street ROWs and easements, with horizontal control points for location of the ROWs and easements and for location of the water system within the ROWs and easements. Sizing of pipe, valves, fittings and appurtenances must be shown on the plan view. All valves, fittings, fire hydrants, and other appurtenances must be stationed and given GPS coordinates (with an accuracy of ± six (6) inches) based on the City of Denton's grid coordinate system. Profile views of water mains 12 inches or larger must be provided showing proposed grade, pipe material, casing pipe size and thickness (if any), and the location, elevation and size of any underground conduit or facility to be crossed. Deflections (if any) must be shown on the plan and profile views, as applicable, with stationing and the degree of deflection. Approved design deviations (if any) from City Standard Details must be provided. Show all service lines up to and including the meter can/vault. Service lines do not need to be stationed or have GPS coordinates. Adequate detail of other planned and existing improvements shall be shown to indicate planned crossings of utilities, storm drains, and stormwater facilities and potential conflict points.

C. Sanitary Sewer Systems

Plan sheets must show the horizontal alignment of the proposed sanitary sewer system within street ROWs and easements, with horizontal control points for location of the ROWs and easements and for location of the sanitary sewer system within the ROWs and easements. Sizing of pipe, manholes, fittings and appurtenances must be shown on the plan view. Manhole rim elevations, and pipe "IN" and "OUT" elevations must be shown. All manholes, fittings, and other appurtenances must be stationed and given GPS coordinates (with an accuracy of ± six (6) inches). based on the City of Denton's grid coordinate system. Every sanitary sewer line shall be profiled. Profile views shall show proposed grade, pipe material, casing pipe size and thickness (if any), manhole information, and the location, elevation and size of any underground conduit or facility to be crossed. Approved design deviations (if any) from City Standard Details must be provided. The plan view shall include arrows indicating direction of flow in pipe. Show all service lines to and including the public cleanout. Service lines do not need to be stationed or have GPS coordinates. Adequate detail of other planned and existing improvements shall be shown to indicate planned crossings of utilities, storm drains, and stormwater facilities and potential conflict points.

D. Grading

For situations involving proposed grading over existing water or sanitary sewer systems, provide a grading plan and profile showing the existing and proposed topography in 2-ft. contours. The grading plan shall consist of contours and spot elevations with water directional arrows to define the flow patterns.

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Section 7: Streetlight Design Criteria

7.1 Overview

The purpose of Section 7 – Streetlight Design Criteria is to assist developers and engineers in creating an aesthetic, consistent, and safe lighting plan for our streets, sidewalks, and neighborhoods. This section outlines the process for design, review, and approval of new lighting projects, as well as criteria for modernizing existing lighting infrastructure. Streetlights are usually owned by Denton Municipal Electric (DME) which is a part of the City of Denton (the City), however they may be installed, operated, and maintained by DME, other electric utilities, or private owners depending on the location. This section of the DCM has been created to help navigate the process for selecting, permitting, placing, and maintaining streetlighting throughout the city. This manual does not apply to security, area, pathway, private, or other lighting not associated with a public road.

This manual cannot cover all the situations that might be encountered, required, or requested in the construction and installation of streetlighting. Any apparent discrepancy, omission, error, or requirement necessitating further explanation or interpretation should be referred to DME Engineering (940-349-7117 or 940-349-4173) for further clarification.

The goal of the criteria laid out in this Section 7 is to implement the following guiding principles into the application of street designs in the City of Denton:

A. Enhance safety of the community for pedestrians and drivers alike

B. Conserve energy by prioritizing efficient lighting design

C. Minimize impact to the environment including light pollution

D. Minimize impact to neighborhoods and residences by reducing light trespass

E. Provide for a uniform and aesthetic look throughout the city

F. Be fiscally responsible through effective application of design principles

7.1.1 Applicability

The existing streetlight installations throughout the City of Denton have been accepted as is at the time of approval of this manual. Retro-active replacements and upgrades solely for the purpose of bringing existing lighting up to the standards of this manual are not required. This manual is intended to apply to all new projects in the City beginning July 1, 2024. (This means the project has been approved/permitted by Development Services on or after July 1, 2024).

7.1.2 Organization

Section 7 – Streetlight Design Criteria is organized as follows:

A. Overview

B. Requirements

C. Developer & DME Responsibilities

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7.2 Requirements

7.2.1 General

The City adheres to the guidance of ANSI RP-8 Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting for all highways and streets *except for local residential streets with speed limits of 30 mph or less*. ANSI RP-8 acknowledges that vehicle headlights may provide adequate illumination for slower speeds when the driver has sufficient time for reaction and stopping. As per ANSI RP-8, Section 11.6.3.1 – 'When Residential Street Lighting May Not be Needed', for local residential streets (e.g., within a residential development) with speed limits of 30 mph or less, street lighting shall be placed no more than 250 feet apart. A photometric (lighting) study will be required for all new installations except for local residential streets with speed limits of 30 mph or less.

These standards shall apply to all new streetlight installations, upgrades, replacements, and conversions from the date of the adoption of these standards onward.

Easement, right-of-way, and permitting regulations that are not listed in this manual still apply to streetlights. The developer is responsible for knowing and adhering to any laws and regulations governing development and construction relating to the work being done.

Developers are responsible for the design, materials, and installation costs of all streetlighting on public streets within and adjacent to their project. *See* the Developer and DME Responsibilities Section of this manual for more specific descriptions of responsibilities. DME will only energize new streetlights after the installation has been approved by DME. For most lighting installations, following energization, DME will accept ownership and maintenance of streetlights unless the lighting is located on a private drive (i.e. the City has not taken ownership of the street / streetlights) or the lighting is non-standard and will not be owned or maintained by DME.

Streetlights are not normally metered. The City (or customer in certain cases) is charged a monthly usage and maintenance fee per light according to the Denton Municipal Utility Rates Manual. This does not apply to private drives and other private properties where the developer or customer chooses to install lighting other than the standard city approved options. In such cases, DME will provide a metered service point only and the customer will be responsible for all installation, maintenance, and fees associated with the lighting installation in accordance with applicable city codes, ordinances, and utility service standards for the life of the installation.

City streets and street projects will not be considered complete until adequate streetlighting has been installed, approved, and energized. For example, for the streets in a new development to be accepted by and turned over to the City, street lighting must be complete.

7.2.2 Roadway Lighting Requirements

A. Roadway Designations

To determine the proper lighting for a roadway, it is important to determine what type of vehicle and pedestrian traffic the roadway is meant to accommodate. Roadways may be classed into several different categories based on these two variables. The lighting requirements are then applied to provide adequate lighting to mitigate the risks of collision by a vehicle with another object, vehicle, or pedestrian.

Roadways may be classified as *highways and freeways, arterials, collectors,* and *local roads*. In this section of the DCM, local roads may also refer to auxiliary roadways such as *alleys, drives, dead-ends,* and *cul-de-sacs*. Local roads may be residential streets (providing direct access to homes) or other local roads providing access to businesses and connecting larger roads together. Local roads

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generally have speed limits of 30 mph or less, while highways, arterials, and collectors will have higher speed limits. *Local roads* are further broken down into *residential* and *non-residential streets* in portions of this section to allow flexibility in managing light levels in residential neighborhoods. Specific road classification and design information may be found in Section 5 – Transportation Design Criteria of this DCM.

B. Lighting Evaluations and Design

For streetlighting of highways and streets, *except local residential streets with speed limits of 30 mph or less,* lighting shall be designed per ANSI RP-8. A photometric (lighting) study will be required for these new installations. ANSI RP-8 requires that a pedestrian activity classification be made to determine the required lighting levels. *See* ANSI RP-8 for further guidance on pedestrian activity classification and streetlighting design requirements. Additional information may also be found in the TxDOT Highway Illumination Manual, and AASHTO GL-7, "Roadway Lighting Design Guide". All designs adhering to ANSI RP-8 standards shall be verified and documented using appropriate lighting design software. A licensed Professional Engineer in the state of Texas shall stamp all lighting designs before each submittal.

For all local *residential* streets with speed limits of 30 mph or less, street lighting shall be installed at intersections, cul-de-sacs, and no more than 250 feet apart for the remainder of the street. Lighting may be installed along one side of the street, both sides in parallel, both sides alternating, or in the median. Separation distances should be measured along the centerline of the street. Additional lighting may need to be considered if there are obstacles or road geometries that cutoff some of the light. *See* the Sample Local Residential Streetlighting Layout shown below in Figure 7.1.

When designing or adding streetlights to existing roadways and/or neighborhoods, consideration should be given to the style and placement of any existing fixtures. New streetlighting shall be chosen from the available styles that most closely matches the style of the existing lighting in the area. Historic poles are only approved for specific applications and areas designated as historic districts or within the Downtown Implementation Plan area.

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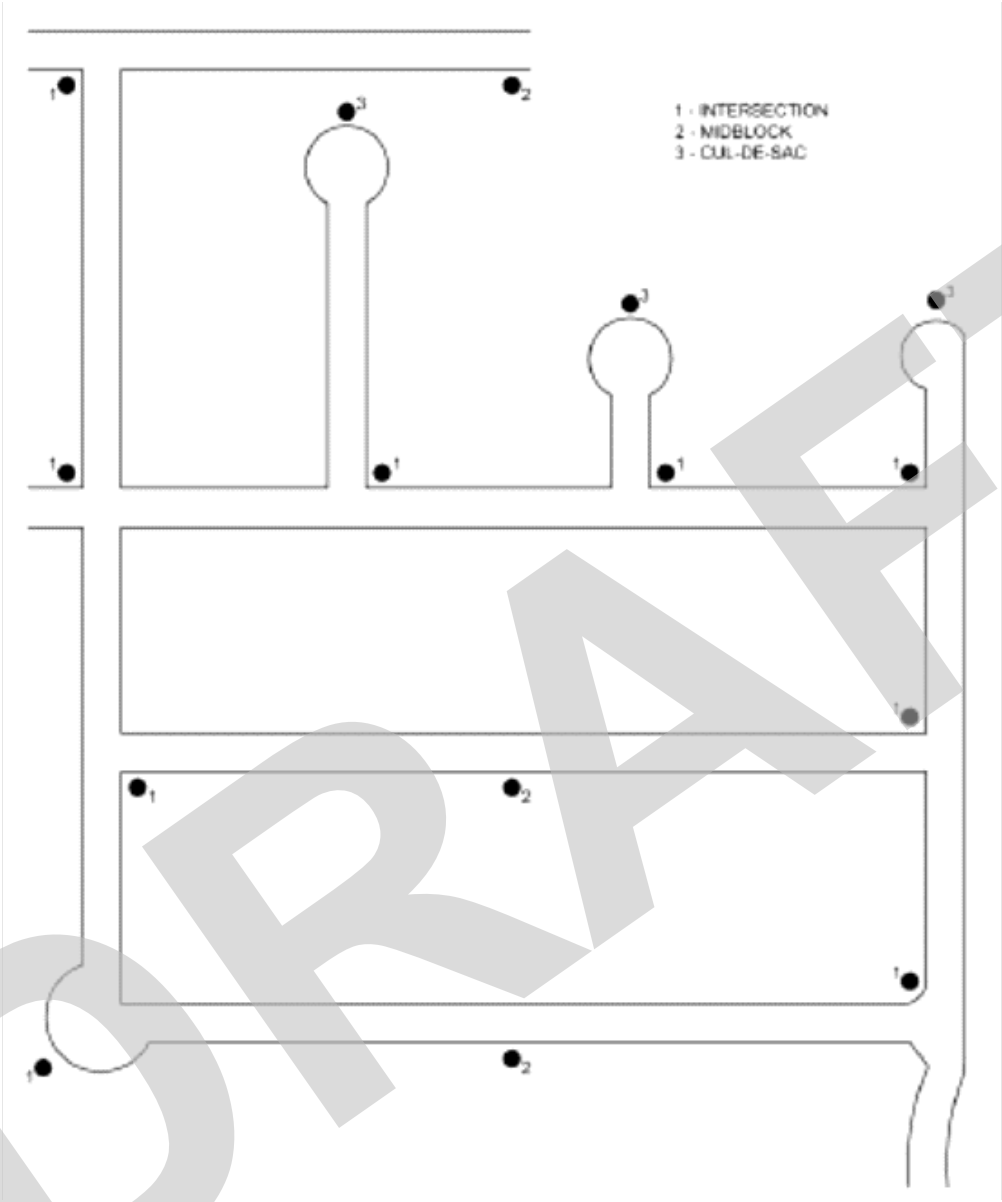

Figure 7.1 Sample Local Residential Street Lighting Layout

(Lights are shown at intersections, cul-de-sacs, and mid-block when spacing between lights exceeds 250 feet)

C. Intersection and Crosswalks

Intersections have a much higher number of potential conflict points as vehicles and pedestrians are permitted to cross through normal lanes of traffic. Therefore, additional care is needed when planning intersection lighting. ANSI RP-8 should be used to design lighting at intersections for larger, busier streets as stated previously. *See* Figure 7.2 shown below.

Because of the additional safety concerns for vehicles, cyclists, and pedestrians at crosswalks and intersections, the following examples (taken from ANSI RP-8) are provided to assist streetlight design for local streets. While not strictly required, they should be considered as good lighting practice for these types of locations.

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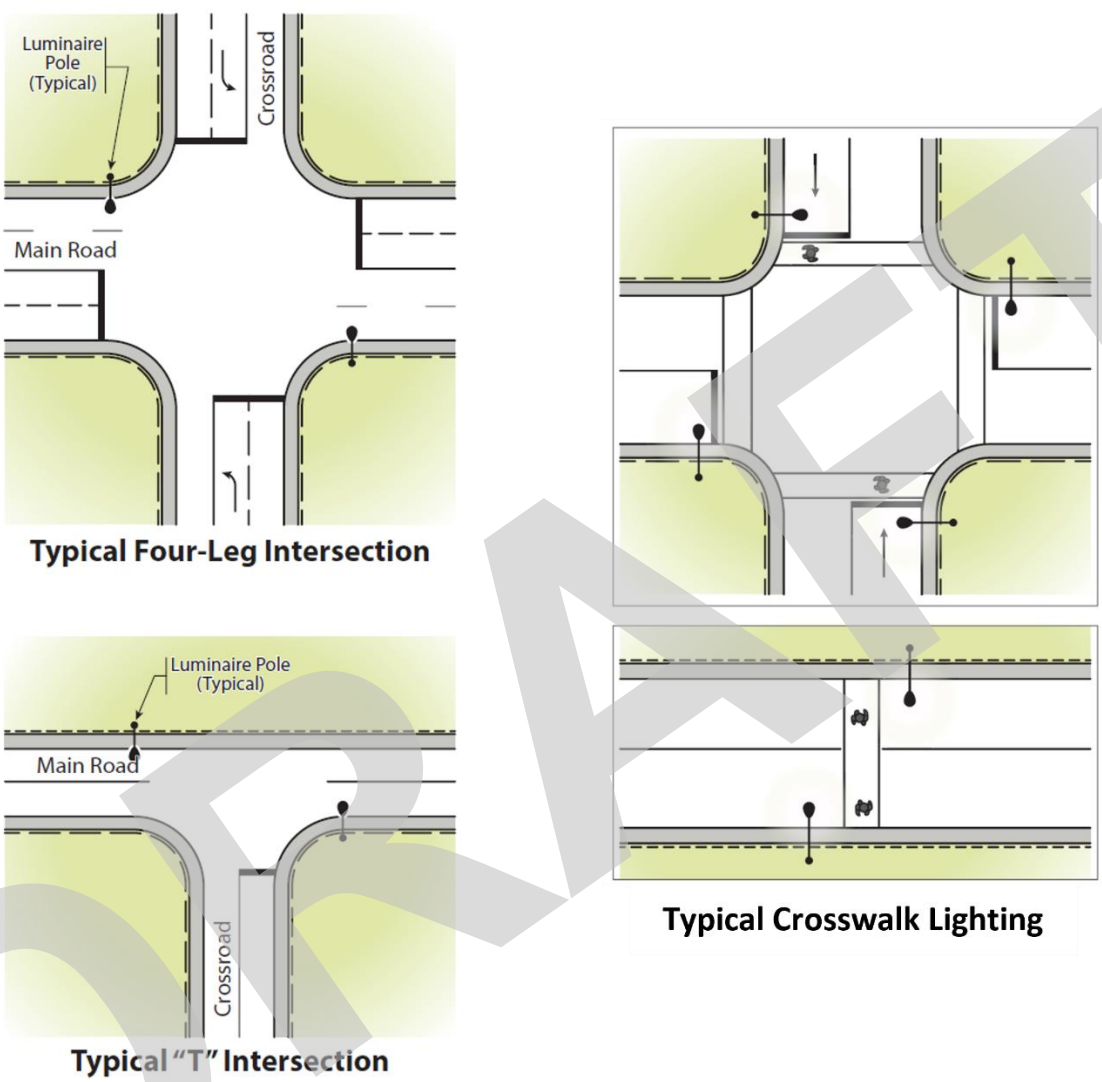

Figure 7.2 Typical Lighting Schematic for Intersections

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D. Roundabouts and Traffic Circles

Like intersections, roundabouts and traffic circles have a higher number of potential conflict points than normal streets. ANSI RP-8 should be used to design lighting at traffic circles and roundabouts of larger streets. For local streets, an example of round-about lighting design considerations is shown below. Some locations may not require as much lighting as shown depending on the size of the traffic circle. *See* Figure 7.3 shown below.

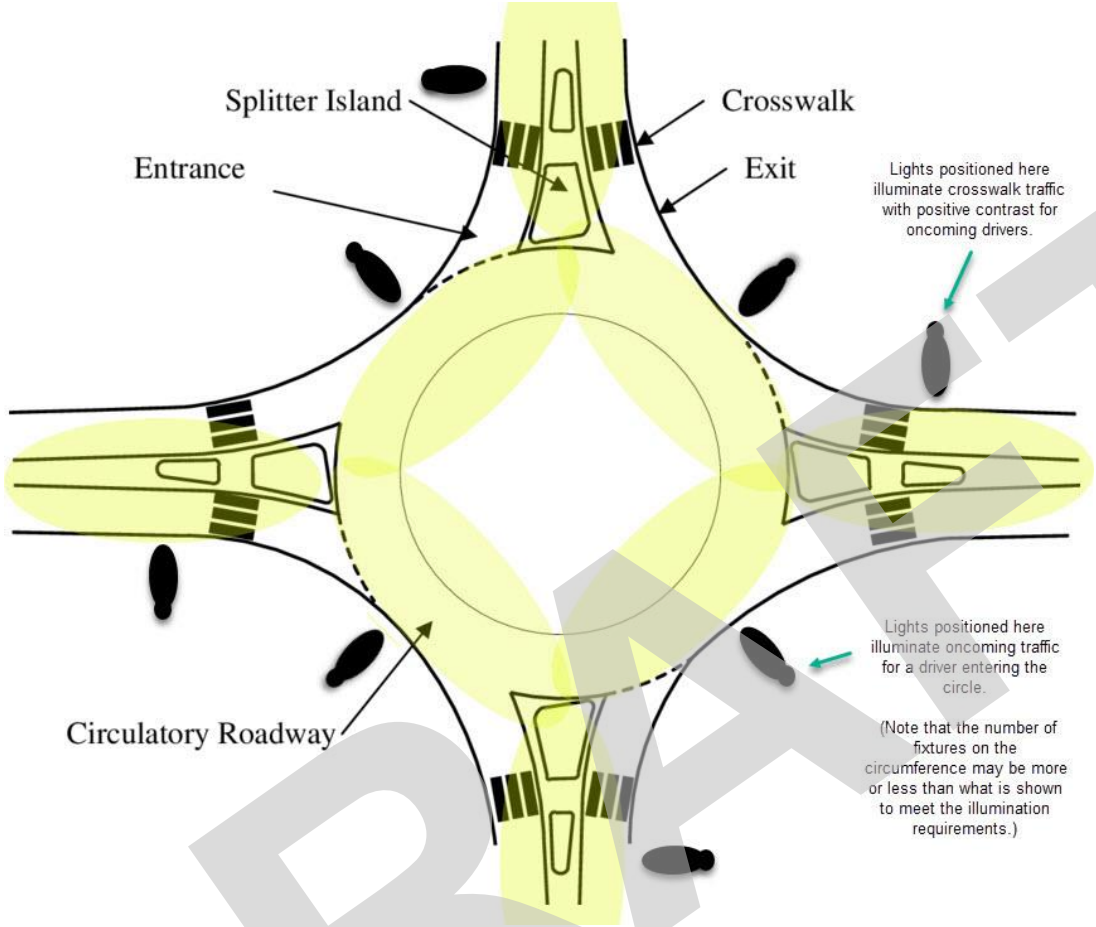

Figure 7.3 Roundabout Lighting Placement Schematic

E. Railroad Crossings

Railroad crossings are slightly different than normal intersections and require lighting adjustments accordingly. It is of course, vitally important that drivers are able to see a train that is crossing, and conversely, that the train engineer has a clear picture of any obstructions while approaching an intersection. Street lighting at railroad crossings should therefore illuminate the intersection while not causing glare for the drivers or train engineer. The following figure illustrates the recommended lighting placement for a railroad crossing. *See* Figure 7.4 shown below.

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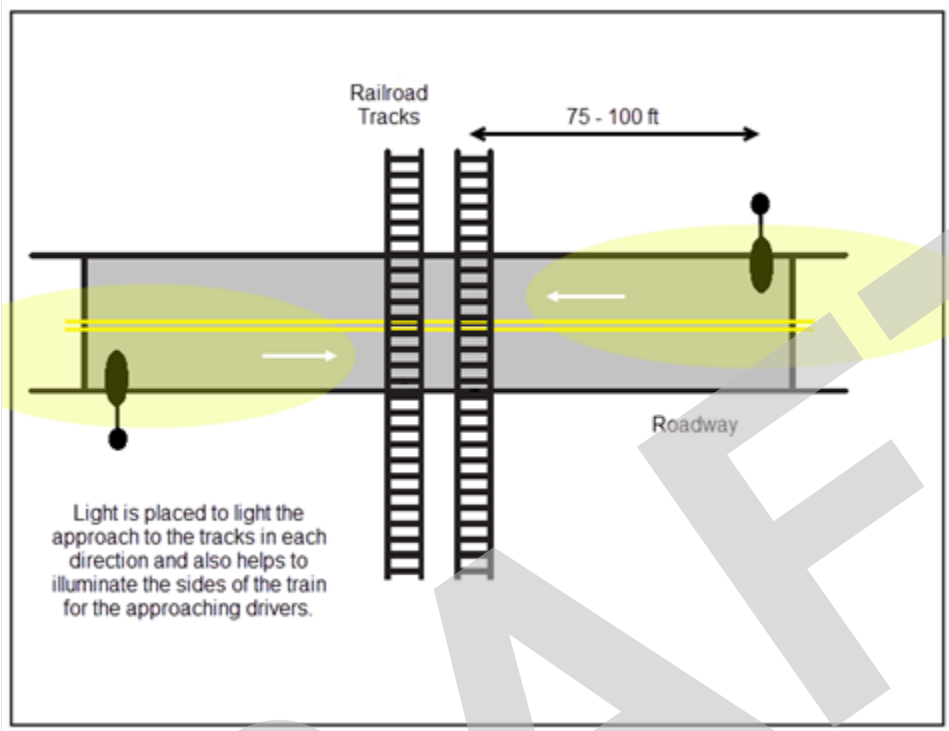

Figure 7.4 Railroad Crossing Schematic

7.2.3 Installation Requirements

A. Placement

1. Highways and Streets (except for local residential streets with speed limits of 30 mph or less)

   Installation should follow TxDOT recommendations in the TxDOT Highway Illumination Manual. Where TxDOT requirements do not apply, the streetlight system shall be installed in the right-of-way or within public utility easements and poles should be placed approximately 2.5 feet back from curbs and 10 feet back from edge of paving for uncurbed roads or, where there is sidewalk abutting the curb, approximately 1 foot behind the sidewalk. Deviations of more than 1 foot in either direction from these requirements must be approved by DME Engineering.

2. Local Residential Streets (speed limits of 30 mph or less)

   The streetlight system shall be installed in the right-of-way or within public utility easements. Poles should be placed approximately 2 feet back from the curb of 10 feet from un-curbed pavement. If a sidewalk abuts the curb, then the pole should be placed approximately 1 foot behind the sidewalk. In a residential neighborhood, streetlights should be placed within 5 feet of common property lines (e.g. between neighbors).

B. Vertical and Horizontal Clearance

New streetlights should not interfere with existing structures or rights-of-way, including sidewalks, nor should the placement preclude the ability to perform maintenance on the pole in a safe manner. *See* National Electric Safety Code (NESC) section 234 for specific clearances required for overhead

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electric installations. The exception to this requirement is when streetlight arms are mounted directly to wooden distribution poles.

Proposed trees should be located at least 25 feet from any streetlight location. When installing new lights in a location with existing trees, consideration should be given to the age and maturity of the tree and whether it will interfere with the light when it is fully grown. DME will be responsible for tree trimming around streetlights to preserve the integrity of streetlighting as needed.

Median-mounted poles should be installed at least 20 feet back from an intersection to minimize the number of vehicle-streetlight collisions due to vehicles and trucks turning too sharply at the intersection.

In areas predominantly served by overhead electric powerlines, streetlights are usually installed by attaching streetlight arms to existing wood distribution poles. Care should be given when planning for lighting in these areas as overhead lines pose a conflict when placing new lighting poles. Clearances must be maintained for safety. Redesign/relocation of existing overhead power lines just to accommodate lighting is costly and time consuming. Utilizing existing wood pole locations and installations on the opposite side of the street are two ideas for additional placement options in these areas.

C. Approved Fixtures and Materials

The approved streetlight components for each class of roadway are listed below in Tables 7.2-A and 7.2-B.

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Table 7.2-A: Approved Luminaires and Hardware by Location					
	ROADWAY CLASSIFICATION				
	HIGHWAYS AND FREEWAYS (UNLESS OTHERWISE SPECIFIED BY TXDOT)	ARTERIALS AND LARGE COLLECTORS	COLLECTORS AND LOCAL STREETS	EXISTING RESIDENTIAL LOCAL STREETS (ALSO USED IN HISTORIC DISTRICTS)	NEW RESIDENTIAL LOCAL STREETS (≤ 30 MPH)
Make	Signify Lumec RFL	Signify Lumec RFM	Signify Lumec RFM	Hadco	Gardco
Model	RFL-241W112LED-4K-G2-R2M-UNV-DMG-ML-RCD7-API-GY3	RFM-160W48LED-4K-G2-R2M-UNV-DMG-ML-RCD7-API-GY3	RFM-85W24LED-3K-G2-R2M-UNV-DMG-ML-RCD7-API-GY3	C-1891P RL34AANN2ASNR7 WA3 NNNNSP1	OPF-S-P05-730-T2M-AR1-UNV-SP2-TR7
Wattage	241W LED	160W LED	85W LED	69W LED	66W LED
Lumens	30,188	19,489	8,753	7,734	11,253
Color Temperature	4000k	4000K	3000K	3000K	3000K
Light Distribution Type	Type II	Type II	Type II	N/A	Light II
Voltage	120 – 277V or 347 – 480V	120 – 277V or 347 – 480V	120 – 277V or 347 – 480V	120 - 277V	120 – 277V
B-U-G Rating	B4-U0-G4	B3-U0-G3	B3-U0-G3	B2-U5-G4	B2-U0-G2
Pole Type	Steel, white concrete, or wood	Steel, white concrete, or wood	Steel, white concrete, or wood	Residential - Concrete aggregate Historic – Cast Aluminum	Steel, square, gray
Globe Type	N/A	N/A	N/A	Hadco, RL34 Acrylic Victorian	N/A
Arm Type	8-ft. metal (specs depend on pole type)	8-ft. metal (specs depend on pole type)	8-ft. metal (specs depend on pole type)	N/A	Std-mount, no arm

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Table 7.2-B: Approved Pole Types by Location

Part Information	Part Description	Highway and Freeway [1]	Arterial and Large Collector	Collector and Local Street	Existing Res. Local Street	Historic District [2]	New Res. Local Street [3]
POLE TYPE – WOOD DISTRIBUTION							
N/A	Wood pole. Various heights, but standard id 35 feet. DME warehouse item. Direct buried. Overhead electric service.	Yes	Yes	Yes	Yes	No	No
Arm - Shakespeare #OPAR-8-H	8-ft. curved aluminum arm. DME warehouse item.	-	-	-	-	-	-
POLE TYPE – WHITE CONCRETE							
Lonestar #351101	35-ft. Concrete pole, white color. Single or double arm available. DME warehouse item. Direct buried. Underground electric service.	Yes	Yes	Yes	Yes	No	No
Arm - Curlee #2009032TG-Flat Base	8-ft. flat aluminum arm. DME warehouse item.	-	-	-	-	-	-
POLE TYPE – CONCRETE AGGREGATE							
Lonestar #20004-SJB (Waterford Series)	20-ft. Concrete aggregate pole. Post-top luminaire configuration. Direct buried. Underground electric service.	No	No	No	Yes	No	No
POLE TYPE – ANTIQUE ALUMINUM							
Acuity #PX-CP18-12-F4-AB3/133T3-ANBK	12-ft. antique, decorative aluminum pole. Post-top luminaire configuration. Requires concrete foundation. Underground service.	No	No	Yes[2]	Yes[2]	Yes[2]	No
POLE TYPE - STEEL							
(Single Arm) KW Industries RTSU35-8-11-Gray-18S-N	35-ft. round steel pole, gray color. Single or double arm available. Used for TxDOT designed streetlighting.	Yes[4]	Yes[4]	No	No	No	No
(Double Arm) KW Industries RTSU35-8-11-Gray-28S-N	Part numbers may vary slightly depending on application. Not stocked by DME – custom order item. Breakaway bases with concrete foundations may be required for certain installations and bridges. Direct burial available also. Underground electric service						
Arm(s) – N/A	Arms are included with pole when ordering.	-	-	-	-	-	-
Breakaway base – N/A	Breakaway base included with pole when ordering.	-	-	-	-	-	-

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Part Information	Part Description	Highway and Freeway [1]	Arterial and Large Collector	Collector and Local Street	Existing Res. Local Street	Historic District [2]	New Res. Local Street [3]
POLE TYPE – STEEL RESIDENTIAL							
KW Ind., Part# SSP20-4-11-DGY GARDCO-DM10-BC	20-ft., dark gray, 4-in. square steel pole. Drilled for single-luminaire with std mounting pattern. Includes 3-in. by5-in. handhole and 8-in. bolt circle base pattern. Requires concrete foundation. Underground service.	No	No	No	No	No	Yes

Notes:
[1] Unless, otherwise specified by TxDOT.
[2] Historic streetlighting is only available for use in designated historic districts.
[3] Speed limits of 30 mph or less.
[4] Steel streetlight poles are only used for highways and roadways where TxDOT or City-approved plans require placement of break-away bases or non-standard mounting heights.

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D. Historic Lighting

Historic lighting is a modern light fixture with a decorative pole and fixture that give the lighting the look of early 20th century lighting. Historic lighting has been approved for use only in the *designated historic* districts of Denton. All requests for historic lighting within these districts must be submitted to DME Engineering for design and approval. Historic lighting is not approved for installations outside of the historic districts. The requesting organization, developer, or agency shall be responsible for all costs related to the design and installation of historic streetlights.

E. Control System

All new streetlighting in the DME service area shall have a control node installed which, at a minimum, will turn the light on and off according to ambient light conditions (photocell control) and shall be compatible with the CityTouch lighting control system. *See* Table 7.2-C shown below. Where street lighting is installed by the developer, DME shall provide and install control nodes at the developer's expense. DME will commission the control nodes into the CityTouch program.

Where streetlighting is served by other electric utilities than DME, DME does not require or install control nodes.

Table 7.2-C: CityTouch-compatible control node models

Model Number	Voltage (V)	Use	Function
LLC7290	120 – 277	Cobra head lights	Photocell controller
LLC7294	347 – 480	High-voltage cobra head lights	Photocell controller
LLC7291	120 - 277	Post-top lights	Astro-clock (GPS location-based timers)

F. Dimming and Light Trespass

The City adheres to ANSI RP-8 lighting levels for all streets *except* local residential streets with speed limits of 30 mph or less. Lighting that has been designed to ANSI RP-8 cannot be dimmed without diminishing the lighting level which, by definition, no longer meets the RP-8 standard. Thus, all streetlighting that is not in residential neighborhoods with speed limits of 30 mph or less will be maintained at full brightness.

On local residential streets with speed limits of 30 mph or less, the streetlights may be dimmed by resident request at specific locations due to light pollution concerns by residents. DME will dim residential streetlights down as low as 60%.

The City also reserves the right to install house side shields (available only on cobrahead lights) and make other reasonable modifications to the luminaires to minimize impacts to the residents at the DME's discretion.

G. Migratory Birds and Other Flying Species

DME will dim residential streetlights down as low as 50% during select animal migration or activity periods as specified by the City Environmental Services & Sustainability Department.

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H. International Dark Sky Association

DME installs and maintains two types of streetlight luminaires (light fixtures), post-top and cobrahead. The cobrahead light fixtures are endorsed by the International Dark Sky Associate (IDA) which makes recommendations on lighting with minimal up-light. The existing post-top lighting fixtures are not IDA endorsed, however an acceptable IDA approved alternate is being considered for all residential streets with speeds less than 30 mph.

7.2.4 Construction Requirements

Streetlight construction (e.g. conduit, wiring, etc.) shall follow the DME Standard Construction Drawings, stated below:

A. DSL-ARM

B. DSL-STD

C. DSL-12A

D. DSL-20C

E. DSL-35

Conduit runs should not exceed 700 feet between pulling locations. When bends total 180 degrees conduit runs should be limited to 500 feet or less. No run of conduit should have more than 360 degrees of total bend between pulling points.

The total length of a single lighting circuit at 120V should be less than 1,000 feet, the total length of a single lighting circuit at 240V should be less than 2,000 feet, and the total length of a circuit at 480V should be less than 4,000 feet unless circuit design and loading has been validated by engineering.

Additional design information may be found in the *TxDOT Highway Illumination Manual*.

7.3 Developer and DME Responsibilities

7.3.1 Highways and Streets (except local residential streets with speed ≤ 30 mph)

Developer is responsible for streetlighting design that meets the requirements of ANSI RP-8 for the appropriate roadway characteristics. A photometric (lighting) study shall be required. The final design must be approved and stamped by a Texas licensed professional engineer. Final design must also be approved by DME Engineering.

Lighting levels, placement, and compliance with ANSI RP-8 must be verified and documented with lighting design software. At a minimum, documentation shall be provided to DME Engineering showing:

A. Street geometry (width, number of lanes, median size)

B. Street classifications (arterial, collector, etc.)

C. Pedestrian activity classification

D. Criteria levels applied (illuminance vs. luminance method, and levels)

E. Lighting placements (median, side, parallel, staggered)

F. Maximum separation distance*

As an alternative to displaying the maximum separation distance as stated in 7.3.1.F above, a layout drawing of the project may be provided with calculation grid values and/or light level isolines indicating that the

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installation meets the applicable requirements.

For TxDOT projects, the design contractor will provide specific lighting requirements, if any. The design package should dictate where lighting should be placed and what types of poles and fixtures should be used.

For City initiated projects, the City's Engineer or their contractor will design the street lighting and submit to DME Engineering for approval. Once approved, the city's contractor will perform all civil work, and pull wiring and install streetlights and poles. DME will provide service points as needed. DME will also install and commission control nodes for interconnection with CityTouch.

A monthly maintenance, repair, and usage fee will be charged to the City thereafter for all streetlights on public streets per current DME rates.

7.3.2 Local Residential Streets (with speed limits ≤ 30mph)

The Developer (or DME if DME is responsible for the given project) is responsible for the design and layout of streetlights at all intersections, cul-de-sacs, and no more than 250 feet between. DME Engineering shall approve the final design. Once the project is approved and permitted, the Developer is responsible for providing all civil work including grading, trenching, installation of conduit and pull-boxes, etc.

DME is responsible for installation of wire, streetlights and poles, and service points. DME will charge an initial installation cost to the developer based on the number of lights.

A monthly maintenance, repair, and usage fee will be charged to The City thereafter for all streetlights on public streets per current DME rates.

For City initiated projects, the City's Engineer or their contractor will design the street lighting and submit to DME for approval. Once approved, the city's contractor will perform all civil work, and pull wiring and install streetlights and poles. DME will provide service points as needed. DME will also install and commission control nodes for interconnection with CityTouch.

For private streets and drives (where the City of Denton does not take ownership of the roadway or streetlights), one of the following will occur:

A. If non-standard lights are installed, DME will provide a metered service point. Developer is responsible for installation of entire streetlighting system. Designated customer (individual, HOA, etc.) will be responsible for monthly power costs and all maintenance. **OR**

B. If standard DME lighting is installed, Developer is responsible for all civil work (grading, trenching, installation of conduit, etc.) and installation of poles and streetlights. DME will pull wires and connect the lights at the Developer's expense. Designated customer (individual, HOA, etc.) will be responsible the monthly streetlight power and maintenance rates. **OR**

C. Exceptions to this rule must be agreed upon by all parties in a formal agreement.

7.3.3 Streetlighting in Non-DME-Served Areas

Standard streetlights have been approved by the City as listed in the General Requirements section of this manual. Electric utilities other than DME may or may not be able to provide the same luminaires. Non-standard lights will not be maintained by DME or the City. DME will provide, install, maintain, and repair standard the City streetlights at the Developer's expense. The electric service provider will charge the City according to the rates agreed upon between the City and the electric service provider.

For streets in non-DME service territories, Developer should coordinate with the electric utility, DME, and the City at the earliest stage of development to determine and agree upon the following:

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A. Developer, City/DME, and Customer responsibilities

B. Service points and project design

C. Mode of disconnect for safe maintenance (e.g. in-line fuses, etc.)

D. Mode of billing (metered usage, monthly rate, etc.)

E. Designated customer/developer responsible for fees

F. Other concerns as applicable

7.3.4 Customer/Citizen Requests for addition/removal of Streetlighting

When additional/modified/decreased lighting is requested by a customer, DME will perform an analysis of the lighting to determine if the modifications would provide added safety, visibility, and aesthetic value to a location. Light intrusion, cost, and feasibility will also be considered. At DME's discretion, lighting may be added or modified to bring the streetlighting closer in line with this manual or meet other specific concerns.

In coordination with the City's Environmental Services & Sustainability Department, DME may dim streetlights in residential areas to no lower than 50% brightness.

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Section 8: Design Deviations

8.1 Overview

8.1.1 General

All developments within the City and its extraterrestrial jurisdictions shall conform to the design criteria established in this DCM. In the event that a development cannot comply with the design criteria established, a design deviation process is used to evaluate, document, and approve proposed alternative methods.

Any deviation from the required design criteria for design of facilities outlined in this DCM must be submitted as a design deviation request to the City's Engineer and Department Reviewer, prior to incorporating it into the final design of a project.

8.2 Design Deviation Procedure

8.2.1 Request for Design Deviation Submittal and Processing

A. All design deviation requests must be submitted as a formal request to Development Project Facilitation using the 'Request for Design Deviation Form' included in Appendix B, along with supporting documentation.

1. The 'Request for Design Deviation Form' shall be filled out completely with exception of the portions noted as "For Use by City".
2. Supporting documentation shall include:
   a. All pertinent information on the facilities involved or to be involved. The specific portion of this DCM, policies, or design standard(s) for which a design deviation is sought;
   b. Description(s) of all other design alternatives which the applicant has evaluated in attempts to comply with the design criteria prior to the request for design deviation; and
   c. A statement that provides justification for the requested design deviation and how it is the necessary and optimal solution when compared with reasonable alternatives for the scenario presented.
3. Design deviation requests that do not contain the required Request for Design Deviation Form and supporting documentation are incomplete and will not be reviewed.

B. The request and supporting documentation shall be submitted concurrently with Civil Engineering Plans, Zoning Compliance Plans, Planned Development, or Specific Use Permit submittal.

8.2.2 Criteria for Granting of Design Deviation

A. The review of a design deviation request by the City's Engineer and Department Reviewer shall assess whether the request:

1. Clearly demonstrates an exceptional hardship which prevents the design criteria from being met. This hardship cannot be solely self-imposed and should be based upon physical characteristics of the property, environmental conditions, or existing conditions created by surrounding development;

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2. Is not detrimental to the public welfare;
3. Does not adversely impact the operations of the system or the public facility in question;
4. Is supported by a signed and sealed engineering analysis performed by a Licensed Professional Engineer in the State of Texas, if requested by the Engineering Department; and
5. Shall not be solely to mitigate a financial hardship.

B. The decision of the City's Engineer and Department Reviewer is guided by the criteria for approval, but is ultimately discretionary based on their engineering judgment and professional experience.

C. All approved design deviation requests shall be signed by the City's Engineer and Department Reviewer, before implementation.

D. The decision of the City's Engineer and Department Reviewer to grant a design deviation shall not relieve the applicant's Engineer of the professional obligation and responsibility to ensure any approved alternatives to the use of the material, design, or method of construction are fit for the intended purposes of the facilities at issue.

E. If a design deviation request is denied by the City's Engineer and Department Reviewer, the applicant may consider reviewing alternatives and resubmitting the application with more information as is deemed necessary, for re-evaluation by the City's Engineer and Department Reviewer.

8.3 Revocation of an Approved Design Deviation

8.3.1 Applicability and Procedure

A. An approved design deviation request may be revoked by the City's Engineer and Department Reviewer, if:

1. The supporting documentation that the City's Engineer and Department Reviewer used to review and approve the design deviation request is materially altered or updated. Any individual or entity that receives an approved design deviation request must provide the City's Engineer and Department Reviewer with any change in plans or conditions to the project that affect the requested deviation as soon as practicable after any such change occurs. Failure to provide these updates may result in design deviation revocation by the City.
2. The applicant is shown to have provided inaccurate or incomplete information during review of the design deviation request.
3. The City determines there is a failure to comply with any term, condition, or requirement applicable to a design deviation;

B. A decision to revoke a design deviation is effective immediately. Notice of the decision shall be communicated to the applicant.

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Appendix A: Example Stormwater Facility Checklists

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INSPECTION CHECKLIST FOR SIMPLE DETENTION BASIN

Facility Name: _____ **Facility Agreement Number:** _____

Basin/Pond Number: _____ **Inspected By:** _____ **Date:** _____

Type of Inspection: Annual _____, Quarterly _____, Monthly _____, Routine _____, or Storm Event _____, (# days since event _____)

Basin Conditions:

1. Is there standing water or wet spots? Yes____No _____Comments _____
2. Does sides or bottom show signs of erosion, settling, cracking, etc? Yes____No _____Comments _____
3. Does dam or emergency spillway show signs of erosion, settling, cracking, or other problems Yes____No _____Comments _____
4. Is there evidence of animal burrowing in dam? Yes____No _____Comments _____
5. Is there evidence of changes in shape or volume of basin? Yes____No _____Comments _____
6. Do vegetated areas need mowing? Yes____No _____Comments _____
7. Are there trees or woody growth in dam? Yes____No _____Comments _____
8. Are there areas that need to be re-vegetated? Yes____No _____Comments _____
9. Is there any accumulation of silt, trash, debris or litter in the basin? Yes____No _____Comments _____
10. Are there any other basin maintenance activities needed? Yes____No _____Comments _____

Structural Components:

1. Are pipes, channels, trash racks, etc. free of obstructions? Yes____No _____Comments _____
2. Are pipes, spillway or trash racks in need of repair? Yes____No _____Comments _____
3. Is the low flow or trickle channel in need of repair? Yes____No _____Comments _____
4. Is the outfall channel in need of repair? Yes____No _____Comments _____
5. Are there any other structural maintenance activities needed? Yes____No _____Comments _____

Plan for correcting deficiencies:

_____

_____

_____

_____

Signature:

_____

Owner's Representative

Date:

_____

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ENGINEER'S CHECKLIST FOR STORMWATER FACILITY MAINTENANCE AGREEMENT

Please attach additional sheets as necessary for comments and descriptions. Fit all sheets to 8½" x 11".

ORGANIZATION INFORMATION	
1. Company (Applicant)	**Address:**
2. Contact's Information: Contact Name Mailing Address Telephone Number(s) Email	**3. Execution Information:** Signatory's Name Mailing Address Telephone Number(s) Email

4. Property Location:

(Note: If the property has not been addressed, please enter the legal description)

5. Associated Plat Numbers:

(Note: if request is related to multiple plat applications, please list each individually)

6. Associated Building Permit Numbers:

(Note: if request is related to multiple permits, please list each individually)

AGREEMENT & ATTACHMENT INSTRUCTIONS

If the property owner is a **corporation**, the agreement must be signed by a person who is duly authorized to bind the corporation including, but not limited to, a President or Vice President. . If a **partnership**, the agreement must be signed by the managing partner. If the applicant is a **sole proprietor**, he/she signs the agreement on behalf of him or herself. Additionally, for corporations and partnerships, a copy of the *Articles of Incorporation*, showing signature authority for whoever signs the agreement must also be submitted (Note: Applicants may also submit a board resolution or power of attorney authorizing an agent or assign to sign on behalf of the property owner. The agreement must be completely filled out and three copies submitted to the Planning and Development Department. Signatures on all three agreement drafts must be original and notarized. Lastly, please submit a copy of the deed for the noted property.

NOTE: Agreement and all attachments should be submitted on 8 ½" x 11".

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	Yes	No	N/A	Comments/Descriptions
1. Legal Agreement – Standard agreement form provided by the City.	___	___	___	_____
2. Exhibit "A" - Legal Description (Attached)				
A. Metes and Bounds.	___	___	___	_____
B. Surveyor's Drawing, with seal affixed and marked as "Drainage Easement".	___	___	___	_____
C. Preliminary Plat.	___	___	___	_____
3. Exhibit "B" - Design Plan and Specifications (Attached)				
A. Design Calculations – in accordance with iSWM.	___	___	___	_____
B. Schematic Plan (See Example Detention Plan Schematic)- prepared in accordance with approved construction plans:	___	___	___	_____
• Plan View showing critical structural elements .	___	___	___	_____
• Critical structural elements are clearly labeled in layman terms.	___	___	___	_____
• Profile including a longitudinal section showing all critical structural elements with elevations.	___	___	___	_____
• Cross-sections as needed to show size and general grading. **NOTE: All Schematics should be submitted on 8 ½" x 11".**	___	___	___	_____
C. Landscaping shown per approved Landscape Plans.	___	___	___	_____
4. Exhibit "C" - Operations and Maintenance Plan (Attached)				
A. Routine Maintenance Specifications:				
1. Mowing as needed to control weeds and woody plants.	___	___	___	_____
2. Trash removal from critical structural elements.	___	___	___	_____
3. Additional maintenance.	___	___	___	_____
B. Non-routine Maintenance Activities:				
1. Bank repair and stabilization.	___	___	___	_____
2. Re-vegetation - required when 30% or more of area is unprotected.	___	___	___	_____

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	Yes	No	N/A	Comments/Descriptions
3. Sediment removal from the detention/retention facility when:	___	___	___	_____
• Detention basin – when water depth is reduced 25% or more, or basin does not drain within 72 hours.	___	___	___	_____
• Retention pond – when water depth is 4' or less.	___	___	___	_____
• Sediment traps/forebay – when depth is reduced by 50% or more.	___	___	___	_____
4. Structural repair/replacement for all damaged or deteriorated structures, trickle channel, trash rack, etc.	___	___	___	_____
5. Mechanical equipment repairs.	___	___	___	_____
6. Other maintenance Activities.	___	___	___	_____

5. Exhibit "D" - Maintenance Checklist *

A. Covers ordinary needs, in layman terms.	___	___	___	_____
B. Structural components labeled consistent with Schematic Plan.	___	___	___	_____

*See attached Inspection Checklist for Detention Basin

NOTE: All Exhibits should be submitted on 8 ½" x 11".

(seal)	I certify that this Stormwater Facility Maintenance Agreement, checklist, required attachments, and additional comments, was prepared under my responsible supervision and that the information presented on this checklist and attachments is correct to the best of my knowledge. I also understand that an acceptance of this plan by the City does not waive any City standards or requirements unless a specific waiver request has been submitted and approved. Signed_____Date_____ Print Name:_____

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Appendix B: Design Deviation Request Form

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Development Services
401 N. Elm Street, Denton, TX 76201 (940) 349-8541

City of Denton Design Deviation Request Form

Submitted by:_____Phone:_____Email:_____
Company:_____Date:_____

Project Information
City of Denton Project Number:_____Project:_____
Type of Development:_____
Location:_____ (include map)

Design Deviation Request (Each deviation from criteria requires a separate submittal and will be evaluated independently.)
Specify section of the DCM/DDC/design standard(s) for which a deviation is sought:

Please explain how the project is unable to meet the design criteria.
(This hardship cannot be solely self-imposed and should be based upon physical characteristics of the property, environmental condition, or existing conditions created by surrounding development.)

What other design alternatives have been evaluated to comply with the design criteria, prior to the request for design deviation:

Detailed explanation of requested design deviation:

The deviation request will be evaluated based on the criteria set forth in DCM 8.2.2.

☐ By submitting the design deviation request, the applicant hereby acknowledges and understands the design deviation procedure. (Please check.)

1 of 2

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CITY OF DENTON

Development Services

401 N. Elm Street, Denton, TX 76201 (940) 349-8541

Supporting Documentation

List and provide attachments supporting the design deviation as stated in the DCM Section 8.2.1.

(drawings, calculations, topographic information, photographs, maps, or other pertinent information)

FOR USE BY THE CITY OF DENTON

Justification of Decision:

Deviation Decision: ☐ Accepted ☐ Denied

Reviewing Department: ☐ Solid Waste ☐ Stormwater ☐ Transportation

☐ Water/Wastewater ☐ Street Light

Department Reviewer:_____ City's Engineer:_____

Date:_____ Date:_____

Signature:_____ Signature:_____

(The deviation request decision must be signed by both the Department Reviewer and the City's Engineer.)

2 of 2

Note: Request the fillable Deviation Request form from your Facilitator.

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Appendix C: Poles and Luminaires - Standard Lighting Fixtures

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Figure C.1: Residential Lighting – 20-ft. concrete aggregate pole woth post-top luminaire

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Figure C.2: General Street Lighting – Wood (distribution) pole with single-mast arm and cobra head luminaire

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Figure C.3: General Street Lighting – 35-ft. white concrete pole with single or double-mast arms and cobra head luminaire

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Figure C.4: Historic District Lighting – 12-ft. concrete aggregate pole woth post-top luminaire

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Design Criteria Manual

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Section 1: Introduction

1.1 Title and Effective Date

1.1.1 This document is ~~Chapter 35 of the Municipal Code of Ordinances~~the Design Criteria Manual of the City of Denton, Texas. It shall be officially known and cited as the "Denton ~~Development Code~~Design Criteria Manual," and is referred to internally in this document as "this ~~D~~DCM~~DC~~" and "this Manual~~Code~~."

1.1.2 This D~~DC~~CM shall become effective on ~~October 1~~July 1, 202~~4~~~~19~~.

1.2 Purpose

The purpose of the Denton Design Criteria Manual (DCM) is to provide minimum, non-exhaustive guidelines for the design and construction of ***solid waste, stormwater, transportation, water and wastewater, and streetlight infrastructure*** within the City of Denton, Texas and its extra-territorial jurisdictions. The criteria established in this Manual have been developed from a review of various applicable publications, regulatory requirements, and City of Denton offices which oversee the design, construction and maintenance of the facilities.

These guidelines are to be used by design engineers in the City of Denton Capital Projects Engineering Division, consulting engineers employed by the City, and engineers of subdivision and land development infrastructure projects proposed for construction and acceptance by the City, within the City and its extraterritorial jurisdictions.

Along with this Manual, the Denton Development Code (DDC) should be consulted for additional criteria. ***The criteria established in this Manual do not supersede the criteria contained in the DDC.*** In the case of conflict among this Manual, City of Denton Standard Details, or other cited regulations and standards, the more stringent requirement shall apply.

This DCM is ***not*** intended to be an all-inclusive design document for all circumstances and conditions. The DDC and City of Denton Code of Ordinances ~~shall~~must be consulted for possible impacts to the proposed design. The Federal Government, the State of Texas, NCTCOG, Denton County, Denton County Transit Authority (DCTA), and other related organizations and resources should~~all~~ be consulted for additional criteria, as may be deemed necessary.

1.3 Organization

In addition to the design criteria established in this DCM, guidance is also provided for design deviations from the required design criteria. The contents of this Manual are categorized into sections shown below:

A. Section 1: Introduction

B. Section 2: Abbreviations and Definitions

C. Section 3: Solid Waste Design

D. Section 4: Stormwater Design

E. Section 5: Transportation Design

F. Section 6: Water and Wastewater Design

G. Section 7: Streetlight Design Criteria

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H. Section 8: Design Deviations

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Section 2: Abbreviations and Definitions

2.1 Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
APBP	Association of Pedestrian and Bicycle Professionals
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
BFE	Base Flood Elevation
BMP	Best Management Practices
CCN	Certificate of Convenience and Necessity
cfs	cubic feet per second
CLOMR	Conditional Letter of Map Revision
COA	Condominium Owner's Association
CP	Cathodic Protection
cu. ft.	cubic feet
DCAD	Denton Central Appraisal District
DCM	Design Criteria Manual
DCTA	Denton County Transit Authority
DDC	Denton Development Code
DFW	Dallas-Fort Worth Metroplex
DIP	Ductile-Iron Pipe
DRP	Development Review Process
DSA	Down Stream Assessment
EOL	End-of-Line
ESA	Environmentally Sensitive Area
ft.	foot or feet
FEMA	Federal Emergency Management Agency
FFE	Finished Floor Elevation
FHWA	Federal Highway Administration
FIRM	Federal Insurance Rate Map
FIS	Flood Insurance Study
FM	Farm to Market

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fps	feet per second
gal.	gallon(s)
GPCD	gallons per capita per day
GPD	gallons per day
GPM	gallons per minute
GPS	Global Positioning System
HDPE	High Density Polyethylene
HEC-HMS	Hydrologic Engineering Center's Hydrologic Modeling System
HEC-RAS	Hydrologic Engineering Center's River Analysis System
HGL	Hydraulic Grade Line
HOA	Home Owner~~'s~~' Association
IBC	International Building Code
ID	Inner Diameter
IFC	International Fire Code
IH	Interstate Highway
in.	inch(es)
IPC	International Plumbing Code
ITE	Institute of Transportation Engineers
*i*SWM™	Integrated Stormwater Management
kg.	kilogram(s)
lb.	pound or pounds
LOMR	Letter of Map Revision
LOS	Level-of-Service
MEP	Mechanical, Electrical, and Plumbing
MGD	Million Gallons per Day
mL	milli-liter(s)
mph	miles per hour
NAVD	North American Vertical Datum
NCHRP	National Cooperative Highway Research Program Report
NCTCOG	North Central Texas Council of Governments
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NGVD	National Geodetic Vertical Datum

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NOAA	National Oceanic and Atmospheric Administration
PHT	Peak-Hour Trips
PMF	Probable Maximum Flood
PMP	Probable Maximum Precipitation
POA	Property Owner's' Association
POTW	Publicly Owned Treatment Works
PROWAG	Public Rights of Way Accessibility Guidelines
psi	pounds per square inch
PUCT	Public Utilities Commission of Texas
PUE	Public Utility Easement
PVC	Polyvinyl Chloride
PZC	Planning and Zoning Commission
RCP	Reinforced Concrete Pipe
ROW	Right-of-Way
RPBA	Reduced Pressure Backflow Assembly
SCADA	Supervisory Control and Data Acquisition
SCS	Soil Conservation Service
SDR	Standard Dimension Ratio
SFE	Single-Family Equivalent
SETP-PD	Safety End Treatment Plan – Parallel Drainage
SFHA	Special Flood Hazard Area
SH	State Highway
sq. ft.	square feet
sq. mi.	square mile(s)
SWFMA	Stormwater Facility Maintenance Agreement or Maintenance Agreement
TAC	Texas Administrative Code
TAS	Texas Accessibility Standards
TCEQ	Texas Commission on Environmental Quality
TDLR	Texas Department of Licensing and Registration
TIA	Traffic Impact Analysis
TMUTCD	Texas Manual on Uniform Traffic Control Devices
TSS	Total Suspended Solids
TxDOT	Texas Department of Transportation

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U.S.	United States of America
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
VPD	Vehicle-trips per day
WoUS	Waters of the United Stated of America
WMP	Water Master Plan
WSEL	Water surface elevation
w.s.f.u.	Water-Supply Fixture-Unit(s)
ZOI	Zone of Influence

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2.2 Definitions

20-Year Horizon

The estimated traffic volume for the study area based on a 20-year growth period.

Abutment
A wall supporting the end of a bridge or span and sustaining the pressure of the bordering earth.

Applicant
Any firm, entity, partnership, company, public utility company, or individual that submits a formal request or application.

Apron
A floor or lining of concrete, timber, or other suitable material at the toe of a dam, entrance or discharge side of a spillway, a chute, or other discharge structure, to protect the waterway from erosion from falling water or turbulent flow.

Area of Special Flood Hazard
The area designated as subject to flooding from the 1% chance flood on the flood insurance rate map. For purposes of these criteria, the term "special flood hazard area" is synonymous in meaning with the phrase "area of special flood hazard" and may be referred to as "SFHA".

Backwater
The rise of the water level upstream due to an obstruction or constriction in the channel.

Backwater Curve
The term applied to the longitudinal profile of the water surface in an open channel when flow is steady but non-uniform.

Baffles
Deflector vanes, guides, grids, gratings, or similar devices constructed or placed in flowing water, to: (1) check or effect a more uniform distribution of velocities; (2) absorb energy; (3) divert, guide, or agitate the stormwater flow; and (4) check eddy currents.

Baffle Chute
A drop structure in a channel with baffles for energy dissipation to permit the lowering of the hydraulic energy gradient in a short distance to accommodate topography.

Base Flood Elevation
The elevation shown on the Flood Insurance Rate Map (FIRM) and found in the accompanying Flood Insurance Study (FIS) for Zones A, AE, AH, A1-30, AR, V1-30, or VE that indicates the water surface elevation resulting from the flood that has a 1% chance of equaling or exceeding that level in any given year.

Calibration
Process of checking, adjusting, or standardizing operating characteristics of instruments and model appurtenances on a physical model or coefficients in a mathematical model. The process of evaluating the scale readings of an instrument in terms of the physical quantity to be measured.

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Carrier Pipe
A pipe used to carry stormwater, water, or wastewater, as opposed to an exterior protective casing pipe.

Casing Pipe
An exterior protective pipe that encases a carrier pipe for various types of crossings, including roadways, creeks, and railroads. Also known as encasement pipe.

Channel
A man-made drainageway or watercourse, generally constructed to straighten a stream or increase its capacity.

Channel Roughness
Irregularities in channel configuration which attenuate the flow of water and dissipate its energy.

Chute
An inclined conduit or structure used for conveying water to a lower level.

City's Engineer
A Professional Engineer, licensed by the State of Texas, who is the subject matter expert of the relevant topic of discussion, and employed by the City o~~O~~f Denton.

Conduit
Any open or closed structure for conveying flowing water.

Corner Clip
ROW dedication at intersection corners to provide sufficient room for intersection visibility, pedestrian access, and other street facilities.

Critical Flow
The state of flow for a given discharge at which the specific energy is a minimum with respect to the bottom of the conduit. The Froude Number is equal to 1.0 for critical flow conditions.

Crown
The highest point on a transverse section of conduit or the highest point of a roadway cross-section.

Culvert
Large pipe or other conduit through which a small stream passes under a road or street.

Curb
A vertical or sloping structure located along the edge of a roadway, normally constructed integrally with the gutter, which strengthens and protects the pavement edge and clearly defines the pavement edge to vehicle operators.

Dam
A barrier constructed across a watercourse for the purpose of creating a reservoir or diverting water from a conduit or channel.

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Degradation
The progressive general lowering of a stream channel by erosion, other than that caused by a constriction.

Department Reviewer
A member of a City of Denton department, designated by the Department Director, with subject matter expertise related to the Design Criteria Manual who is designated as being responsible for the review of design deviation requests.

Depression Storage
Collection and storage of rainfall in natural depressions after exceeding infiltration capacity of the soil.

Design Storm or Flood
The storm or flood which is used as the basis for design.

Detention
The storage of storm runoff for a controlled release during or immediately following the design storm.

1. Off-site detention - A detention pond located outside the boundary of the area it serves.
2. On-site detention - A detention pond which is located within and serves only a specific site or subdivision.
3. Regional detention - Detention facilities provided to control excess runoff based on a watershed-wide hydrologic analysis.

Development
Any man-made change to improved or unimproved real estate, including but not limited to, buildings or other structures, paving, drainage, or utilities. Development activities include: subdivision of land; construction or alteration of structures, roads, parking, fences, pools, signs, temporary uses, utilities, and other facilities; installation of septic systems; grading; excavation, mining or drilling operations; deposit of refuse, debris, or fill materials; and clearing of natural vegetative cover (with the exception of agricultural activities as defined and as permitted). Routine repair and maintenance activities are exempted.

Development Project Facilitation
Division within the City of Denton that assists developers move projects through the City's various development review process and authorized to process the review of design deviation requests.

Drop Structures
A sloping or vertical section of a channel designed to reduce the elevation of flowing water without increasing its velocity.

Energy Dissipaters
Engineered devices such as riprap aprons or concrete baffles placed at the outlet of storm water conveyance systems for the purpose of reducing the velocity, energy and turbulence of the discharged flow.

Entrance Head
The head required to cause flow into a conduit or other structure; it includes both entrance loss and velocity head.

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Entrance Loss
Head lost in eddies or friction at the inlet to a conduit, headwall or structure.

Existing Traffic
Existing traffic conditions based on the most recent traffic counts. Existing traffic conditions do not include the traffic created or associated with the development.

Flash Flood
A flood of short duration with a relatively high peak rate of flow, usually resulting from a high intensity rainfall over a small area.

Flood Control
The elimination or reduction of flood losses by the construction of flood storage reservoirs, channel improvements, dikes and levees, by-pass channels, or other engineering works.

Flood Hazard Area
Area subject to flooding by 1% chance floods.

Flood Management or Flood Hazard Mitigation–
Any program or activity designed to reduce damages from flooding, including stream erosion.

Floodplain–
The area that is subject to flooding from the 1% chance flood. The floodplain includes the regulatory floodway and floodway fringe.

Floodway
The channel and adjacent lands of a watercourse that must be reserved in order to discharge the base flood without increasing the water surface elevation more than the regulatory designated height.

Floodway Fringe
The area located within the floodplain and outside the floodway.

Freeboard
The distance between the normal operating level and the top of the side of an open conduit left to allow for wave action, floating debris, or any other condition or emergency without overtopping the structure.

Frequency (of storms, floods)
Average recurrence interval of events, over long periods of time. Mathematically, frequency is the reciprocal of the exceedance probability.

Froude Number
A flow parameter, which is a measure of the extent to which gravitational action affects the flow. A Froude number greater than one (1) indicates supercritical flow and a value less than 1 subcritical flow. The simplest form of the Froude number is given by the following equation:

$$F = V / (g D)^{0.5} \qquad \text{[Eqn. 2.1]}$$

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Where: V = Velocity
g = the acceleration due to gravity (32.2 ft/s^2)
D = depth

Fully Developed Conditions
A description of hydrologic conditions in a watershed, if the watershed has been completely built out based on the zoning and future land use maps of the City. If there is no designated future land use, the runoff coefficient will be assumed to be (0.6) for purposes of determining fully developed water surface elevations. This term is interchangeable with the term "Ultimate Developed Conditions". This is not to be confused with a Developed Floodplain as defined in Subchapter 9.2 of the DDC, which refers to the character of the streambed itself.

Gabion
A wire container filled with rock and used in the construction of dams, retaining walls, and protection against erosion.

Grade
1. The inclination or slope of a channel, canal, conduit, etc., or natural ground surface, usually expressed in terms of the percentage of number of units of vertical rise (or fall) per unit of horizontal distance.
2. The elevation of the invert of the bottom of a conduit, canal, culvert, sewer, etc.
3. The finished surface of a canal bed, road bed, top of an embankment, or bottom of excavation.

Gutter
A generally shallow waterway adjacent to a curb used to convey stormwater.

Headwater
1. The upper reaches of a stream near its sources;
2. The region where ground waters emerge to form a surface stream;
3. The water upstream from a structure.

Hydraulic Control
The hydraulic characteristic which determines the stage-discharge relationship in a conduit. The control is usually critical depth, tailwater depth, or uniform depth.

Hydraulic Grade Line
A line representing the pressure head available at any given point within the system.

Hydraulic Gradient
A hydraulic profile of the piezometric level of the water, representing the sum of the depth of flow and the pressure head. In open channel flow it is the water surface.

Hydraulic Jump
The hydraulic jump is an abrupt rise in the water surface which occurs in an open channel when water flowing at supercritical velocity is retarded by water flowing at subcritical velocity. The transition through the jump results in a marked loss of energy, evidenced by turbulence of the flow within the area of the jump. The hydraulic jump is sometimes used as a means of energy dissipation.

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Hydraulics
A branch of science that deals with practical applications of the mechanics of water movement.

Hydrograph
A graph showing stage, flow, velocity, or other property of water versus time at a given point on a stream or conduit. Examples include: Dimensionless Unit hydrograph, Unit Hydrograph.

Hydrology
The science dealing with the properties, distribution, and circulation of water on and below the Earth's surface and in the atmosphere.

Hyetograph
A histogram or graph of rainfall intensity versus time of storm.

Impervious
A term applied to a material through which water cannot pass, or passes with great difficulty.

Infiltration
1. The entering of water through the interstices or pores of a soil or other porous medium.
2. The entrance of water from the ground into a sewer or drain through breaks, defective joints, or porous walls.
3. The absorption of water by the soil, either as it falls as precipitation, or from a stream flowing over the surface.

Inlet
Inlets are drainage structures used to collect surface water through grate or curb openings and convey it to storm drains or direct outlet to culverts.
Inlets used for the drainage of roadway surfaces can be divided into four major classes:
1. Grate Inlets – These inlets include grate inlets consisting of an opening in the gutter covered by one or more grates, and slotted inlets consisting of a pipe cut along the longitudinal axis with a grate or spacer bars to form slot openings.
2. Curb-Opening Inlets – These inlets are vertical openings in the curb covered by a top slab.
3. Combination Inlets – These inlets usually consist of both a curb-opening inlet and a grate inlet placed in a side-by-side configuration, but the curb opening may be located upstream of the grate.
4. Drop Inlet (Y-Inlet) -A storm drain intake structure typically located in unpaved areas. The inlet may extend above the ground level with openings on one or more sides of the inlet or it may be flush with the ground with a grated cover.

Intensity
As applied to rainfall, a rate usually expressed in inches per hour.

Interception
As applied to hydrology, refers to the process by which precipitation is caught and held by foliage, twigs, and branches of trees, shrubs and buildings, never reaching the surface of the ground, and then lost by evaporation.

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Invert
The floor, bottom, or lowest portion of the internal cross-section of a conduit.

Lag Time
The time difference between two occurrences such as between rainfall and runoff or pumping of a well and effect on the stream. *See* Time of Concentration.

Level of Service
A qualitative measure of traffic flow and congestion, representing quality of service. It describes operational conditions within a traffic stream, generally described in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety.

Lining
Impervious material such as concrete, clay, grass, plastic, puddled earth, etc., placed on the sides and bottom of a ditch, channel, and reservoir to prevent or reduce seepage of water through the sides and bottom and/or to prevent erosion.

Lip
A small wall on the downstream end of an apron to break the flow from the apron.

Major Stream
Waterways with a contributing drainage area of one square mile or more.

Manning's Coefficient
The coefficient of roughness used in Manning's Equation for flow in open channels.

Manning's Equation
A uniform flow equation used to relate velocity, hydraulic radius and the energy gradient slope.

Median
The portion of a divided roadway separating the opposing traffic flows. A median may be traversable or non-traversable.

Median Opening
An opening in a non-traversable median that allows accessing or crossing the opposing traffic lanes.

Minimum building elevation
The elevation to which new and substantially improved structures within the floodway or within ~~two hundred (~~200~~)~~ feet of the floodplain or SFHA are required to be elevated or floodproofed. This elevation would be equal ~~eighteen (~~18~~)~~ inches above the ~~one-hundred~~100-year water surface elevation based on fully developed conditions or ~~thirty (~~30~~)~~ inches above the BFE as indicated in the flood insurance study or, if the BFE is unavailable, ~~thirty (~~30~~)~~ inches above the ~~one-hundred~~100-year flood elevation based on current development watershed conditions.

Model
Mathematical systems analysis by computer, applied to evaluate rainfall-runoff relationships; simulate watershed characteristics, predict flood and reservoir routings, or use other aspects of planning.

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Nappe
The sheet or curtain of water overflowing a weir or dam. When freely overflowing any given structure, it has a well-defined upper and lower surface.

100-year Event
Event (rainfall or flood) that has a 1% chance of being equaled or exceeded in any given year.

Open Channel
A conduit in which water flows with a free surface.

Orifice
1. An opening with closed perimeter, and of regular form in a plate, wall, or partition through which water may flow.
2. The end of a small tube, such as a Pilot tube, piezometer, etc.

Peak Flow (Peak Rate of Runoff)
The maximum rate of runoff during a given runoff event.

Percolation
To pass through a permeable substance such as ground water flowing through an aquifer.

Permeability
The property of a material which permits movement of water through it when saturated and actuated by hydrostatic pressure.

Pervious
Applied to a material through which water passes relatively freely.

Pilot Channel
A constructed pathway that guides base streamflow or runoff along a specified route through a drainage facility or drainage feature.

Porosity
1. An index of the void characteristics of a soil or stratum as pertaining to percolation; degree of perviousness.
2. The ratio, usually expressed as a percentage, of (a) the volume of the interstices in a given quantity of material, to (b) the total volume of the material.

Positive Overflow
When the inlets do not function properly, or when the design capacity of the conduit is exceeded, the excess flow must be conveyed overland along a paved course. This could mean along a street or alley but could require a concrete flume and the dedication of special drainage easements on private property.

Post-development
The condition of the given site and drainage area after the anticipated development has taken place.

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Precipitation
Any moisture that falls from the atmosphere, including snow, sleet, rain and hail.

Pre-development
The condition of the given site and drainage area prior to development.

Probable Maximum Flood
The flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible in the region.

Probable Maximum Precipitation
The critical depth-duration-area rainfall relationship for a given area during the seasons of the year which would result from a storm containing the most critical meteorological conditions considered probable of occurring.

Projected Growth Rate
The estimated growth rate per year for the study area based upon the average growth in the previous 5-year period along arterials in the vicinity of the proposed project.

Proposed Site Traffic Volumes
The number of vehicles per day and per hour projected to be generated by the development.

Rainfall Duration
The length of time over which a single rainfall event occurs.

Rainfall Frequency
The average recurrence interval of rainfall events.

Rainfall Intensity
The rate of accumulation of rainfall, usually in inches or millimeters per hour.

Rational Formula
A traditional method of computing peak flow using intensity of the storm rainfall.

Reach
Any length of river or channel. Usually used to refer to sections which are uniform with respect to discharge, depth, area or slope, or sections between gaging stations.

Recurrence Interval
The average interval of time within which a given event will be equaled or exceeded once. For an annual series (as opposed to a partial duration series) the probability of occurrence in anyone year is the inverse of the recurrence interval. Thus, a flood having a recurrence interval of 100 years has a 1% probability of being equaled or exceeded in any one year.

Regulatory Floodway

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The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

Retention
The storage of a portion or all of the storm runoff for purposes of permanent use of the retained water. Retention facilities are similar to detention facilities with the main difference being that all of the storm runoff will not be released to the downstream drainage network.

Return Period
See Recurrence Interval

Reynold's Number (Re)
A flow parameter which is a measure of the viscous effects on the flow. Typically defined as shown in the equation below:

$$Re = (V. D) / v \qquad \text{[Eqn. 2.2]}$$

Where: V = Velocity
D = Depth
v = kinematic viscosity of the fluid

Riprap (Revetment)
Forms of bank protection, usually using rock or concrete.

Routing
Routing is a technique used to predict the temporal and spatial variations of a flood wave as it traverses a river reach or reservoir. Generally, routing technique may be classified into two categories - hydrologic routing and hydraulic routing.

Right-of-Way
A designated section of- a street, sidewalk, alley, waterway or utility easement and/or related facilities, that is dedicated for municipal usage.

Right-of-Way Width
The shortest horizontal distance between the lines which delineate the right-of-way of a street.

Runoff
That part of the precipitation which reaches a stream, drain, sewer, etc., directly or indirectly.

1. Direct Runoff - The total amount of surface runoff and subsurface storm runoff which reaches stream channels.
2. Overland Runoff - Water flowing over the land surface before it reaches a definite stream channel or body of water.

Runoff Coefficient
A decimal number used in the Rational Formula which defines the runoff characteristics of the drainage area under consideration. It may be applied to an entire drainage basin as a composite representation or it may be applied to a small individual area such as one residential lot.

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Runoff Total
The total volume of flow from a drainage area for a definite period of time such as a day, month, or a year, or it may be for the duration of a ~~par~~ particular ~~ticular~~ storm.

Scour
The erosive action of running water in streams or channels in excavating and carrying away material from the bed and banks.

SCS Runoff Curve Number
Index number used by the National Resource Conservation Service, formerly the Soil Conservation Service, as a measure of the tendency of rainfall to run off into streams rather than evaporate or infiltrate.

Sediment
Material of soil and rock origin transported, carried, or deposited by water.

Sedimentation Basin
A sediment control basin required to catch runoff from common drainage areas with 10 acres or more disturbed at one time during any phase of development that dewaters from the surface unless infeasible.

Sidewalk
A paved area within the street ROW or sidewalk easement specifically designed for pedestrians and/or bicyclists.

Sight Distance
The distance visible to the driver of a passenger vehicle measured along the normal travel path of a roadway from a designated location and to a specified height above the roadway when the view is unobstructed by traffic.

Slope, Critical
The slope or grade of a channel that is exactly equal to the loss of head per foot resulting from flow at a depth that will give uniform flow at critical depth; the minimum slope of a conduit which will produce critical flow.

Slope, Friction
The friction head or loss per unit length of channel or conduit. For uniform flow the friction slope coincides with the energy gradient, but where a distinction is made between energy losses due to bends, expansions, impacts, etc., a distinction must also be made between the friction scope and the energy gradient. The friction slope is equal to the bed or surface slope only for uniform flow in uniform open channels.

Soffit
In a stormwater pipe, the uppermost point of the interior of the pipe wall. The crown is the uppermost point on the outside of the pipe wall.

Spillway
A waterway in or about a dam or other hydraulic structure, for the overflow of excess water.

Standard Details

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A collection of uniform detail drawings of structures or devices adopted as standard construction details by the City of Denton.

Steady Flow
Open channel flow is said to be steady if the depth of flow does not change or if it can be assumed to be constant during the time interval of consideration.

Stormwater Facility Maintenance Agreement or Maintenance Agreement
A legal agreement between the C~~OD~~ity of Denton and a property owner, including HOAs and POAs, for perpetual maintenance of a structural BMP.

Stream
A natural drainageway that conveys stormwater, may also be referred to as a creek. References to a stream or creek in this Manual refer to the entire stormwater carrying component of the stream to the limits of the floodplain, not just to the streambed.

Stilling Basin
Pool of water conventionally used, as part of a drop structure or other structure, to dissipate energy.

Stopping Sight Distance
The distance required by a driver of a vehicle, traveling at a given speed, to bring the vehicle to a stop after an object on the roadway becomes visible. It includes the distance traveled during driver perception time, reaction time, and the vehicle braking distance.

Storage Length
The portion of an auxiliary lane required to store the number of vehicles expected to accumulate in the lane during an average peak period.

Storm Hydrology
The branch of hydrology that concentrates on the calculation of runoff from storm rainfall.

Stormwater Management
The control of storm runoff on-site or on small streams, by means of land use restrictions, detention storage, erosion control, and/or drainage measures.

Stormwater Model
Mathematical representation of a stormwater network.

Study area
The boundaries of the assessment area as determined by the City's Engineer.

Subcritical Flow
The Froude Number is less than 1.0 for subcritical flow conditions.

Supercritical Flow
The Froude Number is greater than 1.0 for supercritical flow conditions.

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Tailwater
The depth of flow in the stream directly downstream of a drainage facility.

Time of Concentration
The estimated time in minutes required for runoff to flow from the most remote section of the drainage area to the point at which the flow is to be determined.

Total Head Line (Energy Line)
A line representing the energy in flowing water. The elevation of the energy line is equal to the elevation of the flow line plus the depth plus the velocity head plus the pressure head.

Traffic Queue
Vehicles within a storage queue awaiting traffic movement in a single lane, within one traffic signal cycle.

Trash Rack
Racks, gratings, or mesh designed so as to prevent leaves and rubbish from plugging the outlets from a dam or detention basin.

Trip Distribution
An estimate of the spatial pattern of trips or other flows between given sets of origins and destination pairs. Trip distribution models connect the trip origins and destination, estimated by the trip generation models to create estimated trips based on the Base year and Buildout years (24 hour counts or turning movement counts). Different trip distribution models are developed for each of the trip purposes for which trip generation has been estimated.

Trunk Line
The main line of a storm drain system extending from manhole to manhole or from manhole to outlet structure.

TxDOT Highways
State-operated highways that include Farm to Market (FM) roadways, State Highways (SH), Interstate Highway (IH), IH Frontage Roads, and United States (US) Highways.

Uniform Channel
A channel with a constant cross-section and roughness.

Uniform Flow
Open channel flow is said to be uniform if the depth of flow is the same at every section of the channel.

Unit Hydrograph
The direct runoff hydrograph resulting from one inch of precipitation excess distributed uniformly over a watershed for a specified duration.

Valley Storage
Refers to the water storage capacity of a stream and is a volume that is measured below the base flood elevation. Restrictions on loss of valley storage refer to compensation for the loss of storage caused by fill below the base flood elevation.

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Velocity Head
The energy per unit weight of water due to its velocity (v). The velocity head also represents the vertical distance water must fall freely under gravity to reach its velocity (v). The velocity head can be computed from the following equation:

$$\text{Velocity Head} = v^2 / 2g \qquad \text{[Eqn. 2.3]}$$

Where: v = velocity
g = acceleration due to gravity (32.2 ft/s^2)

Water Year
The water year commonly used in the United States is the period from October 1 to September 30 of the following calendar year.

Watershed
The area contributing storm runoff to a stream or drainage system. Other terms are drainage area, drainage basin and catchment area.

Zone of Influence
A point downstream where the increased discharge from a proposed development results in 0.00' increase in flood elevation.

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Section 3: Solid Waste Design Criteria

3.1 Overview

The purpose of Section 3 - tSolid Waste Designhis Criteria of this DCM a Manual is to provide basic criteria and standards for the development and maintenance of solid waste and recycling container enclosures.

The Solid Waste Design Criteria established in this Manual shall apply as set forth inhave been developed from a review of:

A. City of Denton Code of Ordinances – Chapter 24,

B. DDC Subchapter 7, Section 7.2 – Applicability, and

C. DDC Subchapter 7, 7.12Section 7.12 – Solid Waste and Recycling Design Standards.

The City Code and of Ordinances require states that tThe City of Denton shall be the exclusive provider of solid waste collection and disposal services within the Cciity Llimits including, but not limited to, services provided for preconstruction activities, construction activities, and ultimately residential, multi-family, and or commercial activities. AllLL contractors and sub-contractors should call the City of Denton Customer Service (940-349-8700) to initiate service. Third-Party solid waste providers mayMAY notNOT be used for any onsite solid waste services within the City Limits. Commercial recycling services may be offered by an appropriately franchised third-party recycling provider provided the C&+D material is truly being diverted for reuse. Recycle boxes containing putrescible (food) waste and or contamination level exceeding 10% MUST be managed by the City of Denton.

3.2 Design Standards

3.2.1 General

A. The design standards and requirements in this Criteria Manual shall apply as set forth in Section 7.2: Applicability and Section 7.12 Solid Waste and Recycling Design Standards of the .

A. Nonresidential on-site solid waste and recycling container enclosures shall be located on each platted lot of non-residential property, and shall be constructed and maintained by the property owner or developer and made available for use by the City of Denton Solid Waste Department or commercial recycling service provider.

B. Nonresidential on-site solid waste and recycling container enclosures shall be available for the storage of all municipal solid waste and recyclables generated for each platted property. The Cciity reserves the ability to determine which, ifwhether any, parcels or areas (e.g.,For example, Downtown Square, strip centers, multi-family residential, etc.) may be recommended formust have shared container service or another alternative service. Container enclosures shall be of adequate size to contain all solid wastes, and liquid wastes, and recyclables generated on the property; which may include, including, but are not limited to, municipal solid waste, recyclables, grease and oils, process by-products and wastes, hazardous waste, medical waste, and any special wastes, contained as necessary to meetin accordance with Chapter 24, City of Denton Code of Ordinances. disposal standards published by the Ccity.

C. The container enclosures shall meet the Container Enclosure and Storage Space Dimensional Requirements be constructed to such capacitys prescribed in Section Section 3.3.2.2 of this Manual,

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as well as Chapter 469 of the Texas Government Code, as amended.

D. New nonresidential uses of 999 square feet ("sq. ft.") or less will be evaluated by C~~c~~ity staff to determine the applicability of constructing an enclosure. Trash and ~~Solid Waste and R~~recycling carts may be appropriate, thereby eliminating the need for construction of an enclosure.

E. ~~The use of C~~cart storage ~~for~~may be utilized on property converted from a residential to non-residential use ~~can be accommodated~~ if the converted property ~~converted~~ is a structure of less than 2,500 gross sq.~~uare~~ ft.~~eet~~, has a waste generation rate applicable for cart service, and is in an area where commercial cart service is available ~~availability of commercial cart service is available in the area.~~

F. Proposed future building expansion (evaluated at 50% or more of the current square footage) and phased development shall be considered in ~~the~~ site design with regards to sizing, location(s), and access of future solid waste and recyclables container enclosures. Solid waste and recycling areas necessary for future building expansion shall be available ~~for development~~, but need not be ~~developed~~utilized, nor container enclosures constructed, until ~~the~~ future building expansion occurs.

G. Containers for solid waste and recycling service shall be screened from the public right-of-way ~~(ROW)~~ ("ROW") ~~(any designated public street, sidewalk, or alley)~~ and from adjacent property owners.

H. Proper construction of the container enclosures shall be completed prior to final ~~acceptance~~ approval of the development or property by the City's Solid Waste Department.

I. Container enclosure designs shall be consistent with the engineering drawings and specifications~~, as~~ shown in ~~the City of Denton's Standard Details. Refer to~~ the Solid Waste and Recycling Container Enclosure Construction Drawings in~~.~~ the City of Denton's Standard Details.

3.2.2 Container Enclosure and Storage Space Dimensional Requirements

A. All single container enclosures shall ~~be a~~have ~~minimum~~ inside walls with dimensions ~~of~~measuring a minumum of 13 feet wide and 1~~0~~1.5 feet deep. The Rear face of the bollard must be three (3) feet from the rear of enclosure and the front of bollard must be eight (8) feet from the front of enclosure, leaving six (6) inches of space equal to~~-~~ the size of the bollard. Only solid waste and recycling containers are allowed in the enclosures. Other storage containers such as grease and oil receptacles, and other items shall be stored and located in a different enclosure. These enclosures shall be located where they will not impede the service of the solid waste and/or recycling containers.

B. All dual container enclosures shall ~~be~~ have inside walls ~~a minimum inside wall~~with dimensions measuring ~~of~~ 26 feet wide and 1~~0~~1.5 feet deep. The Rear face of the bollard must be three (3) feet from the rear of the enclosure and the front of bollard must be eight (8) feet from front of enclosure, leaving six (6) inches of space equal to~~-~~ the size of the bollard. Only solid waste and recycling containers are allowed in the enclosures. Other storage containers such as grease and oil receptacles, and other items shall be stored and located in a different enclosure. These enclosures shall be located where they will not impede the service of the solid waste and/or recycling containers.

C. All roll-off compactor enclosures shall have ~~be a~~ ~~minimum~~ inside walls with ~~-~~dimensions ~~of~~ measuring a minimum of 16 feet wide. ~~with the~~The depth of inside walls ~~to be determined by~~must accomodate the compactor size selected.

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D. ~~Refer to the~~The City of Denton's Standard Details contain the required ~~for~~ construction specifications for container enclosures ~~.~~and storage spaces.

E. All developments shall be required to install container enclosures as specified in Table 3.2-A ~~Table 3.2-A below~~.

F. Nonresidential uses which ~~are not specifically listed in the~~are not required to meet the above storage space and enclosure requirements, will be reviewed for adequate solid waste and recyclables enclosures based on site-specific information and the following Solid Waste and Recycling Design Factors:

1. Type of business; ~~and~~
~~1.~~2. W~~w~~aste generation potential;~~;~~
~~2.~~3. Waste generation of similar businesses;~~;~~
4. Square footage of the development and structures; ~~and the~~
~~3.~~5. N~~n~~umber of floors;
~~4.~~6. Location of the business;~~;~~
~~5.~~7. Hours of business operation;~~;~~
~~6.~~8. Business site plan;~~;~~ and
~~7.~~9. Phased development and future use plans.

Table 3.2-A: Minimum Container Enclosure Requirements

Development Use	Required Enclosure(s) or Container(s)
RESIDENTIAL ~~MULTIFAMILY DWELLING~~	
~~1 – 48 units~~Single-family	~~2 single enclosures or 1 dual enclosure~~Residential curbside cart pick-up
Townhomes – 4 units and fewer	
~~49 – 64 units~~	~~1 single enclosure and 1 dual enclosure or 3 single enclosures~~
~~65 – 200 units~~	~~4 single enclosures or 2 dual enclosures or 2 roll-off compactor enclosure~~
~~GENERAL OFFICE~~RESIDENTIAL - MULTIFAMILY	
~~1,000 – 10,000 sq. ft~~	~~1 single enclosure~~
~~10,001 – 25,000 sq. ft~~	~~2 single enclosures or 1 dual enclosure~~
5 – 48 units~~25,001 – 50,000 sq. ft~~	2 front-load containers enclosed~~2 single enclosures or 1 dual enclosure~~
49 – 64 units	3 front-load containers enclosed
65 – 200 units	1 compactor and 1 front-load container for recycling or 4 front-load containers enclosed
200+ units~~50,001 – 100,000 sq. ft~~	1 compactor and 1 front-load containers enclosed~~1 single enclosure and 1 dual enclosure or 3 single enclosures or 4 single enclosures or 2 dual enclosures or 1 roll-off compactor enclosure~~
GENERAL COMMERCIAL~~, WAREHOUSING, INDOOR RECREATION~~	

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1,000 – 15,000 sq. ft.	2 front-load containers enclosed1 single enclosure
5,001 – 15,000 sq. ft	2 single enclosures or 1 dual enclosure
15,001 – 50,000 sq. ft.	1 dual enclosure or 2 single enclosures or 3 single front-load containers enclosedures
50,001 – 200,000 sq. ft.	1 compactor and 1 front-load container for recycling or 4 front-load containers enclosed
50,001 –Over 1200,000 sq. ft.	1 single enclosure and 1 dual enclosure or 3 single enclosures or 2 dual enclosures or 4 single enclosures or 1 roll-off compactor enclosure and 1 front-load container enclosed
SHOPPING CENTER, MIXED-USE, LIGHT MANUFACTURING	
1,000 – 2,500 sq. ft	1 single enclosure
2,501 – 10,000 sq. ft	2 single enclosures or 1 dual enclosure
10,001 – 50,000 sq. ft	1 single enclosure and 1 dual enclosure or 3 single enclosures
50,001 – 100,000 sq. ft	1 single enclosure and 1 dual enclosure or 4 single enclosures or 2 dual enclosures or 1 roll-off compactor enclosure
100,001 – 200,000 sq. ft	4 single enclosures or 2 dual enclosures or 2 roll-off compactor enclosures
RESTAURANT, BARS, GRILLS, GROCERY STORES, MOVIE THEATERS, AND OTHER FOOD SERVICE ESTABLISHMENTS	
1,000 – 2,500 sq. ft	1 single enclosure
2,501 – 7,500 sq. ft	2 single enclosures or 1 dual enclosure
7,501 – 15,000 sq. ft	1 single enclosure and 1 dual enclosure or 3 single enclosures or 1 roll-off compactor enclosure
DEPARTMENT STORE, SUPERMARKET, SERVICE STATION	
1,000 – 5,000 sq. ft	1 single enclosure
5.001 – 25,000 sq. ft	2 single enclosures or 1 dual enclosure
25,001 – 50,000 sq. ft	1 single enclosure and 1 dual enclosure or 3 single enclosures or 1 roll-off compactor enclosure+1single enclosure

Notes:50,001 – 100,000 sq. ft
[1] For industrial/warehouse development, container(s) do not require enclosures, but container(s) must be screened from public view. 1 single enclosure

3.2.3 Container Enclosure Design Requirements

A. Materials used for container enclosure construction shall be compatible with the main building architecture and appearance of the main building and may include the following materials:

1. Concrete Block – Tinted, colored, painted, or with textured facing;
2. Concrete – Poured or tilt wall construction;
3. Brick - Double brick thickness minimum;
4. Stone;
5. Metal;
6. Wood;
7. Vinyl;
8. Composite Material; or

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9. ~~Combinations of the above materials~~Any combination of materials 1-8.

B. Front-~~-~~load enclosures shall have walls constructed to a minimum height of six (6) feet~~-foot height~~, or as tall as required to conceal the container. Compactor enclosure walls ~~are required to~~must be~~construction~~ a minimum height of eight (8) feet~~, in height~~ in order to conceal the compactor and mechanical equipment.

C. Gates shall be required when the interior of the enclosure is visible from the public ~~right-of-way~~ROW ~~(any designated public street, sidewalk, or alley)~~ or~~and~~ when it is visible from the lot of an adjacent property owner~~s~~.

D. Personal access side gates are recommended as a feature of all gated enclosures. These ~~doors/~~gates should be fitted with emergency egress strike bars.

3.2.4 Enclosure Access, Placement, Ingress, and Egress Requirements

A. The required number of enclosures ~~needed depends~~will be determined based ~~-~~on the type and size of the development.

B. Dumpster enclosures ~~are to be~~must be angled no more than 30 degrees from the center line of the solid waste collection vehicle route.

C. There must~~Must~~ be~~provide~~ 50 feet or more of unobstructed truck access in front of each container.

D. For safety purposes, solid waste collection vehicles will not back up more than 100 feet after servicing a container and will not make any turns while backing up.

E. Turn Radii Requirements: The turn radii must be a minimum of 30 feet for any intersection to accommodate occasional turning trucks for weekly pick-up.

F. The collection vehicle ~~shall~~will travel through a site once without backtracking. For an example of ~~f~~ a typical solid waste collection route. t~~T~~ake note of the Typical Solid Waste Collection Route Schematic ~~Solid waste collection route~~ shown in Figure 3.1 below. ~~The collection vehicle shall travel through a site once without backtracking.~~

~~E. Enclosure access requirements shall be in compliance with the requirements of Chapter 469 of the Texas Government Code as amended and the as amended.~~

~~F.~~G. Container enclosures shall not be located in a fire lane, public ~~right-of-way~~ROW, public utility easements, or sidewalk area.

H. No solid waste container enclosure shall be located within the required front yard or protrude in front of any buildings along the designated lot frontage.

~~G.~~I. ~~-~~Parking spaces shall begin after enclosure gates open. No obstructions permitted around enclosure or gate openings equivalent to the length of gate.

~~H.~~J. The location of container enclosures may not cause the obstruction of traffic for excessive lengths of time while being serviced.

~~I.~~K. The solid waste service truck shall be on the property owner's property during service operations, if the site design permits.

~~J.~~L. Ingress and egress routes shall be designed to facilitate exiting the property in a forward driving direction for all interstate and state roads, arterial streets, and collector streets with four lanes. *See* the Backing Clearance Schematic ~~figures and notes for Solid Waste collection routes~~ in Figure 3.2

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below.~~on the next page.~~

~~K.~~M. Utility wires and structure overhangs should have a minimum height clearance of 20 feet along the ingress and egress route. No utility wires shall extend over the enclosure approach and service area.

N. ~~Dead end streets, which are planned for extension in future development phases, will have sufficient all weather turn around areas for Class 7 trucks constructed of a suitable road base material.~~Container enclosures shall be located a minimum of 30 feet away from any storm drain or drainage flow areas. Where site configuration allows, container enclosures shall also be placed downslope of any storm drain.

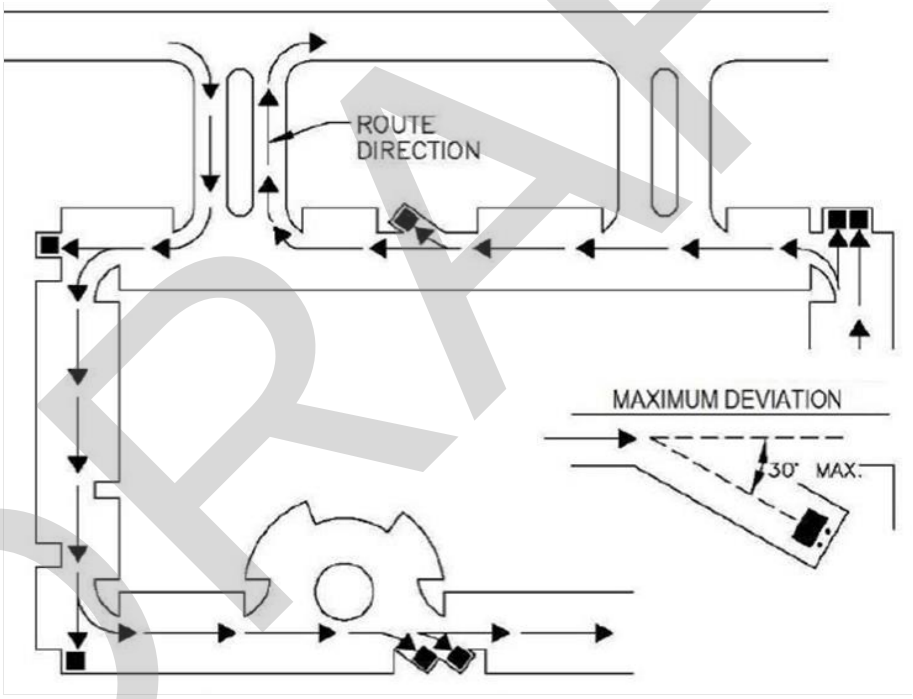

Figure 3.1~~3.13.1~~ Typical Solid Waste Collection Route Schematic

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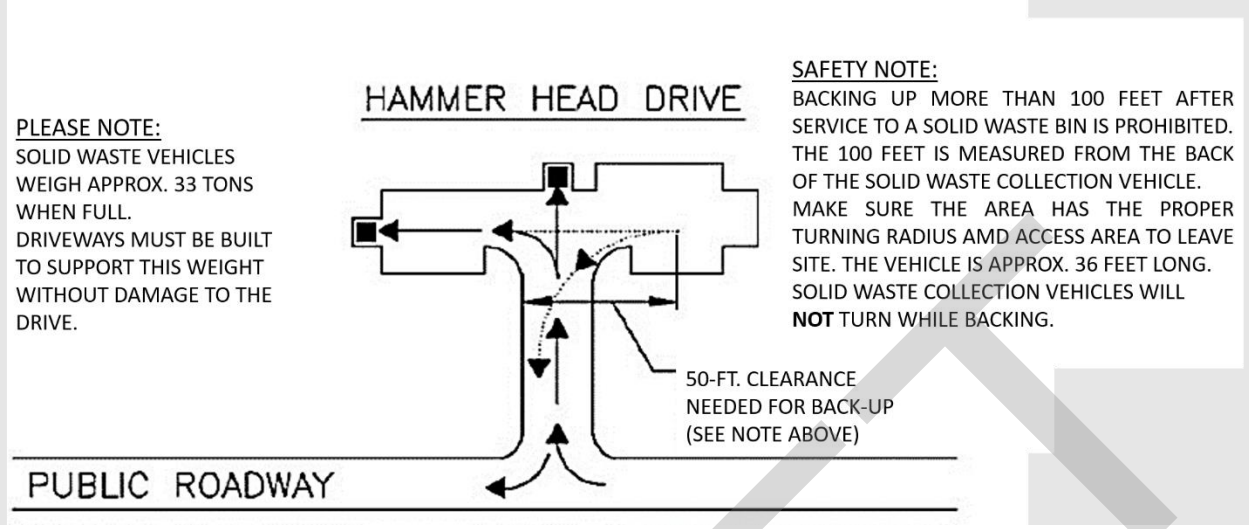

Figure 3.2~~3.23.2~~ Backing Clearance Schematic

3.2.5 Alleyway Access

An alley (residential or commercial) is a private street designed to provide fire and solid waste collection access to the rear of or side of a lot, ~~including solid waste and fire access~~. Dead-ends are not permitted in ~~for~~ alleys. Alleys used for solid waste collection must comply with the ~~Section 5:~~ Transportation Design Criteria in Section 5 of this Manual ~~of this Manual~~.~~All alleys shall have at least two direct access point to public streets and are subject to the block length criteria.~~ Alleyway access must comply with the following criteria:

A. Design Factors:
   1. Turn Radius;
   2. Street Widths;
   3. Horizontal and Vertical Clearances;
   4. Pavement; and
   5. Multifamily Units

B. Turn Radii Requirements: Texas Department of Transportation (TxDOT) recommends, via AASHTO, that the turn radii be a minimum of 30 feet for alley-~~-~~to-~~-~~alley intersections with occasional turning trucks~~,~~ for weekly trash pick-up per TCEQ regulations. Turn radii must be s~~S~~ufficient for side-~~-~~load residential collection vehicles to navigate alleyways ~~ways~~ lined with trash and recycle carts on both sides. *See* Figure 3.3 below.

C. Alley Width Requirements: Alleys must be paved and a m~~M~~inimum of 15-~~-~~f~~eet~~. wide. ~~paved alley required for collection operations.~~ Additionally, ~~ensure alley width allow~~alleys must be wide enough~~s space for cart set-out~~to accommodate carts, to allow ~~As required for~~ vehicles to safely service carts, and to comply with the ~~accommodates~~ing trucks~~,~~, ~~and space for cart set-out. In accordance with the Transportation Criteria Manual~~ Transportation Design Criteria in Section 5 of this Manual.

D. Horizontal and Vertical Clearance Requirements: Balconies, landscaping, ~~o~~ or~~r~~ other elements shall

not encroach into approved horizontal or vertical clearances for vehicle travel, backing, -loading, or other operations along any alley~~ way~~.

E. The horizontal operating travel clearance ~~is~~ must be 20 feet.

F. The vertical operating travel clearance must be~~is~~ 15 feet.

~~G.~~ Pavement Requirements: ~~Build~~ Pavement must be built to~~to~~ standards ~~suitable for~~that allow two (2) 33-ton vehicles to travel~~ing~~ down all alley~~ way~~s twice~~,~~ each service day. Alternatively, a responsible party, HOA, or POA ~~to~~ must provide a waiver ~~(~~recorded with the property~~)~~ for potential damage caused over time by normal hauler operations.

G.

H. Multifamily Unit Requirements: ~~For the purposes of solid waste alley way requirements,~~ A~~a~~ny attached residential arrangement of five (5) or more dwelling units per lot will fall under the Commercial Business Category as defined by City of Denton Code of Ordinances 24-2 Definitions (Commercial), which requires~~ requiring~~ a solid waste and recycling storage facility (container enclosure). *See* the Site Plan Criteria for Municipal Solid Waste & Recyclables Storage & Enclosure Requirements in the City of Denton Standard Details.

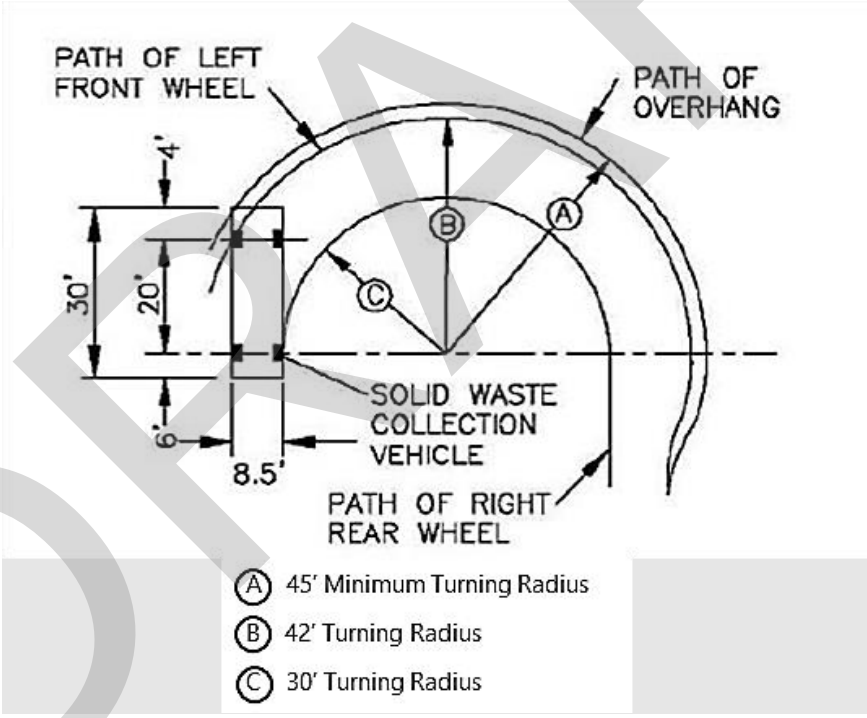

Figure 3.3~~3.33.3~~ Solid Waste Collection Vehicle Turn Radius Schematic

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Section 4: Stormwater Design Criteria

4.1 Overview

The purpose of Section 4 - Stormwater Design Criteria of this DCM ~~the Stormwater Design Criteria Manual~~ is to establish standard principles and practices for the design and construction of storm drainage systems, to implement the policies set forth in the DDC and the City of Denton Code of Ordinances, Subpart B, Chapter 30 (Denton Flood Prevention and Protection Ordinance) within the City of Denton, Texas~~,~~ and its extraterritorial jurisdiction.

The following ~~technical~~ documents govern the design and construction of stormwater drainage systems:

A. City of Denton Code of Ordinances, ~~City of Denton Code of Ordinances, Chapter 30 Flood Prevention and Protection~~Chapter 30, Flood Prevention and Protection;~~,~~

B. DDC Subchapter 7.4 – Environmentally Sensitive Areas;~~,~~

C. DDC Subchapter 7.5 – Drainage Standards;~~,~~

D. *i*SWM™ Planning Technical Manual Document;~~,~~

E. *i*SWM™ Water Quality Technical Manual Document;~~,~~

F. *i*SWM™ Hydrology Technical Manual Document;~~,~~

G. *i*swm™ Hydraulics Technical Manual Document;

H. *i*SWM™ Site Development Controls Technical Manual Document;~~,~~

I. *i*SWM™ Construction Controls Technical Manual Document;~~,~~

J. *i*SWM™ Construction Control Standard Details Technical Manual Document;~~,~~ and

K. *i*SWM™ Landscape Technical Manual Document.

The design factors, formulae, graphs, and procedures specified in this document are intended for use as minimum engineering criteria for the design of drainage systems with regards to the quantity, rate of flow, method of collection, storage, conveyance, detention, and disposal of storm water***. Responsibility for actual design remains with the design engineer. Users of this Manual should be knowledgeable and experienced in the theory and application of drainage engineering.***

The stormwater criteria contained in this Manual ~~DOES~~ supersede any design criteria contained in the *i*SWM™ Planning, Water Quality, Hydraulics, and Hydrology Technical Manual Documents. The stormwater design criteria contained in this Manual ***do not*** supersede the criteria contained in the DDC or Chapter 30 of the City of Denton Code of Ordinances. ~~Denton Municipal Code and any~~ Any revisions to the DDC~~those documents~~ or Chapter 30 of the City of Denton Code of Ordinances ~~-~~shall supersede the criteria in this Manual. In case of any conflict, the more stringent requirement shall apply.

~~The stormwater criteria contained in this manual DOES supersede any design criteria contained in the *i*SWM™ Planning, Water Quality, Hydraulics, and Hydrology Technical Manual Documents.~~

The requirements of this M~~m~~anual shall apply to all public facilities~~,~~ and to private facilities when the performance of such private facility has an effect on the public interest, health, or welfare.

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4.1.0 Organization

Section 4 - Stormwater Design Criteria is categorized as follows:

A. Overview

B. Design Focus

C. Design Storms

D. Hydrologic Methods

E. Acceptable Downstream Conditions for Open Channels and Floodplains

F. Stormwater System Design

G. Culverts

H. Bridges

I. Detention Facilities

J. Energy Dissipation

K. Recommended Energy Dissipater for outlet protection

A. Concrete or grouted rock riprap apron

B. Riprap outlet basins

C. Baffled outlets

D. Grade Control Structures

Design guidance is provided in Section 4.0 of the *iSWMTM* Hydraulics Technical Manual.

~~K.~~E. Floodplain

~~L.~~F. Drainage and Floodplain Easements

~~M.~~G. Water Quality

~~N.~~H. Stormwater Facility Maintenance Agreements

4.2 Design Focus

The design criteria for stormwater management primarily focus on:

4.2.1 Streambank Protection - Regulate discharge from the site to minimize downstream bank and channel erosion;~~.~~

4.2.2 Flood Mitigation and Conveyance - Control runoff within and from the site to minimize flood risk to people and properties for the conveyance storm ~~as well as~~and the 1% ~~percent~~ chance storm; and~~.~~

~~4.2.2~~4.2.3 Water Quality ~~-~~ Reduce pollutants from stormwater by either infiltrating the water quality volume, or removing 80% of TSS from any *"W~~w~~ater Q~~q~~uality"* storm event discharge.

4.3 Design Storms

Design is typically based on four (4) storm events, as detailed in Table 4.3-A.

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Table 4.3-A: Design Storm Events

Storm Event Name	Storm Event Description
"Water Quality"	Criteria based on a volume of 1.5 inches of rainfall, not ~~a~~ storm frequency
"Streambank Protection"	1-year, 24-hour storm event
"Conveyance"	25-year, 24-hour storm event
"Flood Mitigation"	100-year, 24-hour storm event

Notes:
[1] Throughout the manual, the storms will be referred to by their storm event names.

Drainage facilities shall be designed utilizing the "*Flood Mitigation*" storm event. Replacement or modification of existing drainage facilities shall not reduce capacity, but such ~~but~~ facility replacements or modifications may be designed according to the requirements of the specific project and may utilize the "*Conveyance*" storm as the design storm event, through an approved design deviation request~~as directedupon approval by the City's EngineerEngineer or designee~~.

4.4 Hydrologic Methods

4.4.1 Types of Hydrologic Methods

~~There are several empirical hydrologic methods available to estimate runoff characteristics for a site or drainage sub basin. However, the~~The following empirical hydrologic methods ~~have been selected to~~ support hydrologic site analysis for the design methods and procedures included in this M~~m~~anual:

A. Rational Method;

B. SCS Unit Hydrograph Method;

C. Modified Rational Method;

D. Snyder's Unit Hydrograph Method; and

E. USGS & T~~X~~xDOT Regression Equations

Table 4.4-A lists the hydrologic methods and the circumstances ~~for their use~~when they may be used in various analysis and design applications. ~~–~~Table 4.4-B provides some additional ~~limitations~~ constraints on the use of several methods.

~~The Rational Method is acceptable for small, highly impervious drainage areas, such as parking lots and roadways draining into inlets and gutters.~~

~~The U.S. Geological Survey (USGS) and Texas Department of Transportation (TXDOT) regression equations are acceptable for drainage areas with characteristics within the ranges given for the equations shown in Table 4.4-B. These equations should not be used when there are significant storage areas within the drainage basin or where other drainage characteristics indicate general regression equations are not appropriate.~~

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Table 4.4-A: Applications of the ~~Recommended~~ Hydrologic Methods

Method	Rational Method	SCS Method	Modified Rational	Snyder's Unit Hydrograph Method	USGS ~~&/~~ T~~x~~DOT Equations
Streambank Protection Volume (SP_V)		✓		✓	
Flood Mitigation Discharge (Q_f)		✓		✓	✓
Storage Facilities		✓	✓	✓	
Outlet Structures		✓		✓	
Gutter Flow and Inlets	✓	✓			
Storm Drain Pipes	✓	✓		✓	
Culverts	✓	✓		✓	✓
Bridges		✓		✓	
Small Ditches	✓	✓		✓	
Open Channels	✓	✓		✓	✓

Table 4.4-B: Constraints on Using ~~Recommended~~ Hydrologic Methods

Method	Size Limitations [1]	Used for Estimating
Rational [2]	0 – 100 acres	Peak flows and design of small site or subdivision storm sewer systems.
Modified Rational [3~~2~~]	0 – 200 acres	Runoff volumes for storage design.
Unit Hydrograph (SCS) [4~~3~~]	Any Size	Peak flows and hydrographs for all design applications.
Unit Hydrograph (Snyder's) [5~~4~~]	1 acre and larger	Peak flows and hydrographs for all design applications.
T~~X~~xDOT Regression Equations [6]	10 ~~to~~ – 100 sq. mi.~~mi²~~	Peak flows for rural design applications.
USGS Regression Equations [6]	3 – 40 sq. mi.~~mi²~~	Peak flows for urban design applications.

Notes:
[1] Size limitation refers to the drainage basin for the stormwater management facility (e.g., culvert, inlet).
[2] Acceptable for small, highly impervious drainage areas, such as parking lots and roadways draining into inlets and gutters.
[3] U~~Where the Modified Rational Method is u~~sed for conceptualizing~~;~~, the engineer of record must use ~~the~~ *i*SWM™ Hydrology Technical Manual Document when using this method.
[~~3~~4] R~~This r~~efers to SCS routing methodology included in many readily-available programs (such as HEC-HMS or HEC-1) ~~that utilize this methodology~~which utilize it.
[~~5~~4] R~~This r~~efers to ~~the~~ Snyder's methodology included in many readily-available programs (such as HEC-HMS or HEC-1) ~~that utilize this methodology~~which utilize it.
[6] The USGS and TxDOT equations should not be used when there are significant storage areas within the drainage basin or where other drainage characteristics indicate general regression equations are not appropriate.

4.4.2 Rainfall Estimation

Rainfall intensities, provided ~~from~~in Table 5.3 of the iSWM™ Hydrology Technical Manual, are based on Atlas 14 and shall be used for all hydrologic analysis within Denton ~~County~~ County.~~.~~

~~https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=tx~~

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4.5 Acceptable Downstream Conditions for Open Channels and Floodplains

Storm water discharge from a development shall not cause adverse impacts to adjacent, upstream, or downstream properties or facilities. The design of a storm drain facility must account for the offsite flows that are routed through the development, flows generated by the development, and the impacts of the development and the drainage system on downstream facilities.

4.5.1 Downstream Assessments

The downstream impacts of development must be carefully evaluated for the two (2) focus areas of Streambank Protection and Flood Mitigation (*S~~s~~ee* Section 4.2 of this Manual~~.~~). —The purpose of the downstream assessment is to protect downstream properties from increased flooding and downstream channels from increased erosion potential due to upstream development. The importance of the downstream assessment is particularly evident for larger sites or developments that have the potential to dramatically impact downstream areas. The cumulative effect of smaller sites, however, can be just as dramatic and, as such, following the Focus Areas is just as important for the smaller sites as it is for the larger sites.

A downstream assessment will be required for all developments which alter flow patterns or increase the amount of impervious surface and do not limit the peak discharge to pre-development conditions at each outfall from their site. The assessment shall extend from the outfall of a proposed development to a point downstream where there is no calculated increase in WSEL (water surface elevation) or mean velocity within the ~~ the discharge from a proposed development no longer has a significant impact, in terms of flooding increase or velocity above allowable, on the~~ receiving stream or storm drainage system. The City shall be consulted to obtain records and maps related to the National Flood Insurance Program (NFIP) and the availability of Flood Insurance Studies (FIS) and Flood Insurance Rate Maps (FIRMs) which will be helpful in this assessment. The assessment must include the following properties:

A. Hydrologic analysis of the pre- and post-development on-site conditions.
B. Drainage path that defines extent of the analysis.
C. Capacity analysis of all existing constraint points along the drainage path, such as existing floodplain developments, underground storm drainage systems culverts, bridges, tributary confluences, or channels.
D. Offsite undeveloped areas are considered as "fully developed ~~build-out~~" for both the pre- and post-development analyses.
E. Evaluation of peak discharges and velocities for three (3) 24-hour storm events:
   1. "*Streambank protection*" storm
   2. "*Conveyance*" storm
   3. "*Flood ~~m~~Mitigation*" storm
F. Separate analysis for each major outfall from the proposed development.

Once the analysis is complete, the designer must answer the following questions at each determined junction downstream:

A. Are the post-development discharges greater than the pre-development discharges?
B. Are the post-development velocities greater than the pre-development velocities?
C. Are the post-development velocities greater than the velocities allowed for the receiving system?
D. Are there any increases in post-development flood heights above the pre-development flood heights?

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These questions shall be answered for each of the three (3) storm events. The answers to these questions will determine the necessity, type, and size of non-structural and structural controls to be placed on-site or downstream of the proposed development.

Section 2.0 of the iSWM™ Hydrology Technical Manual ~~*Document*~~ , as amended, gives additional guidance on calculating the discharges and velocities, as well as determining the downstream extent of the assessment.

4.5.2 Adverse Impacts

Downstream Assessments shall evaluate the capacity of the downstream system within the Zone of Influence (ZOI). If the downstream system has less than fully developed capacity, the study shall demonstrate the development will produce no adverse impacts during the one (1), 25, and 100-year storm events. No adverse impacts may include, but are not limited to:

A. No new or increased flooding of existing structures;~~.~~

B. Zero increases (0.00') in water surface elevations unless contained within the banks of an existing channel including 1-ft. freeboard. Dry lane requirements set forth in Section 4.6.2 shall also be met;~~.~~

C. Increasing channel velocity is prohibited where existing velocities are erosive. Any increase in channel velocity in other areas must remain below the maximum allowable velocity as defined in Table 4.6-E;~~.~~

D. No increases in downstream discharges caused by the proposed development that, in combination with off-~~-~~site discharges, exceeds the existing capacity of the downstream storm drainage system;~~.~~

E. The *Downstream Assessment* shall extend to a point downstream, known as the ZOI, where the proposed development creates no adverse impacts. The ZOI will be defined by a detailed hydrologic and hydraulic modeling analysis. The City's Engineer may require analysis beyond the ZOI established by the Engineer of Record based on the criteria above and known flooding issues. ~~-~~ZOI does not automatically end based the rule of thumb known as the "10% rule"; and~~.~~

F. If the subject development is part of a larger development, the *Downstream Assessment* must include the larger development, and the ZOI shall be determined based on the entire property.

4.5.3 Stormwater Diversions

Diversion of storm water away from the natural watercourse or existing discharge points will not be allowed, except within the property boundaries controlled by the developer under the following conditions:

A. The storm water is returned to its natural flowing watercourse prior to leaving the developer's property,~~;~~ or

~~F.~~B. A timing analysis of the existing and diverted hydrograph must be performed to confirm that the peak flow rate has not been increased at the point that it reenters the watercourse, as a result of the diversion. The City's Engineer ~~Engineer or designee~~ may require additional downstream analysis if there are known downstream flooding or volume ~~-~~-sensitive areas.

~~4.5.1~~4.5.4 Streambank Protection

There are two (2) options by which a developer can provide adequate streambank protection downstream of a proposed development. The first step is to perform the required downstream assessment as described

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earlier in Section 4.5.1~~.1~~ ~~.~~of this Manual. If it is determined that the proposed project does not exceed acceptable downstream velocities or the downstream conditions are improved to adequately handle the increased velocity, then no additional streambank protection is required. ~~If on-site or downstream improvements are required for streambank protection, easements or right-of-entry agreements will need to be obtained in accordance with of this manual.~~ If the downstream assessment shows that the velocities are within acceptable limits, then no streambank protection is required. Acceptable limits for velocity control are provided in Table 4.6-D and Table 4.6-E~~Tables 4.7-E and 4.7-F~~ of this ~~m~~Manual. If existing stream velocities exceed the maximum allowable velocities, then no increase in velocities will be permitted. If the downstream assessment shows an increase in velocity beyond the acceptable limits, then on-site or downstream improvements are required for streambank protection, easements or right-of-entry agreements will need to be obtained in accordance with Section 4.12~~3~~ of this Manual, and one of the two options below must be utilized for streambank protection. ~~If the downstream assessment shows that the velocities are within acceptable limits, then no streambank protection is required. Acceptable limits for velocity control are provided in Table 4.6-E and Table 4.6-FTables 4.7-E and 4.7-F of this manual. If existing stream velocities exceed the maximum allowable velocities, then no increase in velocities will be permitted.~~

Option 1: Reinforce/Stabilize Downstream Conditions

If the increased velocities are greater than the allowable velocity of the downstream receiving system, then the developer must reinforce/stabilize the downstream conveyance system. The proposed modifications must be designed so that the downstream system is protected from the post-development velocities. The developer must provide supporting calculations and/or documentation that the downstream velocities do not exceed the allowable range once the downstream modifications are installed.

Allowable bank protection methods include stone riprap, gabions, and bio-engineered methods. Sections 3.2 and 4.0 of the *i*SWM™ Hydraulics Technical Manual give design guidance for designing stone riprap for open channels, culvert outfall protection, riprap aprons for erosion protection at outfalls, and riprap basins for energy dissipation.

If the downstream receiving system is designated as an Environmentally Sensitive Area (ESA) this option may not be a viable option. *See* S~~s~~ection~~s 9.2 and~~ 7.4 of the ~~Denton Development Code~~DDC for more information about the various types of ESAs, permitted encroachments, and processes for assessing and modifying ESAs.~~.~~

Option 2: Install Stormwater Controls to Maintain Existing Downstream Conditions

The developer must use on-site controls to keep downstream post-development discharges at or below allowable velocity limits. The developer must provide supporting calculations and/or documentation that the on-site controls will be designed such that downstream velocities for the three (3) storm events (*"Streambank Protection"*, *"Conveyance"*, and *"Flood Mitigation"*) are within an allowable range once the controls are installed.

~~4.5.2~~4.5.5 Flood Mitigation

A. Introduction

Flood analysis is based on the *"F~~f~~lood M~~m~~itigation"* storm event (see Table 4.3-A ~~Table 4.4-A~~). The intent of the flood mitigation criteria is to provide for public safety; minimize on-site and downstream flood impacts from the *"Flood Mitigation"* ~~flood mitigation~~ storm event; maintain the boundaries of the mapped 100-year floodplain; and protect the physical integrity of the on-site stormwater controls and the downstream stormwater and flood mitigation facilities.

Flood mitigation must be provided for on-site conveyance systems, as well as downstream outfalls as described in the following sections.

B. Flood Mitigation Design Options

There are three (3) options by which a developer may address downstream flood mitigation as discussed below. When on-site or downstream modifications are required for downstream flood mitigation, easements or right-of-entry agreements will need to be obtained.

The developer will provide all supporting calculations and/or documentation to show that the existing downstream conveyance system has capacity (Q_f) to safely pass the fully-developed ~~build-out~~ flood mitigation storm discharge.

Option 1: Provide or Document Adequate Downstream Conveyance Systems

When the downstream receiving system does not have adequate capacity, then the developer shall provide modifications to the off-site, downstream conveyance system. If this option is chosen, the proposed modifications must be designed to adequately convey the full build-out stormwater peak discharges for the *"F~~f~~lood M~~m~~itigation"* storm event. The modifications must also extend to the point at which the discharge from the proposed development no longer has an impact on the receiving stream or storm drainage system.

The developer must provide supporting calculations and/or documentation that the downstream peak discharges are safely conveyed by the proposed system, without endangering downstream properties, structures, bridges, roadways, or other facilities, and no increase in water surface elevation.

Option 2: Install Stormwater Controls to Maintain Existing Downstream Conditions

When the downstream receiving system does not have adequate capacity, then the developer shall provide stormwater controls to reduce downstream flood impacts. These controls include on-site controls such as detention, regional controls, and, as a last resort, local flood protection such as levees, floodwalls, floodproofing, etc.

The developer must provide supporting calculations and/or documentation for each existing discharge point indicating that the controls will be designed and constructed so that there is no increase in downstream peak discharges or water surface elevations due to development ~~for each existing discharge point~~.

Option 3: In lieu of a Downstream Assessment, Maintain Existing On-Site Runoff Conditions

Lastly with Option 3, on-site controls shall be used to maintain the pre-development peak discharges for each existing discharge point from the site. –The developer must provide supporting calculations and/or documentation that the on-site controls will be designed and constructed to maintain on-site existing conditions.

It is important to note that Option 3 may not require a downstream assessment. It is a detention-based approach to addressing downstream flood mitigation after the application of the integrated site design practices. However, a downstream assessment may be required for sites adjacent to or near streams in which delayed release of flows from detention facilities could potentially increase the peak flow in the stream due to coincident peaks. This assessment of the impact of coincident peaks is required for all sites with a contributing drainage area greater than or equal to ~~ten percent (~~10%~~)~~ of the stream drainage area at the subject discharge point.

4.6 Stormwater System Design

4.6.1 Introduction

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Stormwater system design is an integral component of both site and overall stormwater management design. Good drainage design must strive to maintain compatibility and minimize interference with existing drainage patterns; control flooding of property, structures, and roadways for design flood events; and minimize the potential environmental impacts of~~n~~ stormwater runoff.

Stormwater collection systems must be designed to provide adequate surface drainage while at the same time meeting other stormwater management goals such as water quality, streambank protection, habitat protection, and flood mitigation. Fully developed watershed conditions shall be used for determining runoff for the *"Flood Mitigation"* ~~'flood mitigation'~~ storm event.

4.6.2 Hydraulic Design Criteria for Streets and Closed Conduits

A. Introduction

This section is intended to provide criteria and guidance for the design of on-site flood mitigation system components including:

1. Street and roadway gutters;~~,~~
2. Stormwater inlets;~~,~~
3. Storm drainpipe systems;~~,~~ and
4. Parking lot sheet flow.

B. Streets and ROW

1. Design Criteria
   a. Flow spread limits for curbed streets are shown in Table 4.6~~7~~-A below.
   b. Inverted crown sections are permitted only in alleys.
   c. Street crowns shall be reduced for approximately ~~one hundred (~~100~~)~~ feet on each side of the valley gutters. No valley gutters will be permitted across collectors or arterials.
   d. For non-curbed streets the *"Flood Mitigation"* ~~flood mitigation~~ storm event shall be contained within paralleling roadside ditches, within the public ~~right-of-way~~ROW (Figure 4.1 below). ~~1).~~
   e. Roadside ditches shall be designed to carry the *"F~~f~~lood ~~-m~~Mitigation"* runoff below the roadway elevation.
   f. Streets or alleys adjacent to an open channel shall have the edge of the pavement designed with a minimum ~~n~~ elevation of ~~minimum of~~ one (1) foot above the *"Flood Mitigation"* elevation or as directed by the City's Engineer~~Engineer or designee~~.
   g. Where additional hydraulic capacity is required on the street, the proposed street gradient must be increased, or curb inlets and storm sewers installed to remove a portion of the flow.
   h. The maximum concentrated flow directed into the street (from a driveway or flume, etc.) is three (3) cubic feet per second (cfs).
2. Flow Spread Limits
   a. Inlets shall be spaced so that the spread of flow in the street for the *"Flood Mitigation"* ~~flood mitigation~~ storm shall not exceed the guidelines listed below in Table 4.6-A, as measured from the gutter or face of the curb:

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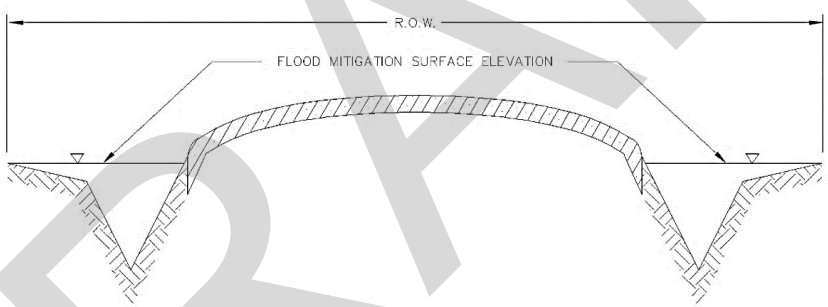
Table 4.6-A: Flow Spread Limits

Street Classification	Allowable Encroachment
Collectors	one travel lane remains open
Arterials	one travel lane in each direction remains open
Residential Streets	curb depth

b. The allowable drainage flow across street intersections for the *"Flood Mitigation"* ~~flood mitigation~~ storm event shall be as shown in Table 4.6~~7~~-B as follows:

Table 4.6-B: Permissible Flow Across Street Intersections

Street Classification	Cross Flow
Arterial Street (divided and undivided)	None
Non-Residential Collector Street	None
Residential Street and Residential Collector	Gutter Flow of 2 inches or less



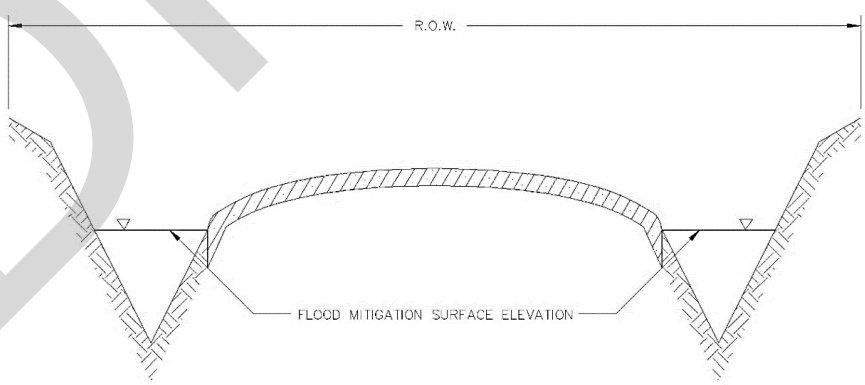


Figure 4.1~~4.14.1~~ Water Spread Limits for Non-Curbed Roadways

3. Minimum Street or Alley Elevations

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No lowering of the standard height of street crown shall be allowed for the purposes of obtaining additional hydraulic capacity. Street crowns shall be in accordance with the City of Denton Standard Details.

C. Drainage Related Minimum Elevations

~~4. Lots shall have a minimum elevation for the buildable area (including parking areas) of the lot to be at leastof - 18 inches above the one1 percent % chance (100-year) base flood elevation (BFE), or as directed by the City Engineer or designee.~~

~~5. Where lots are positioned on a downhill side of a steep lead-in road to a "T" or "L" intersection, or a sharp turn in a steep alley, the portion of the lot facing toward the high-water flooding danger area will be six (6) inches above the top of the curb.~~

1. For lots in the influence of a sag area and a positive overflow, the finished ~~lot~~ floor elevation (FFE) ~~elevation~~ will be at least one (1) foot above the sag area top of the curb, or one (1) foot above the possible maximum pool elevation when the positive overflow is functioning, whichever elevation is higher.

2. New and substantially improved structures within the floodplain~~way~~ or within 200 feet of the floodplain or SFHA must have their finished floor elevated to the minimum building elevation as defined in the City's Chapter 30 Flood Prevention and Protection Ordinance.

3. ~~Where lots do not abut a natural or excavated channel,~~In all other areas, the minimum ~~floor elevations~~FFE shall be a minimum of one (1) foot above the street curb, edge of alley, or rear property line (at the midpoint of the lot), whichever is lower~~lower, unless otherwise approved by the City Engineer or designee~~.

~~C.~~D. Storm Inlet Design

1. Permissible Types of Inlet

   a. Drop Inlets (Y-inlet) – Drop inlets are sump inlets which are not located along the curb line of a roadway.

   b. Grate Inlets – The use of grate inlets is not allowed on public drainage systems unless through an approved design deviation request~~without prior consent from the City 's Engineer~~Engineer or designee. If allowed, the inlet opening shall be designed twice as large as the calculated opening to compensate for clogging. Grate inlets may be used on private systems.

   c. Curb Inlets – Curb inlets may be located at roadway low points (sumps) or on grade at such points as to meet the water spread limitations and cross-flow depth requirements. Curb inlets may be one of the following:

      i. Recessed curb inlet – Recessed curb inlets are curb inlets constructed such that the front of the inlet is two (2).~~0~~ feet behind the normal face of curb and the depression does not extend into the traffic lanes.

      ii. Standard curb inlet – Standard curb inlets are curb inlets that are in line with the roadway curb.

      iii. Type 2 curb inlet – Type 2 curb inlets are standard curb inlets where the inlet box is located underneath the outer roadway lane instead of behind the curb. They are only to be utilized in situations where there is insufficient parkway area or an encumbered parkway area for a standard curb inlet.

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2. Design Criteria

a. Public curb inlet size shall be 10, 15, or 20 feet. Maximum length of inlet at any one (1) curb location shall be 20 feet on each side of the street. Inlets will be placed only in straight sections of curb~~,~~ and at least 10 feet from ~~the~~any curb return. Inlets required in cul-de-sacs are the only exceptions to the straight curb section requirement. Curb inlets are not allowed in intersection or curb returns.

b. Recessed inlets will be required on arterial and non-residential collector streets.

c. The maximum inlet opening shall be six (6~~"~~) inches. Openings larger than six (6) inches shall require approval through a design deviation request ~~by the City's Engineer Engineer or designee~~ and shall contain a bar~~,~~ or other form of restraint.

d. Inlets shall be located in the following locations:

i. At low points;~~,~~

ii. Upstream of pavement crown transitions at intersections (or ~~or~~ the developer may identify flow patterns and depths to show these inlets are not needed);~~,~~ and

iii. Where street flow spread limits or permissible intersection depths are exceeded.

e. Where possible, inlets at intersections shall be located on the street with the lesser classification~~,~~ or on alleys.

f. A by~~-~~pass of no more than 5% of the inlet capacity will be allowed for the *"Flood Mitigation"* ~~flood mitigation~~ storm event.

g. To prevent water flowing across the street for the "*Flood Mitigation*" storm event, water flowing in gutters of arterials should be picked up prior to reaching super-elevated sections.

~~Water flowing in gutters of arterials should be picked up prior to super-elevated sections to prevent water flowing across the street for the *"Flood Mitigation"* flood mitigation storm event.~~

~~g.~~h. In super-elevated sections of divided arterials, inlets placed against the center medians shall have no gutter depressions. Interior gutter flow (flow along the median) shall be intercepted at the point of superelevation transition to prevent street cross~~-~~flow.

~~h.~~i. At bridges with curbed approaches, water should be intercepted before flowing onto the bridge to prevent icing during cold weather.

~~i.~~j. ~~The use of recessed inlets shall only be allowed where they do not adversely impact the width or, location of sidewalk facilities and where they are in, or compliance of sidewalk facilitieswith to , as amended,on Standards and City of Denton standards.~~ New inlets shall not be constructed within a sidewalk of other pedestrian path.~~)~~

~~j.~~k. The use of recessed inlets shall only be allowed where they do not adversely impact the access or functionality of existing utility facilities.

~~k.~~l. Design and location of inlets shall take into consideration pedestrian and bicycle traffic.

~~l.~~m. The use of slotted drains is discouraged except in instances where there is no alternative ~~and requires approval by the City 's EngineerEngineer or designee~~. Any use of slotted drains requires approval through a design deviation request~~by the City's Engineer~~ . If used, the manufacturer's design guidelines should be followed.

~~m.~~n. Depressed inlets are recommended on continuous grades that exceed ~~one percent~~1%.~~;~~

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although their use in traffic lanes should be avoided whenever possible.

n.o. Redundant Inlets. A redundant, flanking inlet is required wherever a sag point or low point inlet is identified and no positive overflow path is provided. The redundant inlet shall have the same size as the sag or low point inlet but will not be considered in the hydraulic capacity calculations. The redundant inlet shall have a maximum inlet elevation of no more than six (6) inches" above the sag or low point inlet elevation to ensure ponding does not overtop the curb.

3. Inlet Computations

a. Sump Inlets and Drop Inlets

Curb inlets and drop inlets in a sump or low point can be considered to function as a rectangular broad-crested weir with a coefficient of discharge of 3.06. The capacity shall be based on the following weir equation:

$$Q / L \text{ or } Q / P = 3.06\ H^{3/2} \qquad \text{[Eqn. 4.1]}$$

Where: Q = Capacity in cfs. of curb opening inlet or capacity in cfs. of drop inlet (*cfs*)

H = Head at the inlet (in *feet*)

L = Length of curb opening inlet (in *feet*); or

P = Length of portion of perimeter of inlet opening, through which water enters the drop inlet (in *feet*)

Inlets should be located such that the inlet openings do not become submerged. In some cases where this is not possible, and the inlet operates under completely submerged conditions, the orifice equation [Eqn. 4.2] should be used to compute the inlet capacity, rather than the weir formula [Eqn. 4.1]. The capacity of a completely submerged inlet shall be based on the following orifice equation:

$$Q = 4.84\ A\ H^{1/2} \qquad \text{[Eqn. 4.2]}$$

Where: A = Area of inlet opening

The curves shown in Figures 6-2Figure 4.2 and 6-3Figure 4.3 provide for direct solution of the above equations.

In order to facilitate the computations required in determining the various hydraulic properties for curb inlets and drop inlets in sump conditions, Figure 4.4 shows Computation Sheet (6-1) has been prepared.

Column 1	Inlet number and designation.
Column 2	Total flow in *cfs* to inlet. For inlets other than the first inlet in a system, flow is the sum of runoff from the contributing area plus carry-over flow from inlet or inlets upstream.
Column 3	Assumed length of inlet opening or perimeter in feet.
Column 4	Total area of inlet opening based on assumed inlet opening length

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and opening height.

Column 5 Discharge per unit foot of inlet opening. Column 2 divided by Column 3.

Column 6 Computed head at inlet for weir flow conditions based on Figures ~~6-~~4.2~~2~~ or ~~6-~~4.3~~3~~ or the following equation:

$$H = (q/3)^{2/3} \qquad \text{[Eqn. 4.3]}$$

Column 7 Computed head at inlet for orifice flow conditions (submerged inlet) based on Figures ~~6-~~4.2 or ~~6-~~4.3 or the following equation:

$$H = [(Q/A)/4.82]^2 \qquad \text{[Eqn. 4.4]}$$

Column 8 Maximum allowable head at sump inlet. This value is determined from topographic conditions at the sump inlet site.

Column 9 Width of spread of water for curb inlets in sump. ~~Use Figure 5-3 or 5-4, or Appendix B to determine S_p for roadways.~~

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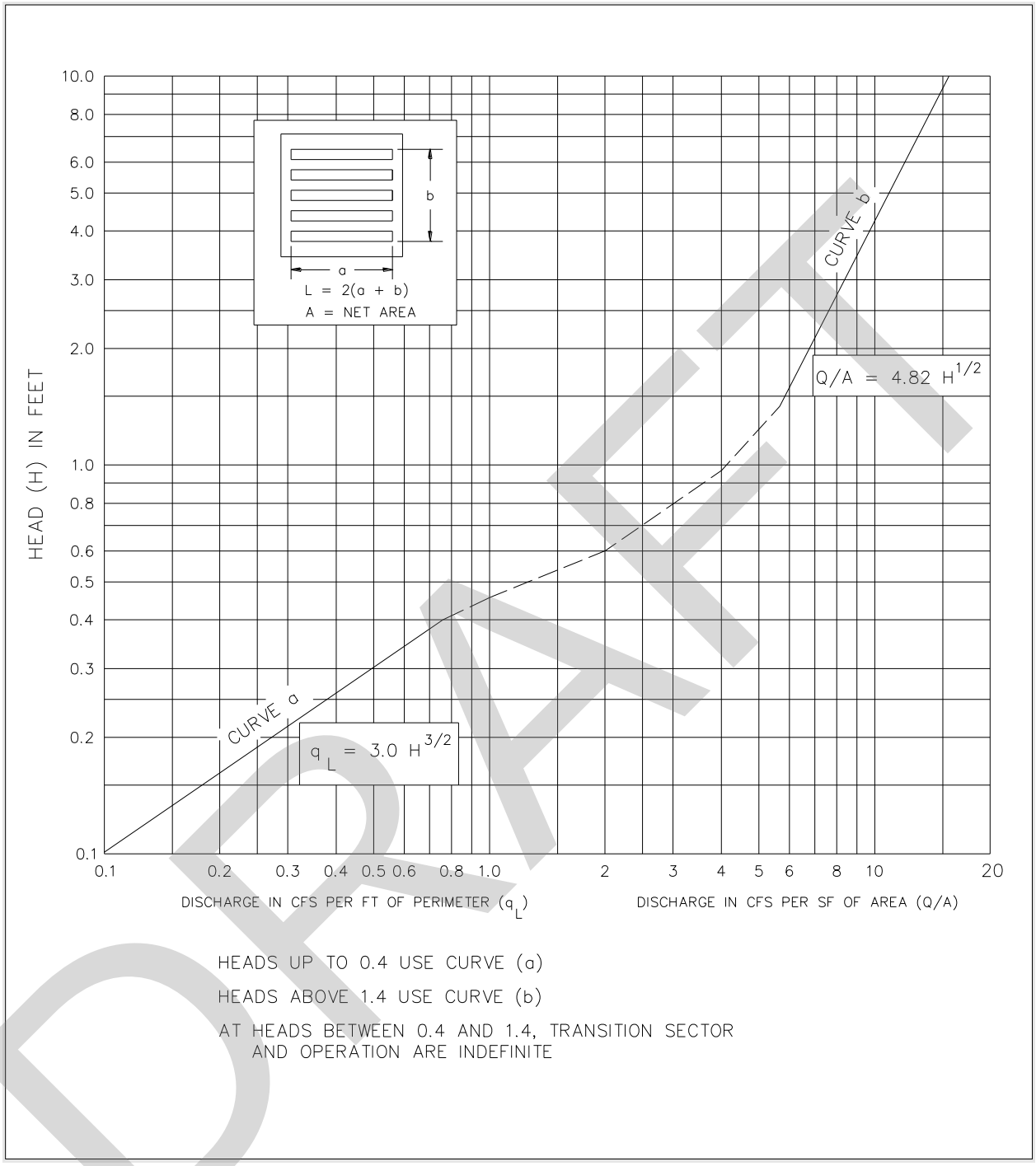

Figure 4.2~~4.24.2~~ Capacity of Grate Inlet in Sump

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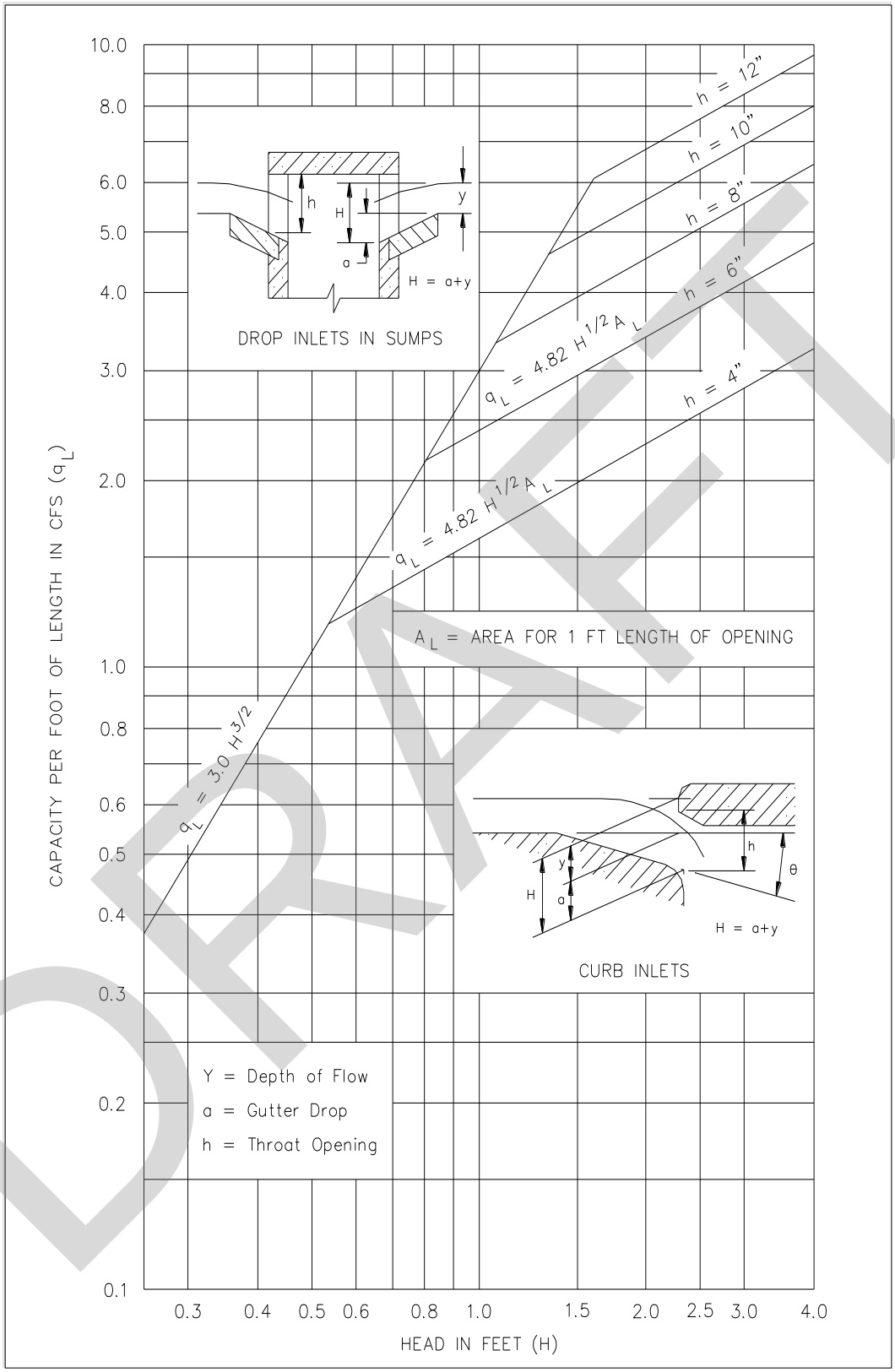

Figure 4.3~~4.34.3~~ Capacity of Drop Inlets and Curb Inlets in Sumps ~~(Fig 6-3)~~

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COMPUTATION SHEET 6–1

CURB INLETS AND DROP INLETS IN SUMPS

INLET NO.	FLOW TO INLET Q (cfs)	LENGTH OF INLET OPENING L (ft)	AREA OF INLET OPENING A (sq. ft)	DISCHARGE PER UNIT FOOT OF OPENING q = Q/L (cfs/ft)	COMPUTED HEAD AT INLET: WEIR FLOW $H = (q/3)^{2/3}$ (ft)	COMPUTED HEAD AT INLET: ORIFICE FLOW $H = [(Q/A)/4.82]^2$ (ft)	MAXIMUM ALLOWABLE HEAD H (ft)	WATER SPREAD LIMITS S_p (ft)	NOTES
1	2	3	4	5	6	7	8	9	10

COMPUTATION SHEET 6–1

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Figure 4.4~~4.4.4~~.4 Computation Sheet ~~(6-1)~~ for Curb Inlets and Drop Inlets in Sumps

b. Inlets on Grade

The capacity of a curb inlet on grade will be based on the following equation~~7~~:~~.~~

$$Q\cancel{/}\ /\ L_o\ \cancel{=}\ \cancel{-}\ =\ 0.7\ [1\cancel{/}\ /\ y_{\cancel{0}o}]\ [(H)^{5/2}\cancel{-(}\ -\ (a)^{5/2}] \qquad \text{[Eqn. 4.5]}$$

Where:

Q = Discharge into inlet (~~in~~ cfs~~.~~)

L_o = Length of inlet opening (~~in~~ feet)

~~H = a + y_o~~

a = Gutter depression (~~in~~ feet)

y_o = Depth of flow in approach gutter (~~in~~ feet)

H = a + y_o

The curve shown in Figure ~~6-4~~4.6 provides for the direct solution of the above equation when the value of y_o is known. The curve shown in Figure ~~6-5~~4.7 provides for the determination of the ratio of the intercepted flow by the inlet to the total flow in the gutter.

In order to facilitate the computations required in determining the various hydraulic properties for curb inlets on grade, Figure 4.5 shows Computation Sheet 6-2 prepared.

Column 1	Inlet Type and number.
Column 2	Location of inlet by station number.
Column 3	Drainage Area designation of area entering between the previous pick up point and the inlet being designed.
Column 4	Peak Discharge (Q_p) from area of Column 3.
Column 5	Carry-over flow (q) which has been passed by the last preceding inlet to the inlet under consideration.
Column 6	Total gutter flow (Q_o) in cfs. For inlets other than the first inlet in the system, total gutter flow is the sum of the runoff from the contributing area plus carry-over flow from the inlet or inlets upstream. Column 4 plus Column 5.
Column 7	Reciprocal of the pavement cross slope for pavements with straight crown slopes.
Column 8	Reciprocal of the pavement cross slope (Z) divided by the pavement roughness coefficient (n).
Column 9	Slope of approach gutter (S_o) in ~~ft. per ft.~~feet per feet.
Column 10	Depth of gutter flow "y_o" in approach gutter direct from Manning's equation for triangular gutters: $$y_o = 1.245\ (Q^{3/8})[n^{3/8}/\ S^{3/16}]\ [1\cancel{/}\ /\ Z]^{3/8} \qquad \text{[Eqn. 4.6]}$$
Column 11	Spread of water (S_p) or width of ponding in the gutter measured from the face of curb. Column 7 times Column 10. ~~(Figure 5-3 or Appendix B).~~
Column 12	Width of street and height of parabolic crown.
Column 13	Slope of approach gutter (S_o) in ~~ft. per ft.~~feet per feet.
Column 14	Depth of gutter flow " y_o " in approach gutter ~~from Figure 5-4 or Appendix B~~.

Column 15 Spread of water (S_p) or width of ponding in the gutter measured from face of curb ~~from Figure 5-4 or Appendix B.~~.

Column 16 Discharge (Q) in ~~cubic feet per second~~ cfs~~(Q)~~ which will be intercepted by an inlet one (1) foot in length for a given depth of flow in the approach gutter (y_o). Determined from Figure ~~6-4~~4.6 or from the solution of the following equation:

$$Q\cancel{/}\,/\,L_o = 0.7\,[1\cancel{/}\,/\,y_o]\,[(H)^{5/2}\cancel{-}(\,-\,(a)^{5/2}] \qquad \text{[Eqn. 4.7]}$$

Column 17 Length of inlet (L_o) in feet which is necessary to intercept a given discharge Q_o. Column 6 divided by Column 16.

Column 18 Actual length (L) in feet of inlet which is to be provided.

Column 19 Ratio of the length of inlet provided (L), to the length of the inlet required for 100% interception (L_o). Column 18 divided by Column 17.

Column 20 Percentage of discharge intercepted by the inlet in question determined from Figure ~~6-5~~4.7 using the values determined in Column 19 and Column 10 or Column 14.

Column 21 Discharge (Q) in ~~cubic feet per second~~ cfs which the inlet in question actually intercepts. Column 6 times Column 20.

Column 22 Carry-over flow (q) is the amount of water which passes any inlet, and is the difference between the total flow (Q_o) of Column 6 and the intercepted flow (Q) of Column 21.

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COMPUTATION SHEET 6–2

CURB INLETS ON GRADE

INLET		DRAINAGE AREA NO.	SUB-AREA PEAK FLOW Q_p (cfs)	CARRY-OVER FROM UPSTRM INLET q (cfs)	TOTAL FLOW Q (cfs)	STRAIGHT CROWN SLOPES					PARABOLIC STREET SLOPES				CAPACITY PER FOOT OF INLET Q/L_o (cfs/ft)	LENGTH OF INLET REQ'D FOR Q_o (ft)	INLET LENGTH L (ft)	L/L_o	Q/Q_o	FLOW INTRCPTD $Q = Q_o \times Q/Q_o$ (cfs)	CARRY-OVER FLOW q (cfs)	COMMENTS
TYPE & NO.	STATION					CROWN SLOPE Z	Z/N	STREET SLOPE S_o (ft/ft)	FLOW DEPTH y_o (ft)	WIDTH OF SPREAD S_p (ft)	TYPE OF STREET SECTION	STREET SLOPE S_o (ft/ft)	FLOW DEPTH y_o (ft)	WIDTH OF SPREAD S_p (ft)								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

COMPUTATION SHEET 6–2

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Figure 4.54.54.5 Computation Sheet (6-2) for Curb Inlets On Grade

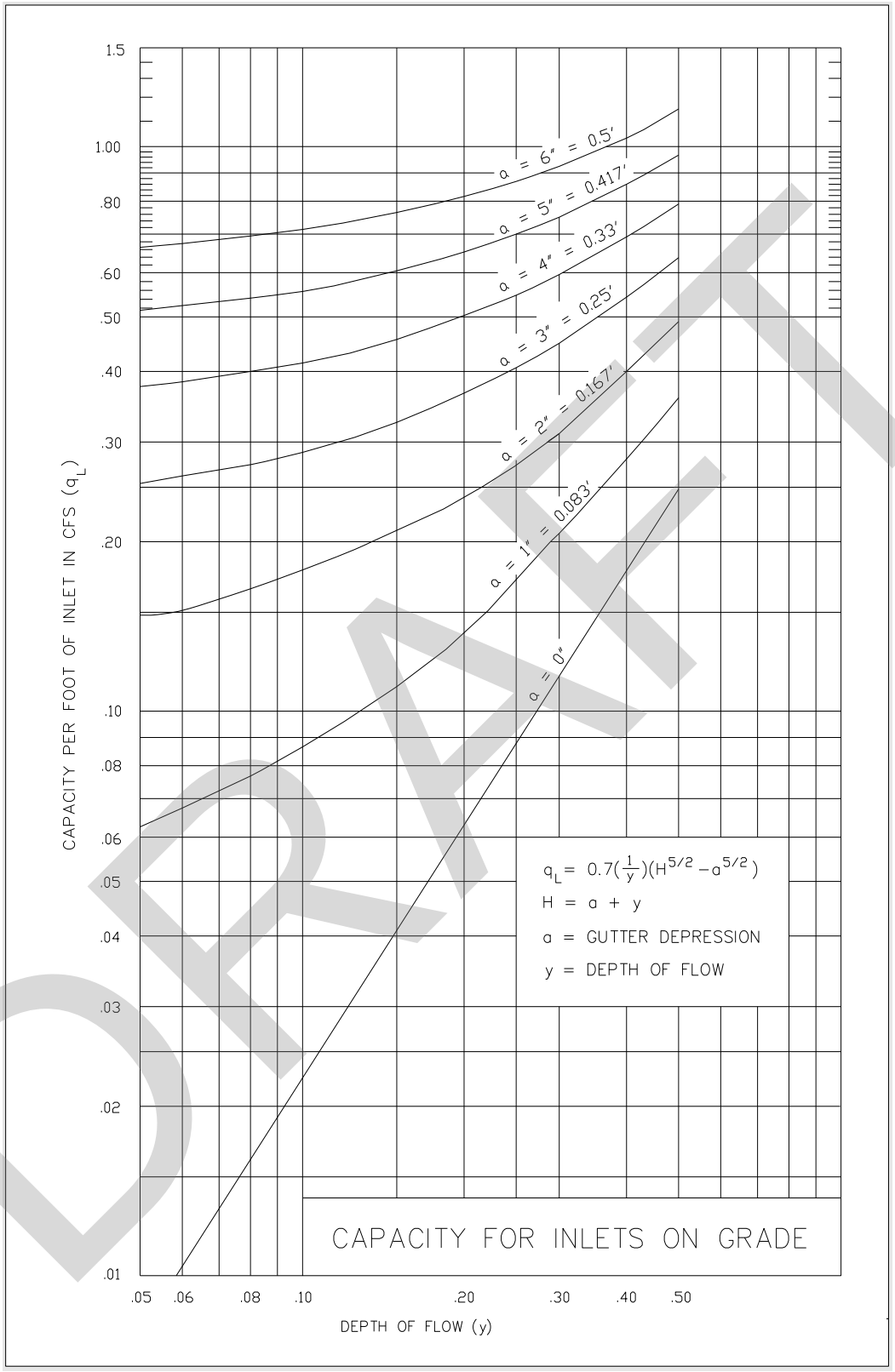

Figure 4.6~~4.6.4.6~~ Capacity for Inlets On Grade

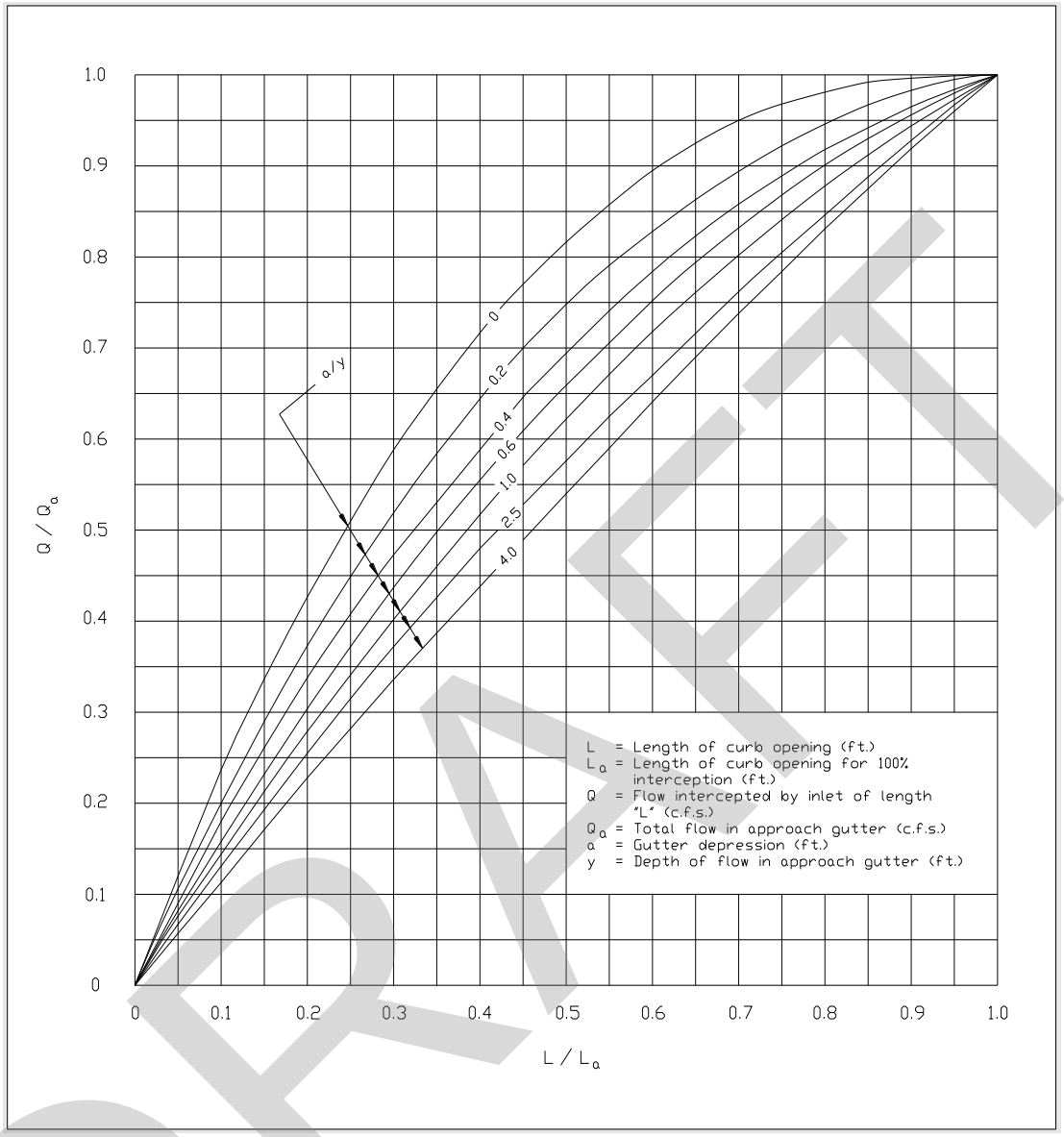

Figure 4.74~~.74.7~~ Ratio of Intercepted Flow to Total Flow for Inlet On Grade

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~~D.~~E. Storm Drain Pipe Design

1. Design Frequency

   Pipe Design: *"Flood Mitigation"* ~~flood mitigation~~ storm event.

2. Design Criteria

   a. Storm drain systems capable of conveying the *"Flood Mitigation"* ~~flood mitigation~~ storm event are required when water spread, intersection cross-flow, and lot-to-lot drainage flow limits are exceeded, or when the minimum time of concentration shown in *Table 1.5 of the iSWM™ Hydrology Technical Manual Document* are reached. Closed pipe systems are required for discharges up to and including 300 cfs in public systems.

   b. Pipe material in a public storm drain system or in public ~~right-of-way~~ROW shall be reinforced concrete for all pipe sizes with appropriate bedding and class type depending on cover.

   c. Proposed storm drains may discharge into existing watercourses. *See Section 1.2.10 of the iSWM™ Hydraulics Technical Manual Document* for guidance related to the Tailwater elevation to be used for hydraulic grade line calculations.

   d. The maximum hydraulic gradient shall not produce a velocity that exceeds 15 ~~feet per second (~~fps~~)~~. Table 4.~~7~~6-C shows the desirable velocities for most storm drainage design. Storm drains shall be designed to have a minimum mean velocity flowing full at 2.5 fps. ~~Storm drains shall be designed to have a minimum mean velocity flowing full at 2.5 fps.~~

Table 4.6-C: Desirable Velocity in Storm Drains

Description	Max. Desirable Velocity (fps)
Culverts (All types)	15
Inlet laterals	No Limit
Collectors (≤ ~~up to~~ 24 inches~~"~~)	15
Mains (~~Larger than~~> ~~24"~~ inches)	12

   e. The minimum desirable physical slope shall be 0.5% or the slope that will produce a velocity of 2.5 f~~eet per second~~ps~~,~~ as required~~,~~ for the *"Streambank Protection"* s~~S~~torm event when the culvert is flowing partially full, whichever is greater.

   f. The potential hydraulic grade line elevation shall not exceed ground elevation or the gutter flow line, whichever is lowest.

   g. Access junction boxes are required ~~at intermediate points~~ along straight runs of closed conduits~~.~~, with a maximum spacing of 500 feet for all pipe and box sizes. ~~Table 4.7-D gives maximum spacing criteria.~~

~~Table 4.6-D: Access Junction Box Spacing Criteria~~

~~Pipe Size (Inches)~~	~~Max. Spacing (feet)~~
~~18~~ to ~~36~~ inches	5~~600~~
≥ ~~42 inches inches and larger~~	5~~1000~~

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h. Junction Boxes shall also be located at:

i. any point where three (3) or more drainage conduits (laterals or trunk lines) come together;

ii. any point where a trunk line size changes ~~where either the inlet pipe or outlet pipe is greater than 24 inches in diameter~~;

~~iii. pipe junctions involving a pipe with at least 36 inches in diameter;~~

~~iv.~~iii. grade changes;

~~v.~~iv. the upstream end of the storm drain system;

~~vi.~~v. Bends greater than ~~30~~ 45 degrees;

~~vii.~~vi. Pipe junctions greater than 45 degrees;

~~viii.~~vii. At the connection point between public and private storm sewer pipes or boxes. If this connection point is in the public ~~right-of-way~~ROW, pipe materials on the private system must meet public storm drain system materials requirements. If the connection point is on private property, then the public portion of the system must be contained in an easement.

i. Inlets will not be allowed to serve as a junction box except through an approved design deviation request. ~~Under special circumstances the City Engineer or designee may allow an inlet to serve as a junction box.~~ Where inlets are permitted to serve as a junction box, the width of the inlet, at a minimum, shall be doubled in size. Storm drain systems parallel to the street will not be permitted to run directly through inlets.

j. Bends without junction boxes shall be limited to ~~30~~ 45 degrees or less.

k. Pipe junctions without junction boxes shall be limited to 45 degrees or less.

l. The minimum storm drain pipe diameter shall be ~~eighteen (~~18~~)~~ inches.

m. Pipe diameters shall not decrease downstream.

~~n. Manufactured Pipe inverts at change in sizes should be set at the same elevation.~~

~~o. A prefabricated eccentric reducer shall be used when pipe size changes are required on trunk lines between 18-inch and 24-inch diameter pipes. Cast-in-place pipe collars are not allowed.~~

~~p.~~n. Laterals shall be connected to ~~collector or main~~ trunk lines using a junction box ~~manholes~~ or manufactured wye connections. Cut-in or punch-in connections to trunk lines are prohibited~~Special situations may require laterals to be connected to the trunk lines by a cut-in (punch-in), and such cut-ins must be approved by the City Engineer or designee~~.

o. All cut-in or punch-in connections to precast inlets, junction boxes, box culverts, etc. will require a concrete color to be poured around the connection.

~~q.~~p. Vertical or horizontal curves/deflections in the conduit will not be permitted.

~~E.~~F. Parking Lot Design

Parking lots shall be designed for the *"Flood Mitigation"* ~~flood mitigation~~ storm not to exceed top of curb with a maximum depth at low points of one (1) foot. The *"Flood Mitigation"* ~~flood mitigation~~ storm shall be contained on-site or within dedicated easements. The portion of the parking lot ~~below the lowest curb elevation~~ detaining water during the *"Flood Mitigation"* storm may be considered as part of the detention calculation for the site.

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~~**Driveway Culverts**~~

~~Driveway culverts are only permitted in non-curbed roadway sections. All driveway culvert construction shall be inspected by the City during construction. Public Works Inspection Department will not approve the driveway approach formwork for concrete pours until the driveway culvert, ditch survey, and material invoice have been reviewed and accepted by the Drainage Department. All driveway culverts shall meet the following requirements:~~

~~All new driveway culverts will be designed to convey the flood mitigation storm. Replacement driveway culverts shall be designed to convey the maximum reasonable discharge based on the existing ditch dimensions adjacent to the culvert.~~

~~Culverts shall have a minimum pipe diameter of 18 inches.~~

~~Acceptable Culvert Material shall be Reinforced Concrete Pipe (RCP) (Class III minimum) (18" to 42" diameter)~~

~~Box culverts shall have a minimum height of 24". Culverts under City streets used for entrances to a subdivision shall be made of approved classes of reinforced concrete pipe or box.~~

~~The top of pipe elevation must be at or below the adjacent roadway edge of pavement elevation.~~

~~Pipe culverts shall utilize a safety end treatment conforming to the most current version of Texas Department of Transportation (TxDOT) standard detail SETP-PD with the slope of the rip-rap being 6:1.~~

~~A driveway approach may utilize a low water crossing in lieu of a driveway culvert if all of the following conditions are met:~~

~~The lowest elevation of the proposed crossing can be no more than 8 inches below the road edge elevation.~~

~~The proposed low water crossing cannot create a ponding effect on the upstream ditch (i.e., ditch flow line must be equal to or higher than the crossing).~~

~~Minimum cross slope for the crossing of 1.5%.~~

~~Low water crossing shall be constructed of concrete adhering to~~

~~Toe walls on each side of the crossing shall be extended at least 15" below grade to prevent undercutting.~~

~~Culverts Slope requirements:~~

~~Must provide positive drainage.~~

~~Culvert slope shall be set as shown on the approved subdivision construction plans.~~

~~Minimum slope shall be 0.3%.~~

~~Ditch Slope Requirements~~

~~The ditch shall be graded upstream and downstream as far as necessary to provide positive drainage with no areas of standing water.~~

~~Minimum earthen slope is 0.5%.~~

~~Minimum concrete slope is 0.3% for 2-foot concrete pilot channels if 0.5% earthen is unobtainable.~~

4.6.3 ~~Hydraulic Design Criteria for Structures~~Open Channels

~~**A. Introduction**~~

~~**B. This section is intended to provide design criteria and guidance on several on-site flood**~~

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~~**mitigation system components, including culverts, bridges, vegetated and lined open channels, storage design, outlet structures, and energy dissipation devices for outlet protection.**~~

~~**C. Open Channels**~~

~~D.~~A. Design Frequency

1. Open channels, including all natural or improved channels, swales, and ditches shall be designed for the *"Flood Mitigation"* ~~flood mitigation~~ storm event.

~~E.~~B. Design Criteria

1. Depending on velocities (See Table 4.6-E ~~Table 4.7-F~~), constructed or improved channels shall be designed with either an earthen channel or a 10-ft. minimum concrete pilot channel section and appropriate side slope protection up to the streambank protection elevation, as described in Section 4.3 ~~Section 3.2.1~~.
2. All channels with contributing drainage basins larger than one (1) square mile (sq. mi.) shall remain in their natural condition.
3. Channels with a contributing drainage area of less than one (1) ~~square mile~~sq. mi. shall remain in their natural condition if they are identified as being within an ~~Environmentally Sensitive Area (~~ESA~~)~~ by the current City of Denton ESA map. Channels not identified as being within an ESA may be channelized, with the channelization method being determined by analysis of the erosive velocities.
4. All improved channels shall be designed to carry the flood mitigation flow and shall have one (1) foot of freeboard as illustrated in Figure 4.8~~Figure 8-1~~. Freeboard requirements at bends in all improved channels shall be the greater of the following:
   a. One (1) foot or
   b. ~~Ten (~~10~~) percent~~% of the flow depth
5. At a minimum, channels that require concrete lining shall be lined up to an elevation of the water surface resulting from the *"Flood Mitigation"* ~~flood mitigation~~ storm event.

~~5.~~6. Concrete lining of a stream channel is adding fill material into Waters of the United States and must comply with Section 404 of the Clean Water Act, and all requirements outlined in DDC Section 7.4. Provide either proof of mitigation or letter of permission from the United States Army Corps of Engineers (USACE).

~~6.~~7. Unlined improved channels that contain bends may be required to be armored if maximum permissible velocities are exceeded.

~~7.~~8. Unlined improved channels shall have side slopes no steeper than 4H:1V and concrete-lined channels shall have side slopes no steeper than 2H:1V.

~~8.~~9. The minimum grade allowed on any channel, outfall channel, or ditch shall be three-tenths (3/10~~th~~) foot per ~~one hundred (~~100~~)~~ feet for concrete-lined channels and five-tenths (5/10~~th~~) foot per ~~one hundred (~~100~~)~~ feet for grass-lined channels.

~~9.~~10. Geotechnical investigations will be required for open channel designs to determine the type ~~p~~of soils present and allowable velocities shown in Table 4.6-D and Table 4.6-E~~, except in cases where the City Engineer or designee deems it not necessary~~.

~~10.~~11. For vegetative channels, flow velocities within the channel shall not exceed the maximum permissible velocities given in Table 4.6-D and Table 4.6-E~~77~~.

~~11. If relocation of a stream channel is unavoidable, the cross-sectional shape, meander, pattern, roughness, sediment transport, and slope shall conform to the existing conditions insofar as practicable. Energy dissipation will be necessary when existing conditions cannot be duplicated.~~

12. An evaluation of streambank stabilization shall be included in the design of open channel improvements for areas upstream and downstream of the proposed improvement. Where indicated by the analysis, stabilization of the offsite bank areas shall be included in the proposed design.

13. HEC-RAS, or similarly capable software approved by the City's Engineer, ~~entity with jurisdiction,~~ shall be used to confirm the water surface profiles in open channels.

14. The final design of artificial open channels shall be consistent with the velocity limitations for the selected channel lining. Maximum velocity values for selected lining categories are presented in Table 4.6~~7~~-D below~~E~~.

15. If relocation of a stream channel is unavoidable, fill material into Waters of the United States must comply with Section 404 of the Clean Water Act, and all requirements outlined in DDC Section 7.4 . Provide either proof of mitigation or letter of permission from the United States Army Corps of Engineers (USACE).

The design of stable rock riprap lining depends on the intersection of the velocity (local boundary shear) and the size and gradation of the riprap material. More information on calculating acceptable riprap velocity limits is available in Section 3.2.7 of the *i*SWM™ Hydraulics Technical Manual Document.

Table 4.6-D: Roughness Coefficients (Manning's *n*) and Allowable Velocities for Natural Channels

Channel Description	Manning's *n*	Max. Permissible Channel Velocity (f~~p~~t/s)
MINOR NATURAL STREAMS		
Fairly regular section		
1. Some grass weeds	0.030	3 to ~~6~~6
2. Dense growth of weeds, depth of flow materially greater than weed height	0.035	3 to 6
3. Some weeds, light brush on banks	0.035	3 to 6
4. Some weeds, heavy brush on banks	0.050	3 to 6
5. Some weeds, dense willows on banks	0.060	3 to 6
- For trees within channels with branches submerged at high stage, increase values by	0.010	
- Irregular section with pools, slight channel meander, increase above values by	0.010	
Floodplain - Pasture		
1. Short grass	0.030	3 to 6
2. Tall grass	0.035	3 to 6
Floodplain – Cultivated Areas		
1. No crop	0.030	3 to 6

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2. Mature row crops	0.035	3 to 6
3. Mature field crops	0.040	3 to 6
Floodplain – Uncleared		
1. Heavy weeds scattered brush	0.050	3 to 6
2. Wooded	0.120	3 to 6
MAJOR NATURAL STREAMS		
Roughness coefficient is usually less than for minor streams of similar description on account of less effective resistance offered by irregular banks or vegetation on banks. Values of 'n' for larger streams of mostly regular sections , with no boulders or brush	0.028 to 0.060	3 to 6
UNLINED VEGETATED CHANNELS		
Clays (Bermuda Glass)	0.035	5 to 6
Sandy and Silty Soils (Bermuda Glass)	0.035	3 to 5
UNLINED NON-VEGETATED CHANNELS		
Sandy Soils	0.030	1.5 to 2.5
Silts	0.030	0.7 to 1.5
Sandy Silts	0.030	2.5 to 3.0
Clays	0.030	3.0 to 5.0
Coarse Gravels	0.030	5.0 to 6.0
Shale	0.030	6.0 to 10.0
Rock	0.025	15

Notes:
[1] For natural channels with specific vegetation type, refer to Table 4.76-EF for more detailed velocity control.

Table 4.6-E: Maximum Velocities for Vegetative Channel Linings

Vegetation Type	Slope Range [1] (%)	Max. Velocity [2] (fpt/s)
Bermuda Grass	0 – 5	6
Bahia	-	4
Tall fescue grass mixtures [3]	0 – 10	4
Kentucky bluegrass	0 – 5	6
Buffalo grass [4]	5 – 10 > 10	5 4
Grass mixture [4]	0 – 5 5 – 10	4 3
Sericea lespedeza, Weeping lovegrass, Alfalfa	0 – 5	3
Annuals [5]	0 – 5	3
Sod	-	4
Lapped Sod	-	5

Notes:
[1] Do not use on slopes steeper than 10% except for side-slope in combination channel.
[2] Use velocities exceeding 5 fpt/s only where good stands can be maintained.
[3] Mixtures of Tall Fescue, Bahia and/or Bermuda.

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~~[4] Do not use on slopes steeper than 5% except for side-slope in combination channel.~~
[~~5~~4] Buffalo Grass and Grass Mixture will be required over other vegetation types where the maximum velocity is not exceeded.
[5] Annuals – used on mild slopes or as temporary protection until permanent covers are established.

Source: Manual for Erosion and Sediment Control in Georgia, 1996.

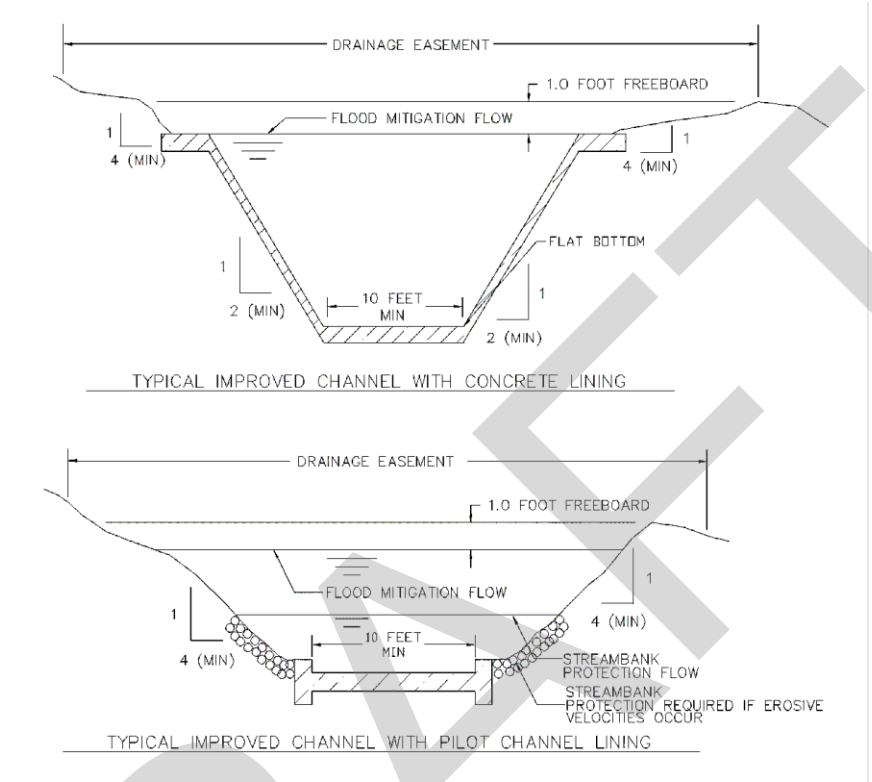

Figure 4.8~~4.8.4.8~~ Freeboard Requirements and Channel Section Illustrations

~~F.~~C. Channel Drop Structures

1. Sloping channel drops are permitted and are required to have a maximum slope of 4H:1V. Vertical channel drops are not permitted.

2. The flow velocities in the channel upstream and downstream of the drop structure need to satisfy the permissible velocities allowed for channels (Table 4.6-D~~Table 4.6-E~~). The velocities shall be checked for flows produced by the *"Streambank Protection"* and *"Flood Mitigation"* storm events.

3. An apron shall be constructed immediately upstream of the chute or stilling basin to protect against the increasing velocities and turbulence which result as the water approaches the drop structure. The apron shall extend at least five (5) feet upstream of the point where flow becomes supercritical. In no case shall the length of the upstream apron be less than ~~ten (~~10~~)~~ feet.

4. An apron shall be constructed immediately downstream of the chute or stilling basin to protect against erosion due to the occurrence of the hydraulic jump. The apron shall extend a minimum of ~~ten (~~10~~)~~ feet beyond the anticipated location of the jump.

5. The design of drop structures is based on the height of the drop, the normal depths upstream and downstream of the drop structure, and discharge.

6. When used, channel drop structures shall be located near bridges or culverts, as directed by the City~~-~~'s Engineer~~Engineer or designee~~.
7. The location of the hydraulic jump should be determined based on the upstream and downstream flow depths, and channel slopes.
8. The length of the hydraulic jump should be calculated to determine the length of the downstream apron required to prevent erosion.

4.7 Culverts

Culverts are cross drainage facilities that transport runoff under roadways or other improved areas.

4.7.1 Design Frequency

A. Culverts shall be designed for the *"Flood Mitigation"* ~~flood mitigation~~ storm. ~~Consideration when designing culverts includes: roadway type, tailwater or depth of flow, structures, and property subject to flooding, emergency access, and road replacement costs.~~

B. The *"Flood Mitigation"* ~~flood mitigation~~ storm shall be routed through all culverts to en~~be~~ sure building structures (e.g., houses, commercial buildings) are not flooded and~~or~~ ~~increased~~ damage does not occur to a~~the~~ highway or adjacent property for this design event.

4.7.2 Design Criteria

A. Design Considerations

1. Roadway type;~~,~~
2. Tailwater or depth of flow;~~,~~
3. Structures, and property subject to flooding;~~,~~
4. Emergency access~~,~~ and
5. Road replacement costs.

~~C.~~B. Velocity Limitations

1. The maximum velocity shall be consistent with channel stability requirements at the culvert outlet.
2. The maximum allowable velocity is 15 ~~feet per second~~fps, but outlet protection shall be provided where discharge velocities will cause erosion conditions.
3. To ensure self-cleaning during partial depth flow, a minimum velocity of 2.5 ~~feet per second~~fps is required for the *"S~~s~~treambank P~~p~~rotection"* storm when the culvert is flowing partially full.

C. Headwater Limitations

1. The *allowable headwater* is the depth of water that can be ponded at the upstream end of the culvert during the *"Flood Mitigation"* storm event.~~,~~ The *allowable headwater*~~which~~ will be limited by ~~one or more~~both of the following constraints or conditions:
   a. The h~~H~~eadwater ~~will be non-damaging~~must not damage~~to~~ upstream property.
   b. The c~~C~~ulvert headwater plus 12 inches of freeboard shall not exceed (i) top of curb or

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(ii) pavement for the low point of the road over the culvert, whichever is lower.

D. Tailwater Considerations

1. If the culvert outlet is operating with a free outfall, the critical depth and equivalent hydraulic grade line shall be determined.
2. For culverts that discharge to an open channel, the stage-discharge curve for the channel must be determined. *See* Section 2.1.4 of the *i*SWM™ Hydraulics Technical Manual on methods to determine a stage-discharge curve.
3. If an upstream culvert outlet is located near a downstream culvert inlet, the headwater elevation of the downstream culvert will establish the design tailwater depth for the upstream culvert.
4. If the culvert discharges to a lake, pond, or other major water body, the expected "*Flood Mitigation*" storm event of the water body will establish the culvert tailwater.

E. Other Criteria

1. Culvert skews shall not exceed 30 degrees, as measured from a line perpendicular to the roadway centerline, without approval.
2. Erosion, sediment control, and velocity dissipation shall be designed in accordance with Section 4.0 of the *i*SWM™ Hydraulics Technical Manual Document.
3. Where applicable, culverts must comply with ~~all sections of~~ DDC Section 7.4 regarding Environmentally Sensitive Areas.

4.7.3 Driveway Culverts

Driveway culverts are only permitted in non-curbed roadway sections. All driveway culvert construction shall be inspected by the City during construction. All driveway culverts shall meet the following requirements:

A. All new driveway culverts ~~will~~must be designed to convey flows from a~~the~~ "*Flood Mitigation*" storm. Replacement driveway culverts shall be designed to convey the maximum reasonable discharge based on the existing ditch dimensions adjacent to the culvert.

B. Culverts shall have a minimum pipe diameter of 18 inches.

C. Acceptable c~~C~~ulvert m~~M~~aterial shall be Reinforced Concrete Pipe (RCP) ~~(Class III minimum)~~ with a diameter of 18 to 42 inches. The RCP must be designated Class III at a minimum.

D. Box culverts shall have a minimum height of 24 inches. ~~–~~Culverts under City streets used for entrances to a subdivision shall be made of approved classes of reinforced concrete pipe or box.

E. The top of pipe elevation must be below the adjacent roadway edge of pavement elevation.

F. Pipe culverts shall utilize a safety end treatment conforming to the most current version of the TxDOT standard detail Safety End Treatment Plan – Parallel Drainage (SETP-PD) with the slope of the riprap being 6H:1V.

G. A driveway approach may utilize a low-water crossing in lieu of a driveway culvert, if all of the following conditions are met:

1. The lowest elevation of the proposed crossing can be no more than eight (8) inches below the road edge elevation.

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2. The proposed low-water crossing cannot create a ponding effect on the upstream ditch (i.e., ditch flow line must be equal to or higher than the crossing).
3. Minimum cross slope for the crossing of 1.5%.
4. Low-water crossing shall be constructed of concrete adhering to the City of Denton Standard Details.
5. Toe walls on each side of the crossing shall be extended at least 15 inches below grade to prevent undercutting.

H. Culvert Slope requirements:

1. ~~Must~~ Culvert slope must provide positive drainage.
2. Culvert slope shall be set as shown on the approved subdivision construction plans.
3. Minimum slope shall be 0.3%.

I. Ditch Slope Requirements

1. The ditch shall be graded upstream and downstream as far as necessary to provide positive drainage with no areas of standing water.
2. Minimum earthen slope is 0.5%.
3. Minimum concrete slope ~~of~~is 0.3% for 2-ft. concrete pilot channels, if 0.5% earthen slope is unobtainable.
4. ~~Headwater Limitations~~
5. ~~The *allowable headwater* is the depth of water that can be ponded at the upstream end of the culvert during the flood mitigation storm event, which will be limited by one or more of the following constraints or conditions:~~
6. ~~Headwater will be non-damaging to upstream property.~~
7. ~~Culvert headwater plus 12 inches of freeboard shall not exceed top of curb or pavement for low point of road over culvert, whichever is lower.~~
8. ~~Tailwater Considerations~~
9. ~~If the culvert outlet is operating with a free outfall, the critical depth and equivalent hydraulic grade line shall be determined.~~
10. ~~For culverts that discharge to an open channel, the stage-discharge curve for the channel must be determined. See on methods to determine a stage-discharge curve.~~
11. ~~If an upstream culvert outlet is located near a downstream culvert inlet, the headwater elevation of the downstream culvert will establish the design tailwater depth for the upstream culvert.~~
12. ~~If the culvert discharges to a lake, pond, or other major water body, the expected flood mitigation storm event of the water body will establish the culvert tailwater.~~
13. ~~Other Criteria~~
14. ~~Culvert skews shall not exceed 30 degrees as measured from a line perpendicular to the roadway centerline without approval.~~

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~~15. Reinforced concrete pipe shall be required for culverts.~~

3. ~~Erosion, sediment control, and velocity dissipation shall be designed in accordance with .~~

4.8 Bridges

4.8.1 Design Frequency

A. *"Flood Mitigation"* storm must be used for all bridges.

~~4.7.3~~4.8.2 Design Criteria

A. A freeboard of two (2)~~-~~ fee~~oo~~t shall be maintained between the computed design water surface and the low chord of all bridges.

B. Design guidance is provided in *Section 3.4 of the iSWM™ Hydraulics Technical Manual Document*.

4.8.3 Other Criteria

A. Where applicable, bridges must comply with ~~all sections of~~ DDC Section 7.4 regarding Environmentally Sensitive Areas.

4.9 Detention Facilities

~~4.7.4~~4.9.1 Design Requirements~~Frequency~~

A. Detention facilities shall be designed for the four storms (*"W~~w~~ater Q~~q~~uality"*, *"S~~s~~treambank P~~p~~rotection"*, *"C~~c~~onveyance"*, and *"Flood Mitigation"*~~flood mitigation storms~~) for the critical storm duration that results in the maximum (or near maximum) peak flow.

B. Dry detention basins ~~are~~must be sized to temporarily store the volume of runoff required to provide flood protection up to the *"Flood Mitigation"* storm.

C. Routing calculations must be used to demonstrate that the storage volume and outlet structure configuration comply with Section 4.5.5 of this Manual.

D. A calculation summary shall be provided on construction plans as shown in the computation sheet in Figure 4.9 or its equivalent. Stage-storage-discharge values shall be tabulated and flow calculations for discharge structures shall be shown on the construction plans. Detention design shall follow *i*SWM™ guidelines. It is the responsibility of the Engineer of Record to use appropriate methodologies presented in *i*SWM™ based on specific basin characteristics. Detailed calculations and a design narrative shall be provided for review in a supplemental report that is referenced on the construction plans. In general, the narrative shall provide basic design information, such as the hydrologic method applied, design assumptions, pre- and post-development site conditions, downstream constraints, environmental considerations, and design software version used, if applicable.

E. Storage and dam safety design may be subject to the requirements of the Texas Dam Safety Program based on the volume, dam height, and level of hazard. Earthen embankments six (6) feet in height or greater shall be designed per the TCEQ guidelines for dam safety (*S~~s~~ee* Texas Administrative C~~c~~ode, Title 30, Part 1, Chapter 299 Dams and Reservoirs for current dam safety

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criteria).

~~A.~~F. ~~All private detention basins shall require an~~ An Operation and Maintenance Manual must be submitted with the civil engineering plans for all private detention basins. Private detention basins shall be inspected by Public Works Inspection to ensure ~~conformity to~~compliance with the design standards required by Section 7.5.3.F. of the DDC. I~~Current i~~nspection fees will apply.~~.~~

~~4.7.5~~4.9.2 Design Criteria for Above Grade Detention Facilities

A. Grading Standards for Above Grade Detention Facilities:

1. Vegetated channel slopes shall not exceed 4H:1V slope. Concrete-lined embankment slopes shall not exceed 2H:1V slope. ~~–~~Vertical walls may be allowed~~,~~ but must be structurally designed to account for inundation of the base and drawdown upon pond draining~~;~~ and must have a 6-ft. high security fence at the top.
2. The side slope for any excavated detention basin, which is not in rock, shall not exceed a 4H:1V slope.
3. Bottom slopes of detention facilities should not be less than 1%.
4. Armored slopes shall be no steeper than 2H:1V.
5. The embankment crown width shall be determined based on a geotechnical investigation of the detention facility site. The minimum width of the embankment crown shall be 12 feet.
6. Earthen embankments used to impound detention water must have a non-permeable core and shall be based on a geotechnical investigation of the site. The geotechnical investigation shall be performed by a Professional Engineer, licensed by the State of Texas, and shall include at a minimum the type of material on-site (or other material to be used in the embankment), moisture content, liquid limit, plasticity index, and required compaction.
7. A Concrete pilot channel with a minimum width of 10 feet, and a minimum slope of 0.5% shall be constructed at the bottom of the detention pond. Privately maintained ponds shall have a concrete pilot channel with a minimum width of six (6) feet.
8. Private Detention Basins shall be designed with~~a~~ 10-ft. wide unobstructed maintenance access around the entire perimeter of the pond.
9. Public Detention Basins shall be designed with ~~a~~ 20-ft. wide unobstructed maintenance access around the entire perimeter of the pond.
10. Where deemed necessary by the City's Engineer, security fencing with a minimum height of six (6) feet shall encompass the detention storage area if the velocity, depth, or slopes create a potentially dangerous condition. The fence shall be designed to allow access for maintenance and so as not to restrict stormwater flow into or out of the detention basin. A maintenance equipment access ramp shall be provided for all detention facilities. The slope of the ramp shall not exceed 6H:1V and the minimum width shall be 12 feet.

B. Emergency Spillway, Overflow Path, and Freeboard:

1. A freeboard of one (1) foot will be required between the *"Flood Mitigation"* storm water surface elevation and top of bank.
2. An emergency spillway shall be provided at the flood mitigation maximum storage elevation with sufficient capacity to convey ~~the~~ *"Flood Mitigation"* storm inflow rates with six (6) inches

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of freeboard. This is the peak of the inflow hydrograph coming into the pond and ~~should~~must not account for attenuation effects of the pond. Spillway requirements must also meet all appropriate State and Federal criteria.

3. An emergency overflow path, ~~must be provided that is~~ free of structures or obstructions, must be provided to convey the spillway design discharge to a downstream ROW or drainageway with adequate capacity for the discharge. No impediments to flow are allowed within the emergency overflow path (E.g.,~~, such as~~ fences, trees, parking areas, or buildings~~, etc~~). If a fence around a detention facility is needed to restrict access, the bottom of the fence must be elevated to provide a minimum of one foot of freeboard above the emergency overflow WSEL where the fence crosses the spillway. Nevertheless, fences across spillways should be avoided whenever possible.~~;~~ E~~e~~ven if the fence is elevated to the freeboard elevation, there is still the potential for the fence to catch debris floating on the water surface.

4. ~~The~~An emergency spillway ~~shall~~must be constructed of concrete.

5. Design calculations shall be provided for all spillways and outlet structures.

C. Landscaping Requirements:

1. All detention basins shall be designed with plantings that minimize erosion based on expected inundation frequencies. Design guidance is provided in the *iSWM™ Landscape Technical Manual Document*.

D. Multiple Use Guidance

Limited recreational equipment (such as picnic tables or playground equipment) and trees may be permitted in private detention facilities with the following restrictions:

1. U~~Provide u~~ser access must be provided at a maximum 10% slope in at least two (2) locations, or one (1) location that comprises not less than 20% of the perimeter of the facility.

2. No recreational equipment is permitted in any portion of the facility that lies more than 18 inches below the flood mitigation water surface elevation level of the facility.

3. Recreational structures ~~such as~~including, but not limited to, picnic tables and~~,~~ playground equipment~~, etc.~~ must be rust-resistant~~,~~ and anchored to the ground.

4. Mulch, wood chips, gravel, or rubberized pellets ~~will~~are not ~~be~~ permitted within ~~the~~a detention facility due to the likelihood of their floating into the outlet structure.

~~5. If recreational equipment is installed in the detention pond, the area designated for recreational use must be delineated with a post & cable fence, (or other means as approved by the City's Engineer), with signs warning users of the danger of proceeding beyond the designated areaallowable limits. CNo chain link fences will beare not allowed in the detention ponds.~~

6. Trees, shrubs, and other woody vegetation will not be permitted in the embankment of any detention facility ~~, nor within~~or in the maintenance access area around such a~~the~~ facility.

7. A~~Isolated trees, a~~ maximum of one (1) isolated tree per 5,600 sq. ft.~~,~~ may be permitted in the recreational area of the pond~~ as described above~~. A trash rack ~~will be necessary~~ must be used to prevent clogging of the outlet structure. No bark mulch ~~will be permitted~~may be used around ~~the~~ trees.

E. Retaining Walls

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1. Any freestanding retaining wall used to detain water must be designed by a structural engineer to withstand the expected hydraulic forces when the detention area is filled to capacity. These walls must be constructed using reinforced concrete.

2. Any inlet or outlet pipe connections to retaining walls must be designed with a reinforced concrete headwall. The height of this headwall shall match the height of the adjacent retaining wall. The most recent TxDOT details for concrete headwalls shall be used to determine other headwall dimensions and reinforced schedule.

4.9.3 Design Criteria for Underground Detention Facilities

Underground detention is highly discouraged because of the potential for deferred maintenance, the difficult and potentially hazardous nature of access for maintenance, and issues related to anaerobic conditions and pollutant mobility from ~~for~~ devices that retain water between events. In any instance where underground detention is contemplated, thorough consideration must be given to the concerns described above to ensure ongoing inspection, maintenance, and functionality. Care should be taken to address material selection for underground detention due to the potential for adverse soil conditions to inhibit the system from functioning properly. A geotechnical engineer ~~should~~shall be consulted to ensure soil and other conditions are appropriate for the selected detention material.

A. Underground detention facilities shall be designed with reinforced concrete and have a minimum pipe diameter of 30 inches to allow for safe access and maintenance of the facility.

B. If an underground vault has multiple chambers, access openings with a maximum spacing of 500 feet must be provided for each chamber. ~~with a maximum spacing of 500 feet.~~

C. Underground facilities must be located to enable safe access for maintenance and minimize disruption of aboveground uses during maintenance. A~~Do not locate a~~ccess openings shall not be placed in areas that are routinely used for parking.

D. Easements must be provided for all underground detention facilities. If underground detention facilities are bound by private property, the~~.~~ ~~Such~~ easements must include an additional four (4) feet from the perimeter of the~~underground detention~~ facilities~~/devices if bound by private property~~.

E. Underground detention and water quality facilities are prohibited underneath buildings, walls, or other structures.

F. ~~The~~Every Stormwater Facility Maintenance Agreement ~~for~~ involving underground detention and water quality facilities must include ~~quarterly~~ inspection and maintenance requirements to be performed quarterly and ~~as well as inspection and maintenance~~ following any rainfall event of 0.5 inches or more. The inspection and maintenance frequency may be reduced after five (5) years of operation, if the owner demonstrates that a lesser frequency is appropriate.

G. A surface emergency overflow path, ~~with sufficient capacity to convey *"Flood Mitigation"* storm inflow rates,~~ ~~that is~~ free of obstructions, must be provided for all underground detention facilities. The emergency overflow path must have sufficient capacity to convey ~~the~~ *"Flood Mitigation"* storm inflow rates to the underground detention facility. This is the peak of the inflow hydrograph coming into the underground detention facility, and must~~should~~ not account for any attenuation effects from the facility. ~~Note that,~~ T~~t~~he criteria for emergency overflow paths for surface detention facilities denoted in Section 4.9.2 above~~,~~ also apply to underground detention facilities.

H. Outlets from underground detention must consist of a pipe that can convey 120% of the 100-year

outflow, with a minimum diameter of 12 inches. The invert of the outlet pipe must be at the lowest point in the detention facility to ensure that it fully drains.

4.9.4 Design Criteria for Parking Lot Detention

Parking lot detention may be allowed if the following minimum criteria are met:

A. Use of parking lot surface area as detention is permitted, but only up to the lowest curb elevation of the parking lot.

B. The maximum ponding depth for the 100-year storm ~~is~~ must be no more than 12 inches at the deepest point.

C. The outlet ~~is~~must be ~~-~~designed to minimize modifications that affect detention functions. The applicant must evaluate potential future resurfacing activities for impacts to detention volumes and release rates.

D. Ponding water in frequently used portions of parking lots must be avoided. At least two signs are required for all parking lot detention areas. The signs must have a minimum area of 1.5 square feet and contain the following message:

WARNING

This area is a detention basin and is subject to periodic

flooding to a depth of (provide design depth).

Sign materials, geometry, and location must be submitted to Development Facilitation and approved by the City's Engineer.

4.9.5 Design Criteria for Pumped Detention

A. A detention facility ~~cannot~~may not rely on a pump or other mechanical equipment to drain water during ~~the~~ a design storm.

~~A. Dry detention basins are sized to temporarily store the volume of runoff required to provide flood protection up to the "*Flood Mitigation*" storm.~~

~~B. Routing calculations must be used to demonstrate that the storage volume and outlet structure configuration complies with Section 4.5.3 Section 3.2.2.2 of the Stormwater Design Criteria Manual. Outlet structures shall be designed per Section 2.2 of the Hydraulics Technical Manual. Refer to Section 2.2.3 of the Hydraulics Technical Manual for design of extended detention (for Water Quality) outlets.~~

~~C. Private Detention Basins shall be designed with a 10-foot wide unobstructed maintenance access around the entire perimeter of the pond.~~

~~D. Public Detention Basins shall be designed with a 20-foot wide unobstructed maintenance access around the entire perimeter of the pond.~~

~~E. No earthen (grassed) embankment slopes shall exceed 4:1. Concrete lined embankment slopes shall not exceed 2:1 slope. Vertical walls may be allowed but must be structurally designed to account for inundation of the base and drawdown upon pond draining and must have a six-foot security fence at the top.~~

~~F. The side slope for any excavated detention basin, which is not in rock shall not exceed a 4:1 slope.~~

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G. ~~A freeboard of 1-foot will be required between the flood mitigation storm water surface elevation and top of bank.~~

H. ~~A calculation summary shall be provided on construction plans as found on computation sheet 10-1 or equivalent. Stage-storage-discharge values shall be tabulated and flow calculations for discharge structures shall be shown on the construction plans. Detention design shall follow *i*SWM™ guidelines. It is the responsibility of the Engineer of Record to use appropriate methodologies presented in *i*SWM™ based on specific basin characteristics. Detailed calculations and a design narrative shall be provided for review in a supplemental report that is referenced on the construction plans. In general, the narrative shall provide basic design information, such as hydrologic method applied, design assumptions, pre- and post-development site conditions, downstream constraints, environmental considerations and design software version used, if applicable.~~

I. ~~An emergency spillway shall be provided at the flood mitigation maximum storage elevation with sufficient capacity to convey the flood mitigation storm inflow rates with six inches of freeboard. Spillway requirements must also meet all appropriate state and Federal criteria.~~

J. ~~The emergency spillway shall be constructed of concrete, unless the City Engineer or designee approves alternative materials.~~

K. ~~All detention basins shall be designed with plantings that minimize erosion based on expected inundation frequencies. Design guidance is provided in the .~~

L. ~~Design calculations will be provided for all spillways and outlet structures.~~

M. ~~Storage and dam safety design may be subject to the requirements of the Texas Dam Safety Program based on the volume, dam height, and level of hazard. Earthen embankments 6 feet in height or greater shall be designed per Texas Commission on Environmental Quality guidelines for dam safety (see the for current dam safety criteria).~~

N. ~~Armored slopes shall be no steeper than 2:1.~~

O. ~~The embankment crown width shall be determined based on a geotechnical investigation of the detention facility site. Minimum width shall be 12 feet.~~

P. ~~Earthen embankments used to impound detention water must have a non-permeable core and shall be based on a geotechnical investigation of the site. The geotechnical investigation shall be performed by a licensed engineer and shall include at a minimum the type of material on-site (or other material to be used in the embankment), moisture content, liquid limit, plasticity index, and required compaction.~~

Q. ~~Where deemed necessary by the City Engineer or designee, security fencing with a minimum height of 6 feet shall encompass the detention storage area if the velocity, depth, or slopes create a potentially dangerous condition. The fence shall be designed to allow access for maintenance and so as not to restrict stormwater flow into or out of the detention basin. Unless approved by the City Engineer or designee, a maintenance equipment access ramp shall be provided for all detention facilities. The slope of the ramp shall not exceed 6:1 and the minimum width shall be 12 feet.~~

R. ~~Bottom slopes should not be less than one (1%) percent.~~

S. ~~Concrete pilot channel at least ten (10) feet wide, and a minimum slope of 0.5 percent shall be constructed in the bottom of the detention pond. Privately maintained ponds shall have a concrete pilot channel with a minimum width of six (6) feet.~~

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~~T. Limited recreational equipment (such as picnic tables or playground equipment) and trees may be permitted in private detention facilities with the following restrictions:~~

~~1. Provide user access at a maximum 10% slope in at least two locations (or one location that comprises not less than 20% of the perimeter of the facility);~~

~~2. No recreational equipment is permitted in any portion of the facility that lies more than 18" below the flood mitigation level of the facility;~~

~~3. Recreational structures such as picnic tables, playground equipment, etc. must be rust resistant, and anchored to the ground;~~

~~4. Mulch, wood chips, gravel or rubberized pellets will not be permitted within the detention facility due to the likelihood of floating into the outlet structure;~~

~~5. If recreational equipment is installed in the detention pond, the area designated for recreational use must be delineated with a post & cable fence (or other means as approved by the City Engineer), with signs warning users of the danger of proceeding beyond the allowable limits. No chain link fence will be allowed in the detention pond;~~

~~6. Trees, shrubs and other woody vegetation will not be permitted in the embankment of any detention facility, nor within the maintenance access area around the facility;~~

~~7. Isolated trees, a maximum of one per 5,600 square feet, may be permitted in the recreational area of the pond as described above. A trash rack will be necessary to prevent clogging of the outlet structure. No bark mulch will be permitted around the trees.~~

~~U. All private detention basins shall require an Operation and Maintenance Manual submitted at time of building permit submittal or with the publicly reviewed engineering plans. Private detention basins shall be inspected by Public Works Inspection to ensure conformity to the design standards required by . Current inspection fees will apply.~~

~~V. Use of parking lot surface area as detention is permitted, but only up to the lowest curb elevation of the parking lot~~designed.

~~4.7.6~~4.9.6 Outlet Structures for Detention Facilities

A. Design Frequency

1. *"Water Quality"* storm
2. *"Streambank P~~p~~rotection"* s~~s~~torm
3. *"Conveyance"* s~~S~~torm
4. *"Flood M~~m~~itigation"* s~~s~~torm

B. Design Criteria

1. Outlet structures shall be designed ~~per~~in accordance with section 2.2 of the *iSWM™ Hydraulics Technical Manual.~~;~~* For water quality, r~~r~~efer to Section 2.2.3 for design of extended detention ~~(for Water Quality)~~ outlets.

~~1.~~2. ~~Estimate the~~The required storage volumes for *"W~~w~~ater Q~~q~~uality"*, ~~—~~*"~~s~~Streambank P~~p~~rotection"*, *"C~~c~~onveyance"* ~~storm~~, and *"Flood Mitigation"* ~~flood mitigation~~storm events must be estimated.

~~2.~~3. Outlet velocities shall be within the maximum allowable range based on channel material, as

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shown in Table 4.6-D and Table 4.6-E.~~Tables 4.7-E and 4.7-F.~~

~~3.~~4. O~~Design necessary o~~utlet protection and energy dissipation facilities must be designed to avoid erosion problems downstream from outlet devices and emergency spillway(s).

~~4.~~5. ~~Perform~~ B~~b~~uoyancy calculations must be performed for the outlet structure and footing to ensure the outlet structure will not float. Flotation will occur when the weight of the structure is less than or equal to the buoyant force exerted by the water.

~~5.~~6. Any outflow structure that~~, which~~ conveys water through ~~the~~ an embankment in a conduit shall be reinforced concrete~~,~~ designed to support the external loads. The conduit shall be able to withstand the internal hydraulic pressure without leakage under full external load or settlement and must convey water at the design velocity without damage to the interior surface of the conduit.

~~6.~~7. The minimum pipe size and box size shall meet the requirements as shown below in Table 4.9~~10~~-A. T~~(t~~hese minimum sizes apply even when used in conjunction with weirs or other flow control devices~~,~~ and must be accessible for maintenance~~).~~:

Table 4.9-A: Outlet Pipe and Box Size

Discharge Pipe Length	Minimum Pipe Size ~~(inches)~~	Minimum Box Size
100 feet or less	18 inches	2~~-feet~~ x 2~~-feet~~
Greater than 100 feet	36 inches	3~~-feet~~ x 3~~-feet~~

~~7.~~8. The m~~M~~inimum opening of an inlet shall be six (6) inches in diameter or a 6~~6~~-in. by ~~" x~~ 6-in.~~"~~ square. Smaller inlet openings may be used with a junction box and properly sized outlet structure.

9. Inlet openings less than one (1) sq. ft. in area shall be designed with trash racks to protect from clogging. The face of the trash rack should extend a minimum of six (6) inches from the face of the inlet opening.

10. Any top orifice on an outlet riser must be designed with a grate to prevent fall injuries.

~~8.~~11. A concrete headwall and wingwalls shall be constructed at the outlet pipe opening. Orientation of the wingwalls will be governed by site specific conditions. Headwalls and wingwalls shall be designed to ~~Texas Department of Transportation (~~TxX~~X~~DOT~~)~~ standards.

~~9.~~12. Design guidance is in Section 2.2 of the *i*SWM™ Hydraulics Technical Manual.

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COMPUTATION SHEET 10–1

DETENTION POND DESIGN

PRINCIPLE SPILLWAY :

Description : _____

Elevation : _____

EMERGENCY SPILLWAY :

Description : _____

Elevation : _____

STORAGE–OUTFLOW RELATIONSHIP			
POND ELEV	STORAGE		OUTFLOW (cfs)
	DEPTH (ft)	VOLUME (ac–ft)	
1	2	3	4

HYDROGRAPH DATA								
DESIGN FREQUENCY	PRESENT WATERSHED DEVELOPMENT		ULTIMATE WATERSHED DEVELOPMENT		PROPOSED POND OUTFLOW		POND ELEVATION (ft MSL)	POND STORAGE (ac–ft.)	POND TIME TO PEAK (min.)
	TIME TO PEAK (min)	PEAK FLOW (cfs)	TIME TO PEAK (min)	PEAK FLOW (cfs)	TIME TO PEAK (min)	PEAK FLOW (cfs)			
	5	6	7	8	9	10	11	12	13
5–YR									
10–YR									
25–YR									
50–YR									
100–YR									
–PMF*									

COMPUTATION SHEET 10–1

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Figure 4.94.94.9 Computation Sheet (10-1) for Detention Pond Design

~~4.8~~4.10 Energy Dissipation

All drainage system outlets, whether for closed conduits, culverts, bridges, open channels, or storage facilities, shall provide energy dissipation when necessary to protect the receiving drainage element from erosion.

4.10.1 Design Frequency

A. *"Flood Mitigation"* storm

~~4.8.1~~4.10.2 Design Criteria

~~W. *Energy dissipaters* are engineered devices such as rip-rap aprons or concrete baffles placed at the outlet of storm water conveyance systems for the purpose of reducing the velocity, energy and turbulence of the discharged flow.~~

A. Erosion problems at culvert, pipe and engineered channel outlets are common. Determination of the flow conditions, scour potential, and channel erosion resistance shall be standard procedure for all designs.

B. Energy dissipaters shall be employed whenever the velocity of flows leaving a stormwater management facility exceeds the erosion velocity of the downstream area channel system.

C. Energy dissipater designs will vary based on discharge specifics and tailwater conditions.

D. Outlet structures shall provide uniform redistribution or spreading of the flow without excessive separation and turbulence.

~~4.8.2 Recommended Energy Dissipator for outlet protection~~

~~A. Concrete or grouted rock rip-rap apron~~

~~B. Riprap outlet basins~~

~~C. Baffled outlets~~

~~D. Grade Control Structures~~

~~Design guidance is provided in .~~

4.10.3 Recommended Energy Dissipater for outlet protection

E. Concrete or grouted rock riprap apron

F. Riprap outlet basins

G. Baffled outlets

H. Grade Control Structures

Design guidance is provided in Section 4.0 of the *i*SWM™ Hydraulics Technical Manual.

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~~4.9~~4.11 Floodplain

~~4.9.1~~4.11.1 Floodplain Development Criteria

A. ~~unless specifically permitted by the Ordinance. Such uses allowed by the Ordinance must be nonstructural and cannot restrict the flow of flood waters such as utility lines, docks, pipelines, etc. However Floodplain reclamation activities must comply with all ESA requirments.~~Floodplain alterations shall be allowed only if all the following criteria are met:

1. An approved Floodplain Development Permit must be issued by the City before any development is done within the floodplain.
2. Flood studies shall include flows generated for existing conditions and fully-developed conditions for the 10, 50, 100, and 500-year storm events.
3. Alterations shall not increase the 100-year fully-developed water surface elevation on other properties.
4. Alterations to the regulatory Floodway shall not increase the 100-year fully-developed water surface elevation at any point.
5. Alterations shall be in compliance with ~~the~~ Federal Emergency Management Agency (FEMA) guidelines.
6. Alterations of the floodplain shall meet the requirements of Section 4.5 of this Manual.
7. Alterations shall result in no loss of valley storage for a Major Creek, as defined by the DDC, and a 15% maximum loss of valley storage for any other tributary for any reach, except at bridge and culvert crossings where it can be proven that there are no detrimental effects upstream or downstream.
8. A~~Any a~~lteration of floodplain areas shall not cause any additional expense, including maintenance, ~~in~~related to any current or projected public improvements~~, including maintenance~~.
9. The floodplain shall be altered only to the extent permitted by equal conveyance on both sides of the natural channel, as defined by the USACE in a HEC-RAS analysis. The right of equal conveyance applies to all owners and uses, including greenbelt, park areas, and recreational areas. Owners may relinquish their right to equal conveyance by providing a written agreement to the City's Engineer.
10. A grading permit and/or construction plan approval shall be required to perform any grading activities on site.
11. The toe of any fill shall parallel the natural direction of the flow.
12. Floodplain alterations shall incorporate and consider other City planning documents and ordinances such as the Tree Preservation Ordinance (Section 7.7.4 - DDC), the Subdivision Ordinance (Subchapter 8 - DDC) , and the ~~Floodplain Ordinance~~ Flood Prevention and Protection Ordinance (Chapter 30 - City of Denton, Code of Ordinances).
13. Unless a pre-existing model is in place, USACE's HEC-HMS and HEC-RAS shall be used. A request to use another type of hydrologic or hydraulic model must be submitted ~~to the City's Engineer~~ for approval through a design deviation request. The Modified Puls method shall

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be used for flood routing information to ensure that the cumulative effects of the reduction in floodplain storage of floodwater will not cause downstream or upstream increases in water surface elevations and erosive velocities. If the Modified Puls method is not feasible, a request to use another type of flood routing method must be submitted ~~to City's Engineer~~ for approval through a design deviation request.

B. The engineer of record is responsible for providing documentation of the relevant USACE approved permits prior to beginning modification ~~to~~of the floodplain and prior to causing any~~, or~~ impacts~~s~~ to the WOTUS. ~~nited States~~. If applicable, the engineer of record is also responsible for~~, or for~~ providing a signed and sealed statement detailing why such permits are unnecessary.

C. Verification of Floodplain Alterations:

1. The owner and/or ~~/~~developer shall furnish, at their expense, to Development Services sufficient engineering information to confirm that the minimum FFEs proposed ~~are as required by~~ meet the requirements of the Flood Prevention O~~o~~rdinance.

2. Construction plans will not be released for construction within areas subject to a Conditional Letter of Map Revision (CLOMR) or amendment until such plans are accepted by ~~the~~ Development Services and FEMA.

3. Letters of Map Revision (LOMR) applications shall be submitted to Development Services (i) ~~prior to submittal to FEMA~~ no later than 60-days from the City's final acceptance of the construction and (ii) prior to submittal to FEMA.

4. All submittals to FEMA shall be submitted to Development Services prior to submittal to FEMA. A copy of all responses to FEMA comments shall be submitted to the City.

D. Development within the floodplain which does not result in any change to the topography, the amount or location of impervious area, or any change in the characteristics of the floodplain cross-section, such as underground utility construction, may not require a flood study, CLOMR, LOMR, or DSA unless requested by the City.

The following decision charts ~~is~~are~~chart is~~ intended to consolidate the floodplain development criteria in the City of Denton. ~~–~~They~~It~~ reference~~s~~ information found in the ~~Denton Development Code (~~DDC~~)~~ Subchapters 7.4 and 7.5, the Code of the City of Denton, Texas, Chapter 30~~ of the Denton Municipal Code~~, and this~~ Criteria~~ Manual. ~~It is~~They are not ~~to be considered~~ an exhaustive list of criteria ~~but~~ and ~~is~~ are only to be used as guidance ~~to the~~as to the information provided in the above-referenced documents. ~~-~~Criteria in those documents supersedes the~~is~~ decision charts.

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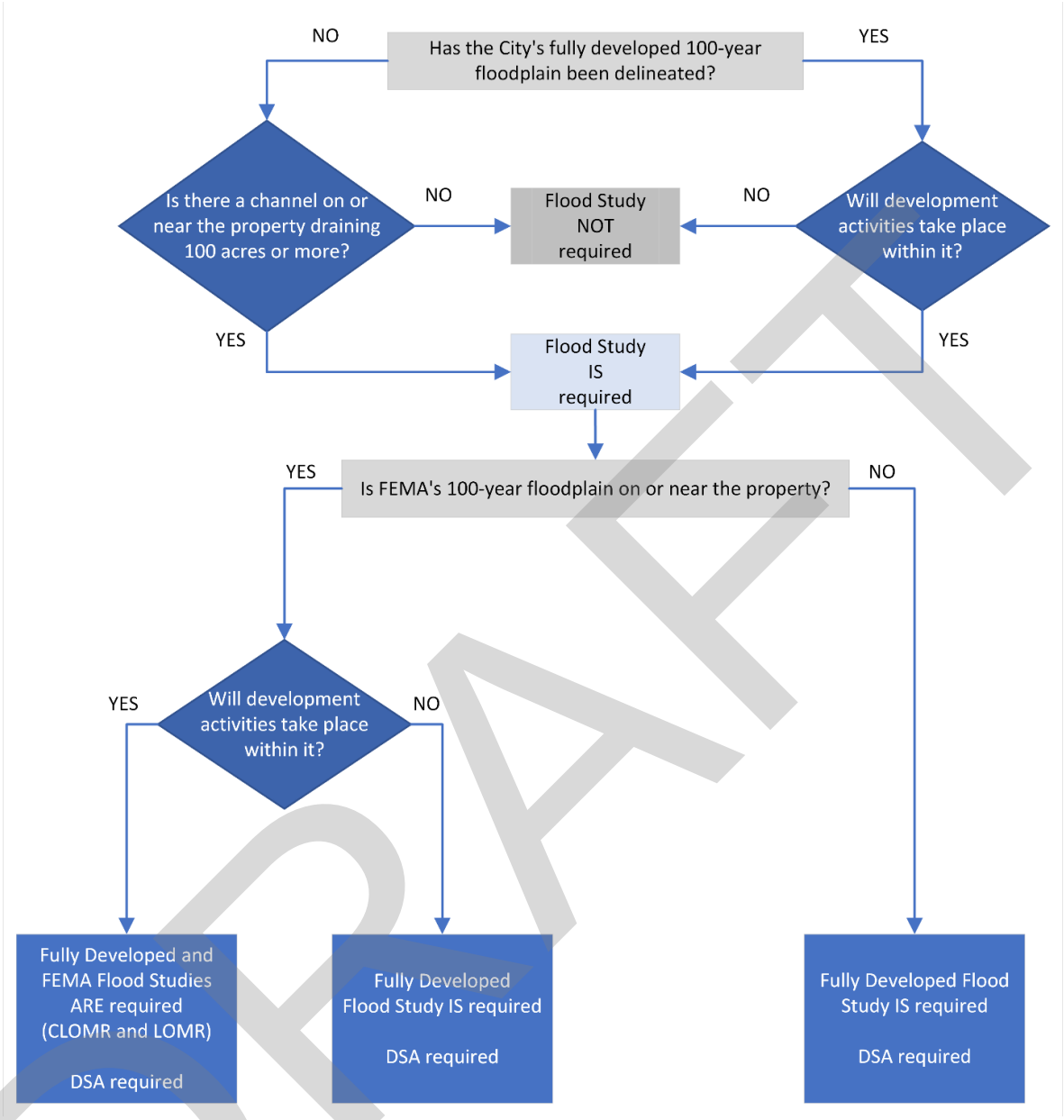

Figure 4.10~~4.10~~4.10 Flood Study Decision Chart

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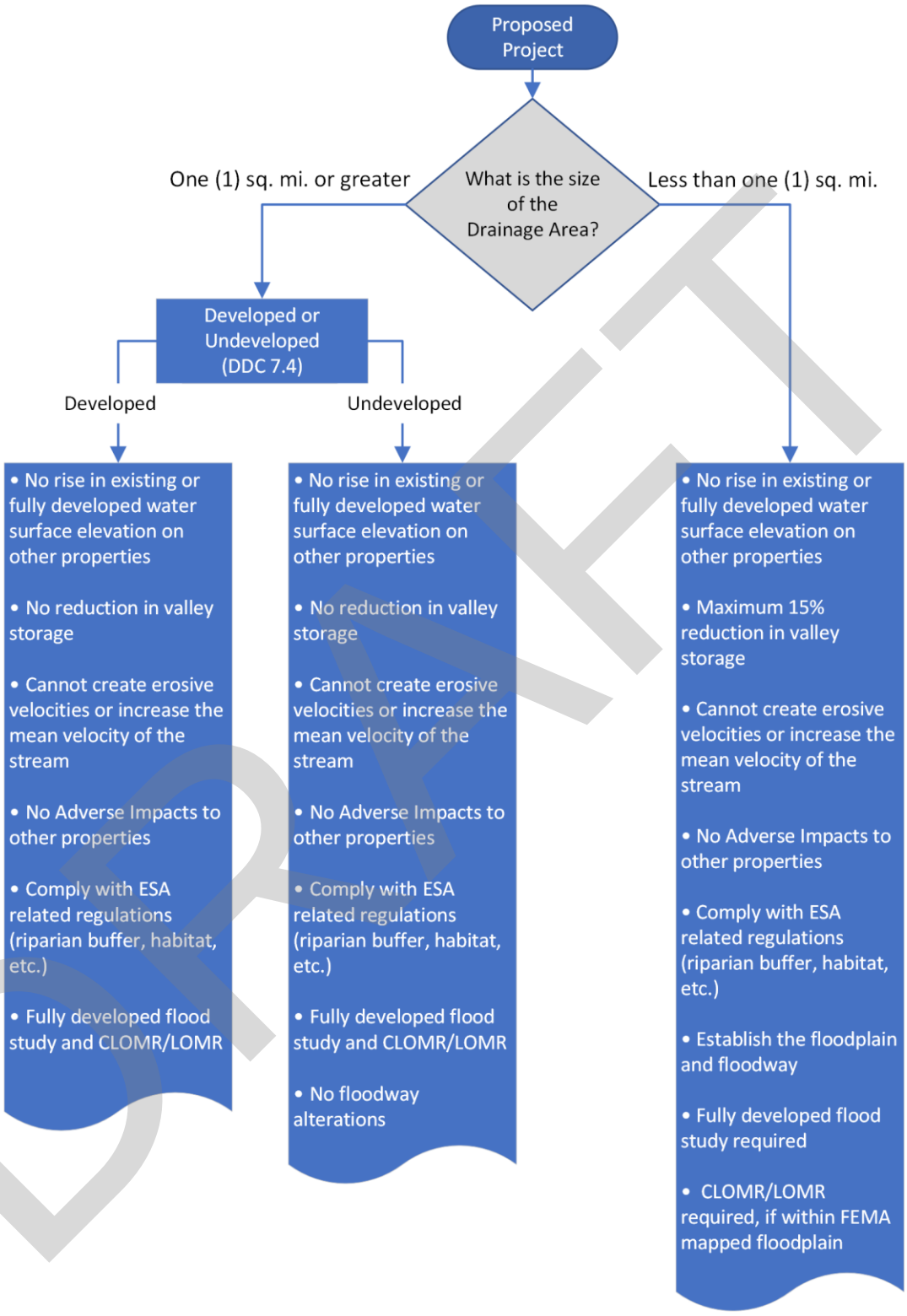

Figure 4.11~~4.11~~4.11 Summarized Floodplain Development Procedure

~~4.9.2~~4.11.2 Procedures for Floodplain Alteration ~~of Drainage areas with one square mile or less~~

~~Fill and alteration of floodplains, containing drainage areas one (1) square mile or less, when it is not unreasonably damaging to the environment, is permitted where it will not create other flood problems.~~ Floodplain development is permitted when it complies with all requirements of the DDC, Flood Prevention Ordinance, and this Manual. The following are the engineering criteria for such requests.

Developments which impact designated ~~Federal Emergency Management Agency (~~FEMA~~)~~ flood plains in the City (Zones AE, A, and X shaded) ~~will be required to~~shall submit ~~the~~ minimum data ~~which shall be sent~~ required by FEMA, indicated on the City's CLOMR submittal checklist, and/or indicated in this M~~m~~anual to FEMA for conditional approval~~ of the proposed project~~. The Conditional Letter of Map Revision (CLOMR) shall be submitted to the City prior to approval of any Zoning Compliance Plan~~preliminary plat~~. Approval of ~~(~~CLOMR~~)~~ from FEMA will be required prior to acceptance of ~~a final plat~~~~the~~ Civil Engineering Plans.

A. A written description of the scope of the proposed project and the methodology used to analyze the project's effects.

B. Hydraulic backwater models for ~~of the~~~~the~~ -10, 50, 100, and 500-year floods for the following:
   1. Duplicate of the effective ~~Flood Insurance Study (~~FIS~~)~~ model. The model must include:~~;~~
      a. Existing conditions (effective FIS model including cross-sections through the project site. All cross-sections should reflect conditions prior to construction of the project); and
      b. Proposed conditions (existing conditions model reflecting the proposed project).~~; and~~

C. Floodway hydraulic backwater models of the following:
   1. Duplicate effective;
   2. Existing condition; and
   3. Proposed conditions.

D. ~~A~~In all the above hydraulic models, the following rules will apply:
   1. The hydraulic parameters, such as bridge loss coefficients, "*n*" values, etc., used in the effective FIS models will only be changed where obvious errors or changes have taken place and must be documented;~~.~~
   2. The computed water surface elevation profiles must converge with the existing profiles; and~~.~~
   3. ~~The l~~information should be shown on a map of suitable scale and topographic definition to provide reasonable accuracy.

~~D.~~E. A -copy of the ~~Flood Insurance Rate Map~~FIRM with the project area indicated.

~~E.~~F. Topographic mapping of the entire area covered by the proposed condition model, indicating the locations of all cross-sections used in the hydraulic model and delineating the proposed 100-year flood plain boundary.

~~F.~~G. Topographic mapping of the entire area covered by the proposed conditions model, indicating the locations of all cross-sections used in the hydraulic model and delineating:
   1. The proposed 100-year and 500-year floodplain boundaries; and
   2. The proposed floodway boundary.

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~~G.~~H. ~~Certification that the project meets~~Projects must comply with the requirements of ~~the Title 44 Code~~ 44 C.F.R. ~~of Federal Regulations §~~ 60.3~~-~~(d)~~-~~(2).

~~H.~~ Upon completion of the proposed project, "as-built" and final LOMR plans certified by a ~~registered~~ P~~p~~rofessional E~~e~~ngineer~~,~~ licensed by the State of Texas~~,~~ shall be submitted to the City for review and subsequent transmittal to FEMA. FEMA requires that individual legal notices be sent to all affected property owners when development~~s~~ (cut or fill) ~~occurs~~ occurs in the regulatory floodway and would ~~that would~~ cause any rise in the 100-year FIS water surface elevation. Public notice in the official community newspaper is required for proposed modifications to the regulatory floodway. ~~In all the above hydraulic models, the following rules will apply:~~

~~I. The hydraulic parameters, such as bridge loss coefficients, "n" values, etc., used in the effective FIS models will only be changed where obvious errors or changes have taken place and must be documented.~~

~~J. The computed water surface elevation profiles must converge with the existing profiles.~~

~~K.~~I. ~~The information should be shown on a map of suitable scale and topographic definition to provide reasonable accuracy.~~

~~L.~~J. All items should be labeled for easy cross-referencing to the hydraulic model and summary data.

~~M.~~K. FEMA may have questions regarding the project. The engineer of record must address all of FEMA's comments. It is not anticipated, but if revisions to the development are required by FEMA, the developer ~~will be~~is responsible ~~to do so~~for making the changes.

~~4.9.3~~4.11.3 Fully Developed Water Surface Elevation Calculations

A. The following hydraulic data should be submitted to the City, preferably using the ~~Corps~~ USACE HEC-RAS program to compute the channel's water surface elevation. The data should be submitted electronically as part of the CLOMR, LOMR, or flood study submittal.

1. Duplicate of the effective City fully developed backwater model or as developed by developer or property owner and approved by the City.
2. Modified existing condition backwater model – this model should include pre-development cross-sections through the project si~~t~~de obtained from field surveys or updated topographic information.
3. Proposed condition reflecting the development's impact on the flood plain area.
4. Water surface elevation and velocity summary tables tabulating the results of the above analysis.
5. Topographic map at a suitable scale with cross-sections that delineates the~~,~~ existing and proposed ~~one percent~~1% chance (100-year) fully developed flood plain~~ delineated,~~ and shows the area being developed.~~ shown.~~
6. Analysis of the existing and proposed valley storage conditions of the area.
7. Documentation from the ~~Corps of Engineers~~USACE determining if a 404 permit is required for the project.

~~4.9.4~~4.11.4 Floodplain Alteration Guidelines

A. Side Slopes

1. To ensure maximum accessibility to the floodplain for maintenance and other purposes, and to lessen the probability of slope erosion during periods of high water, maximum slopes of filled area shall usually not exceed 4H:1V~~ feet horizontal to 1 foot vertical~~. Grass cover is required for all cut and fill slopes unless other armoring is required. Concrete rip~~-~~rap or an approved equal erosion protection measure is required on slopes steeper than 4H:1V. Vertical walls, terracing and other slope treatments will be considered only as:

   a. Part of a landscaping plan submission, and

   b. If no unbalancing of stream flow results.

B. Vegetation/Landscaping

1. Engineering plan submission shall include plans for:

   a. Erosion control of cut and fill slopes~~;~~;

   b. Restoration of excavated areas; and~~; and~~

   c. Tree protection in and below fill areas.

2. Landscaping should incorporate natural materials (earth, stone, and wood) on cut or fill slopes wherever possible.

3. Applicant shall show in the plan the general nature and extent of existing vegetation on the tract, the location of trees in accordance with the requirements of the tree survey required by Section 7.7.4.E of the DDC~~)~~, the areas which will be preserved, altered, or removed as a result of the proposed alterations.

4. Locations and construction details should be provided, showing how trees will be preserved in areas which will be altered by filling or paving within the drip line of those trees.

5. Applicant shall also submit plans showing location, type, and size of new plant materials and other landscape features planned for altered flood plain areas.

~~4.10~~4.12 ~~Drainage and Floodplain~~ Easements ~~and Fences~~

~~4.10.1~~4.12.1 General

A. Drainage and floodplain easements shall be provided for all open natural streams or manmade drainage facilities. Easements shall encompass all areas lower than a ground elevation defined as being the highest of the following:

1. ~~Fifteen (~~15~~)~~ feet outside the calculated fully developed water surface elevation and associated flood boundary based on a design storm whose frequency is 100 years. All contributing watersheds are to be treated as fully developed for purposes of calculating the water surface elevation.

2. The top of the high bank plus a minimum of 20 feet, if higher than stated in A.1. ~~(1)~~ above.

3. Existing natural banks with a slope steeper than 4H:1V shall have the easement line no closer than the intersection of a 4H:1V line extending from the toe of the slope to the proposed grade at the top of the bank, plus an additional ~~fifteen (~~15~~)~~ feet.

4. Additional access area may be required according to the S~~s~~ection 4.12.2 below.

B. ~~No driveways, sidewalks, patios, etc. shall be placed in a drainage easement, except where the~~

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~~easement is a public or private open space or park. Ppedestrian and vehicle access may be provided as determined by the City's Engineer Engineer or designee.~~

~~4.10.2~~4.12.2 Storm Drain Easements

A. Above Ground Systems

Where an access road is required adjacent to a channel, an additional easement area of a minimum width of ~~fifteen (~~15~~)~~ feet shall be provided. The maximum cross slope shall be 2~~5 percent~~%. ~~-~~All access roads adjacent to improved channels shall be located within the drainage easement.

1. No structures, pavement, landscaping or other above-ground man-made improvements shall be placed in a drainage easement, except where the easement is a public or private open space or park. Any such improvement within a drainage easement must be approved through a design deviation request.

~~No driveways, sidewalks, patios, etc. shall be placed in a drainage easement except where the easement is a public or private open space or park, pedestrian and vehicle access may be provided as determined by the City Engineer or designee.~~

B. Closed Systems

1. Easements for closed drainage systems shall meet the following minimum standards as shown below in Table 4.12~~3~~-A~~, unless special circumstances warrant additional or reduced easements, as determined by~~ the City ~~'s EngineerEngineer or designee.:~~

Table 4.12-A: Easement Requirements for Closed Drainage Systems

Pipe or Box Size	Minimum Easement Width (feet)
36 inches and under	16
42 to 54 inches	20
60 to 66 inches	25
72 inches and above	30

2. Utilities such as water and sanitary sewer lines may share a portion of a drainage easement, containing an underground enclosed drainage system where an additional easement width for a minimum of ~~ten (~~10~~)~~ feet is added to create a public drainage and utility easement. ~~–~~No utilities shall be located in any lined channel, pipe, or box in such a way as to interfere with flow capacity or maintenance of or access to the channel, pipe or box.

3. A drainage easement shall be provided for the area within a required outfall channel or ditch to the point where the flowline "day lights" on natural grade or matches existing topography.

4. To provide for maintenance, a drainage easement shall be provided at least ~~twenty-five (~~25~~)~~ feet beyond any outfall headwall.

5. No structures, pavement, landscaping or other above-ground man-made improvements shall be placed in a drainage easement containing a closed drainage facility. ~~No driveways, sidewalks, patios, etc. shall be placed in a drainage easement except where storm sewer system is enclosed and is designed for~~ the ~~100-year storm, unless the~~is ~~easement serves a~~

~~positive emergency overflow route~~.

4.12.3 Channel Access

A. Access areas and ramps shall be provided for all publicly maintained channels to allow for maintenance of the channels. These access areas and ramps shall be contained within a drainage easement. Access areas shall have a width of at least 12 feet, ~~and~~ a minimum cross slope of 2%, and a maximum cross slope of 5%.

B. Access easements shall be provided from the public ROW to the access area, if the access area is not directly connected to the public ROW. Access easements shall remain free of obstacles that block the use of the easement, including ungated fencing across the easement.

C. A concrete drive approach serving the access easement must be available and free of obstructions. Any sidewalk crossing the access easement must be constructed using a residential street cross-section, or otherwise designed to accommodate vehicle loads so that equipment may use the access easement without damaging the sidewalk.

D. Access to all improved earthen channels shall be provided by one (1) of the following methods, depending on the size and depth of the channel~~as approved by the City's Engineer~~:

1. A clear access area must be provided on one side of the improved earthen channel along the full length of the channel. ~~By providing aA combination of the bottom access and clear access on one (1) side of the channel, if the depth of the channel will allow maintenance from the top of the channel~~; or~~.~~

2. If the channel is deeper than 4 feet or has a top width greater than 25 feet, an access area must be provided on both sides along the full length of the channel. These access areas shall have a width of at least 15 feet, a minimum cross slope of 2%, and a maximum cross slope of 5% ~~For channels exceeding a depth of four (4) feet or 4H:1V side slopes and where the method in D.1. would not sufficiently provide for maintenance of the channel access area – clear access in an easement shall be provided on both sides of the channel where none of the other methods would be sufficient to provide for maintenance of the channel access area~~.

E. All lined channels, and earthen channels with concrete pilot channels shall have a minimum bottom width of ten (10) feet and shall be provided with concrete access ramps ~~located as directed by the City's Engineer~~. Concrete access ramps shall have a minimum width of 12 feet, maximum slope of 6H:1V, and maximum cross slope of 5%. All access roads shall be located within a dedicated easement. Access road pavement cross-sections shall confo~~i~~rm to the standards of the concrete ~~alley~~ residential street cross-section detail located in the City of Denton Standard Details.

~~4.10.3~~4.12.4 Detention Facilities Easements

A. Detention facility easements must encompass the entirety of the detention facility plus any required maintenance access areas adjacent or leading to the facility.

B. All detention maintenance access easements must be connected~~t~~ to ~~the~~a public ROW, be a minimum of 10 feet wide, and be free of obstructions which could prevent personnel and equipment from accessing the detention facility.~~.~~

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4.12.5 Post-Construction Water Quality Control Structure Easements

A. All post-construction structural stormwater control structures must be ~~encompassed~~located within an inspection access easement. The intent of this easement is to allow City staff to access and inspect the control structure to ensure it is being maintained in accordance with the SWFMA. This easement ~~must~~ must be connected to a~~the~~ public ROW, be a minimum of five (5) feet wide, and be free of obstructions which could prevent City staff from accessing the control structure.

~~4.10.4~~4.12.6 Fences

A. Fences in drainage easements are prohibited by the ~~Denton Development Code~~DDC, except as specifically provided for below.

1. Fences in drainage easements that contain an underground stormwater system may contain any type of non-masonry fence if the fence is constructed with knock-out panels to facilitate maintenance.
2. Fences in drainage easements that contain overland flow may cross the easement if the fence is constructed with wrought iron (pickets and rails), pipe, or pipe and cable. Fence height, minimum picket spacing, and maximum ground clearance spacing shall be governed by appropriate child safety ~~provisions~~measures.
3. No fences are allowed across inlet or outlet structures of drainage detention facilities. Fences are permitted around the detention facility ~~which~~ if they do not block or inhibit the flow conveyance of the detention facility.
4. No fencing is allowed across easements which share water or wastewater facilities with the drainage facility.

B. Fences in ~~any~~ the floodplain are prohibited.

~~4.11~~4.13 Water Quality

~~4.11.1~~4.13.1 Water Quality Protection Volume

~~All new detention ponds must include provisions for detention of the Water Quality Protection Volume (WQv). See the for information regarding the design of this WQv and appropriate discharge design.~~It is recommended that ~~A~~all developments with ~~greater than~~ one (1) acre or more of disturbed land~~land~~ include site development controls necessary to remove 80% of the total suspended solids (TSS) from the water quality protection volume (WQ_V). *See* the *i*SWM™ Water Quality Protection Technical Manual for information regarding the design of this WQ_V and appropriate discharge design. *See* the *i*SWM™ Site Development Controls Technical Manual for information regarding ~~the~~ structural stormwater controls and their ability to remove pollutants in stormwater runoff to protect water quality. Any combination of structural stormwater controls may be used to achieve the recommended~~required!~~ 80% TSS removal from all runoff from impervious surfaces on the site.

The percent TSS removal (%TSS) that is achieved on a site can be calculated using ~~the~~ equation 4.8 below. This equation is an area-weighted TSS reduction equation that~~which~~ accounts for the TSS reduction ~~that is contributed from~~attributable to each stormwater treatment best management practice (BMP) that is utilized on the site.

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$$\%TSS = \frac{\Sigma_n^1 (TSS_1A_1 + TSS_2A_2 + \ldots + TSS_nA_n)}{\Sigma_n^1 (A_1 + A_2 + \ldots + A_n)} \quad \text{[Eqn. 4.8]}$$

W~~w~~here: ~~:~~

TSS_n = TSS removal percentage for each structural BMP located on-site (%);

A_n = the area draining to each BMP (acres).

When two or more BMPs are used in series (stormwater discharges from one BMP into another), a different calculation is necessary. This scenario is called a ***treatment train***. Stormwater discharging from the upper most BMP will be considerably "cleaner" than the influent, meaning TSS particle sizes will be much smaller. Pollutant removal rates for BMPs used in a treatment train are not additive. To calculate the total % TSS removal for a treatment train comprised of two or more structural BMPs, the following equation should be used.

$$TSS_{train} = A + B - \frac{A \times B}{100} \quad \text{[Eqn. 4.9]}$$

W~~w~~here: ~~:~~

TSS_{train} ~~–~~= total TSS removal for treatment train (%);

A ~~–~~= % TSS removal of the first (upstream) BMP

B ~~–~~= % TSS removal of the second (downstream) BMP

4.13.2 Water Quality Hotspots

Not all structural stormwater controls are appropriate for receiving runoff from hotspots. Hotspots are land uses or activities which produce higher concentrations of trace metals, hydrocarbons, or other priority pollutants. Examples of hotspots might include: gas stations, convenience stores, marinas, public works storage areas, garbage transfer facilities, material storage sites, vehicle service and maintenance areas, commercial nurseries, vehicle washing/steam cleaning sites, landfills, construction sites, industrial sites, industrial rooftops, ~~and~~ auto salvage or recycling facilities, and dog parks. Only appropriate structural stormwater controls identified in the *i*SWM™ Site Development Controls Technical Manual may be used ~~as being appropriate~~ for receiving hotspot runoff ~~may be used for this purpose~~.

Facilities that discharge stormwater associated with industrial activity permitted under TCEQ Multi-~~-~~Sector General Permit (TXR050000) may incorporate WQ_v requirements into point source discharge control requirements.

4.13.3 Required Stormwater Facility Maintenance Agreements

All private post-construction structural stormwater controls shall require a SWFMA ~~Stormwater Facility Maintenance Agreement~~ in accordance with Section 4.14 of this manual.

~~4.11.2~~4.13.4 Construction Erosion and Sediment Control Requirements

All land-~~-~~disturbing activities must include provisions for erosion and sediment control in accordance with Section 7.3 (Land-~~-~~Disturbing Activities) of the DDC, the *i*SWM™ Water Quality Technical Manual ~~Document~~, the *i*SWM™ Construction Controls Technical Manual, ~~Document~~ and the *i*SWM™ Site Development Technical Manual ~~*Document*~~.

A. Two-phased erosion control plans are required for non-linear projects with land-disturbing

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activities totaling five (5) acres or greater. Plans must be shown on separate sheets, and must also depict both existing and proposed contours.

~~1. Phased erosion control plans are not required when land- disturbing activities total less than five (5) acres.~~

~~2. For land disturbing activities five (5) acres or greater, a two-phased erosion control plan is required for all non-linear projects.~~

1. Phase 1 – Initial Land Disturbance: this phase must ~~depic~~utilize~~ts~~ –sediment and erosion controls ~~required~~ prior to initial land disturbing activities and include~~, as well as~~ structural controls that address low point runoff.

2. Phase 2 – Construction and Individual Lot Phase with Behind Curb Controls: this phase ~~depicts~~must require sediment and erosion controls ~~required~~ during the installation of public/private infrastructure and~~; it must also~~ include any controls to remain in place from Phase 1.

   a. Behind the curb controls shall be installed upon the completion of street segments~~,~~ and must be included in Phase 2.

B. Drainage area maps (DAMs) and calculations are required for all three (3) phases of development, as detailed below and shown in Figure 4.12.

1. Calculations for each phase shall utilize a two (2)-~~-~~year, 24-hour storm for the design of any hydraulic component of the erosion control plan including sediment basins, swales, channels, berm height, weir length, or any other outlet or conveyance structure required by the plan.

2. The DAM requirements for each Phase of development are as follows:

   a. Phase 1: Existing Conditions DAM – existing contours and flow arrows reflecting pre-development conditions.

   b. Phase 2: Mass Graded DAM – interim contours and flow arrows reflecting mass graded conditions prior to the public/private infrastructure installation stage.

   b. Phase 3: Proposed Conditions DAM – proposed contours and flow arrows reflecting post-construction, stabilized conditions.

~~A. Phased erosion control plans are required. Plans must include existing and proposed contours.~~

~~1. Initial grading phase.~~

~~2. Individual lot phase with behind curb controls.~~

   ~~a. Behind the curb controls shall be installed upon completion of street segments.~~

   ~~b. Identify areas of permanent inactivity and provide timeline for vegetative stabilization.~~

~~B. Drainage area maps and calculations are required for three phases of development. Calculations shall utilize a 2 year 24-hour storm for the design of any hydraulic component of the erosion control plan including sediment basins, swales, channels, berm height, weir length or any other outlet or conveyance structure required by the plan.~~

~~1. Existing pre-development conditions.~~

~~2. Mass graded conditions prior to public/private infrastructure installation stage.~~

~~3. Proposed post construction conditions.~~

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~~1. See map examples on next page~~

C. ~~A sedimentation basin is required where 10 acres or more drain to a common area during any phase of development.~~A sedimentation basin or similar impoundment is required where 10 or more acres drain to a common area during any phase of development.

1. Sediment basin(s) or impoundments must provide at least 3,600 cubic feet (cu. ft.) of storage per acre drained until final stabilization of the contributing drainage area. Sedimentation basins or impoundments must be ~~designed for and appropriate for~~capable of controllingling runoff at the site. Existing detention or retention ponds at the site may not be appropriate, as determined by City review staff.

   a. Outlet structures shall be designed to provide a minimum dewatering time of 36 hours and a maximum dewatering time of 72 hours.

   b. ~~Decentralized treatment such as sediment traps may be used instead of sediment basins where the calculations are provided demonstrating equivalent volume treatment.~~~~Unless infeasible, when~~When discharging from sedimentation basins and impoundments, the permittee shall utilize outlet structures that withdraw water from the surface. If this is infeasible, a reason must be provided to City review staff during planning.

~~C.~~ Vegetative stabilization is required for all permanent and temporary channels and basins. Plant selection guidance is provided in the *i*SWM™ Landscape Technical Manual ~~*Document*~~.

D.

~~D.~~ Erosion and sediment control ~~Best Management Practices (~~BMP~~s)~~ design criteria shall adhere to the most current version of the *i*SWM™ Construction Controls Technical Manual, ~~*Document*~~ unless one of the following exceptions applies:~~.~~

E.

~~1.~~ Linear projects may ~~instead~~ follow Tx~~x~~DOT standards; or~~.~~

1.

2. Proprietary erosion or sediment control devices may be utilized when:

~~1.~~

   a. Independent performance data is provided to prove a demonstrated capability of meeting a stormwater management efficiency equivalent to *i*SWM™ methods; and~~.~~

   b. Supplementary data for systems or devices, such as instruction manuals and specification sheets, ~~must be~~are provided and are demonstrated to be appropriate for use in North Central Texas site conditions~~.~~, as determined by City review staff.

3. Filter Tube Inlet Protection and Rock Sock Inlet Protection methods are prohibited.

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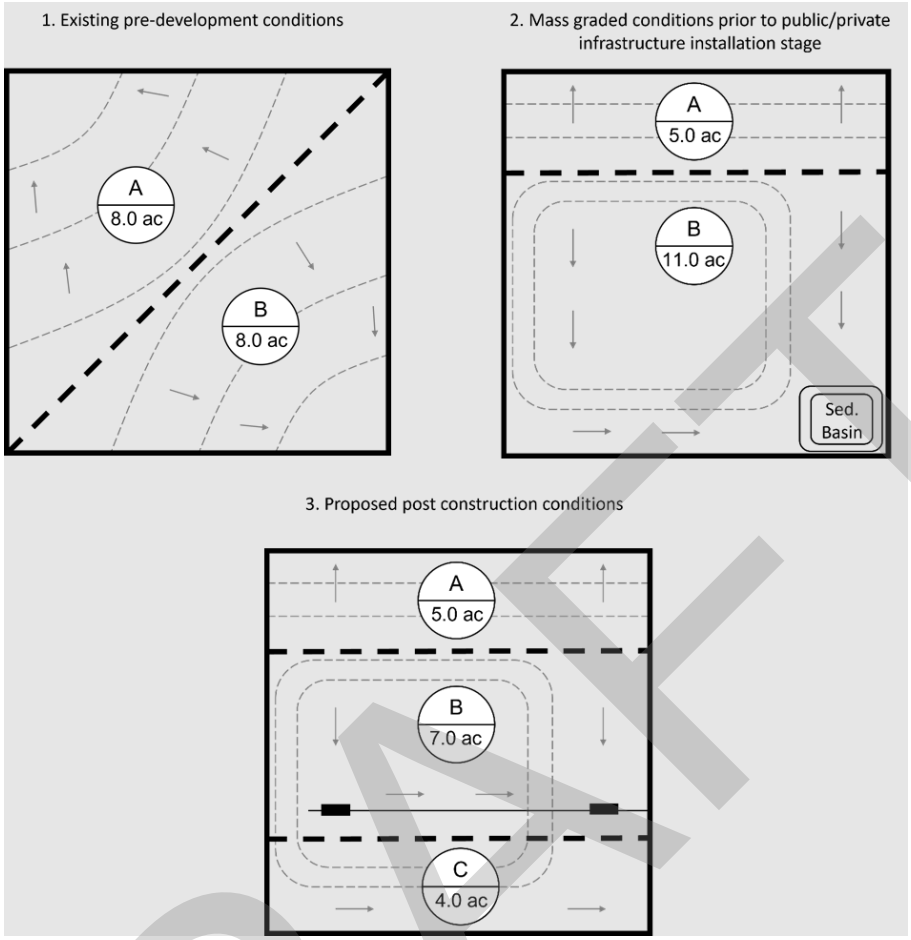

Figure 4.12 Drainage area map examples required for the three (3) development phases

~~4.12~~4.14 Stormwater Facility Maintenance Agreements

~~4.12.1~~4.14.1 Maintenance Agreements

All drainage improvements constructed within a development and any existing or natural drainage systems ~~to remain in use~~ shall require a maintenance agreement that identifies responsible parties for maintenance. The maintenance agreement shall be written such that it remains in force upon sale of transfer of the property.

As part of the Operations and Maintenance Plan submittal, A *Stormwater Facility Maintenance Agreement* must be prepared by the engineer of record for each stormwater control that will not be wholly maintained by the City~~, as part of the Operations and Maintenance Plan submittal~~. This agreement must outline ~~both~~ preventive maintenance tasks and ~~as well as~~ major repairs, identify the schedule for each task, assign clear roles to affected parties, and provide a maintenance checklist to guide future owners, including an annual self-inspection to be provided to the City. Multiple stormwater controls may be contained within a single Stormwater Facility Maintenance Agreement. When areas are identified for detention that also serve other purposes for the development (e.g. parking lots, loading docks) the requirement for a Stormwater Facilities Maintenance Agreement may be waived.

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~~4.12.2~~4.14.2 Private Maintenance (SWFMA Required)

A. Private drainage facilities include those drainage improvements which are located on private property and which serve the needs of private development.

B. Private drainage facilities may also include detention or retention ponds, dams, and retaining walls intended to direct or contain runoff. Such facilities must be designed in accordance with sound engineering practices and reviewed and inspected by the City.

C. All~~n agreement~~ SWFMA exhibits shall be reviewed and approved by the City with the civil engineering plans. The agreement for perpetual maintenance of private drainage facilities shall be executed with the City ~~prior to approval of civil engineering plans~~during pre-construction. This agreement shall run with the land and can be tied to commercial property or to an owner's association, but not to individual residential lots.

D. The ~~Access shall be provided by the developer/owner~~SWFMA shall provide the City with access to all private drainage facilities.

~~4.12.3~~4.14.3 Maintenance Agreement~~s~~ Requirements

Details of the ~~agreemen~~SWFMA~~t~~ must be set forth in a series of exhibits:

A. Exhibit A Legal Description - This includes the Metes and Bounds, a Surveyor's Drawing of the area occupied by the facility, and a copy of the preliminary or ~~final~~ recorded plat containing the facility.

B. Exhibit B Design Plan and Specifications - These are summary documents intended for the use of future owners in conducting routine maintenance, inspections, and repairs. The documents include:

1. Design Data and Calculations - This can be in the form of a letter or statement from the engineer of record which summarizes critical design calculations related to the functionality of the facility, such as storage volume or TSS removal, and attests to the facility conforming to applicable *i*SWM standards; ~~.~~

2. Schematic Plan - This should be prepared by the engineer of record from construction drawings to show the general layout of the facility. Major features requiring regular or special maintenance should be shown and labeled in general terms understandable to a layman. A profile should be given showing critical elevations that control the function and capacity of the facility, and one or more cross-sections should be provided to indicate the general grading of the facility. A typical example of a schematic plan for a simple detention basin is shown in Figure 4.13 below; and~~.~~

3. Landscaping - Vegetation should be shown consistent with the accepted Landscape Plan, either on the Schematic Plan or as a separate drawing.

C. Exhibit C Operations and Maintenance Plan - Specific maintenance tasks should be defined for each element of the facility. Maintenance tasks specific to the facility should be described in simple terms consistent with ~~nomenclature~~terminology contained in the Schematic and Landscape plans. An inspection and maintenance frequency should be established for each task.

D. Exhibit D Maintenance Checklist - A checklist consistent with the Operations and Maintenance Plan shall be provided for the use of future owners in performing routine and special maintenance tasks. This list should describe work required and frequency in language that is easy to understand and specific for the facility to be maintained. This form will be completed by the Owner and submitted

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to the City annually as part of a regular self-inspection program. *See* Appendix A for an example checklist for preparing a Stormwater Facility Maintenance Agreement for a simple detention basin. Additional facility maintenance guidance for several types of stormwater controls ~~for facility maintenance~~ is provided in the *iSWM Technical Manual*~~, for several types of stormwater controls~~. The engineer of record must certify that the construction has been completed in accordance with the general plans and Schematic Plan. After approval of construction by the City, the engineer of record is expected to provide guidance to the owner's representative in implementing the accepted maintenance program and to co-sign the first annual inspection after the construction.

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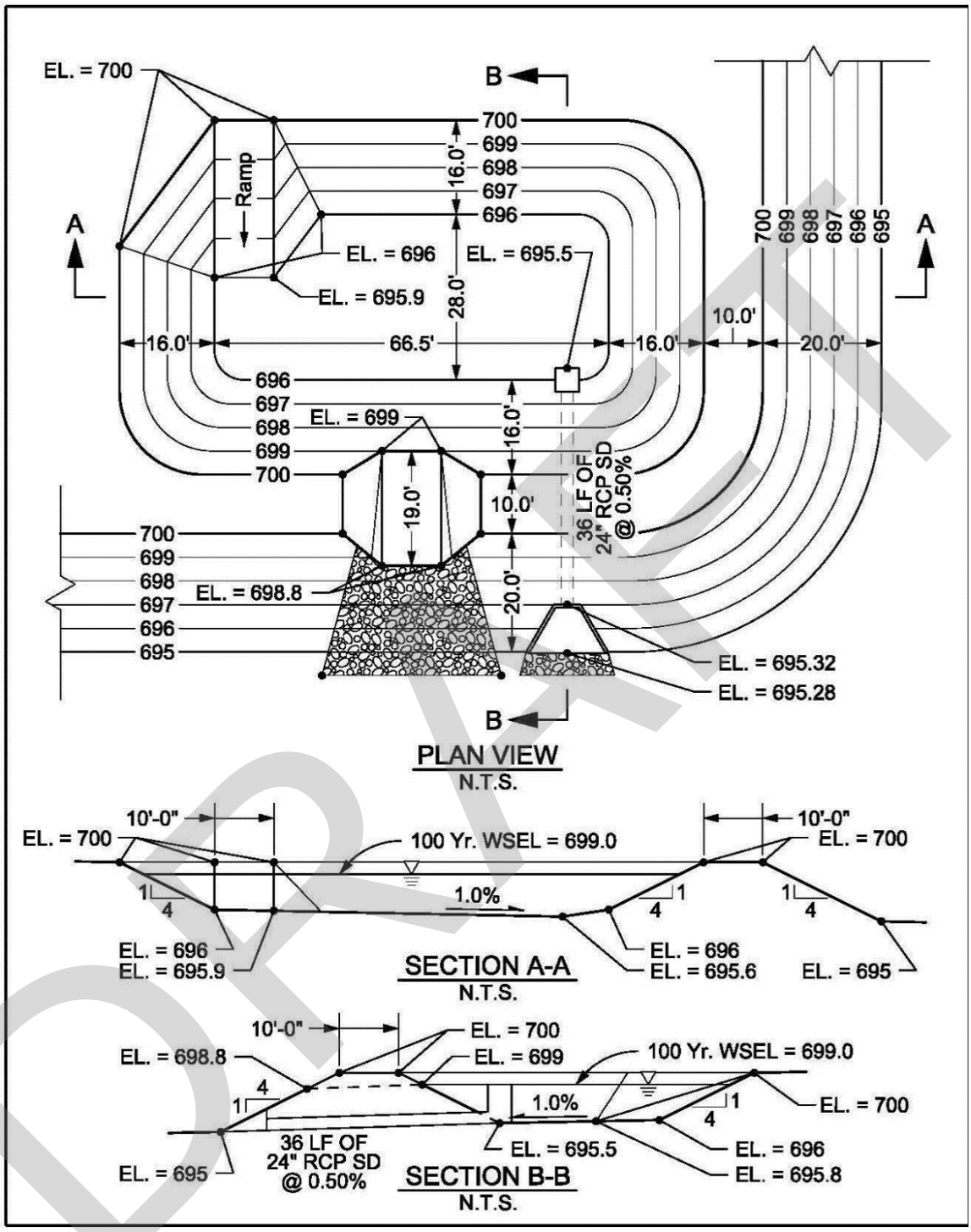

Figure 4.13 Simple Detention Basin Plan Schematic

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Section 5: Transportation Design Criteria

5.1 Overview

The purpose of ~~this Manual~~Section 5 – Transportation Design Criteria is to provide ***minimum guidelines*** for the design and construction of transportation infrastructure within the City of Denton, Texas and its extraterritorial jurisdictions using the complete street and context-sensitive solution approach. The goal is to create safer, more livable places that are consistent with their social, environmental and economic values.

~~Complete streets are transportation facilities that are planned, designed, operated and maintained to provide safe mobility for all users (including bicyclists, pedestrians, transit vehicles, truckers and motorists) appropriate to the function and context of the facility. Context-sensitive solutions formulate a complete street design considering contextual applications. Contextual applications can be of geographical nature such as Urban Core, General Urban, Suburban, University Core and other typical service areas that require unique components to address the overall transportation facilities.~~

It is the responsibility of the design engineer to ensure the final design of transportation infrastructure are in conformance with the most recently adopted versions of the following documents:

A. City of Denton Mobility Plan,

B. City of Denton Code of Ordinances, Chapter 18 – Motor Vehicles and Traffic, and Chapter 25 – Streets, Sidewalks and Public Places,

C. The North Central Texas Council of Governments (NCTCOG) Public Works Construction Standards,

D. DDC Subchapter 7.8 – Access and Circulation,

E. DDC Subchapter 7.9 – Parking and Loading,

F. Americans with Disabilities Act (ADA) Standards for Accessible Design,

G. Public Right-of-Way Accessibility Guidelines (PROWAG),

H. The International Fire Code (IFC),

I. this Manual, and

~~E.~~ relevant TxDOT, USDOT, NCHRP, FHWA, and AASHTO publications.

~~F.~~J. ~~The criteria established in this Manual have been developed from a review of various TxDOT and American Association of State Highway and Transportation Officials (AASHTO) publications, the City of Denton Mobility Plan, the North Central Texas Council of Governments Public Works Construction Standards (NCTCOG), other City Transportation Manuals from various cities in the surrounding area, regulatory requirements and City of Denton offices which oversee the design, construction and maintenance of public transportation infrastructure.~~

~~This Manual is ***not*** intended to be a complete design criteria for all circumstances and conditions. Other design criteria may be warranted from applicable resources. The Federal Government, the State of Texas, NCTCOG, Denton County, Denton County Transit Authority (DCTA) and other related organizations and resources shall be consulted for additional criteria as may be deemed necessary.~~

~~This Manual is to be used by design engineers in the City of Denton Capital Project/Engineering Department, consulting engineers employed by the City and engineers of subdivisions and land development infrastructure projects proposed for construction and acceptance by the City within the City~~

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~~and within its extraterritorial jurisdictions. The criteria established in this Design Manual provide basic guidance. However, ***full responsibility and liability for proper design remains with the design engineer***. ***Users of this Manual should be knowledgeable and experienced in the theory and application of transportation engineering.*** The City Engineer or his/her elected representative must approve any deviation from criteria established in this Manual.This Manual is ***not*** intended to be a complete design criterial for all circumstances and conditions. Other design criteria may be warranted from applicable resources. The Federal Government, the State of Texas, NCTCOG, Denton County, Denton County Transit Authority (DCTA) and other related organizations and resources shall be consulted for additional criteria as may be deemed necessary.~~

~~Along with this Design Manual, the Denton Development Code (DDC) shall be consulted for additional guidance. The criteria established in this Manual do not supersede the policies contained in the DDC. Any revision to the DDC supersedes the criteria in this Manual.~~

The criteria established in this Manual provide basic guidance for the design of transportation systems within the City of Denton. ~~This Manual is ***not*** intended to be a complete design criterial for all circumstances and conditions.~~ However, ***full responsibility and liability for proper design remains with the design engineer***. ***Users of this Manual should be knowledgeable and experienced in the theory and application of transportation engineering.***

Other design criteria may be warranted from applicable resources. The Federal Government, the State of Texas, NCTCOG, Denton County, Denton County Transit Authority (DCTA) and other related organizations and resources shall be consulted for additional criteria as may be deemed necessary. Along with this Design Manual, the ~~Denton Development Code (~~DDC~~)~~ shall be consulted for additional guidance. The criteria established in this Manual do not supersede the policies contained in the DDC. Any revision to the DDC supersedes the criteria in this Manual.

5.1.1 Organization

Section 5 - Transportation Design Criteria ~~-~~is organized as follows:

A. Overview

B. Mobility Framework

C. Roadway Design

D. Intersection Design

~~D.~~E. Auxiliary Roadway Design

F. Access Management

G. Bike and Pedestrian Facility Design

H. Transit Facility Design

~~E.~~I. Traffic Impact Analysis Guidelines

~~F.~~J. Pavement Design Standard

~~G.~~K. Complete and Context-Sensitive Streets

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5.2 Mobility Framework

The City of Denton Mobility Plan should be reviewed relative to any proposed development.

It should be noted that the City of Denton Mobility Plan is a living document and is periodically updated to reflect the changes in the characteristics of anticipated traffic flow within the City.

5.2.1 Roadway Classification

The City of Denton Mobility Plan provides definitions for the street classifications. These street classifications apply to developments and/or street improvements within the City of Denton and are to be used for design purposes. These classifications were established in the Thoroughfare Plan based upon expected fully developed traffic volumes.

A. Freeway

Freeways are streets that are intended to move large volumes of traffic through and around the City and are typically maintained by the ~~Texas Department of Transportation~~TxDOT. These street types are to have limited access as defined in Section ~~2~~5.6 Access Management section of th~~e~~is M~~m~~anual.

Freeways in the region typically have high design speeds and have on- and off- ramps to control access. In urban areas, these freeways have adjacent frontage roads that provide access to adjacent business that may front onto the corridor.

B. Primary Arterial

Arterial streets are streets that serve major routes into and through the City of Denton. Arterial streets are shown on the City Mobility Plan. These street types are to have limited access as defined in Section ~~2~~5.6 Access Management section of th~~e~~is M~~m~~anual.

Primary arterials provide regional connectivity between different areas of Denton County and the DFW region. The design of arterial can vary depending on the surrounding land use and development. In urban areas, arterials may have wider sidewalks with smaller building setbacks, while suburban areas may have limited sidewalks with a larger buffer between the edge of the street and the building fronts.

C. Secondary Arterial

Secondary arterials provide shorter connections and carry less traffic. Secondary arterials are still significant to vehicular travel as they serve trips of moderate length and provide more land access.

D. Collectors

A collector street is a street that collects associated traffic from residential streets, rural streets, commercial streets, or industrial streets as designated on the City Mobility Plan.

Collectors in the City of Denton provide local land access and traffic circulation from residential neighborhoods to arterials. They typically experience lower traffic volumes and have lower design speeds.

E. Local Streets~~Roads or Residential Streets~~

~~A residential street is a public street associated with residential development within an urban environment. The residential street may require parking or prohibit parking, dependent on use. Alleys will be required for residential streets prohibiting on-street parking.~~

A local street is a public street that provides access to adjacent property and are usually contained

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within the neighborhood. ~~is associated with residential development within the City.~~ These streets have low speeds and low volumes associated with them. Local streets may be further classified into the following two (2) types:

1. Residential – A residential street is a public street associated with residential development within an urban environment. The residential street may require parking or prohibit parking, dependent on use.

2. Rural – A rural street is a public street that connects rural communities.

Existing or new industrial developments on local streets shall consult with the City's Engineer.

5.2.2 Auxiliary Roadway Classifications

Roadways that cannot be classified as thoroughfare, are grouped together as auxiliary roadways and are classified here as follows:

A. Alleys

An alley (residential or commercial) is designed to provide access to the rear of or side of a lot including solid waste and fire access. Alleys will be required for residential streets prohibiting on-street parking. Alleys are required in non-residential zoning districts where necessary to provide for adequate access for service vehicles, off-street loading or unloading, access for emergency vehicles, fire access or similar reasons consistent with the intent of the DDC.

~~F.~~B. Drive~~sways~~

A drive is an unobstructed paved area providing vehicular access from a street to a developed property. Drives can be classified as follows:

1. Driveway - A d~~"D~~riveway~~"~~ is located entirely on private property. It is only for a single-family or a duplex property. It connects a drive approach to a garage, ~~"~~car~~"~~port, parking pad or the like.

2. Drive Aisle - A d~~"D~~rive a~~A~~isle~~"~~ is located entirely on private property. It is for every other condition other than for a single-family or a duplex property. It connects a drive approach to an area(s) that is to be accessed on the site such as, but not limited to: parking space(s); loading dock(s); loading area(s) (marked or implied - for passengers and/or goods); porte-cochere(s), and/or the like. It can also be a fire lane (in and of itself or in conjunction with other access use[s]). It can also be an access to an adjoining property (in and of itself or in conjunction with other access use[s]).

~~3.~~ Drive Approach -

~~4.~~ A d~~"D~~rive a~~A~~pproach~~"~~ connects a street (c~~C~~ity, public or private) or highway (TxDOT) with a drive aisle. Some features of the drive approach may extend into and be a part of the driveway or drive aisle. The drive approach is measured from the face of the roadway curb to the end of the curb return radius on the private property~~.~~.

~~5.~~

~~6. 2.1. Drive Approach Type ??~~

~~7.~~3. The following provides the types of drive approaches considered within the~~e~~is M~~m~~anual:

a. Single-family residential: ~~–~~ A drive approach to a single-family residential lot or one lot duplex.

b. Multi-family residential: A drive approach to a multi-family lot such as triplexes, fourplexes, and multi-complexes. The drive approach can be either the main entrance approach or the secondary entrance approach. Each type has specific design requirements.

c. Commercial: A drive approach to a commercial development. The drive approach can be either the main entrance approach or the secondary entrance approach. Each type has specific design requirements.

d. Industrial: A drive approach to an industrial development. The drive approach can be either the main entrance approach or the secondary entrance approach. Each type has specific design requirements.

e. Mixed-use approach: A drive approach that is a mixed-use development shall consider the more stringent criteria for the approach design.

~~8. Cul-de-sacs (& Dead-End Streets?)~~

~~9. A Cul-De-Sac is a dead-end street that has a fire-accessible turnaround at the end of the street. A half Cul-De-Sac is a street bend at 90 +/- 5 degrees for residential and collector streets.~~

~~10.~~ Flag Drives

~~11.~~4. A flag drive is a private road within a private access easement, which may serve up to three (3) residential dwelling units. Flag drives shall have direct access to a public street other than an alley. They shall not, however, provide direct access to an arterial or collector street.

~~G.~~C. Dead-End Streets & Cul-De-Sacs

A Cul-De-Sac is a dead-end street that has a fire-accessible turnaround at the end of the street. A half Cul-De-Sac is a street bend at 90±5 degrees for residential and collector streets. Dead-end streets have the same general geometric aspects of a cul-de-sac, but has an undefined and abrupt termination. Dead-end streets and cul-de-sac should be avoided if possible to enhance ~~the~~ street connectivity.

5.3 Roadway Design

5.3.1 Design Controls

Traffic volumes and speed are necessary for the design of roadways, and assist with the planning and design of ROW, number of lanes, ~~and~~ turn-lanes, need of intersections, and bicycle and pedestrian facilities. Guidance on these design controls will be discussed at the pre-design meeting.

5.3.2 Street Sections

~~Street Cross Sections~~

~~Street section standards are provided in this section of the manual. Refer to the City of Denton standard details for cross section details. Options~~ Street section standards are provided for arterial, ~~residential, c~~collector, and ~~arterial~~ local streets in Table 5.3-A below. Refer to the City of Denton Standard Details for cross-section details. Options for street sections are dependent upon treatment utilization within the street section. Besides defined lanes, other treatments that can be utilized within the street sections include on-

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street parking, bike lanes, multi-use paths, and transit facilities. The intent is to provide options in order to develop a "complete -street" ~~and~~ with "context-sensitive" design~~.~~; *See* Section 5.11 of this Manual. ~~Table 5.2-A provides the street standards including options. Right-of-way~~ROW requirements may vary at intersections based upon turning movement requirements.

~~Minimum and maximum street grades are also shown on Table 5.2-A.~~ In general, street grades shall follow the natural contour of the property and be below the existing grade so that the parkway drains towards the street. Excessive cuts and fills solely for the purpose of balancing earthwork are not permitted.

Table 5.3-A: Geometric Roadway Standards

Roadway Classification	No. of Lanes [1]	Min. ROW (feet)	Min. B-B Width [2] (feet)	Min. Center Line Radius [3] (feet)	Min. Horizontal Curve Separation (feet)	Min Grade (%)	Max Grade [4] (%)
Freeway	As per Tx~~X~~DOT standards ~~[5]~~						
Primary Arterial	6	135	104	750	100	0.5	7
Primary Arterial – Modified	6	135	88	750	100	0.5	7
Secondary Arterial	4	110	80	575	100	0.5	7
Secondary Arterial – Modified	4	110	67	575	100	0.5	7
Collector – Commercial	2	65	39	575	100	0.5	7
Collector – Residential	2	65	39	400	100	0.5	7
Local – Residential	2	55	33	200	0	0.5	10
Local – Rural	2	65	25 ~~[6]~~	200	0	0.5	10
Local – Alley ~~[7]~~	1	20	15 ~~[6]~~	100	0	0.5	8

Notes:
[1] Number of travel lanes dependent upon TIA and/or City's Engineer's ~~of Denton Engineer or designee~~ requirements.~~;~~
[2] *See* ~~Table 1.4.3.1~~ Table 5.4-D, Table 5.4-E, and Table 5.4-F for additional ~~right-of-way~~ROW requirements at intersections with turn lanes.~~;~~
[3] Minimum~~.~~ center line radius based on cross slope of ~~minus two percent (~~-2%~~)~~ (no super elevation).
[4] Maximum grade within 60 feet of an intersection measured from the intersection curb is 2% or less.
[5] ~~Specify Source ……~~
~~[6]~~ Measurement is edge-of-pavement to edge-of-pavement.
[~~7~~6] If an a~~A~~lley is to be used for waste collection, then it must meet all alleyway access requirements shown in Section 3: Solid Waste Design Criteria of this Manual.~~I.~~

5.4 Intersection Design

~~General~~

~~Three~~Several components of ~~intersections~~intersection design are addressed in this section~~ of the manual: intersection geometry, visibility standards and turning movement standards~~. These standards are to work in concert with the Traffic Impact Analysis (TIA) requirements of this M~~m~~anual. Additionally, the Pedestrian and Bicycle Facility Design, Transit Facility Design, and the City of Denton Standard drawings for accessibility should be reviewed for additional design requirements.

~~5.3.3~~5.4.1 Geometry

A. Street intersections should be designed to be perpendicular~~.~~; *see* tolerances shown in Table 5.4-A below. All streets shall be aligned with any existing streets by continuation of the centerline thereof.

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B. The staggering of street alignment resulting in "T" intersections shall leave a minimum distance of ~~one hundred fifty (~~150~~)~~ feet between the centerlines of residential streets, and ~~two hundred (~~200~~)~~ feet between the centerline of collector streets.

~~C. Table 5.5-A provides tolerances that are acceptable for types of intersections based upon street classification.~~ Table 5.~~5~~4-A and Figure 5.1 below ~~also~~ provide~~s~~ requirements for ~~required right-of-way~~ROW corner ~~clip~~clips ~~requirements~~ and curb return radius ~~requirements~~ at ~~for~~ intersections. These standards provide minimum vision clearance areas without consideration to stopping sight distance. Additional sight clearance evaluation should be performed as necessary, ~~according to~~as per ~~-~~Section 5.4~~5~~.3 below.~~.~~

~~D.~~C.

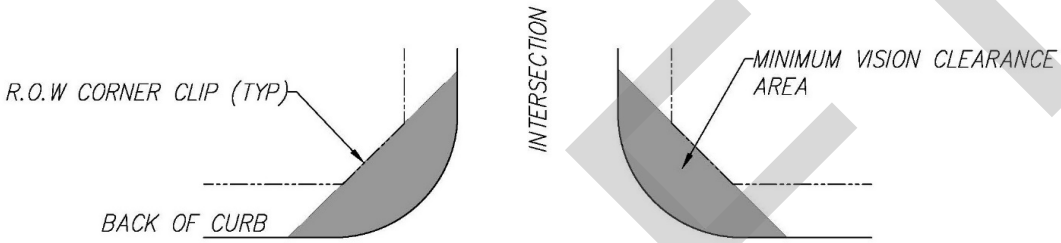

Figure 5.1~~5.16.1~~ Minimum Vision Clearance

Table 5.4-A: Intersection Geometry

~~Roadway~~ Intersection Classification	Intersection Angle (degrees)	R.O.W Corner Clip[1] (feet)	Curb Return Radius (feet)
Arterial ~~-~~/Arterial	90±~~+/-~~5	30	30
Collector ~~-~~/Arterial	90±~~+/-~~5	20	30
Collector ~~-~~/Collector	90±~~+/-~~5	15	30
Residential Street ~~-~~/Arterial	90±~~+/-~~5	15	30
Residential Street ~~-~~/Collector	90±~~+/-~~10	15	20
Residential Street ~~-~~/Residential Street	90±~~+/-~~10	10	20
Flag Drive ~~-~~/Collector	90±~~+/-~~10	5	20
Flag Drive ~~-~~/Residential Street	90±~~+/-~~15	5	10
Alley~~/~~ ~~-~~ Collector	90±~~+/-~~10	10	30
Alley~~/~~ ~~-~~ Residential Street	90±~~+/-~~10	15	30
Alley ~~-~~/Alley	90±~~+/-~~10	25	30

Notes:
[1] Shall apply to all corners of the intersection.
[2] Fences must provide a 5-f~~oo~~t. corner clip adjacent to driveways.
[3~~2~~] Curb Return Radius is for single lane design. Multi-lane and special considerations for truck~~-~~turning radius require~~s~~ turn radius analysis, as required by the City~~'~~s Engineer~~Engineer or designee.~~.~~

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5.4.2 Visibility Standards

Table ~~1.4.2.1~~5.4-B and Figure ~~1.4.2.1~~5.2 below shall be used to evaluate the required unobstructed view for motorists~~ for the~~ at intersections, ~~ design and~~ which are based upon the design speed ~~outside~~ approaching~~of~~ the intersection. Design speeds are based upon the ~~street~~ roadway classification~~City of Denton~~. The values shown in the table are minimum standards. Within the sight line area, no obstruction shall be allowed that will obstruct the view of motorists. A sight visibility easement shall be dedicated to protect and maintain sight visibility.

A. Table ~~1.4.2.1~~5.4-B below is based upon passenger car right turn and left turn from stop. Where truck traffic warrants additional sight distance, refer to AASHTO Geometric Design of Highways and Streets for single-unit truck and combination truck design requirements, Case B1 and Case B2.

B. Refer to AASHTO Geometric Design of Highways and Streets for multi-lane considerations and other design considerations that may apply for Cases "A" through "F".

C. Lines of sight distance at all intersections shall be clear at an elevation between two (2) feet and nine (9) feet above the nearest gutter elevation.

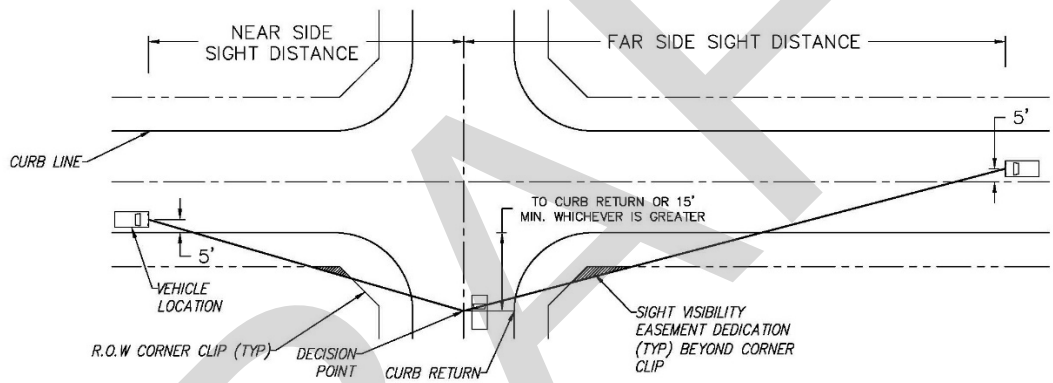

Figure 5.2~~5.25.2~~ Visibility Standards

Table 5.4-B: ~~Sight~~ Visibility Standards

Design Speed (~~mph~~MPH)	Intersection Sight Distance Near Side (feet)	Intersection Sight Distance Near Side (feet)
30	290	335
35	335	390
40	385	445
45	430	500

Notes:
[1] ~~If corner clips table standards cannot be met, use this table and figure 1.4.2.1 which provide minimum creitera for visibility[3]~~
Driveways accessing roadways shall use above table ~~for all visibility~~to satisfy intersection visibility compliance.
~~This table applies only if corner clips are not able to be met.~~

~~5.3.4~~5.4.3 Vertical Curve Standards

Vertical curves are required when two (2) street grades intersect at a point of vertical intersection greater

than 1%. Minimum vertical lengths for both crests or sags shall be defined by the design speed for the street and the associated stopping sight distance, ~~and~~ as well as the minimum K value. Table 5.~~3-B~~4-C below shows the minimum K value for various design speeds.

Table 5.4-C: Minimum 'K' Values for Vertical Curves

Design Speed (~~mph~~MPH)	Stopping Sight Distance (feet)	Crest Vertical Curve (K ~~Min~~in)	SAG Vertical Curve (K Min)
30	200	19	37
35	250	29	49
40	305	44	64
45	360	61	79

Notes:
[1] S~~O~~ource: AASHTO Geometric Design of Highways and Streets 'US Greenbook'.

Vertical curve lengths can be calculated as shown in Equation 5.1 below:

$$L = KA \qquad \text{[Eqn. 5.1]}$$

Where: L = Vertical Curve Length

A = Algebraic Difference in Grade

A. No vertical curve required for "A" equal to or less than 1.0%

B. Minimum spacing between successive vertical curves shall be 50 feet for residential, and 100 feet for collectors and arterials.

~~C. Unless otherwise approved by the City Engineer, r~~Resultant vertical curve grade shall be no less than 0.3% for concrete pavement, and no less than 0.5% for asphalt pavement.

~~D.~~C.

~~E.~~ For drainage purposes, 50-ft. vertical curves are required when "A" is greater than 1.0% and less than or equal to 1.2%. Otherwise minimum vertical curve length is 100 feet.

~~F. Stopping sight distances and K values are from AASHTO Geometric Design of Highways and Streets.~~

~~G.~~D.

~~5.3.5~~5.4.4 Turn Lane Requirements

Turning lane requirements shall be based upon the following requirements and/or the requirements of the ~~City of Denton~~ City's Engineer~~Engineer or designee~~, and the tables within this section.

A. Left-Turn Lane ~~Criteria~~Warrants

When designing an intersection that provides direct or indirect access to the proposed development, left-turn lanes should be provided at driveways and street intersections along major arterial and collector roads, wherever left turns are permitted. Table 5.4-D below provides criteria which warrant ~~Criteria for when~~ left-turn lanes ~~should be provided are set forth in Table 1.4.3.1~~. Figure 5.3 below provides guidance on left-turn lane requirements.

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Conditions for requesting a left-turn lane include large truck volume, high crash history, limited sight distance, and significant delay for motorists to make the turn, as determined by the City's Engineer.~~The development of the criteria for the left-turn lane requirement is based on the following considerations.~~

~~Speed: Speeds are too high to safely make left turns to or from a particular roadway.~~

~~Safety: There is a trend or pattern of crashes involving left-turning vehicles or rear-end or sideswipe/weaving crashes as through vehicles interact with queued vehicles.~~

~~Delay: Drivers have to wait a long time to make a left turn.~~

~~Volume: There are a high number of left-turning vehicles.~~

Table 5.4-D: Left-Turn Warrants for Urban and Suburban Roadways

Left – Turn Lane Peak Hour Volume (vehicles per hour)	Three-Leg Intersection, Arterial/Collector Volume (vehicles per hour per lane~~/hr/ln~~) that Warrants a Left-Turn Lane	Four-Leg Intersection, Arterial/Collector Volume (~~(~~vehicles per hour per lane~~veh/hr/ln~~) that Warrants a Left-Turn Lane
5	450	50
10	300	50
15	250	50
20	200	50
25	200	50
30	150	50
35	150	50
40	150	50
45	150	<50
50 or More	100	<50

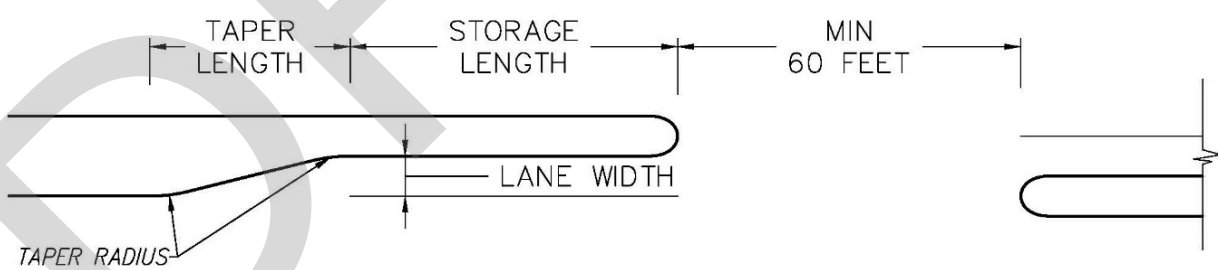

Figure 5.3~~6.35.3~~ Left-Turn Lane

B. Right-Turn Lane Warrants

When designing an intersection that provides direct or indirect access to the proposed development, right-turn lanes should be provided along major arterial and collector roads at driveways when the right turns are permitted and satisfy the following criteria. Table 5.4-E below provides criteria which warrant right-turn lanes. Figure 5.4 below provides guidance on right-turn lane requirements.

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Table 5.4-E: Right-Turn Warrants for Urban and Suburban Roadways		
Roadway Classification	**Speed Limit (mph)**	**Volume (Vehicles per Hour/Hr)**
Arterial / Collector	45 or greater	50 or more
Arterial / Collector	Less than 45	60 or more

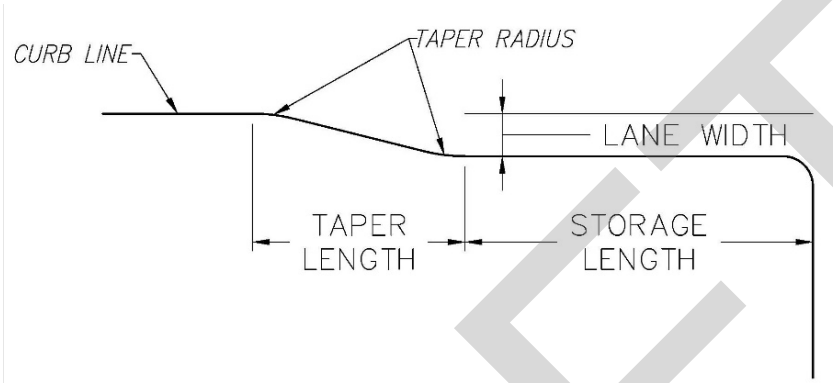

Figure 5.4~~6.45.4~~ Right-Turn Lane

Conditions for ~~providing~~ requesting an exclusive right-turn lane when right-turn traffic volume projections are less than indicated in Table 5.4-E, include the following, as determined by the City's Engineer:

1. Large volume of truck traffic,
2. High crash history,
3. Roadways with limited sight distance, or
4. Heavier than normal peak flow movements on the main roadway.

~~B.~~C. Turn Lane ~~Standards~~ Geometry

When a turn lane is required, Table ~~1.4.4.1~~5.4-F below ~~and Figures 1.4.4.1 and 1.4.4.2~~ shall be used as ~~a~~ the minimum criteria for the turn lane geometry. Additional consideration shall be given for unique traffic movements such as excessive tractor ~~-~~trailer utilization, extended length transport vehicle movement, etc. *See* Section ~~1.4.5~~5.4.5 below for additional geometry standards for Collectors and Arterials.

Table 5.4-F: Minimum Turn Lane Geometry					
Intersection Type	**Lane Width (feet)**	**Minimum Storage Length (feet)**	**Minimum Taper (feet)**		**Additional ROW Required (feet)**
			LEFT TURN	**RIGHT TURN**	
Residential Collector	11	100	100	100	15
Commercial/Industrial Collector	11	150	100	150	15
Secondary Arterial	11	150	100	200	15
Primary Arterial	11	200	100	200	15

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Notes:
[1] Required turn lane storage may be greater depending upon the ~~Traffic Impact Analysis.~~TIA.
[2] The Pedestrian Path shall be taken into account for access across the median by utilizing a leave-out or ramp in accordance with accessibility standards described in this manual.
[3] Cross slope of median openings or turn bays shall not be more than 2% ~~percent~~ or less than 1% ~~percent~~.
[4] On TxDOT Roadways TxDOT standards shall supersede City of Denton Standards.
[5] Taper Radius shall be 200 feet minimum.
[6] Additional ROW required per turn lane bay, if ROW is not sufficient.

~~5.3.6~~5.4.5 Intersection Detail for Collectors and Arterials

Figure 5.5 below~~1.4.5.1~~ provides median location details and specific turn lane radius requirements. Also refer to median details shown in the City of Denton Standard Details.~~drawings~~

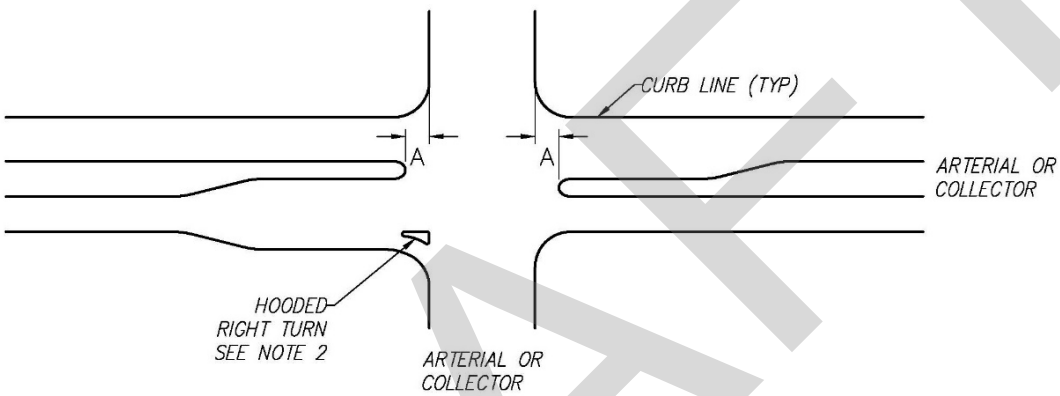

Figure 5.5~~6.55.5~~ Intersection Detail for Collectors and Arterials

Notes:
1. For collector and arterial streets, A = 15 feet minimum.
2. Depending upon traffic flow requirements, the right turn may require a hooded right turn.

~~5.3.7~~5.4.6 Intersection Spacing

Standards for intersection spacing are outlined below in Table 5.4-G. ~~Figure 1.4.5.1 provides median location details and specific turn lane radius requirements. Also refer to median details shown in the City of Denton Standard drawings~~

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Table 5.4-G: Minimum Intersection Spacing [1]					
Roadway Classification	Alley	Flag Drive	Residential Street	Collector	Arterial
Alley	100 feet	N/A	100 feet	100 feet	N/A
Flag drive	N/A	N/A	75 feet	75 feet	N/A
Residential Street	100 feet	75 feet	*200 feet [2]	*200 feet [2]	400 feet
Collector	100 feet	75 feet	*200 feet [2]	*200 feet [2]	400 feet
Arterial	N/A	N/A	400 feet	400 feet	1200 feet

Notes:
[1][1] Spacing will be measured between face of the curbs.
[2] 100-foot, minimum to the first intersection for entrances to subdivisions off of an arterial, where lots back up to the arterial. This is measured between right-of-way lines.

5.3.85.4.7 Roundabouts

Roundabouts are circular intersections that create counter-clockwise traffic movements around a central island, with entering traffic yielding to circulating traffic.

Roundabout Design

The design of a roundabout is shall be in compliance with the Intersection Control Evaluation provided by the FHWA. Normally, each roundabout will be unique in some way, so as such a standard roundabout is not included in this Mmanual. Also, the various analysisanalyseis and design considerations involved in roundabout design are beyond the scope of this Mmanual.

A. The following resources shown in this section shouldshall be used when designing a roundabouroundabout:

12. National Cooperative Highway Research Program Report (NCHRP Report) 672 - Roundabouts: An Information Guide, , Second Edition (2010)https://nacto.org/docs/usdg/nchrprpt672.pdf

1.

2. - National Cooperative Highway Research Program Report (NCHRP Report) 745 - Left-Turn Accommodations at Unsignalized Intersections (2013)

3. -TxDOT Auxiliary Lane requirements for right turn lane. http://onlinemanuals.txdot.gov/txdotmanuals/acm/auxiliary_lanes.htm

4. -Federal Highway Administration Roundabouts, An Information Guide

13. https://www.fhwa.dot.gov/publications/research/safety/00067/00067.pdf

5. -Federal Highway Administration Roundabouts, Technical Summaryroundabout. In

H. https://safety.fhwa.dot.gov/intersection/innovative/roundabouts/fhwasa10006/fhwasa10006.pdf

I.B. tIn addition to the resources shownprovided above, the roundabout design shall include the following design review process with the City's Engineer Engineer and City Staff:

1. Have a Pre-Application Conference on the project, which will include a separate meeting with the City's Engineer ~~Engineer~~ for proposed roundabout design considerations.
2. Have a ~~Traffic Impact Analysis~~TIA review meeting with the City~~-~~'s Engineer~~Engineer or designee~~. ~~-~~*See* section on TIA requirements.
3. Develop Preliminary layout of roundabout considering TIA and Pre-Development meetings.
4. Preliminary Design review meeting with the City's Engineer ~~Engineer~~.
5. Develop roundabout design based up comments from the City's Engineer ~~Engineer~~.
6. Submit roundabout design through the Development Review Process (DR~~C~~P).

5.5 Auxiliary Roadway Design

5.5.1 Alleys

A. Alleys shall have at least two (2) direct access points to public streets and are subject to the block length criteria included in this Manual.

B. Alleys shall be a minimum of 15 feet wide, with edges sloping towards the centerline at 3% slope

C. Alleys that are intended to provide fire apparatus access must meet the design requirements of Section 5.6.3-Fire Apparatus Access Roads of this Manual.

D. Refer to City of Denton Standard Detail T103C for further details.

5.5.2 Drive~~eways~~

The design criteria for drives detailed in this section should be utilized in conjunction with the DDC. ~~The user should be aware of and utilize the City of Denton Development Code.~~ The following standards generally apply to all developments. ~~-~~However, there may be unique situations for which these standards may be impractical. In these situations, the City's Engineer ~~and~~ will work with the developer to develop a mutually agreeable solution. In the event that a mutually agreeable solution is not reached, the developer may apply to the Planning and Zoning Commission for consideration of the issue.

A. Drive Approach ~~Geometric~~ Standards

Table 5.5-A: Drive Approach Dimensions

Development Type [1] ~~Use~~	Drive Approach Widths		Radius
	MIN. WIDTH (FEET)	MAX. WIDTH [2] (FEET)	(FEET)
Residential – Single~~-~~-family or~~and~~ Duplex ~~Residential*~~	12	20	5 [3]
~~Multi-Family~~ Residential – Multifamily	24	38	10 to 20
Commercial or Industrial [4]	30	38	20 to 25
~~Industrial~~	~~30~~	~~38~~	~~20 to 25~~

Notes:

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[1] Refer to Figures 5.6 through 5.10.
[2] Maximum drive approach width is a function of traffic volume.
[3] Add five (5) feet to maximum radius for significant truck traffic.
[4] For shared drive approaches, no lot shall contain less than nine (9) feet of the drive approach and driveway or drive aisle (as may apply). Drive approach shall be centered on lot line, such that maximum drive approach width equals 30 feet.
~~[4] Maximum drive approach width is a function of traffic volume. Refer to Figures 2.2.1.1 through 2.2.1.4.~~

~~6.~~

1. ~~For infill situations~~Residential

   a. O~~A o~~ne (1) single-~~-~~family or one (1) duplex residential ~~or a two-family residential~~ lot accessing a collector may be permitted to have one (1) full-~~-~~width or circular drive approach (Figure 5.6 below), ~~-~~when alleys are not practical. ~~(Figure 2.2.1.1)~~?

   b. T~~Adjacent t~~wo (2) adjacent single-~~-~~family ~~residential~~ or two (2) adjacent ~~two-family~~duplex residential lots accessing a collector may be permitted to have one (1) shared full-~~-~~width or circular drive approach, when alleys are not practical.

   c. T~~Contiguous t~~hree (3) or more contiguous single-~~-~~family ~~residential~~ or three (3) or more contiguous ~~three or more contiguous two-family~~duplex residential lots accessing a collector will be required to enter the collector by an alley, flag drive, or residential street.

   d. O~~For o~~ne (1) single-~~-~~family ~~residential~~ or one (1) ~~two-family~~duplex residential lot accessing an arterial, will be required to have an on-site facility, ~~will be required to~~ allowing entrance into the arterial in a forward manner.

   e. For homes with a 3-car garage or greater, where the garage door is street-facing and less than 40 feet from the back of curb, the maximum drive approach width shall be 30 feet.

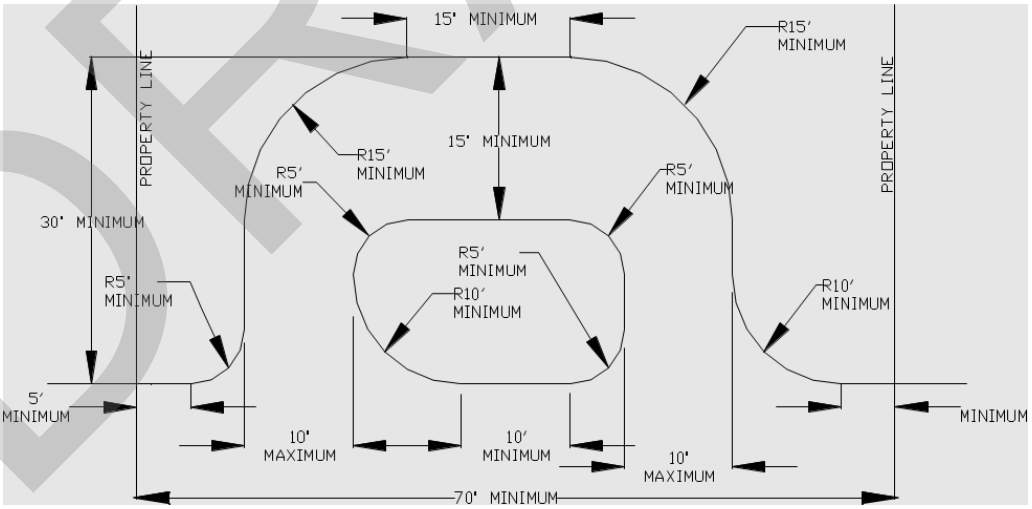

Figure 5.6~~6.65.6~~ Residential Circular Drives

~~7. For homes with a three-car garage or greater, where the garage door faces the street and the garage door is less than 40 feet from the back of curb, the maximum drive approach width is 30 feet.~~

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2. Commercial ~~Drive Approach~~

a. All stop bar~~s~~ markings and stop signs when used shall be on private property, as well as upstream of any pedestrian facility crossing the drive approach and/or drive aisle.

b. All signs and markings should be consistent with TMUTCD.

c. ~~See Figure 2.2.1.3 for Multi-Lane Egress/Ingress.~~ Drive approaches with significant truck traffic may install surmountable curb with textured and colored pavement in the parkway, with a depth equal to or greater than the drive approach pavement requirement.

d. Ingress/Egress Lanes

i. Single Lane Egress/Ingress (Figure 5.7) - The outbound (towards the street) lane shall be a minimum of 12 feet wide; if the width of the driveway is greater than 30 feet, then the inbound (onto the site) lane shall be a minimum of 18 feet wide.

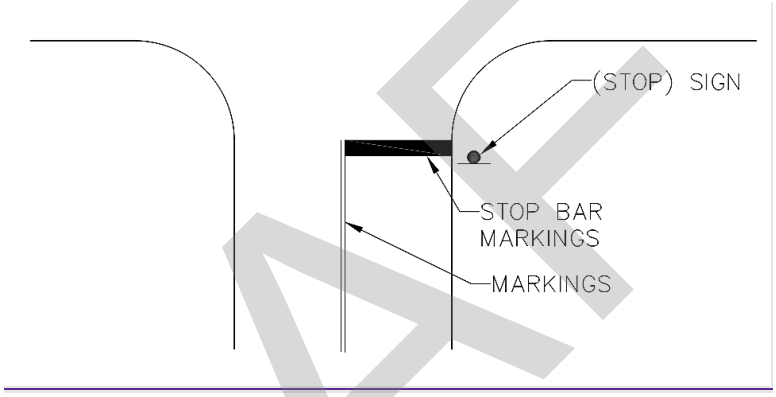

Figure 5.7~~6.75.7~~ Drive Approach: Single Lane Egress/~~/Single Lane~~ Ingress ~~Commercial Drive Approach~~

~~ix.~~ Dual Lane Egress, Single Lane Ingress (Figure 5.8)~~-~~ -

~~x. The stop bar and stop sign when used shall be on private property as well as upstream of any pedestrian facility crossing the drive approach and/or the drive aisle.~~

ii. The outbound ~~(towards the street)~~ lanes shall be 10 feet wide; if the width of the driveway is greater than 30 feet, then outbound lanes shall remain 10 feet wide while the width of the inbound ~~(onto the site)~~ lane shall be increased.

~~xi. All signs and markings should be consistent with .~~

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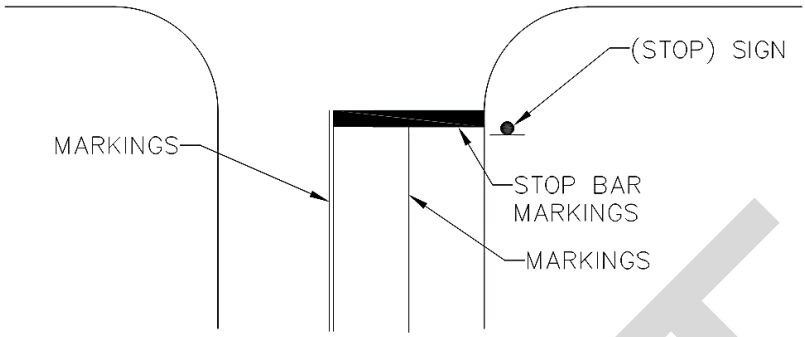

Figure 5.8~~6.85.85.~~ Drive Approach – Dual Lane Egress, Single Lane Ingress ~~Commercial Drive Approach~~

iii. Multiple Lane Egress/Ingress (Figure 5.9) - Only allowed when dual left-turn lanes into the site or opposing street/driveway has two (2) or more lanes, of which two (2) are designated as being through lanes.

~~xii.~~

~~i. The stop bar and stop sign when used shall be on private property as well as upstream of any pedestrian facility crossing the drive approach and/or the drive aisle.~~

a) ~~The two~~Each of the two (2) outbound and inbound ~~(towards the street)~~ lanes shall ~~each~~ be 10 to 12 feet wide ~~the two inbound (onto the site) shall each be 10-12 feet wide~~.

b) Median shall accommodate any pedestrian facility across the drive approach and/or drive aisle, as projected from both sides thereof.

~~a) Only allowed when dual left turn lanes into the site or opposing street/driveway has two or more lanes of which two are designated as being through lanes.~~

~~ii. All signs and markings should be consistent with .~~

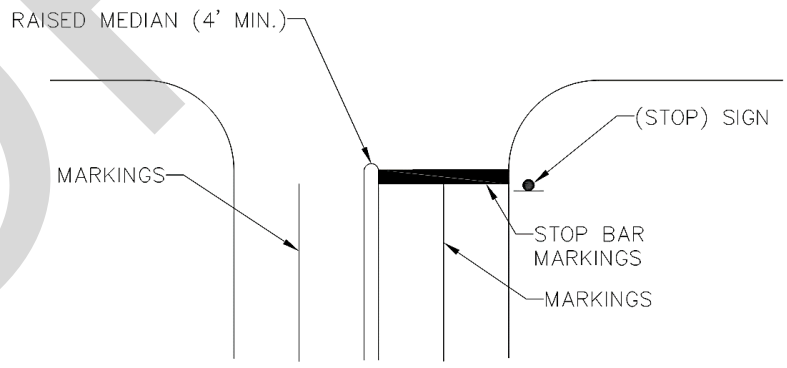

Figure 5.9~~6.95.9~~ Drive Approach – Multiple Lane Egress/~~Multiple Lane~~ Ingress ~~With Median Commercial Drive Approach~~

~~iii.~~ Right-in or Right-out Egress/Ingress -

~~iv. The stop bar and stop sign when used shall be on private property as well as upstream of any pedestrian facility crossing the drive approach and/or the drive aisle.~~

iv. The minimum width of the drive approach/drive aisle prior to the island, ~~as well as~~ each lane (inbound and outbound) at the island, and the applicable radii shall be determined by the engineer of record, ~~and~~ based ~~up~~on ~~the~~ expected vehicle type(s), ~~of vehicles expected to use it~~ as well as an auto-turn analysis provided to the City's Engineer for review and approval, as part of the Civil Engineering Plan submittal.

a) Median/island shall accommodate any pedestrian facility across the drive approach and/or drive aisle as projected from both sides thereof.

b) For "one way in" or "one way out" driveways, the geometry shall be as shown in F~~in the f~~igure 5.10 below ~~above~~ for the respective side.

c) ~~At the City's Engineer's discretion~~ Through a Design Deviation request, the minimum drive approach width may be reduced based upon acceptable turning radius for emergency vehicles, and determination that truck traffic requiring the larger width will not occur.

d) When the right in/right out drive approach is part of the fire apparatus access road, the minimum width of each drive shall be 24 feet.

~~v.~~

~~vi. All signs and markings should be consistent with .~~

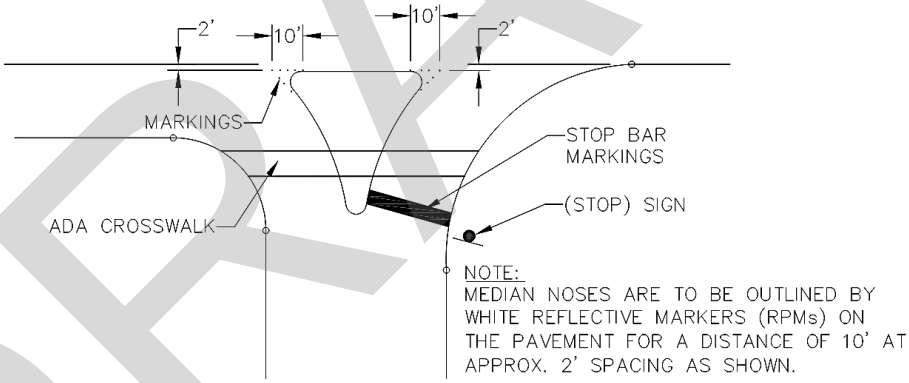

Figure 5.10~~6.105.105.~~ Drive Approach – Right in or ~~/~~Right out Egress/Ingress ~~Commercial Drive Approach~~

v. With the exception of multi-lane egress/ingress (shown in Figure 5.9), drive approaches with a median installed in lieu of the double-yellow marking, may exceed the maximum drive approach width by the width of the median only.

B. Drive Approach Spacing

1. Same side of the street

Drive a~~A~~pproach s~~S~~pacing~~-~~ shown in Table 5.5-B below applies to drive approaches on the ~~(~~same side of the street, and is measured between the nearest edges of each drive approach, along the back of curb, not including the radius.

Table 5.5-B: Minimum Drive Approach Spacing	
~~Street~~ Roadway Classification	Min. Spacing [1] ~~[1]~~ (feet)
Primary Arterial	200 [2]
Secondary Arterial	150 [2]
Collector	100 [3]
Residential Street [4]	10
Flag Drive	10
Alley	10

Notes:
[1] Maximum of two (2) drive approaches permitted.~~Driveway spacing is measured between the closest edges of each drive approach not including the radius.~~
[2] If permitted; ~~D~~drive approaches are not permitted on arterial streets, unless otherwise allowed according to Section 5.6 ~~2.6 Access Management~~of this Manual.
[3] I~~i~~f permitted; r~~R~~efer to Section 5.6 of this Manual~~2.6 Access Management~~ for permitted access.
[4] For a T-intersection on residential streets, the drive approach shall be offset farthest from the intersection.

2. Near Intersections

Drive Approach spacing shown in Table 5.5-C below applies to drive approaches near intersections, and is measured between the face of the curb of the intersecting street and the nearest edge (face of curb) of the drive approach not including the drive approach radius; *see* Figure 5.11 below.~~adjacent to street intersections~~

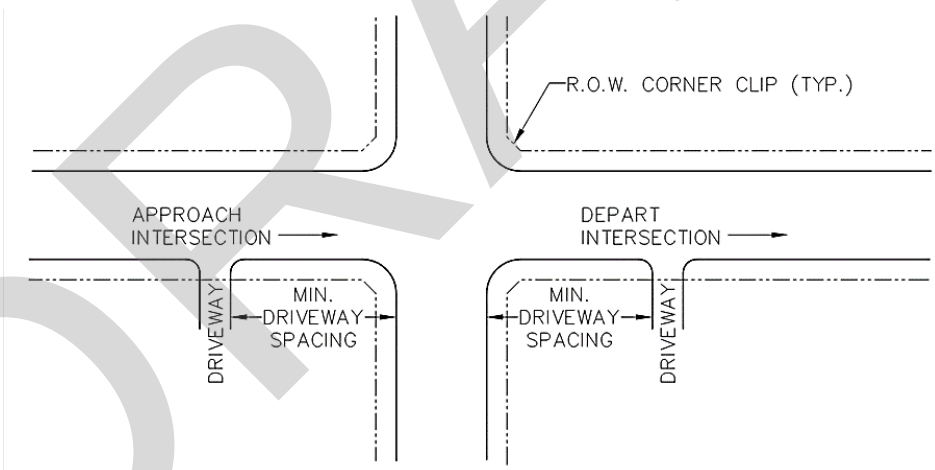

Figure 5.11~~6.115.11~~ Drive Approach Spacing at Intersections

Table 5.5-C: Minimum Drive Approach Spacing at Intersections		
~~Street Classification~~ Intersection Type	Approaching the Intersection	Departing the Intersection
Arterial - ~~/~~Arterial [1]	150 feet on both streets ~~if permitted~~	200 feet on both streets ~~if permitted~~

Collector - ~~/~~Arterial [1]	75 feet on collector, 150 feet on arterial ~~if permitted~~	100 feet on collector, 200 feet on arterial ~~if permitted~~
Collector - ~~/~~Collector	75 feet on both streets	100 feet on both streets
Residential ~~Street-~~ ~~/~~Arterial [1]	50 feet on residential, 150 feet on arterial ~~if permitted~~	50 feet on residential, 200 feet on arterial ~~if permitted~~
Residential ~~Street-~~ ~~/~~Collector	50 feet on residential, 75 on feet collector	50 feet on residential, 100 feet on collector
Residential ~~Street-~~ ~~/~~Residential ~~Street~~[2]	50 feet on both streets	50 feet on both streets
Flag Drive~~/~~ - Collector [1]	20 feet on flag drive, 75 feet on collector ~~if permitted~~	20 feet on flag drive, 100 feet on collector ~~if permitted~~
Flag Drive~~/~~ - Residential ~~Street~~ [1]	20 feet on flag drive, 50 feet on residential ~~if permitted~~	20 feet on flag drive, 50 feet on residential ~~if permitted~~
Alley - ~~/~~Collector [1]	20 feet on alley, 75 feet on collector ~~if permitted~~	20 feet on alley, 100 feet on collector ~~if permitted~~
Alley - ~~/~~Residential ~~Street~~ [1]	20 feet on alley, 50 feet on residential ~~if permitted~~	20 feet on alley, 50 feet on residential ~~if permitted~~
Alley - ~~/~~Alley	10 feet on both alleys	10 feet on both alleys

Notes:
[1] If permitted by the City's Engineer.
[2] ~~Drive Approach Spacing is measured between the face of the curb of the intersecting street and the nearest edge (face of curb) of the drive approach not including the drive approach radius. See figure 2.2.2.1.~~Driveways across T-intersections on residential streets are exempt.

~~Figure 5. Drive Approach Spacing at Intersections~~

3. Offset and relative~~Drive approach offset/relationship~~ to median openings (See Figures 5.12 and 5.13 below)

   a. For collector streets, drive approaches that do not align across the street from each other must be offset by a minimum of 75 feet between nearest tangent-edge to nearest tangent-edge.

   b. For Arterial Streets without medians, drive approaches must align across the street from each other, and ~~be positioned as is reasonable and practical given property line location and time of development of the site~~ must be approved by the City's Engineer. When this is not physically possible or practical as determined by the City's Engineer, drive approaches that do not align must be offset across the street from each other by a minimum of 150 feet between nearest tangent-edge to nearest tangent-edge.

   c. For Arterial Streets with medians, drive approaches must align with existing or proposed median openings. Where this is not possible or practical as determined by the City's Engineer, drive approaches must be placed as far away from the existing or proposed median opening as is reasonably possible.

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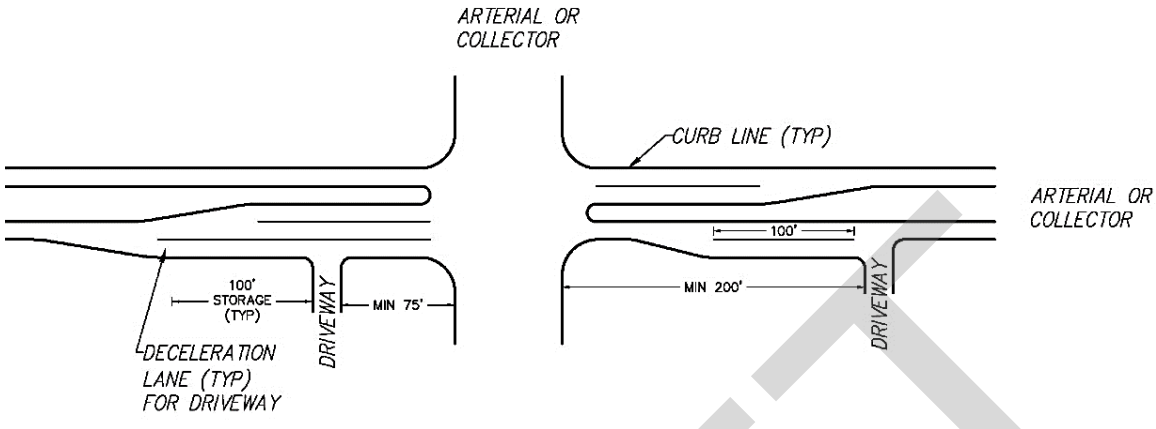

Figure 5.12~~6.12~~~~5.12~~ Drive Approach Near Turning Movements

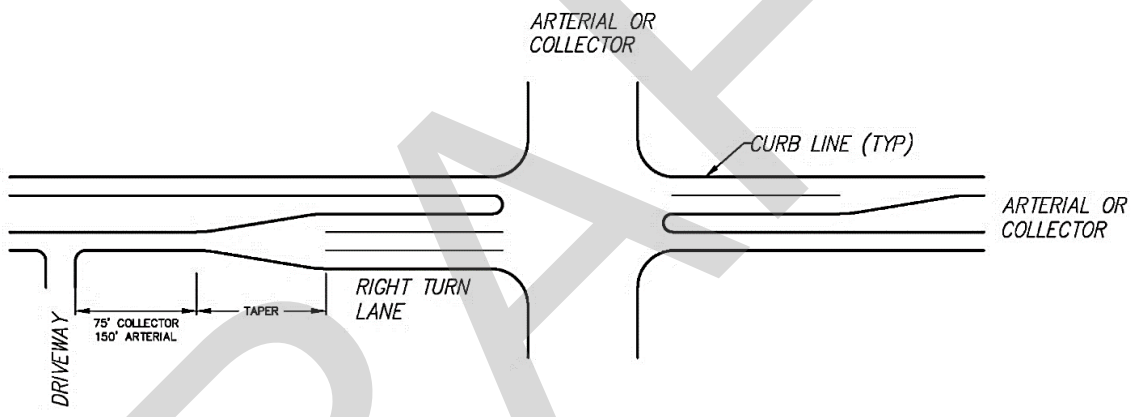

Figure 5.13~~6.13~~~~5.13~~ Drive Approach Near Turning Movements

C. Drive Approach Grades

1. Minimum Drive Approach Slope:

   The minimum drive approach slope shall be determined by:

   S = (6 + [0.02 x~~x~~ W x 12]) / (W x 12) [Eqn. 5.2]

   Where: W = the width of the parkway in feet as shown on the City of Denton Standard ~~drawings~~Details.

2. Maximum Drive Approach Slope: Unless otherwise approved by the City's Engineer through a ~~deviance~~ design deviation request~~approval process~~ (Section 8), the maximum drive approach slope shall be 12%.

3. Difference in Drive Approach Grade: Driveway profiles shall not have a grade difference greater than 5%, without constructing a vertical curve. A minimum K-value of 4 is recommended for driveways accommodating low ground clearance or long wheelbase vehicles.

4. Sidewalks in Drive Approach: Maximum sidewalk cross slope within the limits of the drive

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approach shall be 2%.

5. Sidewalk Easement Requirement: Where the parkway width is insufficient to provide appropriate drive approach slope, a sidewalk easement will be required, equal to the balance of the sidewalk width needed outside the ~~right-of-way~~ROW plus two (~~-~~2) feet. The additional two (2) feet requirement is for sidewalk installation and maintenance. The balance of the sidewalk width needed is based upon using the minimum drive approach slope calculated in Section 5.5.2.C.1 above. ~~within Section 2.3.1.~~ *See* Figure ~~2.3.4.1.~~5.14 below as well as ~~Also refer to the~~ City Standard Details~~rawings~~.

6. Driveway/Drive Aisle Consideration: The drive approach slope from the bottom of the gutter to the nearest edge of the sidewalk (within the limits of the ROW) shall not exceed the driveway/drive aisle slope beginning at the furthermost edge of the sidewalk. Also, it shall not be less than the minimum slope, nor be greater than the maximum slope as noted herein. ~~See Figure 2.3.5.1~~

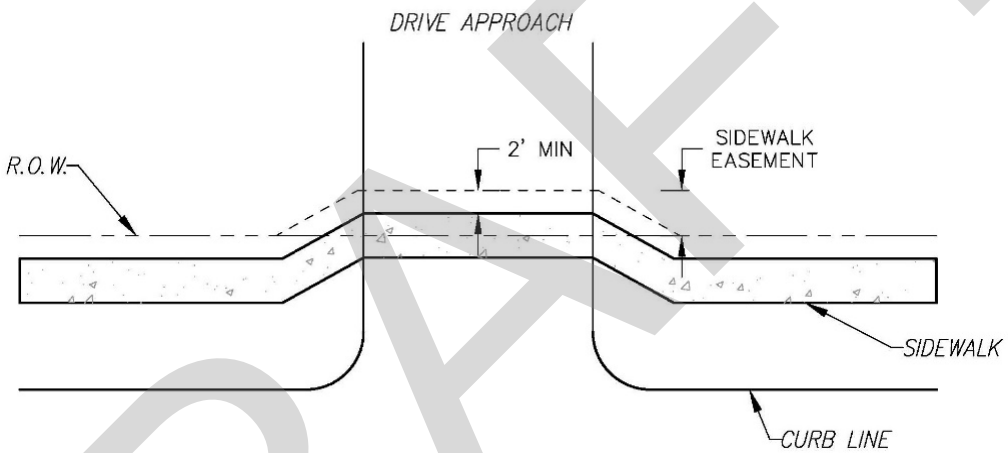

Figure 5.14~~6.14~~~~5.14~~ Sidewalk Easement to meet Drive Approach Slope

D. Driveway Throat Length Requirements

1. Minimum throat length requirements are shown in Table 5.5-D below. Note that throat length requirement applies to both edges of the drive approach.

2. All drive approaches that access an arterial shall be classified as a primary drive approach. If no drive approaches access an arterial, then the drive approach expected to receive the most traffic is considered to be the primary drive approach.

3. The throat length is measured between the first parking space or drive aisle and the ~~property~~ curb line, whichever is closer to the curb line.

4. Parking lots with 10 or less parking spaces may use a minimum throat length of 10 feet for drive approaches accessing a residential or collector street.

5. Queuing analysis required for gated entrances and drive-throughs.~~.~~

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Table 5.5-D: Minimum Throat Length		
No. of Parking Spaces	**Min. Throat Length for Primary Drive Aisle (feet)**	**Min. Throat Length for Secondary Drive Aisle (feet)**
0 to 100	20	20
101 to 250	40	20
251 to 500	60	40
501 to 1000	80	60
1001 and above	Queuing Analysis Required	Queuing Analysis Required

E. Driveway Separation

~~Unless located on a TxDOT roadway, dr~~Driveways shall be separated in accordance with ~~Table 2.2.2.1~~Table 5.5-B to ensure that all driveways are separated by sufficient distance so as to avoid interfering with the safe movement of traffic. In interpreting and applying the separation requirements, the following shall apply:

1. The separation requirements shall be determined in reference to any proposed or existing driveways on or off the property. Where applied to a property, which is located adjacent to an undeveloped tract, the separation requirements shall account for the placement of future driveways on the adjacent undeveloped property.

2. The minimum separation specified may be reduced for currently developed property, if the amount of street frontage for the property is insufficient to allow for one (1) driveway access that would have the necessary separation from an existing driveway on adjacent property, and joint access with adjacent properties is not physically possible, as determined by the City's Engineer. If a reduction in the minimum separation specified is allowed, the separation shall be reduced only to the degree necessary to allow for the single driveway.

~~**B. The separation distances specified shall be measured from the nearest edge of each driveway at the right-of-way line.**~~

F. Corner Clearance Standards

Corner clearance standards shall be applied in accordance with AASHTO "Green book" to ensure that the traffic movements from driveways do not unduly conflict with the movement of traffic on intersecting public streets. In interpreting and applying the corner clearance standards, the following shall apply:

1. A reduced requirement may only be used if absolutely necessary to provide driveway access to property where no other means of access meeting the corner clearance requirement is reasonably possible, and joint access with adjacent properties is not physically possible as determined by the City's Engineer. If a reduction in the minimum corner clearance specified is allowed, the corner clearance shall be reduced only to the degree necessary to allow for the single driveway.

2. The specified distances shall be measured at the ~~right-of-way~~ROW line from the edge of the driveway nearest the intersecting street to the ~~right-of-way~~ROW line of the intersecting street. Where ~~right-of-way~~ROW corn~~m~~er clips exist or are proposed, the specified distance shall be measured from the edge of the driveway nearest the intersecting street and the end of the corner clip nearest to the subject driveway.

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G. Modifications to Existing Drives~~Driveway Widths and Grades~~

~~Unless located on a TxDOT roadway, driveway widths and grades shall be in accordance with Table 2.2.1.1 Driveways connecting to TxDOT roadways shall meet TxDOT standards~~Existing non-compliant drives may be modified to comply with criteria set forth in this Manual, but may not be modified in a way that increases the non-compliance with this Manual.

H. TxDOT Drives

All drives connecting to TxDOT roadways shall meet all required TxDOT standards, in addition to meeting City of Denton standards when applicable.

5.5.3 Cul-de-sacs

A. Geometrical Standards

1. Maximum length of a Cul-de-sac shall be 600 feet measured from the centerline of the intersecting street to the Cul-de-sac radius point, and perpendicular to the intersecting street centerline.
2. Minimum length of a Cul-de-sac shall meet Fire Code requirements.
3. Residential Cul-de-sacs shall not have more than 29 residential lots.
4. The center radius of the Cul-de-sac shall be a minimum of 50 feet for residential developments, and 60 feet for commercial and industrial developments measured from the center point to the face of curb or edge of pavement where there is no curb.
5. The Cul-de-sac return radius shall be 30 feet.
6. Cul-de-sac minimum street grades shall be as shown below in~~on~~ Figure ~~1.3.3.1~~5.15 and Figure 5.16 below for downward gradient and ~~and as shown on Figure 1.3.3.2 for~~ upward gradient, respectively.~~.~~

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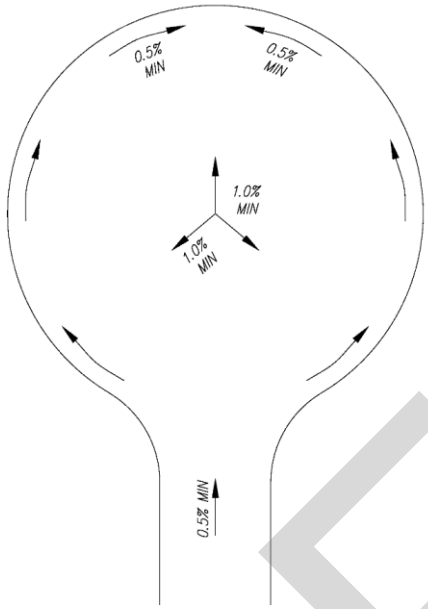

Figure 5.15~~6.155.15~~ Cul-de-sac Minimum Slope - Downward Gradient

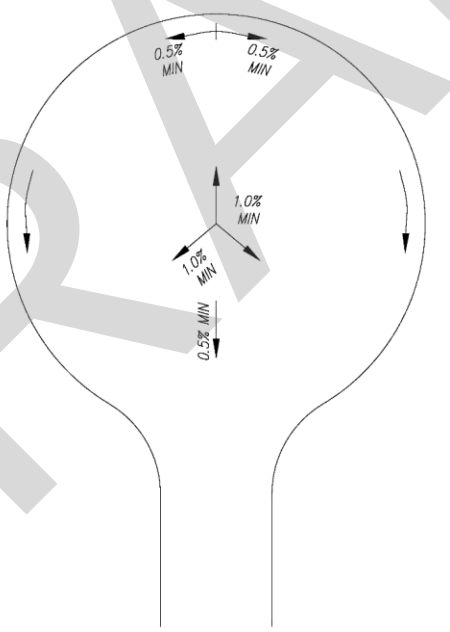

Figure 5.16~~6.165.16~~ Cul-de-sac Minimum Slope - Upward Gradient

B. Offset Cul-de-sacs

1. Offset Cul-de-sacs shall have the same radius and return radius as the standard Cul-de-sac.
2. The length of the offset Cul-de-sac shall be measured from the centerline of the intersecting street to the Cul-de-sac radius point, perpendicular to the intersecting street centerline.

C. Temporary Turn-Around

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1. A temporary turn-around shall be limited to approved phase developments where the street will be extended in the future.
2. A temporary turn-around shall meet the requirements of a standard Cul-de-sac for radius and return radius size.
3. The length of street associated with the turn-around shall not be any greater than 600 feet nor less than Fire Code requirements.
4. If the length of street will be greater than 600 feet, then the next block length of street and intersecting streets shall be constructed in order to provide looped traffic flow for emergency vehicles.
5. The turn-around section shall be constructed to the same structural section as the street section less curb and gutter requirements, unless drainage requirements warrant curb and gutter.

5.5.4 Supplementary Design Elements

A. Signage

Signage and pavement markings shall be as shown in the Texas Manual on Uniform Traffic Control Devices (T~~x~~MUTCD).

B. On-street Parking

Consistent with the requirements of Public Rights of Way Accessibility Guidelines (PROWAG), the following Americans with Disabilities Act (ADA) on-street parking requirements shall be followed:

1. General
   a. On-street parking is permitted for residential and residential collector streets.
   b. On-street parking for proposed commercial/industrial collectors or arterials is not allowed. Where on-street parking is designated, one (1) on-street parking space for each single-family unit on a block is required on the frontage street within that block.
   c. Areas in front of a driveway, ~~or~~ within five (~~-~~5) feet of a driveway, within 20 feet of a street intersection, or within 15 feet of a fire hydrant shall not be counted toward the required on-street parking.
2. Parallel Parking
   a. For parallel parking spaces where the adjacent sidewalk or available ~~right-of-way~~ROW is more than 14 feet wide, an access aisle must be provided at street level for the entire length of each accessible parallel parking space.
   b. The access aisle must be a minimum of five (5) feet wide ~~minimum~~ and connect to a pedestrian access route.
   c. The access aisle must not encroach on the vehicular travel lane and must comply with the technical requirements for surfaces.
   d. In alterations where the street or sidewalk adjacent to the parking spaces is not altered, an access aisle is not required, provided the parking spaces are located at the end of the block face.
   e. Where the adjacent sidewalk or available ~~right-of-way~~ROW is less than or equal to 14 feet wide, an access aisle is not required, but accessible parallel parking spaces must be

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located at the end of the block face.

Figure 5.17 shows the acceptable parking configuration for on-street parallel parking.

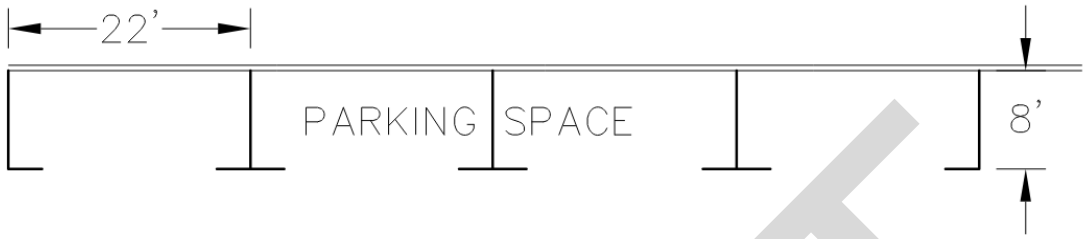

Figure 5.17~~6.175.17~~ Parallel Parking

3. Perpendicular and Angled Parking

   a. For perpendicular and angled parking spaces, an access aisle must be provided at street level for the entire length of each accessible perpendicular or angled parking space.

   b. The access aisle must be a minimum of eight (8) feet wide ~~minimum~~ to accommodate vans with lifts and connect to a pedestrian access route.

   c. Two (2) accessible parking spaces are permitted to share a common access aisle.

   d. The access aisle must be marked to discourage parking in the aisle and comply with the technical requirements for surfaces.

   Figures 5.18 through 5.21 show the acceptable parking configurations for on-street angled parking.

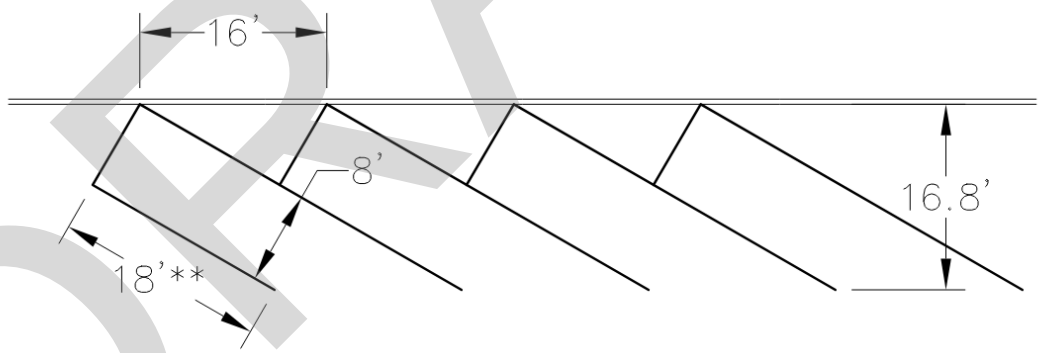

Figure 5.18~~6.185.18~~ Angled Parking – 30 degrees

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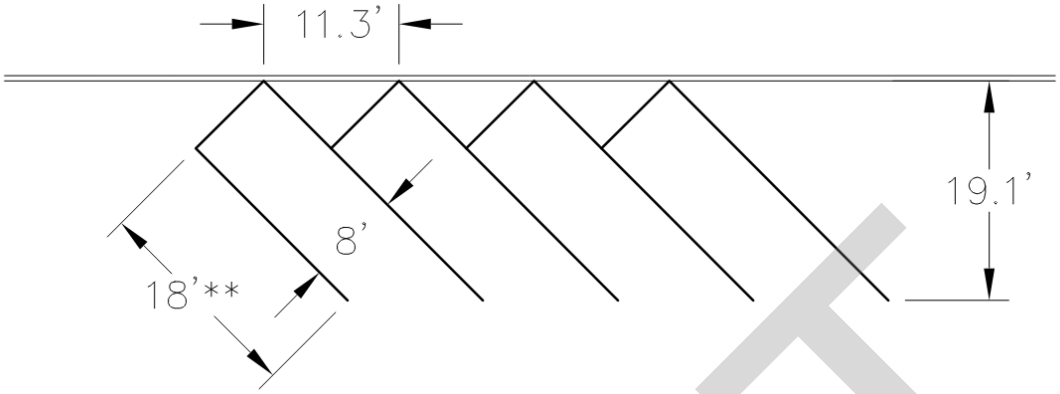

Figure 5.19~~6.195.19~~ Angled Parking - 45 degrees

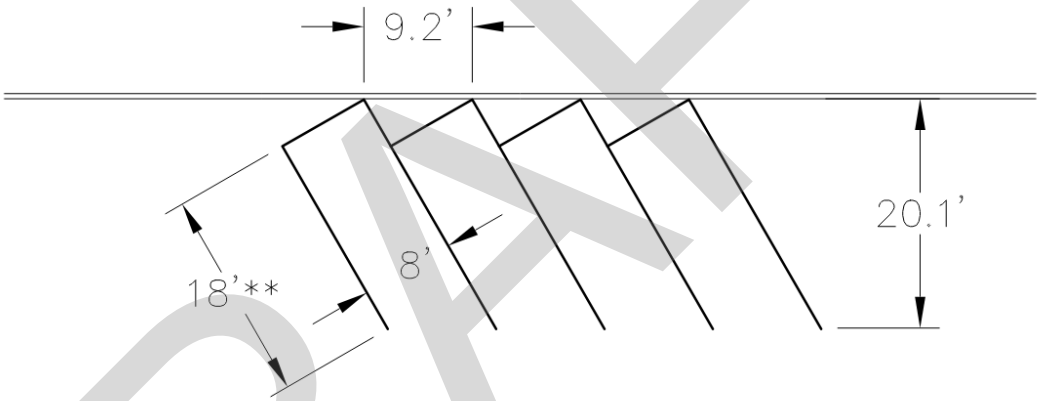

Figure 5.20~~6.205.20~~ Angled Parking - 60 degrees

~~Figure 1.6.4 - 60 Degree Angle~~

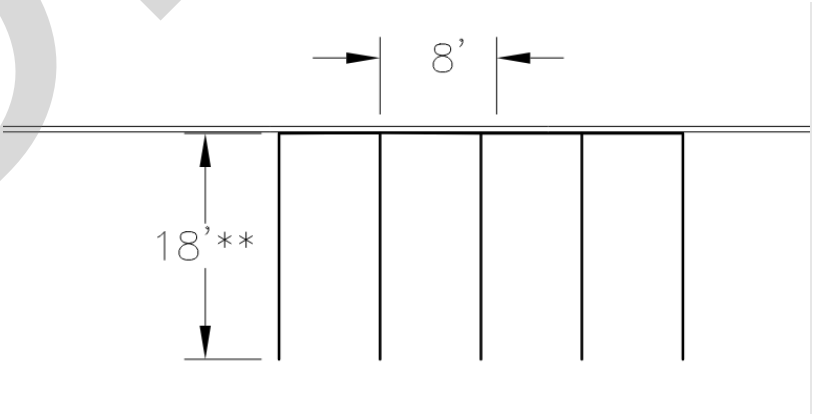

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Figure 5.21~~6.215.21~~ Angled Parking - 90 degrees

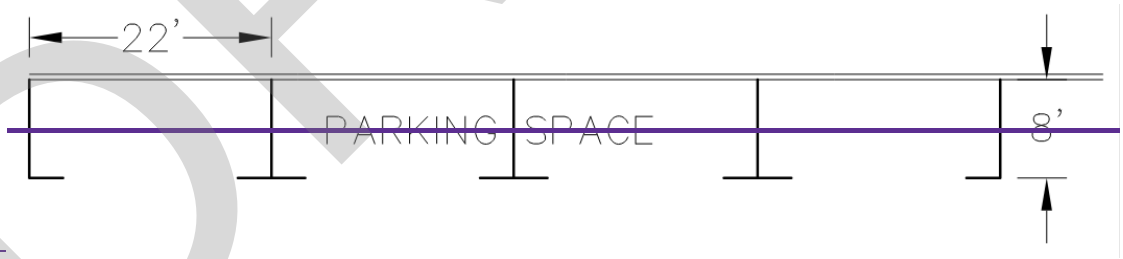
~~Figure 1.6.5 - 90 Degree Angle~~

4. Curb Ramps and Blended Transitions
   a. Curb ramps and blended transitions must connect the access aisle serving each accessible on-street parking space to the pedestrian access route.
   b. Curb ramps are not permitted within the access aisle.
   c. Parking spaces at the end of block face can be served by curb ramps or blended transitions at the pedestrian street crossing.
   d. Detectable warning surfaces are not required on curb ramps and blended transitions that connect the access aisle to the sidewalk, including where the sidewalk is at the same level as the parking spaces, unless the curb ramps and blended transitions also serve pedestrian street crossings.
5. Other~~ ?~~
   a. Wheel stops will be required to prevent vehicle overhang into adjacent property~~, right-of- way~~, ROW, structures, landscaping or sidewalk (applicable to '**' shown on above figures).~~**~~
   b. Parking spaces may be reduced to 16.5 ~~-~~feet in length if a two (2) feet overhang is provided.
   c. All standard parking space striping shall be white in color.
   ~~f.~~ On-street ~~M~~motorcycle parking space is half the size of a vehicle parking space.
   d.

~~C. Figures 1.6.1 through 1.6.5 show the acceptable parking configurations for on-street parking.~~

~~D.~~

~~E.~~



~~F.~~

~~G. Figure 1.6.1 - Parallel Parking~~

C. Median Openings

Median openings for collectors and arterials shall be as designated by the City's Engineer. Median opening allowance ~~first~~ shall primarily consider the safety and effective flow of traffic within the collector or arterial street, then secondarily consider the effective movement of traffic to and from the development. Whether a median opening is allowed will ~~be~~ solely be up to the City's Engineer.

When a development is allowed to have a median opening, it shall be provided in accordance with the following criteria:

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1. The width of a median opening shall be 60 feet.
2. Median openings shall center on the intersecting drive.
3. Median openings shall be a minimum of 400 feet apart, measured from ~~the~~ nose- ~~of median~~ to- -nose of medians.
4. Whenever a median opening is constructed, the associated left-turn lane serving the development must be constructed at the same time. In the event that there is an existing intersecting street on the opposite side of the street, the new development constructing the median opening shall be required to install both left-turn lanes.
5. Patterned and colored median noses shall be constructed as shown on the City of Denton Standard Details~~Drawings~~.

D. Traffic Calming

~~Traffic calming devices are permitted only on residential and residential collector streets.~~ Traffic calming with respect to speed-control devices are not permitted on public ROW. Speed humps on private property are prohibited unless approved by City Fire Code official, and shall comply with IFC ~~503.4.1~~ standards.

~~Traffic calming devices are required at a minimum of two block intervals (generally 1200 foot maximum spacing), but no less than 200 feet apart on residential and residential collector streets.~~ Appropriate signage and pavement markings are to be provided along with all traffic calming devices. Additional ~~right-of-way~~ROW may need to be dedicated in order to accomplish adequate traffic calming.~~.~~

A separate permit is required for the installation of speed control devices located in a fire lane. These devices shall be constructed of durable rubberized material, molded plastic or of concrete.

~~1. Speed Control Devices: A separate permit is required for the installation of speed control devices located in a fire lane. These devices shall be constructed of durable rubberized material, molded plastic or of concrete.~~

~~2. Speed Hump Design: Speed humps are parabolic vertical traffic calming devices intended to slow traffic speeds on low volume, low speed roads. Speed humps are 3–4 inches high and 12–14 feet wide, with a ramp length of 3–6 feet, depending on target speed.~~

~~5.4~~5.6 Access Management

~~5.4.1~~5.6.1 Purpose and Goals

The purpose of the access management plan is to promote the health, safety, and general welfare of the present and future residents of the city through managing traffic flow and promoting traffic safety.

~~5.4.2~~5.6.2 Access Standards

A. Compliance

1. No person shall construct, reconstruct, replace, relocate, alter, enlarge, improve or perform any work on or make use of any driveway for any property within the City or its~~the~~ Extraterritorial Jurisdiction, except in accordance with the Access Management standards

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provided in this Manual or the TxDOT Access Management Manual, when applicable.

2. All driveways shall be designed, installed, located, and constructed in accordance with the approved specifications, plans, conditions, and requirements of the permit issued for the property, and the requirements of this Manual.

3. No certificate of occupancy shall be issued for any building on any property for which a permit is required, until the construction, improvements, alterations or other work covered by the permit is completed in accordance with the permit issued, the requirements of this Manual, or the provisions of any other applicable ordinance.

~~8.~~4. Where no building permit was required in connection with the requested permit, no driveway on the property for which the permit was issued shall be used until and unless the work is completed in accordance with the permit, and this Manual.

B. Access to Freeways

Access to freeways shall only be provided at entrance ramps. Access to frontage roads may be provided in accordance with the standards for access to arterial streets set forth in this Manual, with the following exceptions:

1. No access is allowed in areas where TxDOT owns the Control of Access. Such Control of Access may be found on current TxDOT ~~right-of-way~~ROW maps.

2. No access is allowed within a paved gore area or 250 feet past painted gore of an exit ramp. Similarly, no access is allowed within a paved gore area or 200 feet upstream of the painted gore of an entrance ramp.

C. Access to Arterial Streets

Access to an arterial street shall not be permitted unless there is no other reasonable means of providing safe access to the property. Unless designated as a freeway, all TxDOT Highways shall be considered arterials. Additionally, the geometric, hydraulic, and pavement designs of all access driveways to TxDOT roadways must be reviewed by TxDOT to en~~as~~sure compliance with their standards.

1. No development shall be allowed access to an arterial street if property excluded from the development could have been used to provide reasonable access to a lesser classified street, or if the property has been previously subdivided in violation of state law or the ~~Denton Development Code~~DDC and if access could have been provided to a lesser street except for such unapproved subdivision of the property.

~~2.~~ Existing commercial or industrial lots created prior to adoption of ~~The Denton~~the DDC

~~3.~~2. ~~Development Code~~ by legal subdivision procedures with exclusive frontage on an arterial street may take access to the arterial in accordance with the access standards in this Manual.

~~4.~~3. Existing single~~-~~-family and ~~two family~~duplex lots created prior to adoption of ~~The Denton Development Code~~ the DDC by legal subdivision procedures with exclusive frontage on an arterial street may be developed with a circular drive. Such ~~driveway~~ drives shall be designed and constructed in accordance with standards for circular drives provided in this Manual.

~~5.~~4. When ~~driveway~~ drives access to an arterial street is the only reasonable means of providing safe and adequate access to the property as determined by the City's Engineer ~~Engineer~~, the ~~driveway~~drive ~~way~~ design, number of ~~driveways~~drive~~eways~~, location and construction shall be in accordance with this Manual.

~~6.~~5. ~~Driveways~~Drive~~eways~~s on an arterial shall align with existing median openings, other driveways, and "T" intersections, or be offset in accordance with this Manual.

D. Access to Collector Streets

1. Access to collector streets for commercial, office, or industrial development is required and shall be designed and constructed in accordance with the standards provided in this Manual.
2. ~~No single- or two-family~~Single-family or duplex lots shall ~~be~~ not be designed such that there is no other means of access other than a collector street.
3. Existing single~~-~~-family and ~~two-family~~duplex lots developed prior to approval of the ~~Denton Development Code~~DDC with exclusive frontage on a collector street and no alley may be developed with a circular drive. Such ~~driveways~~drive~~eways~~ shall be designed and constructed in accordance with the standards for circular drives provided in this Manual.
4. Drive~~way~~s on a collector street shall align with existing driveways and 'T' intersections on the opposite side of the street, or shall be offset in accordance with this Manual.

~~5.4.3~~5.6.3 Fire Apparatus Access Roads~~Lanes~~

A. Design

1. Prior to construction, the design of the fire lane shall be submitted to the ~~City~~~~'s Engineer and~~ Fire officials for review and approval.
2. Fire apparatus roads shall have an unobstructed width of not less than 24 feet and unobstructed vertical clearance of not less than 14 feet. These are minimums and may be increased where they are inadequate for fire or rescue operations.
3. Fire ~~L~~lanes shall be constructed to meet the City of Denton's Engineering Standards for a concrete pavement cross~~-~~-section of a residential street.
4. Fire lane grade shall be no greater than ~~5~~10% ~~with 1/2 inch per foot cross slope~~.

~~5. During construction, all fire lanes servicing the project, shall be installed and permanently marked as per current adopted code, prior to construction progressing past slab elevation. An inspection is required by the fire marshal's office for compliance to proceed with construction past this point.~~

~~6. Maintenance of fire lanes, including preventing the obstruction of by vehicles, equipment, etc., will be enforced during construction. It is the responsibility of the General Contractor or other person(s) in control to maintain fire department access roads.~~

~~7.~~5. Fire ~~L~~lanes shall be located so that access to all points of the building served is a maximum of 150~~'~~ feet, as measured by hose lay. This can be increased to 300~~250'~~ feet, for a building fully equipped with an approved automatic fire suppression system and with the fire code official's approval.~~.~~

B. Modification of Existing Fire Lanes

Modification of ~~any~~ existing ~~or previously approved~~ fire lanes ~~requires a permit from the City of Denton~~MUST be approved by the Fire Marshal's Office. ~~This includes demolition of a fire lane for construction, placement of speed control devices or termination of a fire lane.~~

C. Turning Radius

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A 24~~-~~ ~~foot~~. wide fire lane will require a minimum of a ~~30~~25~~-~~ ~~foot~~. inside turning radius or as approved by a Fire Code Official.

D. Marking

1. Stri~~p~~ping

~~Marked~~Fire apparatus access roads shall be ~~M~~marked by painting ~~lines of red traffic paint 6-in. six inches (6") in width~~wide red traffic lines at the boundaries of the fire lane, as indicated on the plat. The words "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING" shall ~~appear in~~be four ~~inch (4")~~) inches high~~h (4")~~.

2. ~~Signs~~Signage~~s~~

Signs shall read "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING" and shall be 12-in. wide and 18-in. high. Signs shall be painted on a white background with letters and borders in red, using not less than 2-in. high lettering. Signs shall be permanently affixed to a stationary post, and the bottom of the sign shall be six (6) feet and six (6) inches or 6'-6" above finished grade. Signs shall not be spaced more than 50 feet apart. Signs may be installed on permanent buildings or walls, as approved by the Fire Marshal.

~~ShallS read "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING" and shall be 12" wide and 18" high. Signs shall be painted on a white background with letters and boarders in red, using not less than 2" lettering. Signs shall be permanently affixed to a stationary post and the bottom of the sign shall be sixfeet, six inches(6'6 (") above finished grade. Signs shall not be spaced more than fifty feet (50') apart. Signs may be installed on permanent buildings or walls as approved by the Fire Marshall.A separate permit is required for the installation of speed control devices located in a fire lane. These devices shall be constructed of durable rubberized material, molded plastic or of concrete.~~

~~6.2 Speed Hump Design~~

~~Speed humps are parabolic vertical traffic calming devices intended to slow traffic speeds on low volume, low speed roads. Speed humps are 3–4 inches high and 12–14 feet wide, with a ramp length of 3–6 feet, depending on target speed.~~

~~5.6~~5.7 Bike and Pedestrian Facility Design

The user should be aware of and utilize the ~~City of Denton Development~~DDC Section 7.8.11 Pedestrian and Bicycle Circulation, in conjunction with this ~~Manual.~~section for the design of bike and pedestrian facilities.

~~5.6.1~~5.7.1 Mobility Plan Component

The City of Denton Mobility Plan includes a pedestrian and bicycle component, which -should be reviewed, relative to any proposed transportation improvement.

It should be noted that the City of Denton Mobility Plan is a living document and is periodically updated to reflect the changes in the characteristics of anticipated traffic flow within the City.

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~~5.6.2~~5.7.2 Accessibility Standards

The City of Denton considers sidewalks to be accessible routes according to Section 4.3 of Texas Accessibility Standards (TAS) and considers a public sidewalk a "facility". Sidewalks, landings, ramps, and flares shall comply with the most recently adopted ~~latest~~ TAS, ~~the latest Department of Justice~~ ADA, ~~Standards for Accessible Design, the Public Right-of-way Accessibility Guidelines (~~PROWAG~~)~~, and ~~the Federal Highway Administration.~~FHWA standards. Also, sidewalks, landings, ramps, and flares are subject to the requirements of the Texas Department of Licensing and Registration (TDLR) for inspection purposes ~~unless otherwise exempted by the City Engineer~~. Prior to construction of sidewalks ~~where the total cost of the public improvements will exceed $50,000.00~~, the Engineer of Record must show proof of ~~Texas Department of Licensing~~TDLR review and approval for accessibility~~.~~, if the total cost of the public improvements will exceed $50,000.00. Compliance with the regulations shall be the responsibility of the Engineer of Record for the project. Refer to the City of Denton Standard ~~drawings~~Details for additional requirements.

~~5.6.3~~5.7.3 Geometric Standards

Table 5.~~4~~7-A shows the standard ~~with~~width of sidewalks and bike lanes for the various ~~street~~ roadway classifications. Refer to the City of Denton Standard ~~Detail~~Details ~~drawings~~ for the locations of sidewalks and bike lanes within the street ~~right-of-way~~ROW. The Denton Mobility Plan should be reviewed for any planned bicycle and pedestrian facilities that may exceed those called for by the standard details. Any portion of the proposed facility extending past the ROW shall be contained within a pedestrian access easement. The recorded easement shall extend two (2) feet beyond the edge of the facility.

Table 5.7-A: Bike and Sidewalk Requirements

Roadway Classification	Min. Sidewalk Width [1]	Min. Bike Lane Width [1]
Freeway	N/A	
Arterials – Primary and Secondary	5	10
Collector – Commercial and Residential	5	10
Local – Residential	5	N/A
Local – Rural	N/A	N/A
Local – Alley	N/A	N/A

Notes:
[1] Refer to the City of Denton S~~s~~tandard D~~d~~etails street cross-sections for specific bike and pedestrian recommendations. A minimum 5 ~~-feet~~. wide sidewalk on one side of the street, and a 10~~-feet~~. wide bicycle/pedestrian facility o~~f~~n the other side of street will be required.~~.~~

A. O~~Sidewalks~~n Bridges

~~1. On Bridges~~

~~Sidewalk~~Sidewalks ~~widths~~ on bridges shall be a minimum width of six (6) feet or wider, as required by the street classification. ~~Unless otherwise approved by the City Engineer, a~~All street bridges shall have sidewalks on both sides of the bridge. Dependent upon vehicular and pedestrian traffic considerations, a parapet wall may be required to separate the sidewalk from the travel lane. Parapet walls shall be constructed to TxDOT standards. A pedestrian bridge rail shall be constructed on the outside of the bridge to protect sidewalk traffic. Both bridge rails and parapet walls shall meet accessibility standards.

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B. On Drainage Crossings

Sidewalk ~~widths~~ at drainage crossings shall be a minimum width of six (6) feet or wider as required by the street classification. ~~Unless otherwise approved by the City Engineer,~~ S~~s~~idewalk railing shall be provided to protect the sidewalk traffic from the outside edge of the drainage crossing. Dependent upon vehicular and pedestrian traffic considerations, a parapet wall may be required to separate the sidewalk from the travel lane. Parapet walls shall be constructed to TxDOT standards. Railing and parapet walls shall meet accessibility standards.

C. Adjacent to Screen Walls

A minimum ~~of~~ additional sidewalk width of two (2) feet ~~additional width of sidewalk~~ shall be required beyond the standard width of sidewalk, for sidewalks adjacent to screen walls.

D. Adjacent to Retaining Walls

A minimum greenspace width of five (5) feet ~~width of green space~~ between the sidewalk and the edge of a retaining wall shall be required, for sidewalks adjacent to retaining walls.

~~5.6.4~~5.7.4 Intersection

A. Curb Ramps

The continuation of accessible routes through intersections shall use approved curb ramps that meet accessibility standards. Refer to the City of Denton Standard ~~drawings~~ Details for curb ramps at intersections. Crosswalks through the intersections shall meet accessibility standards.

B. Bike Lanes

Bike lanes at intersections shall consider other traffic movements and facilities such as turn lane movements, transit facilities, parking, and stop bar locations. The current Urban Intersection Design Guide by TxDOT can be used for bike lane design at intersections. ~~–~~The bike lane design at intersections requires the approval of the City~~-~~'s Engineer~~Engineer or designee~~.

~~5.6.5~~5.7.5 Signage and Pavement Markings

Signage and pavement markings shall be as shown on the TMUTCD Marking & Sign Drawings, and in accordance with the accessibility standards.

A. Crosswalks

Continental type-high visibility crosswalk markings are to be provided in all uncontrolled street crossings, school crossings, downtown areas, or as directed by the City'~~–~~s Engineer~~Engineer or designee~~.

B. Bike Lane

Traffic control devices such as vertical flex posts, green pavement markings, and wayfinding signage may be required to enhance the proposed bicycle facility, as directed by the City~~—~~'s Engineer~~Engineer or designee~~.

~~5.6.6~~5.7.6 Amenities

A. Bike Parking

1. Refer to Bicycle Parking Guideline ~~2nd~~ 2nd Edition by the Association of Pedestrian and Bicycle Professionals (APBP) for general guidelines and resources.

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2. All bicycle parking facilities/devices shall be constructed to meet commercial grade structural standards.
3. Location Standard:
   a. Bicycle parking must be on the same lot as the principle use.
   b. Bicycle parking must be located in highly visible and well-lit areas.
   c. Bicycle parking must not interfere with accessible paths of travel or accessible parking as required by the accessibility standards.
   d. Bicycle parking must be located within 50 feet of a main building entrance. In multiple building locations, bicycle parking must be distributed in a manner that serves all entrances.
4. Layout and Design:
   a. Bicycle rack design:
      i. Support the bicycle in at least two (2) places.
      ii. Enable the frame and at least one (1) wheel to be secured.
      iii. Designed to accommodate "U" shape locking devices.
      iv. Installed to manufacturer's specifications.
      v. Each bike rack must be designed to accommodate at least two (2) bikes~~ parking~~.
   b. Bicycle Parking Space
      i. Concrete pad built to City of Denton sidewalk standards.
      ii. Must provide clearance of at least two (2) feet from closest wall.
      iii. Must provide clearance of at least three (3) feet between bike racks.
      iv. Must not interfere with pedestrian pathway.

B. Benches

All benches shall be constructed to meet commercial grade structural standards. Benches shall be secured to prevent displacement. Benches shall not project into any accessible route or alter an accessible route such that it will not meet the accessible route standards.

C. Lighting and Enclosures

Lighting standards and above-~~-~~ground enclosures shall not extend into any accessible route or alter an accessible route such that it will not meet the accessible route standards.~~ Sidewalk widths on bridges shall be a minimum of 6 feet or wider as required by the street classification. Unless otherwise approved by the City Engineer, all street bridges shall have sidewalks on both sides of the bridge. Dependent upon vehicular and pedestrian traffic considerations a parapet wall may be required to separate the sidewalk from the travel lane. Parapet walls shall be constructed to TxDOT standards. A pedestrian bridge rail shall be constructed on the outside of the bridge to protect sidewalk traffic. Both bridge rails and parapet wall shall meet accessibility standards.~~

~~5.7~~5.8 Transit Facility Design

~~5.7.1~~5.8.1 General

Bus stops shall meet at a minimum the design standards of the Denton County Transit Authority (DCTA),

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and the accessibility standards of TAS, PROWAG, and ~~Department of Justice ADA Standards for Accessible Design.~~ADA. Figure 5.~~1~~22 show a general layout of a bus stop at an intersection. Bus stops shall be located on the departing side of a street intersection. The use of a pull-out lane may be considered where the specific site conditions warrant such an arrangement. The determination of the appropriateness of a pull-out lane shall rest with the City-'s Engineer~~Engineer or designee~~.

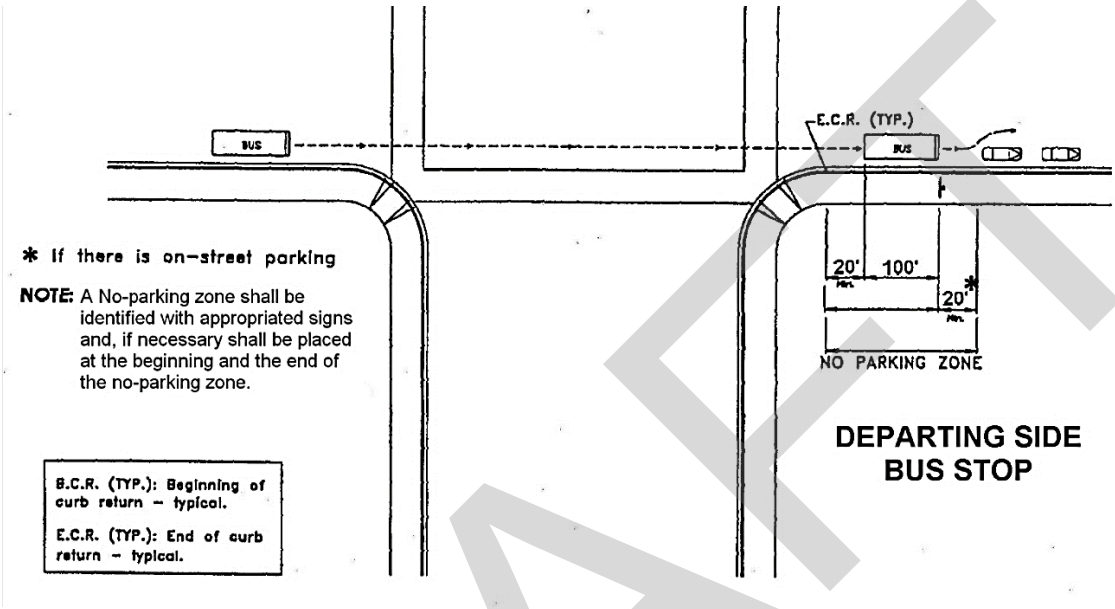

Figure 5.22~~6.22~~~~5.22~~ Standard Bus Stop Location at Unsignalized Intersection

Note: For signalized intersections an Approach Side Bus Stop is preferred

~~5.7.2~~5.8.2 Bus Stop Placement

Bus stop placement should consider the need for the bus stop, traffic operation concerns, and passenger accessibility. A bus stop should be placed within an area that allows bus stop amenities to be located in the public ~~right of way~~ROW and where the ingress and egress of the bus does not overly impede the flow of traffic. The warrant for a bus stop shall be as required by the City of Denton in conjunction with DCTA. Elements to consider for bus stop placement include the follow:

A. ADA and PROWAG compliance of all elements, including pedestrian routes, shelters, signing, etc~~...~~.

B. Within Public ~~Right of Way~~ROW, or a dedicated access easement.

C. Proximity to major trip generators such as malls, student housing areas, retail commercial zones, park and rides, destination areas, etc.

D. Pedestrian facilities such as sidewalks or multi-use paths, marked cross walks, space provisions for accessibility standards, and curb ramps should be available at the location for a proposed bus stop.~~.~~

E. Convenient passenger transfers to other routes.

F. Open and visible location for personal security and passenger visibility.

G. Acceptable street illumination or proposed street illumination with placement.

H. Ability to have restrictive parking in bus zone.

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I. Adequate space for bus zone.

J. Gentle street grades at bus zone.

K. Return to traffic without overly hindering traffic flow.

L. No interference from driveways.

~~5.7.3~~5.8.3 Bus Stop Amenities

The following are bus stop amenities that shall be considered during the process of design:

A. Accessibility compliant loading area. All bus stops shall have accessibility compliant loading and offloading area. This area shall be integral to the sidewalk pathway, bench area, and shelter area, if provided. The loading area shall be constructed of reinforced concrete with the same thickness as the adjacent sidewalk.

B. Bench and trash receptacle may be warranted based upon Table 5.8-A. Bench and trash receptacle type and installation shall be as required by the City of Denton.

C. A shelter may be warranted based upon Table 5.8-A The shelter type and installation shall be as required by the City of Denton and DCTA. Shelters shall provide space to meet accessibility standards.

D. Illumination shall be provided if illumination is not provided at the street corner adjacent to the bus stop, or if in the opinion of the City's Engineer ~~Engineer~~ the existing illumination is inadequate.

E. Bus s~~S~~tops that accumulate 10 points or more may be considered for shelter placement. Bus s~~S~~tops that accumulate six (~~-~~6) points or greater may warrant a bench and trash receptacle.

Table 5.8-A: Bus Stop Amenities Warrant

Points	Condition
6 points	25 people per day boarding
4 points	Special needs, i.e., Senior Center, Medical Complex, libraries, high accessibility standard usage such as group residences~~.~~
4 points	High use location, i.e., Student housing area, schools, hospitals, mall~~.~~
2 points	Request for improvements by citizens, i.e., multiple requests over a one-year time~~.~~
6 points	15 people per day or greater boarding
4 points	Adjacent to an arterial roadway~~.~~

~~5.7.4~~5.8.4 Bus Stop ~~Amenities~~Signage and Markings

Bus stop signage and markings shall be according to the City of Denton and DCTA. Signage shall include a "No Parking Zone" sign and a DCTA bus stop sign.

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~~5.8~~5.9 Traffic Impact Analysis Guidelines

~~5.8.1~~5.9.1 General

The purpose of the traffic impact analysis (TIA) is to assess the impacts of development on the existing roadway system within the study area of the development and to assess the traffic flow needs within the development. The thoroughfare component of the Mobility Plan and the City of Denton traffic model establishes the base conditions for assessing the impacts. The current traffic model and the assessment is based on a Level of Service D according to the current Highway Capacity Manual. The TIA shall be signed and sealed by a PE Licensed by the State of Texas, and shall be valid for a period of 3 years, unless there is a significant change in the plans or surrounding conditions, as determined by City's Engineer.

~~Definitions~~

~~Existing Traffic – Existing traffic conditions based on the City of Denton traffic model and/or known existing traffic conditions.. Existing traffic conditions do not include the traffic created or associated with the development.~~

~~Proposed Site Traffic Volumes – The number of vehicles per day and per hour projected to be generated by the development.~~

~~20-Year Horizon – The estimated traffic volume for the study area based on a 20-year growth period.~~

~~Projected Growth Rate – The estimated growth rate per year for the study area based upon the average growth in the previous 5 year period along arterials in the vicinity of the proposed project.~~

~~Study area – The boundaries of the assessment area as determined by the City of Denton Engineer or designee.~~

~~Traffic Queue – Vehicles within a storage queue awaiting traffic movement..~~

~~Trip Distribution – EstimatesEstimates of trip distribution by turning movements from the proposed development.~~

~~5.8.2~~5.9.2 Preliminary Trip Generation Assessment

All developments are required to prepare a Preliminary Trip Generation Assessment for their proposed projects. The need for a TIA shall be determined by the City's Engineer ~~of Denton Engineer or designee~~ based upon the information included in the Preliminary Trip Generation Assessment and the criteria in Section ~~9.4~~5.9.3 below.~~.~~

~~5.8.3~~5.9.3 When is a TIA required?

Based on the preliminary trip generation assessment for the proposed project, unless otherwise directed by the City ~~of Denton Enginee~~'s Engineer~~r~~, a TIA will be required for the following conditions:

A. Development will generate equal to or more than 100 Peak-Hour Trips (PHT).

B. Development will generate equal to or more than 1,000 vehicle trips per day (VPD).

C. Project area to be developed is equal to or more than 100 acres.

D. Changes or alterations to the City Thoroughfare plan based on the Mobility Plan will be requested.

E. Access is taken from a TxDOT roadway.

F. Zoning changes that will negatively increase estimated traffic volumes above the current zoning estimated traffic volumes.

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G. Access is taken from an existing roadway with current traffic flow congestion based upon observed conditions.

H. Development plus recently approved or pending development projects which have not been constructed located adjacent to the site and/or in proximity to the site, meet the above vehicular trip criteria or acreage criteria as determined by the City's Engineer~~Engineer or designee~~.

I. If access is taken from a TxDOT roadway, check TxDOT TIA requirements.

~~5.8.4~~5.9.4 TIA Requirements

A. TIA Study Criteria

Table 5.9~~10~~-A shows the number of analysis periods and study area limits for the TIA. Prior to developing the TIA, a Preliminary Trip Generation Assessment shall be developed and reviewed with the City's Engineer~~ of Denton Engineer or designee~~, to verify the number of analysis periods and the study area requirements. ~~See Section 5.10.6 Submission and Review Procedures.~~

Table 5.9-A: Criteria for Study Requirements

Analysis Category	Site Trips Generated at Full Build-Out	TIA Analysis Periods [1]	Minimum Study Area [3]
I	>50 peak hour driveway trip	1. Existing year 2. Opening year [2]	1. All site access drives
II	100-500 total peak hour trips	1. Existing year 2. Opening year [2] 3. Five years after opening	1. All site access drives 2. All signalized intersections and/or major unsignalized intersections within ½~~-0.5~~ mile to 1 mile of site boundary, depending on total peak hour trips
III	>500 total peak hour trips	1. Existing year 2. Opening year of each phase 3. Five years after initial opening 4. Twenty years after final opening with full build-out	1. All site access drives 2. All signalized intersections and/or major unsignalized intersections within 1-½ ~~.5~~ miles of site boundary and/or major intersections along access routes to/from regional corridors

Notes:
[1] Analysis periods shall include build and no-build scenarios. Assume full occupancy when each phase opens.
[2] Assume full build-out.
[3] For certain projects, the City may require an enlarged study area. Land uses within the study area should include recently approved or pending development adjacent to the site and/or in proximity to the site.

B. Specific Requirements of the TIA Report

At a minimum the TIA report will include the following items:

1. Introduction that describes the project and traffic generating modes.
2. Traffic Analysis Map:
   a. Existing and Proposed Land use within Study Area.
   b. Study Area Boundary.
   c. Existing and Proposed Roadways.
   d. Designation of Traffic movement elements.

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e. Thoroughfare Plan Elements within Study Area

3. Trip Generation Calculations as per the most recent ITE Trip Generation Manual:
   a. Daily and Peak Hourly Trip Generation for fully developed project conditions. Include both AM and PM Peak Hours. Provide Summary table and backup tables for calculation methods.
   b. Discount assumptions based upon City's Engineer's ~~of Denton Transportation Engineer~~ approval.
4. Trip Distribution and Assignment Tables and Figures:
   a. For Entrance/Exit from the development.
   b. For boundary streets within study area.
5. Existing and Projected Traffic Volumes for Study based upon Table ~~1.8.4.1 Criteria~~5.9-A ~~Criteria~~above:
   a. Average Daily.
   b. Peak Hourly AM and PM.
   c. Additional Traffic Volume Data Provided by the City's Engineer ~~Traffic Engineer~~.
6. Traffic Volume Analysis:
   a. Level of Service Evaluation for AM and PM Peak Hours.
   b. Turn Lane Evaluation for project site and study area. –The extent of evaluation to be determined by the City's Engineer ~~of Denton Engineer or designee~~.
   c. Signalization Evaluation for project site and study area. The extent of the evaluation to be determined by the City's Engineer ~~of Denton Engineer or designee~~.
   d. Identification of all thoroughfares, driveways, intersections, and individual movements that do not meet LOS ~~-~~-D.
7. Recommendations:
   a. Proposed recommendations to mitigate impacts to transportation system within the study area.
8. Document Requirements: The following provides a general outline for the TIA report:
   a. Executive Summary
   b. Introduction
      i. Purpose
      ii. Methodology
   c. Existing and Proposed Land Use
   d. Site Traffic Generation
   e. Existing and Proposed Traffic Flow
      iii. Transportation System
      iv. Transportation Volumes
   f. Traffic Analysis
      v. Level of Service Evaluation

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vi. Turning Movement Evaluation

vii. Signalization Evaluation

g. Active Transportation Impact Evaluation

viii. Bicycle Paths/Routes and Trail Connection Assessment

ix. Pedestrian Impact Analysis

h. Safety Assessment

i. Mitigation

j. Conclusions and Recommendations

9. Additional Requirements

Dependent upon the site characteristics, the City's Engineer ~~of Denton Engineer or designee~~ may require additional information to be included in the TIA.

~~5.8.5~~5.9.5 Submission and Review Procedures

A. A Preliminary Trip Generation Assessment of the proposed development shall be conducted to determine the TIA requirements such as limits of study area, need and type of turning movement evaluation, need for signalization evaluation, discount assumptions that can apply, and criteria to be used. Sufficient base information shall be submitted to the City's Engineer ~~of Denton Engineer or designee~~ in order to provide proper guidance on TIA requirements for the report. Subsequent to the submittal of the preliminary trip generation assessment, a meeting with the City's Engineer ~~of Denton Engineer or designee~~ should be scheduled to discuss the specific requirements for the TIA.

B. Upon completion of the TIA report, two (2) copies of the report shall be submitted to the City's Engineer ~~of Denton Engineer or designee~~ for review.

C. After a TIA is approved and if the development proposed land use and/ or proposed traffic generation characteristics change, the TIA shall be updated and re-submitted to the City for approval.

~~5.8.6~~5.9.6 Safety Assessment

Consistent with the recently adopted Mobility Plan, safety is the number one priority for the City of Denton and as such, all new developments will be required to conduct a safety assessment as part of their TIA. The safety assessment will include a review of safety for all road users (vehicles, pedestrians and bicycles) within the project site as well as along existing public ~~rights-of-ways~~ROWs in the vicinity of the project. The assessment will include a review of the following:~~.~~

A. Within the project site (Site Circulation).

B. All new intersections including project driveways.

C. All existing intersections included in the TIA.

~~5.8.7~~5.9.7 Bike/Ped TIA

All projects are expected to achieve the minimum acceptable LOS standard for onsite and off-site bicycle and pedestrian facilities. Pedestrian and bike facility demand shall be identified and related items for

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discussion should include:

A. School routing plans per the TMUTCD between the project and all schools within ~~1.5~~½ -mile~~s~~ of the project boundary.~~;~~

B. The demand for pedestrian and bike facilities to serve high pedestrian activity areas within the land use.~~;~~

C. The need for links of bicycle or pedestrian facilities to neighboring land uses or attractions (trails, etc.) within ~~0.25~~ ¼ -mile~~s~~ (or greater if applicable to unique pedestrian-oriented destinations) of the project site.~~;~~

D. Existing and proposed sidewalk width, separation from traffic, and space available for trees, transit stops (if any), or other related elements (if any).

E. Geometric improvements and recommended traffic control devices to accommodate pedestrians and bicyclists.~~;~~

F. Existing and proposed pedestrian and bike facilities shall be evaluated for compliance with the following elements:

1. Directness. Walking distance to destinations like transit stops, schools, parks, and commercial or activity areas should be direct. Measurement of directness is the ratio of the a~~A~~ctual distance to a destination via a sidewalk or pathway divided by the m~~M~~inimum distance characterized by a grid street system.

2. Continuity. The sidewalk/ walkway system should be complete, without gaps. The pedestrian corridor should be integrated with the activities along the corridor and should provide continuous access to destinations.

3. Street Crossings. Safety and comfort is essential while crossing streets, intersections and mid-block crossings. Factors that affect the LOS include: number of lanes to cross, crossing delay for pedestrians, signal indication, cross-walks, lighting, raised medians, visibility, curb ramps, pedestrian buttons, convenience, comfort, and security.

4. Visual Interest and Amenity. Pedestrians enjoy visually appealing environments that are compatible with local architecture and include street lighting, fountains, and benches.

5. Security. Pedestrians should be visible to motorists, separated from motor vehicles and bicycles, and under adequate street lighting.

6. Surface Condition. Pedestrian facilities should be free from obstructions, cracks, and interruptions.

The pedestrian Level of Service for the facility/corridor linking these destinations to the project site will be based on the directness, continuity, types of street crossings, walkway surface condition, visual interest/amenity, and security of the selected route(s), as shown in Table 5.9-B below.

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Table 5.9-B: Bike/Ped TIA Criteria~~xx~~

Quality Indicators	A	B	C	F
Security	Well used, good lighting levels and unobstructed lines of sight	Unobstructed lines of sight, good lighting levels	Sidewalk configuration and parked cars present sight problems, moderate lighting	Major pedestrian visibility problems, streetscape is pedestrian intolerant
Directness (Sidewalk Distance/ Minimum Distance)	< 1.4	1.4 - 1.8	1.8 - 2.2	> 2.2
Continuity	Quality, continuous pedestrian networks that are physically separated from street and built to current standards	Continuous sidewalk network on both sides of the street. May not be built to current standards	Sidewalk network where there may not be sidewalks on both side of the street or there are minor interruptions in connectivity	Breakdown in pedestrian network to where each pedestrian chooses a different route
Street Crossings (Signalized Intersections)	3 or fewer lanes to cross, clear indications (striping, etc.), well-marked crosswalks, good lighting, standard curb ramps, automatic pedestrian signal, pedestrian amenities, unobstructed views	4 or 5 lanes to cross, clear indications, well-marked crosswalks, pedestrian refuge area, standard curb ramps, pedestrian amenities, standard curb ramps, unobstructed views	6 or more lanes to cross, clear indications, well-marked crosswalks, pedestrian refuge area, standard curb ramps, pedestrian amenities, unobstructed view	Missing 5 elements of A, 4 elements of B, and 2 elements of C
Street Crossings (Unsignalized Intersections)	Well-marked cross walks, good lighting levels, standard curb ramps, street character suggests pedestrian crossing, unobstructed views	Missing 1 element of A	Missing 2 elements of A	Missing 3 or more elements of A
Visual Appeal and Pedestrian Amenities	Visually appealing and compatible with local architecture and artist themes, wide sidewalks, window shopping, pedestrian lighting, trees and street furniture	Wide sidewalks, visual clarity, some street furniture and landscaping	Functionally operational with less importance placed on visual appeal	Design ignores pedestrian with negative metal image, intimidating
Surface Condition	Smooth asphalt or concrete with few breaks or cracks	Relatively smooth asphalt or concrete with frequent breaks or cracks	Rougher, broken surface such as older concrete or cobblestone	Difficult, unpaved terrain such as hiking trails

~~The table~~Table 5.9-C below can be used to i~~I~~dentify the pedestrian destinations within ~~0.25~~ ¼ mile~~s~~ (~~1.5~~

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~~miles~~½ mile for schools) of the project boundary.

Table 5.9-C: Bike/Ped Destination Identification

ORIGIN (project land use)	DESTINATION						
	RECREATION	RESIDENTIAL	INSTITUTION	OFFICE/ BUSINESS	COMMERCIAL	INDUSTRIAL	OTHER (SPECIFY)
RECREATION							
RESIDENTIAL							
INSTITUTION (SCHOOL, CHURCH, CIVIC)							
OFFICE/BUSINESS							
COMMERCIAL							
INDUSTRIAL							
OTHER (SPECIFY)							

~~5.9~~5.10 Pavement Design Standard

~~5.9.1~~5.10.1 Streets

The minimum pavement section requirements for each classification of roadway are contained within the City of Denton Standard Detail Drawings for pavement cross-sections.

A. A geotechnical report shall be prepared that documents the existing soil characteristics of the proposed roadway subgrade for any proposed street improvements. Soil testing shall be performed whenever the soil characteristics change or every 500 feet, whichever is less. The report shall include recommendations for the type and treatment level of subgrade stabilization based upon ultimate traffic conditions.

B. Flex-base may be used as an option for subgrade treatment. Depth of flex-base required shall be based upon the geotechnical report for the street improvements based upon ultimate traffic conditions.

C. Alternative pavement sections may be proposed only if supported by a geotechnical report that provides sufficient evidence to demonstrate that the alternate section shall meet the ultimate traffic loading requirements.

~~5.9.2~~5.10.2 Drive Approach

Refer to the City of Denton Standard Details for drive approach section requirements.

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~~5.10~~5.11 Complete and Context-Sensitive Streets

Complete streets are transportation facilities that are planned, designed, operated and maintained to provide safe mobility for all users (including bicyclists, pedestrians, transit vehicles, truckers and motorists) appropriate to the function and context of the facility. Context-sensitive solutions formulate a complete street design considering contextual applications. Contextual applications can be of geographical nature such as Urban Core, General Urban, Suburban, University Core and other typical service areas that require unique components to address the overall transportation facilities.

Within the geometric standards are options that relate to developing a complete street that accounts for all transportation facilities within the context of the associate area. Connectivity and context-sensitive solutions are essential to meeting the goals of the standards. Refer to the City of Denton standard details for cross-~~-~~section details, and the p~~P~~edestrian and b~~B~~icycle components of the 2022 Mobility Plan for planned facilities, or as required by the City of Denton during development review.

BIKE LANES – Bike lanes shall be six (6) feet wide unless otherwise approved by the City-'s Engineer~~Engineer or designee~~. Buffered or s~~S~~eparated b~~B~~ike l~~L~~anes are generally preferred to increase level of comfort in the bicycle facility.

OFF-STREET MULTI-USE PATH – Some development areas will warrant the use of off-street multi-use paths for pedestrian and bicycle traffic connectivity to other facilities as identified by the City of Denton. Multi-use paths shall be 10 feet wide, unless otherwise approved by the ~~City of Denton~~ City–'s Engineer~~Engineer or designee~~.

TRANSIT – Bus stop locations may be required by the City of Denton for connectivity of the transit system. *See* Section 5.8 of this M~~m~~anual for details.

MEDIAN VS. CONTINOUS LEFT TURN LANE – Selection of a median or continuous left turn lane shall be based upon the TIA, connectivity, adjacent uses, and other factors required by the City-'s Engineer~~Engineer or designee~~. Medians shall be 24 feet back of curb to back of curb, unless otherwise approved by the City 's Engineer~~Engineer or designee~~. Continuous left turn lanes shall be 11 feet wide.

MODIFICATIONS TO STANDARDS – Modifications to the standards may have to be considered in some instances based upon context-sensitive use. An example of context-sensitive use which may require the standards to be modified is a roadway corridor restriction that creates limitations that cannot be altered. An example of a roadway corridor restrictions would be existing infrastructure and/or buildings that must remain. –Another example is infill development. Modifications to the standards based upon context-sensitive use shall be at the sole discretion of the City-'s Engineer~~Engineer or designee~~.

~~**The complete street design is based upon using the above options in conjunction with the other geometric features of the street in order to accommodate adjacent uses and promote connectivity. During the Pre-Application Conference and/or the TIA review meeting options for Collectors and Arterials for development shall be designated.**~~

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~~5.11 Non-conformities & Variance~~

~~5.11.1 Purpose and Goals~~

~~The purpose of this section is to establish guidelines regulating the location of telecommunication towers and antennas with the objective of minimizing their number, to protect and promote public safety, and to mitigate any adverse visual impacts on the community, while promoting the provision of telecommunications service to the public.~~

~~E. The goals of these regulations are to:~~

~~4. Compliance with Telecommunications~~

~~8.2.1 Variance Procedure~~

~~**E. If an access-related variance is not associated with the subdivision of property, the variance will be submitted to the City Engineer or designee for consideration and approval.**~~

~~**E. Driveway-related variances are considered Hardship Variances. The proposed Hardship Variance is appropriate based on a finding that unreasonable hardships or difficulties may result from strict compliance with the subdivision regulations or the purposes of the regulations may be served to a greater extent by an alternative proposal. A variance may be approved so that substantial justice may be done, and the public interest secured; provided that the variance shall not have the effect of nullifying the intent and purpose of these regulations; and further provided the Planning and Zoning Commission shall not approve variances unless it shall make findings based upon the evidence presented to it in each specific case that:**~~

~~0. The granting of the variance will not be detrimental to the public safety, health, or welfare or injurious to other property;~~

~~0. The conditions upon which the request for a variance is based are unique to the property for which the variance is sought and are not applicable generally to other property;~~

~~0. Because of the particular physical surroundings, shape or topographical conditions of the specific property involved, a particular hardship to the owner would result, as distinguished from a mere inconvenience, if the strict letter of the subdivision regulations is carried out;~~

~~0. The variance will not in any manner vary the provisions of The Denton Plan, the Development Code, and the Denton Mobility Plan, except that those documents may be amended in the manner prescribed by law; and~~

~~0. The special or peculiar conditions upon which the request is based did not result from or were not created by the act or commission of the owner or any prior owner, subsequent to the date of creation of the requirement from which a variance is sought.~~

~~**E. The Traffic Safety Commission decision on a hardship variance may be appealed to the Planning & Zoning Commission by a written request by the applicant.**~~

~~**E. The Planning and Zoning Commission decision on a Hardship Variance may be appealed to the City Council by a written request by the applicant.**~~

~~**E. If the variance involves a driveway on a TxDOT operated and maintained roadway, City Staff may choose to meet with TxDOT prior to consideration of any variance to receive technical**~~

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~~**input, which may have a bearing on the staff recommendation.**~~

~~**C. Suspension and Revocation of a Variance**~~

~~When the City determines there is a failure to comply with any term, condition, or requirement made a condition of the approval of a variance, the City Council may direct the Building Official, City Engineer or Director, as appropriate, to suspend the variance compliance with the terms, conditions, or requirements wider which the variance was approved.~~

~~1. Notice of suspension or revocation of a variance shall be sent by certified mail, return receipt requested.~~

~~1. The body granting the variance shall hold a public hearing no later than 45 days after notification. If the body granting the variance determines there is a failure to comply with any term, condition, or requirement made a condition of the variance, the body may revoke the variance or special exception or take such action, as it considers necessary to ensure compliance.~~

~~1. A decision to revoke a variance is effective immediately. Notice of the decision by the body shall be sent by certified mail.~~

~~1.~~

~~5.11 SECTION 6 – PUBLIC ACCESS DESIGN ON PRIVATE PROPERTY~~

~~5.11.1~~

~~5.11.1 6.1 Fire Lane Design~~

~~**C. General Notes:**~~

- ~~Prior to construction, the design of the fire lane shall be submitted to the City for review and approval.~~
- ~~Fire apparatus roads shall have an unobstructed width of not less than 24 feet and unobstructed vertical clearance of not less than 14 feet. These are minimums and may be increased where they are inadequate for fire or rescue operations.~~
- ~~Fire Lanes shall be constructed to meet the City of Denton's Engineering Standards for a concrete pavement cross section of a residential street.~~
- ~~Fire lane grade shall be no greater than 5% with 1/2 inch per foot cross slope.~~
- ~~During construction, all fire lanes servicing the project, shall be installed and permanently marked as per current adopted code, prior to construction progressing past slab elevation. An inspection is required by the fire marshal's office for compliance to proceed with construction past this point.~~
- ~~Maintenance of fire lanes, including preventing the obstruction of by vehicles, equipment, etc., will be enforced during construction. It is the responsibility of the General Contractor or other person(s) in control to maintain fire department access roads.~~
- ~~Fire Lanes shall be located so that access to all points of the building served is a maximum of 150', as measured by hose lay. This can be increased to 250' for building fully equipped with an approved automatic fire suppression system.~~

~~**C. Modification of existing fire lanes**~~

~~Modification of any existing or previously approved fire lane requires a permit from the City of Denton Fire Marshal's Office. This includes demolition of a fire lane for construction, placement of speed control devices or termination of a fire lane.~~

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~~D. Turning Radius~~

~~A 24 foot wide fire lane will require a minimum of a 30 foot inside turning radius.~~

~~Marking~~

~~1. Stripping~~

~~Marked by painting lines of red traffic paint six inches (6") in width at the boundaries of the fire lane as indicated on the plat. The words "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING" shall appear in four inch (4")~~

~~1. Signs~~

~~Shall read "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING" and shall be 12" wide and 18" high. Signs shall be painted on a white background with letters and boarders in red, using not less than 2" lettering. Signs shall be permanently affixed to a stationary post and the bottom of the sign shall be six feet, six inches (6'6") above finished grade. Signs shall not be spaced more than fifty feet (50') apart. Signs may be installed on permanent buildings or walls as approved by the Fire Marshall.~~

~~E. Speed Control Devices~~

~~A separate permit is required for the installation of speed control devices located in a fire lane. These devices shall be constructed of durable rubberized material, molded plastic or of concrete.~~

~~5.11.1 6.2 Speed Hump Design~~

~~Speed humps are parabolic vertical traffic calming devices intended to slow traffic speeds on low volume, low speed roads. Speed humps are 3–4 inches high and 12–14 feet wide, with a ramp length of 3–6 feet, depending on target speed.~~

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Section 6: Water and Wastewater Design Criteria

6.1 Overview

The purpose of ~~this Manual~~Section 6 - Water and Wastewater Design Criteria is to provide minimum, non-exhaustive guidelines for the design and construction of water distribution and wastewater collection systems within the City of Denton, Texas and its extra-territorial jurisdictions. ~~The criteria established in this Manual have been developed from a review of various applicable publications, regulatory requirements, and City of Denton offices which oversee the design, construction and maintenance of the water distribution and wastewater collection systems.~~

Section 6: Water and Wastewater Design Criteria is organized as follows:

A. Overview

B. Water Design Guidelines

C. Wastewater Design Guidelines

D. Construction Plans

It is the responsibility of the design engineer to ensure the final design of water distribution and wastewater collection systems are in conformance with the most recently adopted versions of the following documents:

A. Texas Administrative Code (TAC) Title 30, Part 1, TCEQ – Ch. 290;

B. Texas Administrative Code (TAC) Title 30, Part 1, TCEQ – Ch. 217;

C. Texas Administrative Code (TAC) Title 16, Part 2, PUCT – Ch. 24;

D. City of Denton Code of Ordinances and the ~~Denton Development Code (DDC)~~DDC;

E. The City of Denton's Standard Details and Standard Specifications for Construction;

F. City of Denton Water Distribution System Master Plan;

G. City of Denton Wastewater Master Plan;

~~F.~~H. American Water Works Association (AWWA) Standards;

~~G.~~I. The International Building Code (IBC);

~~H.~~J. The International Plumbing Code (IPC);

~~I.~~K. The International Fire Code (IFC); ~~-~~and

~~J.~~L. This Manual.

~~These guidelines are to be used by design engineers in the City of Denton Capital Projects Engineering Division, consulting engineers employed by the City, and engineers of subdivision and land development infrastructure projects proposed for construction and acceptance by the City within its Certificate of Convenience and Necessity (CCN) area.~~ The criteria established in Section 6 of this Manual ~~this Design~~

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Manual provide basic guidance for the design of water and wastewater systems. However, ***full responsibility and liability for proper design remains with the design engineer.*** Users of this Manual should be knowledgeable and experienced in the theory and application of water and wastewater engineering. If criteria established in Section 6 overlap with state statutes, rules, or regulations, In case of conflict with TCEQ updates, the more stringent requirement shall apply. The criteria established in this Section do not supersede the criteria contained in the DDC. In the case of conflict between this Section, City of Denton Standard Details, or other cited City regulations and standards, the more stringent requirement shall apply. Variances sought for deviations from criteria in this Manual will require additional time to evaluate, and receive approval from the City Engineer, in consultation with the Director of Water Utilitie

The Director of Water Utilities reserves the right to require extended additional review of vertical water utility infrastructure, and large horizontal infrastructure including, but not limited to, water treatment plants, elevated storage tanks, booster pump stations, water transmission mains (over 16 inches in diameter,) wastewater reclamation plants, peak flow detention facilities, sewer lift stations, and sewer interceptors (over 12 inches in diameter). The Director of Water Utilities reserves the right to deny proposals at his or her discretion.Organization

Section 6 - Water and Wastewater Design Criteria is organized as follows:

Section 6:

6.3.0 Along with this Manual, the Denton Development Code (DDC)should be consulted for additional criteria. The criteria established in this Manual do not supersede the criteria contained in the DDC. In the case of conflict among this Manual, , City of Denton Standard Details, or other cited regulations and standards, the more stringent requirement shall apply.

6.46.2 Water Design Guidelines

6.4.1 General

It is the responsibility of the design engineer to ensure the final design of a water main is in conformance with the most recent versions of the following documents:

- **F. Texas Administrative Code (TAC) Title 30, Part 1, Texas Commission on Environmental Quality (TCEQ) – Rules, Ch. 290, "Public Drinking Water"**
- **F. Public Utilities Commission (PUC) Chapter 24**
- **F. City of Denton Code of Ordinances and Denton Development Code (DDC)**
- **F. This Manual**
- **F. The City of Denton's Standard Details and Standard Specifications for Construction**
- **F. City of Denton Water Utilities Master Plans**

The 2021 International Fire Code American Water Works Association (AWWA) Standards.

6.4.116.2.1 Water Main Separation from Wastewater Mains

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Water mains shall be separated from wastewater mains as set forth in ~~Texas Administrative Code (TAC) Title 30, Part 1, Texas Commission on Environmental Quality (~~TCEQ~~)~~ Rule~~s~~ - 30 TAC § 290.44(~~.~~e)~~.~~ - Location of waterlines, ~~or~~ as ~~mostly recently~~ amended.

~~6.4.12~~6.2.2 Size of Water Distribution Mains

A. General

Water mains shall be sized to meet the calculated water demand, fire flow protection requirements, and to conform to the City of Denton's Water Distribution System Master Plan (~~Master~~ Water Master Plan or WMP). All residential, commercial, industrial, and any other development connecting to the City's water distribution system shall use the following guidelines:

1. The design engineer shall obtain the record drawing water maps from the Capital Improvement Projects & Engineering Division and use the following criteria, based on the City's ~~Master Water Plan~~WMP, for sizing the water lines.
   a. Average daily demand in gallons per capita per day = 167~~0~~ GPCD
   b. Maximum daily demand / Average daily demand = 2.0
   c. Peak hour demand / Maximum daily demand = 1.5
   d. For Single-Family Residential – Use 3.2 people/unit
   e. For Multi-Family Residential – Use 2.5 people/unit
   ~~e.~~f. Refer to ~~TCEQ~~30 TAC § 290.45 (d)(1) Table A - Non-community water systems

~~2.~~ Water systems shall be provided with ~~a~~ sufficient number of connections to the City's existing water system, and shall be of sufficient size to furnish adequate water supply ~~to furnish~~for fire protection to all lots and conform to the City ~~Master Water Plan~~WMP. Every new water system shall include two (2) or more connections to the existing City water system~~,~~ when feasible, to ensure an adequate and reliable water supply in the event of a water main break or routine system maintenance. The City may require two (2) or more meter connections, particularly for larger developments. Good engineering judgement is required to ensure reliability is considered in the design of all proposed water systems.

~~3. The City's standardized water service line sizes are:~~

~~0. Table 6.2-A: Standardized Service Lines~~	
~~0. Service Size~~	~~0. Meter Size~~
~~0. 1 in.~~	~~0. 5/8 in. x 3/4 in., full 3/4 in., and 1 in.~~
~~0. 2 in.~~	~~0. 1-1/2 in. and 2 in.~~
~~0. 4 in.~~	~~0. 3 in. and 4 in.~~
~~0. 6 in.~~	~~0. 6 in.~~
~~0. 8 in.~~	~~0. 8 in.~~
~~0. Notes:~~	
~~0. [1] Non-standard sized water services are not allowed. Refer to~~	

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~~the water service connection drawings on the City Standard Details.~~

~~27.~~2. Sites that require an irrigation meter shall have two separate service line connections onto the main; one for the domestic meter, the other for the irrigation meter.

~~28.~~3. Water pipe shall be a minimum of eight (8) inches in diameter. The standard pipe sizes that shall be used for water main lines are 8-in.~~"~~, 12-in.~~"~~, 16-in.~~"~~, 20-in.~~"~~, 24-in.~~"~~, 30-in.~~"~~, 36-in.,~~"~~ and 42-in~~"~~. pipes.~~-~~ Pipe sizes of 6~~",~~-in., 10~~",~~-in., 14~~",~~-in., 18~~",~~-in., 21~~",~~-in., and 33~~"~~-in. are considered non-standard by the City and shall not be used for water main lines. A ~~Six (6)~~6-in. pipe may be used for fire hydrant connections.

4. Every development shall provide adequate water capacity for fire protection purposes. Fire flow capacity requirements are in addition to daily demand requirements. The procedure for determining fire flow requirements for buildings or portions of buildings shall be in accordance with the version of the ~~International Fire Code~~IFC adopted ~~in~~ by the City. For any platted lot where the end use is not defined, the standards in Table 6.2-A shall apply.

5. The cost for modeling a project's impact with the City's distribution system model will be the responsibility of the developer, paid to the City.

B. Distribution System Operational Limits

The City observes the following operational limits for the distribution system under normal usage:

1. Velocity for proposed mains (greater than 16 inches): 3 to 5 fps
2. Maximum velocity for proposed mains (less than or equal to 16 inches): 5 fps
3. Maximum head loss (less than or equal to 12 inches): 5 feet per 1,000 feet
4. Maximum head loss (greater than or equal to 16 inches): 3 feet per 1,000 feet
5. Hazen-Williams Roughness Coefficient (C): 130

Proposed impacts to the City's system determined to, or likely to, cause (through hydraulic modeling or other analysis) these limits to be exceeded, are prohibited without additional improvements to the public system so the system operated within these parameters.

Table 6.2-A: Water Capacity for Fire Flow

Area	GPM
One (1) and two (2) family dwellings - less than 3,600 ~~SF~~sq. ft.	1,000
Buildings other than one (1) and two (2) family dwellings - less than 3,600 ~~SF~~sq. ft.	1,500
Medium-intensity commercial and light industrial	3,000
High-intensity commercial and industrial	4,000

Notes:

[1] All fire flows to be calculated with ~~twenty (20)~~20 ~~pounds~~ psi residual pressures.

[2] In addition to the fire flow requirements specified above, all developments shall provide adequate water capacity to satisfy the greater of: ~~-~~(a~~1~~) Peak Hour demand for the Peak Day, or (b~~2~~) Average Hour demand plus fire flow for the Peak Day.

~~[3] Mains are to be sized to ensure less than 1 foot of head loss per 1,000 feet of water main at Hazen Williams coefficients of C = 100, except for fire flow demands within the subdivision internal distribution system.~~

[3~~4~~] Special exceptions to the above standards may be made by the ~~Director of Water Utilities~~City's Engineer ~~-~~for unique situations.

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~~B.~~C. Public Fire Hydrants

Fire flow requirements shall be in accordance with the IFC ~~-~~as adopted by~~–~~ the City of Denton or Denton County, as appropriate ~~and Appendix B of the 2021 International Fire Code~~.

~~C.~~D. Private Fire Mains

In addition to the requirements of ~~3.3.1~~Section 6.2.2.B of this Manual, private fire protection water mains shall be installed in accordance with NFPA 24 and 2021 ~~International Fire Code~~IFC requirements. Private fire protection mains and associated hydrants shall be permitted by the Fire Marshal~~l~~'s Office ~~having~~ with jurisdiction over the area.

~~D.~~E. Fire Flow Tests

Fire flow tests are normally requested by the design engineer, the Mechanical, Electrical and Plumbing (MEP) engineer, and other engineers to determine available water system capacity at or near the point of interest. If a fire flow test on the existing water system is necessary, contact the Water Metering Department at (940) 349-8456 directly.

~~6.4.13~~6.2.3 Depth of Cover for Water Mains

~~Under Unpaved areas~~

The following ~~guidelines~~ table shall govern depth of cover for water main installations:

~~Table 6.2-B: Minimum Depth of Cover under Unpaved areas~~	
~~Pipe Size~~	~~Minimum Depth of cover from Surface to Top of Pipe~~
~~12 in. and smaller~~	~~5 feet~~
~~16 in. and larger~~	~~6 feet~~

~~**Under proposed or Existing pavement**~~

~~Table 6.2-C: Minimum Depth of Cover under Proposed or Existing Pavement~~	
~~Pipe Size~~	~~Minimum Depth of cover from Surface to Top of Pipe~~
~~12 in. and smaller~~	~~42 inches~~
~~16 in.~~	~~5 feet~~
~~20 in. and larger~~	~~6 feet~~

Table 6.2-B: Minimum Depth of Cover for Water Mains

Pipe Size	From Surface to Top of Pipe	
	UNDER UNPAVED AREAS	UNDER PROPOSED OR EXISTING PAVEMENT
12-in. and smaller	5 feet	42 inches
16-in.	-	5 feet
16-in. and larger	6 feet	-

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Table 6.2-B: Minimum Depth of Cover for Water Mains		
20-in. and larger	-	6 feet

Notes:

[1] Additional depth of cover shall be required for low-lying areas where future drainage improvements are anticipated.~~.~~

~~Additional depth of cover shall be required for low-lying areas where future drainage improvements are anticipated.~~

~~6.4.15~~6.2.4 Pipe and Fittings

A. Specifying the appropriate pipe material is the responsibility of the design engineer, based on the analysis of specific site and loading conditions, and pressure requirements. The minimum requirements in this s~~S~~ection are based on pipe size only, and in no way relieve the design engineer of the responsibility of specifying the pipe material applicable to the specific project. Pipe gasket material shall be that recommended by the manufacturer for the specified pipe. Special attention shall be given by the design engineer for unique pipe fitting and pipe assembly situations.

B. See Table 6.2-C~~E~~ below for the City's minimum pipe materials, fittings, polywrap, thrust restraint, and embedment requirements, as a function of pipe size.

C. All fittings for pipe sizes less than 30 inches in diameter, including vertical and horizontal bends, shall have concrete thrust blocking. *See* City of Denton Standard Details~~-~~.

D. ~~For all water line sizes~~All vertical and horizontal fittings and valves shall require restrained joints in addition to concrete thrust blocking. The joint restraints shall be designed as though there is no concrete thrust blocking, and the concrete thrust blocking shall be designed as though there are no joint restraints. Flanged tees should be used to secure all branch valves to fittings. Table 6.2-C below includes the minimum lengths of pipe to be restrained for 8-inch and 12-inch PVC water mains. ~~For all water line sizes, all fittings, including vertical and horizontal bends, shall have restrained joints, designed independently of concrete thrust blocking.~~ For water lines greater than 12 inches in diameter, additional restrained joints may need to be installed beyond the fitting (i.e., may need to be installed on several pipe joints on each side of the fitting), depending on the required restrained length calculated. ~~-~~Restrained length calculations shall be included in the lay schedule in the material submittal package and shall use approved methods of joint restraint. *See* City Standard Details, specific product listings and Table 6.2-C below~~E~~.

Table 6.2-C: Restraint Lengths for Fittings and Bends					
Pipe Size (inches)	Plugs, Tees, and Valves [1]	Bends [1]			
		90°	45°	22.5°	11.25°
8	88 ft	33 ft	14 ft	7 ft	4 ft
12	126 ft	45 ft	19 ft	9 ft	5 ft

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Table 6.2-D: Minimum Requirements for Pipe and Fittings

Pipe Size and Material	Ductile Iron Fittings	Polywrap (Pipe & Fittings)	Thrust Restraint	Embedment
8-IN. –TO 12-IN.				
PVC (AWWA C900, DR – 14)	Mechanical joint; Compact or Full-Body	8-mil V-Bio Enhanced Polywrap (fitting only)	Wedge-action mechanical joint restraint glands, at fittings.	See drawings U201, U202, U203A, U203C in City Standard Details
16-IN. –TO 20-IN.				
Ductile Iron, AWWA C151, Special Thickness Class 52, push-on-joints (where unrestrained; e.g.: American Flex-Ring joint)	Mechanical joint; Full-Body	8-mil V-Bio Enhanced Polywrap (inner layer), plus 4-mil cross-linked (outer layer)	Wedge-action mechanical joint restraint glands, at fittings. Boltless Restrained connections (Example: American Flex-Ring joint), at several pipe joints either side of each fitting, depending on the required restrained length calculated.	See drawings U201, U202, U203A, U203C in City Standard Details
Reinforced Concrete Steel Cylinder, AWWA C303 Bar Wrapped	N/A	Bonded joint and Cathodic Protection (CP) System required	Full Circle Welded Joints required for thrust restraint	Contact Water Utilities Dept.
24-IN.				
Ductile Iron, AWWA C151, Special Thickness Class 52, push-on joints (where unrestrained; e.g.: American Flex-Ring joint)	Mechanical joint; Full-Body	8-mil V-Bio Enhanced Polywrap (inner layer), plus 4-mil cross-linked (outer layer)	Wedge-action mechanical joint restraint glands, at fittings. Boltless Restrained connections (Example: American Flex-Ring joint), at several pipe joints either side of each fitting, depending on the required restrained length calculated.	Crushed Stone
Reinforced Concrete Steel Cylinder, AWWA C303 Bar Wrapped	N/A	Bonded joint and Cathodic Protection (CP) System required	Full Circle Welded Joints required for thrust restraint.	Contact Water Utilities Dept.
30-IN. AND LARGER				
Ductile Iron, Pressure Class 350; push-on joints (where unrestrained; e.g.: American Flex-Ring joint)	Mechanical joint; Full-Body	8-mil V-Bio Enhanced Polywrap (inner layer), plus 4-mil cross-linked (outer layer)	Wedge-action mechanical joint restraint glands, at fittings. Boltless Restrained connections (Example: American Flex-Ring joint), at several pipe joints either side of each fitting, depending on the required restrained length calculated.	Crushed Stone
Reinforced Concrete Steel Cylinder, AWWA C303 Bar Wrapped	N/A	Bonded joint and Cathodic Protection (CP) System required	Full Circle Welded Joints required for thrust restraint.	Contact Water Utilities Dept.

Notes:
[1] Length to be restrained on each side of the bend or fitting.
Assumptions: 1.5 safety factor, SP soil type, Type 4 trench.

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6.4.166.2.5 Meters and Meters Cans/Vaults

The City allows the following water meters, depending on the volume and nature of the customer flow demands:

Table 6.2-E: Allowable Water Meters

Service Size	Meter Size	Type	ManufacturerAWWA Standard
1-in.	⅝5/8-in." x ¾3/4-in."	Positive Displacement	AWWA C700Neptune/Badger
1-in.	¾-in.3/4" x ¾3/4-in."	Positive Displacement	AWWA C700Neptune/Badger
1-in.	1-in."	Positive Displacement	AWWA C700Neptune/Badger
2-in.	1-1/2½-in."	Positive Displacement	AWWA C700Neptune/Badger
2-in.	2-in."	Positive Displacement	AWWA C700Neptune/Badger
4-in.	3-in." Tru/Flo	Compound	See City Standard Specification 33 14 18Neptune/Badger
4-in.	4-in." Tru/Flo	Compound	See City Standard Specification 33 14 18Neptune Badger
6-in.	6"-in. Tru/Flo	Compound	See City Standard Specification 33 14 18Neptune/Badger
6-in.	6-in." Protectus III Fire Service (Shall be used for combination of domestic and fire service)	Compound	See City Standard Specification 33 14 18Neptune/Badger
8-in.	8-in." Protectus III Fire Service (Shall be used for combination of domestic and fire service)	Compound	See City Standard Specification 33 14 18Neptune/Badger

Notes:
[1] Turbine meters shall be allowed for irrigation meters; not for domestic meters.
[2] Venturi meters shall be allowed when recommended by City Water Utilities based on Single-Family Equivalent calculations.
[3] Fire hydrant meters shall only be used for non-potable purposes.
[34] Vaults are required for all meters greater than two (2) inches.
[45] *See* Section 6.2.5.D 6.2.6.D for Furnishing and Installing meters.
[6] Non-standard sized water services are not allowed. Refer to the water service connection drawings on the City Standard Details.
[7] Sites that require an irrigation meter shall have two (2) separate service line connections onto the main; one (1) for the domestic meter, and the other for the irrigation meter.

A. Number of Meters

One (1) meter is required for each residential, commercial, or industrial service connection, in accordance with the Code of the City of Denton, Texas, Chapter 26, Article I, Sec. 26-9 Code of Ordinances, Section 26-9. An apartment building, condominium, manufactured housing community, or mobile home park may be considered a single commercial facility for the purpose of this section. The City's standard policy is that only one (1) meter for domestic use will be furnished to each lot. Exceptions to that policy are:

1. Commercial, industrial, or institutional sites shall have a separate irrigation meter from the domestic meter.

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2. Multi-family developments with greater than 200 units shall be required to have two (2) domestic meters for redundancy and reliability of water service, where each meter is located on a different water main or separated by an inline valve.

3. Multi-building sites where the configuration or size of the site makes a single meter location impractical or infeasible.

4. Institutional Group I-2 Facilities as per IBC Sec. 308.3 and IPC Sec. 609; and

~~3.~~5. Submetering by the property owner to tenants of multi-family developments with a minimum of five (5) units per building (or by condominium associations to member) shall be done at the owner's expense, with privately purchased and maintained meters, and in accordance with the Public Utilities Commission 16TAC Chapter 24 Subchapter I.

B. Sizing

In commercial and industrial projects, the design engineer shall consult with the owner or the MEP engineer to identify proposed sizes and locations for domestic water meters, fire sprinkler connections, and irrigation meters.

During Building Permit review, the City evaluates adequacy of meter size using Table E201.1, "Minimum Size of Water Meters, Mains and Distribution Piping Based on Water Supply Fixture Unit Values (w.s.f.u.)" of the version of the International Plumbing Code (IPC) as adopted by the City (copy included herein as Table 6.2-F~~Table 6.2-G~~). The City's Building Permit Plans Review uses the version of the International Residential Code as adopted by the City, Table P2903.6, "Water-Supply Fixture-Unit Values for Various Plumbing Fixture and Fixture Groups" (see Table 6.2-G~~Table 6.2-H~~) to estimate ~~water supply fixture units (~~w.s.f.u.~~).~~ To facilitate review of the proposed meter size, the design engineer shall submit a tabulation of ~~water supply fixture units (~~w.s.f.u.~~)~~; a sample tabulation is provided herein in Table 6.2-I~~Table 6.2-I~~.

Contact the Water Utilities Dep~~t.~~artment regarding criteria for sizing fire-rated master meters.

~~When sizing water meters, the design engineer should be aware that, per City Code, water and wastewater Impact Fees are based on water meter size, with the following exceptions:~~

~~For multifamily developments of 8 or more units, Impact Fees are based on bedroom count.~~

~~For fire-rated master meters, Impact Fees are based on the equivalent meter size the City would require for domestic demands (except for multifamily developments of 8 or more units, in which case Impact Fees are based on bedroom counts).~~

~~For institutional developments like hospitals, dormitories, nursing homes or assisted living facilities the Denton Water Utilities will need to be consulted as to the appropriate methodology for sizing the meter.~~

For commercial or industrial sites that utilize large amounts of water in their production process, the developer shall provide estimated peak daily demand. Meter to be sized to 1.~~25x~~ 25 times (1.25x) the peak daily demand.

~~Refer to Table 6.2-J, "Land Use and Service Unit/SFE Equivalencies." Impact Fees are based on Single Family Equivalents (SFE's). For example, Impact Fees for a 1-1/2-inch meter would be twice those for a 1-inch meter.~~

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Table 6.2-F: Minimum Size of Water Meters, Mains, and Distribution Piping based on water-supply fixture-unit (w.s.f.u) values

Meter and Service Pipe (inches)	Distribution Pipe (inches)	Maximum Development Length (feet)									
PRESSURE RANGE 30 TO 39 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1]~~a~~	2.5	2	1.5	1.5	1	1	0.5	0.5	0	0
3/4	3/4	9.5	7.5	6	5.5	4	3.5	3	2.5	2	1.5
3/4	1	32	25	20	16.5	11	9	7.8	6.5	5.5	4.5
1	1	32	32	27	21	13.5	10	8	7	5.5	5
3/4	1-1/4	32	32	32	32	30	24	20	17	13	10.5
1	1-1/4	80	80	70	61	45	34	27	22	16	12
1-1/2	1-1/4	80	80	80	75	54	40	31	25	17.5	13
1	1-1/2	87	87	87	87	84	73	64	56	45	36
1-1/2	1-1/2	151	151	151	151	117	92	79	69	54	43
2	1-1/2	151	151	151	151	128	99	83	72	56	45
1	2	87	87	87	87	87	87	87	87	87	86
1-1/2	2	275	275	275	275	258	223	196	174	144	122
2	2	365	365	365	365	318	266	229	201	160	134
2	2-1/2	533	533	533	533	533	495	448	409	353	311
PRESSURE RANGE 40 TO 49 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1]~~a~~	3	2.5	2	1.5	1.5	1	1	0.5	0.5	0.5
3/4	3/4	9.5	9.5	8.5	7	5.5	4.5	3.5	3	2.5	2
3/4	1	32	32	32	26	18	13.5	10.5	9	7.5	6
1	1	32	32	32	32	21	15	11.5	9.5	7.5	6.5
3/4	1-1/4	32	32	32	32	32	32	32	27	21	16.5
1	1-1/4	80	80	80	80	65	52	42	35	26	20
1-1/2	1-1/4	80	80	80	80	75	59	48	39	28	21
1	1-1/2	87	87	87	87	87	87	87	78	65	55
1-1/2	1-1/2	151	151	151	151	151	130	109	93	75	63
2	1-1/2	151	151	151	151	151	139	115	98	77	64
1	2	87	87	87	87	87	87	87	87	87	87
1-1/2	2	275	275	275	275	275	275	264	238	198	169
2	2	365	365	365	365	365	349	304	270	220	185
2	2-1/2	533	533	533	533	533	533	533	528	456	403
PRESSURE RANGE 50 TO 60 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1]~~a~~	3	3	2.5	2	1.5	1	1	1	0.5	0.5
3/4	3/4	9.5	9.5	9.5	8.5	6.5	5	4.5	4	3	2.5
3/4	1	32	32	32	32	25	18.5	14.5	12	9.5	8
1	1	32	32	32	32	30	22	16.5	13	10	8
3/4	1-1/4	32	32	32	32	32	32	32	32	29	24
1	1-1/4	80	80	80	80	80	68	57	48	35	28
1-1/2	1-1/4	80	80	80	80	80	75	63	53	39	29
1	1-1/2	87	87	87	87	87	87	87	87	82	70
1-1/2	1-1/2	151	151	151	151	151	151	139	120	94	79
2	1-1/2	151	151	151	151	151	151	146	126	97	81

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Table 6.2-F: Minimum Size of Water Meters, Mains, and Distribution Piping based on water-supply fixture-unit (w.s.f.u) values

1	2	87	87	87	87	87	87	87	87	87	87
Meter and Service Pipe (inches)	**Distribution Pipe (inches)**	**Maximum Development Length (feet)**									
1-1/2	2	275	275	275	275	275	275	275	275	247	213
2	2	365	365	365	365	365	365	365	329	272	232
2	2-1/2	533	533	533	533	533	533	533	533	533	486
PRESSURE RANGE OVER 60 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1]~~a~~	3	3	3	2.5	2	1.5	1.5	1	1	0.5
3/4	3/4	9.5	9.5	9.5	9.5	7.5	6	5	4.5	3.5	3
3/4	1	32	32	32	32	32	24	19.5	15.5	11.5	9.5
1	1	32	32	32	32	32	28	28	17	12	9.5
3/4	1-1/4	32	32	32	32	32	32	32	32	32	30
1	1-1/4	80	80	80	80	80	80	69	60	46	36
1-1/2	1-1/4	80	80	80	80	80	80	76	65	50	38
1	1-1/2	87	87	87	87	87	87	87	87	87	84
1-1/2	1-1/2	151	151	151	151	151	151	151	144	114	94
2	1-1/2	151	151	151	151	151	151	151	151	118	97
1	2	87	87	87	87	87	87	87	87	87	87
1-1/2	2	275	275	275	275	275	275	275	275	275	252
2	2	365	368	368	368	368	368	368	368	318	273
2	2-1/2	533	533	533	533	533	533	533	533	533	533

Notes:

[1] Minimum size of building supply is ¾-in. ~~ch~~ pipe.

[2] User shall follow the most recently adopted code; above table was the most recent version at the time of publication of this Manual.

Source: 2021 International Plumbing Code – Table E201~~104~~.1

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Table 6.2-G: Water-supply fixture-unit (w.s.f.u) values for Various Plumbing fixtures and Fixture Groups

Type of Fixtures or Group of Fixtures	Load in ~~Water-supply fixture-unit~~w.s.f.u. values ~~(w.s.f.u)~~		
	HOT	COLD	COMBINED
Bathtub (with/without overhead shower head)	1.0	1.0	1.4
Clothes washer	1.0	1.0	1.4
Dishwasher	1.4	—	1.4
Full-bath group with bathtub (with/without shower head) or shower stall	1.5	2.7	3.6
Half-bath group (water closet and lavatory)	0.5	2.5	2.6
Hose bibb (sillcock)[1]	—	2.5	2.5
Kitchen group (dishwasher and sink with/without garbage grinder)	1.9	1.0	2.5
Kitchen sink	1.0	1.0	1.4
Laundry group (clothes washer standpipe and laundry tub)	1.8	1.8	2.5
Laundry tub	1.0	1.0	1.4
Lavatory	0.5	0.5	0.7
Shower stall	1.0	1.0	1.4
Water closet (tank type)	—	2.2	2.2

Notes:

[1] The fixture unit value 2.5 assumes a flow demand of 2.5 ~~gpm~~GPM, such as for an individual lawn sprinkler device. If a hose bibb/sill cock will be required to furnish a greater flow, the equivalent fixture-unit value may be obtained from this table or Table P2903.6(1).

[2] Supply loads in the building water-distribution system shall be determined by total load on the pipe being sized, in terms of ~~water-supply fixture units (~~w.s.f.u.~~)~~, as shown in Table P2903.6, and gallons per minute (~~gpm~~GPM) flow rates [*see* Table P2903.6(1)]. For fixtures not listed, choose a w.s.f.u. value of a fixture with similar flow characteristics.

[3] For SI units: 1 GPM~~gallon per minute~~ = 3.785 Liters per minute (L/m).

[4] User shall follow the most recently adopted code. The above table was the most recent version at the time of publication of this Manual.

Source: 2021 International Residential Code – Table P2903.6

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Table 6.2-H: ~~Water~~Load Values assigned to Fixtures [1]

Fixture	Occupancy	Type of Supply Control	Load in w.s.f.u values		
			COLD	HOT	COMBINED
Bathroom group	Private	Flush tank	2.7	1.5	3.6
Bathroom group	Private	Flushometer-valve	6.0	3.0	8.0
Bathtub	Private	Faucet	1.0	1.0	1.4
Bathtub	Public	Faucet	3.0	3.0	4.0
Bidet	Private	Faucet	1.5	1.5	2.0
Combination fixture	Private	Faucet	2.25	2.25	3.0
Dishwashing machine	Private	Automatic	—	1.4	1.4
Drinking fountain	Offices, etc.	⅜-in. valve	0.25	—	0.25
Kitchen sink	Private	Faucet	1.0	1.0	1.4
Kitchen sink	Hotel, restaurant	Faucet	3.0	3.0	4.0
Laundry trays (1 to 3)	Private	Faucet	1.0	1.0	1.4
Lavatory	Private	Faucet	0.5	0.5	0.7
Lavatory	Public	Faucet	1.5	1.5	2.0
Service sink	Offices, etc.	Faucet	2.25	2.25	3.0
Shower head	Public	Mixing valve	3.0	3.0	4.0
Shower head	Private	Mixing valve	1.0	1.0	1.4
Urinal	Public	1-in. flushometer-valve	10.0	—	10.0
Urinal	Public	¾-in. flushometer-valve	5.0	—	5.0
Urinal	Public	Flush tank	3.0	—	3.0
Washing machine (8-lb.)	Private	Automatic	1.0	1.0	1.4
Washing machine (8-lb.)	Public	Automatic	2.25	2.25	3.0
Washing machine (15-lb.)	Public	Automatic	3.0	3.0	4.0
Water closet	Private	Flushometer valve	6.0	—	6.0
Water closet	Private	Flush tank	2.2	—	2.2
Water closet	Public	Flushometer valve	10.0	—	10.0
Water closet	Public	Flush tank	5.0	—	5.0
Water closet	Public or private	Flushometer tank	2.0	—	2.0

Notes:

[1] For fixtures not listed, loads should be assumed by comparing the fixture to one listed using water in similar quantities and at similar rates. The assigned loads for fixtures with both hot and cold water supplies are given for separate hot and cold water loads and for total load. The separate hot and cold water loads are three-fourths of the total load for the fixture in each case.

[3] For SI units: 1 inch = 25.4 mm, 1 pound = 0.454 kg.

[4] User shall follow the most recently adopted code. The above table was the most recent version at the time of publication of this Manual.

Source: 2021 International Plumbing Code – Table E103.3(2)

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Table 6.2-I: Sample w.s.f.u Tabulation

Fixture	Quantity	Load Values, in Total w.s.f.u (each)	Total Fixture Units
Water Closet (Public; Flush Valve)	9	10.0	90
Water Closet (Public; Flush Tank)	3	5.0	15
Urinal (Public; ~~3/4~~¾-in.~~ch~~ Flush Valve)	5	5.0	25
Lavatory (Public)	10	2.0	20
Kitchen Sink (Hotel, Restaurant)	2	4.0	8
Service Sink	1	3.0	3
Shower Head (Private)	1	1.4	1.4
		Total	**162.4**

Table 6.2-J: Land Use and Service Units/SFE Equivalencies

Meter Type	Meter Size	Typical Land Use	Single-Family Equivalents (SFEs)
Positive Displacement	⅝-in. x ¾-in.~~5/8" X 3/4"~~	Residential ~~-~~ Single~~-~~-Family (Building less than 1,300 sq. ft. per ~~/~~lot size less than 6,000 sq. ft.)	0.5
Positive Displacement	⅝-in.~~5/8"~~ x~~X~~ ~~3/4~~¾-in.~~"~~	Residential ~~-~~ Single~~-~~-Family	1.0
Positive Displacement	~~3/4~~¾-in.~~"~~ x~~X~~ ~~3/4~~¾~~"~~-in.	Residential / Commercial	1.5
Positive Displacement	1-in.~~"~~	Residential / Commercial	2.5
Positive Displacement	1½-in.~~-1/2"~~	Commercial	5.0
Positive Displacement	2-in.~~"~~	Commercial	8.0
Compound	3-in.~~"~~	Commercial / Industrial	22.5
Compound	4-in.~~"~~	Commercial / Industrial	50.0

Notes:

[1] The total service units for multi-family apartment projects with eight (8) or more units shall be determined by multiplying the total number of bedrooms in the multi-family apartment project by 0.26 Single~~-~~Family Equivalents (SFEs).

Source: City of Denton Approved Meter Manufacturer's Specifications;
City of Denton Code of Ordinances Section 26-218 - Water and Wastewater Facilities - Exhibit F

C. Location

Water meters and meter cans and vaults shall be placed within a City ~~Right-of-Way~~ROW, Public Utility Easement or Public Water Easement. Placement shall also satisfy the following requirements:

1. Located as close as possible to the public water main;~~.~~
2. Easily accessible to City of Denton employees;~~.~~ and
3. Located in an unpaved area that does not conflict with vehicular or pedestrian traffic.

D. Furnishing and Installing

All meters two (2) ~~-~~inches and smaller, shall be furnished and installed by City Water Utilities for

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fees per the current Fee Schedule. All meter assemblies three (3) -inches and larger and their associated vaults, shall be furnished and installed by Contractor at their expense and inspected by Public Works Inspection ~~or~~ and City Water Utilities.

E. Details

Details of the meter can assemblies for meter sizes two (2)- inches and smaller are shown in the City Standard Details.

Details of the meter vault assemblies for meter sizes three (3) -inches and larger are shown in the City Standard Details.

F. Backflow Prevention

Backflow Prevention Assemblies ~~(Double Check Valve Assembly unless other assembly is specified elsewhere)~~ are required in accordance with the International Plumbing Code, 2021 ~~International Fire Code~~IFC, and 30 TAC § 290.44~~, City of Denton Ordinances~~. Backflow Prevention Assemblies must be utilized: ~~Chapter 28 Article XI. – Irrigation Systems, and:~~

1. At each dedicated fire line connection. ~~If the building is located within 50 feet of the right-of-way or easement, the backflow preventer may be placed within the building.~~ A flanged fire line valve shall be required to connect to the tee located on the main line and a fire line valve shall be required outside the downstream side of the vault or ROW line whichever applies;~~.~~
2. After each meter of any site served by redundant domestic meters;~~.~~
3. At facilities supporting Recreational Vehicle (RV) connections for the purpose of flushing waste tanks;
4. At all services outside City limits~~.~~, in accordance with ~~TCEQ~~ 30 TAC §290.47(f)); and

~~3.~~5. At all properties that have an auxiliary water source. These properties must protect connections to the public water system using a reduced pressure backflow assembly (RPBA).

Backflow prevention devices shall be placed ~~in vaults~~ at the ~~right-of-way~~ROW or an easement line adjacent to the connection to the public water system~~meter, except as afforded by 3.6.6(A) or as required by TCEQ to not be vaulted~~.

~~6.4.17~~6.2.6 Water Main Horizontal and Vertical Alignment

The following guidelines should be followed by the design engineer in placement of water lines:

A. In existing streets, water lines shall be placed in the pavement four (4) feet from back of curb ~~2 feet inside of the curb and gutter line intersection~~. For new residential development, water lines shall be placed on the north and east sides of the streets, where possible, four (4) feet~~2~~ ~~feet inside of the~~from back of curb ~~and gutter line intersection~~. *See* the City Standard Details.

B. All water lines shall be laid as straight as possible. Avoid excessive number of high points and low points between cross street connections, as they trap air pockets. *See* Section 6.2.16.B ~~6.2.17.A.4B~~ of this Manual for placement of air release valves.

C. Minimum radius of curv~~e~~ature and maximum deflection angle of pipe joints ~~will be~~are restricted to the manufacturer's recommendation, after which, ~~the use of~~ horizontal or vertical bends ~~will be~~are required. Deflection of pipe shall only be permitted through joint deflection; no bending of pipe is allowed.

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D. Vertical bends shall be no greater than 45 degrees.

E. Except for transverse pipe crossings, no other utility shall be installed over, under or within five (5) ~~ft.~~feet horizontally of a water line.

F. ~~Provide~~ There shall be at least two (2) feet of vertical separation between a water line and any utility or storm drain crossing it.

G. Water lines shall not ~~B~~be located ~~no~~ closer than 10 feet to any building or structure.

~~6.4.18~~6.2.7 Highway Crossings

Crossings of State or County-~~-~~controlled roads shall require the review and approval of the appropriate regulatory agency. Crossings shall meet the requirements ~~made~~ provided by the controlling agency and by the City of Denton Standards. In the event of different requirement levels for the same item, the more stringent standard shall apply.

~~6.4.19~~6.2.8 Railroad Crossings

The design engineer shall, prior to the design of any railroad crossing, contact the appropriate railroad company and regulatory agency ~~and~~ to determine if there are any special requirements. In the event the City of Denton Design Criteria are more stringent than those of the Railroad Company or regulatory agency, the City's standards shall apply.

~~6.4.20~~6.2.9 Creek Crossings

Where a water main is ~~are~~ laid under any flowing stream or semi-permanent body of water, such as a marsh or pond, or an identified ~~environmentally sensitive area (~~ESA (~~,~~ *see* DDC 7.4), the water main shall be installed in a separate watertight encasement pipe, with valves on each side of the crossing to allow for the isolation and testing of that portion of the water main to determine if there are any leaks, ~~and as well as~~ and to facilitate future repairs.

A primary consideration in the design of creek crossings is the prevention of soil erosion in the areas of trench backfill. The design engineer shall determine the need and limits of any special embedment, and determine and specify the limits for specialized backfills.

~~6.4.21~~6.2.10 Tunneling, Boring, Jacking and Casing

Tunneling, boring, jacking and c~~C~~asing are methods used for water line placement under restrictive conditions when open-cut construction is not allowed. Only straight pipe alignments for both horizontal and vertical alignment are allowed.

Design engineers should consider the location, size, and depth of boring and receiving pits when choosing the beginning and ending stations for boring. A typical bore pit is between 35 and 40 feet in length to accommodate the boring machine and one (1) joint of pipe. Width of the bore pit can vary depending on the depth and size of pipe, with the narrowest width being approximately 15 feet. ~~—~~Additional size and spacing requirements may be required as outlined in DDC 7.4 when working adjacent to confirmed ESAs. The preferred location for the bore pit is the lower elevation end of the bore; allowing any groundwater and/or boring slurry to drain from the tunnel into the bore pit. The water can then be removed by pumping.

Steel casing pipe, where required for open-cut or other than open-~~-~~cut installation, shall conform to the City Standard Specification 33 05 07 Steel Casing Pipe, and have an inside diameter (ID) large enough to accommodate a carrier pipe of at least two (2) standard sizes above the pipe being installed. Consult with

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Water Utilities Department for ~~P~~project specific design, sealed and signed by a Professional Engineer, licensed by the State of Texas.

Carrier pipes may be PVC with external harness restrained joints (requires larger casing than for pipe alone) or ductile iron with restrained joints. All carrier pipes shall be installed in accordance with the pipe manufacturer's recommendations, properly restrained and supported with approved spacers and casing end seals. Pipe joint restraint shall be achieved using only City approved pipe manufacturer externally restrained joint systems. Refer to Standard Detail U208A and the current City approved Materials Submittal List.

~~6.4.22~~6.2.11 Elevated Crossings

Elevated crossings are not permitted for water mains except for special cases approved by the ~~Director of Water Utilities~~City's Engineer. Design requirements for approved elevated crossings shall be tailored to the specific project characteristics.

~~6.4.23~~6.2.12 Underground Utility Crossing

Where water mains are laid under or over another buried utility line or underground facility (i.e., storm drain, culvert boxes, franchise utilities, etc.), special requirements may be necessary for the protection of the water main. Table 6.2-~~K~~K provides requirements for different crossing situations. This table is not a replacement for separation requirements for sewer and water lines as governed by 30 TAC § 217.53 and ~~30 TAC~~ § 290.44, respectively.

Table 6.2-K: Utility Crossing Requirements

Water Utility	Crossing	Utility Line Size (in.)	Separation (feet~~ft~~)	Special Requirement
New/existing Water	Under	~~less than~~< 24	≥~~>=~~ 2	None
New/existing Sewer	Under	~~less than~~< 24	≥ 2~~>= 2~~	None
New/existing Water	Under	24 to 42	≥ 2~~>= 2~~	None
New/existing Sewer	Under	24 to 42	≥ 2~~>= 2~~	None
New Water	Under	~~Greater than~~> 42	≥ 2~~>= 2~~	Encased in 150±~~+-~~psi pressure class pipe
Existing Water	Under	> 42~~Greater than 42~~	≥ 2~~>= 2~~	Encased in split steel casing
New Sewer	Under	> 42~~Greater than 42~~	≥ 2~~>= 2~~	Encased in 150±~~+-~~psi pressure class pipe
Existing Sewer	Under	> 42~~Greater than 42~~	≥ 2~~>= 2~~	Encased in split steel casing
New Water	Under	≥ 10~~10 feet or greater~~	≥ 2~~>=2~~	Cased in steel pipe
Existing Water	Under	≥ 10~~10 feet or greater~~	≥ 2~~>=2~~	Cased in split steel pipe
New Sewer	Under	≥ 10~~10 feet or greater~~	≥ 2~~>=2~~	Cased in steel pipe
Existing Sewer	Under	≥ 10~~10 feet or greater~~	≥ 2~~>=2~~	Cased in split steel pipe
New/existing Water	Over	< 24~~less than 24~~	≥ 2~~>= 2~~	None
New/existing Sewer	Over	< 24~~less than 24~~	≥ 2~~>= 2~~	None
New/existing Water	Over	≥ 24~~24 or greater~~	≥ 2~~>= 2~~	None
New/existing Sewer	Over	≥ 24~~24 or greater~~	≥ 2~~>= 2~~	None

A. To minimize crossing impacts, crossings must be perpendicular, if possible.

B. Utility crossings with less than two (2) feet of separation require a ~~variance~~ design deviation request

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(which will include special requirements) after providing a thorough analysis detailing physical and economic factors involved.

C. Pursuant to the Code of the City of Denton, Texas, Chapter 25, Article II, Sec. 25-80 - ~~City Ordinance Chapter 25 Section 25-80~~ Facility Size and Locations, all ~~right-of-way~~ROW user facilities are required to maintain a minimum separation of ~~twenty-four (~~24~~)~~ inches from all C~~c~~ity utility system facilities. If a ~~right-of-way~~ROW user may encounter a hardship due to this requirement, the ~~right-of-way~~ROW user may request a ~~variance~~design deviation ~~to~~ as detailed in Section 8 of this Manual~~the minimum separation requirement in writing and in advance with the permit application. Any exception granted will be subject to the City Engineer's approval or denial with the permit application, and only applicable to a single issued permit~~.

D. Split~~-~~-steel casing shall follow sizing requirements of pressure~~-~~-rated casing.

E. See City Standard Specification Section 33 05 07 Steel Casing Pipe.

F. Casing spacers shall be placed not more than five (5) feet apart.

G. Encasement shall be extended a minimum of three (3) feet beyond the edge of the utility or facility to be crossed. Water mains that cross utility lines in private easements must adhere to the requirements of the easement owner, as well as those listed above.

~~6.4.24~~6.2.13 Fence or Wall Crossings

A. Water mains should be routed to avoid entering private property. In circumstances where it ~~—~~is impractical to avoid doing so, provisions are required to allow City staff to inspect, maintain, and repair its infrastructure. Water mains crossing fences will require a ~~variance~~design deviation request as per Section 8 of this Manual, to be reviewed by the City's Engineer ~~Engineer in consultation with the Director of Water Utilities~~, after thorough consideration of the physical and economic factors involved. ~~Variances~~Design deviations may require additional provisions beyond this Manual.

B. Water mains crossing under privacy fencing (wood, chain-link, or plastic) shall not require any special protection.

C. Water mains crossing under other types of fencing will require the fence to be constructed of easily removable panels or have gates that can be removed from the easement.

D. Water mains may not cross under retaining walls.

E. There must be at least two (2) feet of vertical separation between a water line and any utility or storm drain crossing it.

~~6.4.25~~6.2.14 Existing Water Main Replacement

A. Whenever an existing main is to be replaced by a new main, use the following guidelines for alignment and design:

1. The new line should be located as near as possible to the existing line; while allowing the existing line to remain in service, until the new line is ready to be put into service.
2. If the existing line is in or next to a roadway, the new line should be placed under existing pavement, not behind the curb in the parkway area.
3. The new line should be designed to utilize the existing metering locations where possible.

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B. The size of the new line should match the size of the existing line. If the existing line is a non-standard size (i.e., 6-in. or 10-in.) thean the new line should be sized for the next larger standard size. The design engineer shall perform field investigations to determine pavement condition over the existing main. The pavement may have been patched due to breaks in the existing main over the years. Based on field investigations, the design engineer shall include additional quantities for pavement replacement, if necessary.

6.4.266.2.15 Methods of Connection

A. Pressure Zones

The City of Denton's Water Distribution System is divided into several water pressure zones to ensure even water-pressure gradients. Prior to the design of connection points between a proposed main and any existing main, the design engineer shall investigate and determine if the proposed water main crosses the boundary between different pressure zones.

Even though physical connections of water pipes exist between pressure zones, they are designed with valves which are closed at the boundary points so that each pressure zone is isolated. Proposed mains that approach pressure zone boundaries shall be designed to loop within their designated pressure zones and with no or minimum lengths of dead-end mains.

Connections between pressure zones must be approved by the City of DentonDirector of Water Utilities, and may require pressure-reducing valve stations. The design engineer can determine the pressure zone boundaries by consulting the record drawing water maps which show the designated closed valves between pressure zones and by contacting Water Utilities. *See* Figure xx 6.1 below for a Pressure Zone Map.

Note that the developer will be responsible for all surface rehabilitation associated with connecting to the City's Water Utilities. Surface rehabilitation must match existing site conditions or better.

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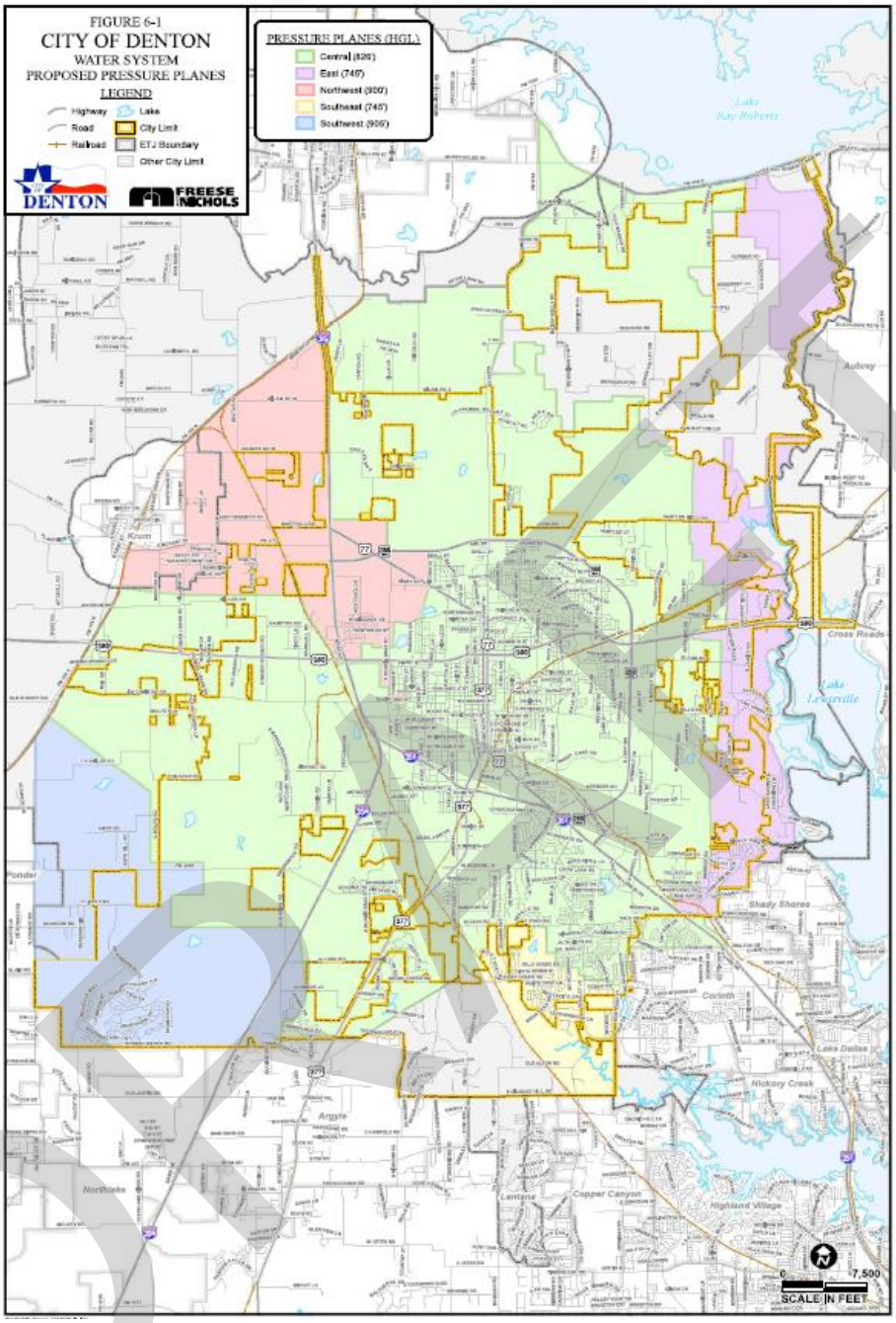

Figure 6.1~~7.16.1~~ 2018 Water Master Plan Pressure Zone Map

B. Tapping Sleeve and Valve

Tapping sleeves with tapping valves shall be used whenever possible for connections to existing mains to avoid interruption of water services. *See* Figure 3.1 in Drawing PIAZ13 of the City Standard Details.

1. As per AWWA C223, s~~S~~ize-~~-~~on-~~-~~size taps are allowed up to 12-~~ feet~~ inches (e.g.: 12-in.~~ feet x~~x ~~12 feet)~~ 12-~~ feet~~in.)

2. Taps on 16~~"~~-in. and larger pipes must be approved in writing in advance by the ~~Director of~~

~~Water Utilities~~City's Engineer~~, and at least one standard pipe size smaller than the pipe being tapped~~. *See* Figure 3.2 in Drawing PIAZ13 of the City Standard Details. (e.g.: 16-in. ~~"~~ x ~~X~~ 12~~"~~-in., 16-in. ~~"~~ ~~X~~x ~~-~~8-in.~~"~~, and 16-in. ~~"~~ x ~~X~~ 6~~"~~-in. taps ~~are~~ may be allowed).

3. Connections to fire hydrant leads are not allowed.

~~3.~~4. All water service lines, two (2) inches and smaller, require taps as per City Standard Details.

C. Cut-in Connection

~~On occasions when connecting to an existing main, it may be desirable to have an additional valve on the existing main. In this situation, the design engineer should consider using a cut-in connection with a tee and valve being cut into the existing main.~~Cut-in connections are only allowed to existing mains larger than 12 inches, where a size-on-size connection is needed. *See* Figure 3.4 in Drawing PIAZ14 of the City Standard Details.

D. Main Extensions

A new valve shall be installed at the point of connection for water main extensions. This will facilitate the testing and chlorination of the new main prior to its placement into service. *See* Figure 3.5 in Drawing PIAZ14 the City Standard Details.

~~6.4.27~~6.2.16 Valves

A. Isolation Valves

1. Location

Isolation valves shall be provided to allow for the proper operation and maintenance of the water distribution system, and to ensure water quality can be maintained ~~to~~ for each individual water customer connected to the system.

The location of valves needs to properly address the ability of the Department of Water Utilities to remove a water line from service to perform necessary repairs, while critically minimizing the interruption of service ~~to~~ for fire protection and to ~~the least number of~~ customers ~~and to fire protection~~. Isolation of any given section of water line should generally be able to be accomplished by closure of the least number of valves, as would generally be expected under good engineering design practices and utility engineering standards. The Department of Water Utilities reserves the right to require changes to proposed designs to satisfy these objectives.

The design engineer shall place valves on proposed water mains so they may be easily located in the future by operations and maintenance crews.

The following guidelines should be used by the design engineer in placement of isolation valves on proposed water mains:

a. Two (2) valves are to be installed at every main branch tee location, one (1) flanged to the branch of the tee and the other a mechanical joint connection on one (1) ~~-~~of the two (2) runs of the tee. *See* Figure 3.6 in Drawing PIAZ15 of the City Standard Details. Three (3) valves are to be installed at every cross location, each a mechanical joint connection.

b. Valves for line sizes 12 ~~-~~inches in diameter or less should not be spaced any farther apart than 1,000 feet. For city blocks that are longer than 1,000 feet between street intersections, placement of a valve will be required between street intersections.

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c. Valves should be generally located so that no more than four (4) valves are required to isolate a section of main. *See* Figure 3.7 in Drawing PIAZ15 of the City Standard Details. For mains larger than 12 inches in diameter, valve spacing and placement shall be subject to alternate criteria approved by the ~~Director of Water Utilities~~City's Engineer.

d. All fire hydrant leads ~~are to~~must be designed with a valve that is flanged to the main line. *See* Drawing W401A and W401B of the City of Denton Standard Details

~~3.~~2. Specifications

Refer to Table 6.2-~~L~~L and Standard Specifications 33 14 20 Resilient Seated (Wedge) Gate Valves and 33 14 21 AWWA Rubber-Seated Butterfly Valves.

Table 6.2-L: Isolation Valve Requirements

Size	4 in. to 12 in.	16 in. to 20 in.	24 in.	30 in.	36 in. or larger
Type	Gate Valve (AWWA C509 resilient-seat)	Gate Valve (AWWA C515 resilient-seat)	Gate Valve (AWWA C515 resilient-seat)	Gate Valve (AWWA C515 resilient-seat)	Gate Valve (AWWA C515 resilient-seat) or butterfly, to be determined by City on a case-by-case basis
Orientation	Vertical	Vertical	Vertical	Vertical or horizontal; to be determined by City on a case-by-case basis	Vertical or horizontal; to be determined by City on a case-by-case basis
Gear Operator Required	No	No	Yes	Yes	Yes
Vault Required	No	No	Yes	Yes	Yes
Bypass Required	No	No	No	Yes	Yes

~~4.~~3. Details

Refer to Drawings W104, W105, W106A, W106B, and W601 of the City Standard Details.

B. Air Release Valves and Air/-Vacuum-Air Release Valves

For water mains less than 16 inches in diameter in certain situations where the topography, remoteness, or some other hydraulic factor necessitates it, air release valves are required at local high points to facilitate automatic release of accumulated air.

For water mains 16 inches and larger ~~mains~~, the City requires air-/-vacuum-air release valves at local high points to facilitate automatic release of accumulated air and to facilitate automatic prevention of vacuum conditions within the line. *See* Drawings W801 and W802 of the City Standard Details.

Manholes shall not be placed in sidewalks, pedestrian ramps, driveway approaches, or in the bottom or on the slopes of a drainage channel or drainage structure. Manholes shall be kept a minimum of 40 feet from any railroad track.

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~~6.4.28~~6.2.17 Dead-End Mains

A. Dead-end main situations should be avoided whenever possible.

B. In lieu of dead-end mains, the design should loop through public ~~right-of-way~~ROW or a dedicated public utility easement (with adequate assurance of access and fencing prohibited) to another nearby water main using the same size pipe.

C. If a dead-end main situation is unavoidable, it shall be designed so that it may be periodically flushed of stagnant water by locating a fire hydrant or other flushing device near the main's end and past the last service connection. *See* City of Denton Standard Detail W603.

~~6.4.29~~6.2.18 Fire Hydrant Locations and Coverage

A. The design engineer should locate fire hydrants as close as possible to street intersections, but outside of the curb radius. This positioning of fire hydrants provides coverage along several streets. When spacing requirements necessitate the installation of fire hydrants between street intersections, they should be placed at the projection of lot lines between property owners. For main replacement projects in established neighborhoods, fire hydrants should be designed as close as possible to the old fire hydrant location, provided coverage is adequate. Neighborhood residents are familiar with the fire hydrant being at that location and normally expect a replacement fire hydrant to be placed at the same location. Fire hydrants are not to be installed closer than nine (9) feet to any wastewater main, manhole, or appurtenance.

B. Fire hydrant spacing shall comply with the 2021 IFC Appendix C Fire Hydrant Locations and Distribution, and be easily accessible by City staff and First Responders. *See* City Standard Details W401A and 401B, and Standard Specifications 33 14 40 Fire Hydrants. Fire hydrants shall be placed at a maximum of 500 feet apart in single-family residential areas, and a maximum of 300 feet apart in all other areas, unless a closer spacing is required by the IFC.

~~6.4.30~~6.2.19 Requirements for Abandoning Water Mains

The design engineer should note the limits and appropriate conditions for the abandoning of existing water mains which are to be replaced by the construction of any proposed water mains.

The design engineer should also make allowances in the design to provide for the existing and proposed mains to be in service simultaneously, until all customer services are transferred from the old main to the new main with minimum interruption of service. If the construction of a proposed main necessitates the abandoning of the existing main prior to the new main's placement into service, then provisions for a temporary water main with services must be addressed by the design.

Typically, abandoned lines may be left in place with only the ends being plugged with grout or concrete. However, the City may require special abandonment actions including, but not limited to, filling the abandoned water main with grout, removal and proper disposal of all above ground appurtenances, and removal and proper disposal of the abandoned pipe.

A. Replacement Mains

On occasions when connecting to an existing main, it may be desirable to have an additional valve on the existing main. In this situation, the design engineer should consider using a cut-in connection with a tee and valve being cut into the existing main. *See* Figure 3.4 in Drawing PIAZ14 of the City Standard Details.

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B. Extension Mains

A new valve shall be installed at the point of connection for water main extensions. This will facilitate the testing and chlorination of the new main prior to its placement into service. *See* Figure 3.5 in Drawing PIAZ14 the City Standard Details.

C. Fire Hydrants

A new valve shall be installed at the point of connection for water main extensions. This will facilitate the testing and chlorination of the new main prior to its placement into service. *See* Figure 3.5 in Drawing PIAZ14 the City Standard Details.

~~6.4.31~~6.2.20 Flushing and Disinfection

Prior to making permanent connections to the distribution system, water distribution mains, valves, and appurtenances shall be adequately flushed and disinfected in accordance with the most current revision to AWWA C651, and bacteriological testing shall be completed to meet the standards established by the Water Utilities Department and ~~Chapter 290 of the Texas Administrative Code (~~30 TAC Chapter § 290~~)~~. Additionally, heavily chlorinated water shall be flushed from all segments of the newly constructed mains before final connections are made.

Before commencement of construction of water distribution infrastructure, the c~~C~~ontractor or engineer shall submit a flushing and disinfection plan for review by the Department of Water Utilities. At a minimum the plan shall describe:

A. Flushing procedures;

B. Hydraulic calculations to demonstrate adequate flushing velocities, or demonstrate conformance with the conditions outlined in AWWA C651 Table 3;~~.~~

C. The method of chlorination;

D. Bacteriological sampling plan;

E. Dechlorinating procedures (Ref~~.~~er to AWWA C655); and

F. Disposal of chlorinated water and methods used to ensure discharges to surface waters or storm sewer systems do not exceed 0.1 mg/L total chlorine.

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~~6.15~~6.3 Wastewater Design Guidelines

~~6.15.1 General~~

~~It is the responsibility of the design engineer to ensure the final design of a sewer main is in conformance with the following:~~

~~Texas Administrative Code (TAC) Title 30, Part 1, Texas Commission on Environmental Quality (TCEQ) – Rules, Ch. 217,~~

~~City of Denton Code of Ordinances and Denton Development Code (DDC)~~

~~This Manual~~

~~The City of Denton's Standard Details and Standard Specifications~~

~~Current City of Denton Wastewater Master Plan~~

~~American Water Works Association (AWWA) Standards~~

~~6.15.10~~6.3.1 Estimated Wastewater Flows

For sewers in new developments, sewer lines and lift stations shall be designed to accommodate the projected buildout flows from all residential, commercial, industrial, or institutional sources upstream of the proposed sewer improvement. Figure: 30 TAC §217.32(a)(3) Table B.1. - Design Organic Loadings and Flows for a New Wastewater Treatment Facility (*see* excerpted information in Table ~~4.2-1~~6.3-A) shall be used as a guide to generate wastewater flows. However, minimum flow capacity for sizing of sewers for peak flow condition shall not be less than the results of the following calculation procedures:

A. Delineate the wastewater drainage area that will drain into the sewer main or lift station. Include all upstream offsite areas.

B. For the development site, use the following design parameters:
   1. Table 6.3-A ~~Table 3.6-A~~ to generate the wastewater loading by type of use.
   2. 3.2 capita per lot for single-~~-~~family.
   3. 2.5 capita per unit for multifamily.
   4. Apply a 4.0 multiplier to the average daily flow to determine the peak flow.

C. For undeveloped upstream areas, use the following design parameters:
   1. 4 lots per acre.
   2. 3.2 capita per lot.
   3. Average daily flow of ~~100~~ 90 ~~gal/capita/day.~~GPCD
   4. Apply a 4.0 multiplier to the average daily flow to determine the peak flow.

D. For developed residential upstream areas, use the following design parameters:
   1. Count number of single-~~-~~family lots.
   2. Obtain number of multifamily units (available through DCAD)

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3. 3.2 capita per lot for single-~~-~~family.
4. 2.5 capita per unit for multifamily.
5. Average daily flow of 100 ~~gal/capita/day.~~GPCD
6. Apply a 4.0 multiplier to the average daily flow to determine the peak flow

E. For developed non-residential upstream areas, use the following design parameters:

1. Average daily flow of 1,500 GPD~~gpd/~~ per acre.
2. Apply a 4.0 multiplier to the average daily flow to determine the peak flow

For replacement of existing sewers and construction of parallel sewers for additional capacity, wastewater flow data will be provided by the City from data generated by City sewer-shed computer models. The cost for modeling a project's impact with the City's collection system model will be the responsibility of the developer, paid to the City.

Proposed impacts to the City's system determined to, or likely to, cause (through hydraulic modeling or other analysis) these limits to be exceeded, are prohibited without additional improvements to the public system so the system can be operated within these parameters.

Table 6.3-A: Design Flows for a New Wastewater Treatment Facility

Source	Remarks	Daily Wastewater Flow (Gal. per person)[1]
Municipality	Residential	75 - 100
Subdivision	Residential	75 - 100
Trailer Park [2]~~2~~ (Transient)	2½ Persons per Trailer	50 - 60
Mobile Home Park [2]~~2~~	3 Persons per Trailer	50 - 75
School	Cafeteria & Showers Cafeteria/ No Showers	20 15
Recreational Parks	Overnight User Day User	30 5
Office Building or Factory	FA ~~f~~acility must be designed for the largest shift	20
Hotel/Motel	Per Bed	50 - 75
Restaurant	Per Meal	7 - 10
Restaurant with bar or cocktail lounge	Per Meal	9 - 12
Hospital	Per Bed	200
Nursing Home	Per Bed	75 - 100
Alternative Collection Systems, e.g., septic tanks	Per Capita	75

Notes:

[1] City of Denton requires usage of the highest number of the TCEQ ranges.

[2] At the time of updating this Manual, the TCEQ is evaluating criteria for tiny homes, and should be consulted as appropriate.

Source: TCEQ Rules - 30 TAC §217.32(a)(3), Table B.1

~~6.15.11~~6.3.2 Separation ~~Distances~~ between Water and Wastewater Collection Facilities ~~Collection System Pipes orand Manholes and Public Water Supply~~

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~~Pipes~~

Wastewater mains and manholes shall be separated from water mains as set forth in ~~Texas Administrative Code (TAC) Title 30, Part 1, Texas Commission on Environmental Quality (TCEQ) Rules -~~ 30 TAC §217.53(~~.~~d) - Separation Distances, and 30 TAC §290.44 - Water Distribution.

~~6.15.12~~6.3.3 Size and Slope of Sewers

After the design engineer has determined the wastewater flows per Section 6.3.1~~,~~ of this Manual, the sewer size can be determined using the following criteria. However, no sewer, other than service laterals and force mains, shall be less than eight (8) inches in diameter.

The size and grade of the proposed sewer shall be evaluated ~~by~~ using Manning's ~~Equation.~~formula

$$V = 1.49/n\ (R)^{0.67}\ (S)^{0.50} \qquad \text{[Eqn. 6.1]}$$

Where: V = velocity (in fps~~feet per second~~)

n = Manning's coefficient of roughness; minimum 0.013

R = hydraulic radius (feet)

S = slope of energy grade line (feet per foot)

Proposed sewers shall be designed with slopes sufficient for velocity of three (~~-~~3.0) ~~feet per second (~~fps~~)~~ ~~velocity~~, with a minimum required velocity ~~required~~ of two (2.0) ~~(~~fps~~)~~. The minimum acceptable Manning's "*n*" factor for design shall be 0.013, which takes into consideration the slime, grit and grease layers that will affect hydraulics or hinder flow as the pipe matures. The sewer pipe grades shown in Table 6.3-B are based on an "*n*" value of 0.013 and are the minimum acceptable slope for sewer lines.

Table 6.3-B: Minimum and Maximum Pipe Slopes

~~Size~~ Size of Pipe ID (~~in~~ Inches ~~)~~ ~~ID~~	Minimum Slope ~~in Percent~~(%)	Maximum Slope ~~in (Percent~~%)	Capacity Flowing Full at Min. Slope (MGD)
8	0.335	8.40	0.45
10	0.25	6.23	0.71
12	0.20	4.88	1.03
15	0.15	3.62	1.62
18	0.115	2.83	2.25
21	0.095	2.30	3.07
24	0.08	1.93	4.14
~~2~~7	0.07	1.65	4.91
30	0.06	1.43	6.23
33	0.055	1.26	7.66
36	0.045	1.12	9.17

The capacity of the sewer pipe flowing full shall be computed by the following equation:

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$$C = 0.299/n\ (D)^{2.67}\ (S)^{0.50} \qquad \text{[Eqn. 6.2]}$$

Where: C = capacity (million gallons per day-MGD)

n = Manning's coefficient of roughness; minimum 0.013

D = inside diameter -(feet)

S = slope of the energy grade line (feet per foot)

Sewer mains shall be designed to convey peak flow at no more than 80% o~~i~~f full pipe capacity at system buildout.

~~B.~~A. High Velocity Protection

Where velocities greater than 10 fps will occur when a pipe flows full, based on Manning's Equation and an "n" value of 0.013, restrained joint pipe or external restraint systems must be utilized.

~~6.15.13~~6.3.4 Sewer Main Depth

Minimum depth for the design of sewer mains shall be determined by providing a ~~two~~2 ~~percent~~% grade for the lateral from the center of the house or building to the center of the proposed main and including an additional two (2) fee~~oo~~t drop. Therefore, for a house 100 feet from the proposed sewer main, the designed depth of the main shall be at least four (4)~~.0~~ feet below the FFE~~finished floor elevation~~ of the house since:

$$\text{2 feet + (2\% of 100 feet) = 4}\cancel{.0}\text{ feet} \qquad \text{[Eqn. 6.3]}$$

The lateral also must have at least two (2) feet of cover at its shallowest point. The design engineer is responsible for ensuring sufficient depth and grade is maintained to serve all building sites in the sewer shed.

The maximum depth of sewer mains is ~~required to be no more than~~ 30 feet.

~~6.15.14~~6.3.5 Recommended Cover

Recommended cover for all sewer mains is four (4) feet to six (6) feet. Minimum cover shall be three (3) feet and six (6) inches or 3-½ ~~3.5~~ feet. Any main approved to have less than minimum cover shall be encased in Class "B~~G~~" embedment per City Standard Specifications. *See* Drawing U204 of the City Standard Details.

When establishing depth for proposed wastewater mains, design engineers shall consider the impact of proposed water and drainage improvements especially on service laterals that cross those improvements to connect to the wastewater main.

~~6.15.15~~6.3.6 Sewer Alignment

Design engineers shall be guided by the following in the alignment of wastewater lines:

A. For new construction in areas not served, sewer mains shall be laid straight between manholes. No horizontal or vertical bends are allowed between manholes;~~.~~

B. Avoid shifting mains from one side of the ROW to the other side of the ROW between street intersections;~~.~~

C. Where the bypass of existing flows is feasible, it is recommended that replacement mains be constructed horizontally in the same trench; and~~.~~

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D. Except for pipe crossings, no franchise utility shall be installed within five (5) feet of a sewer main.

~~6.15.16~~6.3.7 Sewer Laterals

A. Water Utilities Field Operations or Engineering and Planning staff reserves the right to permit utility-supervised connections to the collection system by non-City staff. Note that the developer will be responsible for all surface rehabilitation associated with connecting to the City's Water Utilities. Surface rehabilitation must match existing site conditions or better

~~E.~~B. Laterals may not serve more than one (1) lot.

~~F.~~C. Minimum lateral sizes from the sewer main to the public cleanout are:

1. 4-in.~~ch~~ minimum for single-family
2. 6-in.~~ch~~ minimum for residential duplex, triplex, and quadplex
3. 6-in.~~ch~~ minimum for local retail, light commercial, apartment, manufacturing and industrial

~~G.~~D. Single-way clean-outs shall be provided on laterals at the public easement or ~~Right-of-Way~~ROW line. Double-way cleanouts are not allowed. See Drawings S403 and S404 of the City Standard Details.

~~H.~~E. Manholes shall be provided for lateral connections when the lateral pipe diameter is equal to the main sewer pipe diameter or if the lateral is eight (8)~~-inch~~ inches in diameter or larger.

~~I.~~F. Laterals shall be constructed to the property line and shall be located at a point five (5) feet downstream from the center of the lot on unimproved property. For improved property, design engineers should use technical judgement in lateral placement.

~~J.~~G. Preferred grade for lateral construction within the ROW/PUE is 2%. Laterals within ROW/PUE shall not be designed with less than 1% grade.

~~6.15.17~~6.3.8 Gravity and Force Main Sewer Pipe Material

Gravity and Force Main sewer pipe shall meet the following criteria unless special circumstances require an alternative and is approved by the ~~Director of Wastewater Utilities~~City's Engineer. Slope of grade across cover shall be a maximum of 4H:1V.

Table 6.3-C: Minimum and Maximum Pipe Slopes

~~Pipe Size~~Diameter	Application	Pipe Material
8-in. to 12-in.	Gravity	PVC – ASTM D3034, SDR 26; HDPE – ASTM D3350, DR-17
15-in.	Gravity	PVC – ASTM D3034, SDR 26
18-in. to 24-in.	Gravity	PVC – ASTM F 679, PS115; Fiberglass Reinforced Plastic – ASTM D3262
6-in. to 60-in.	Force Main	HDPE – ASTM D3350, DR-13.5; DIP – AWWA C150/C151, CL52 or PC 350, epoxy interior lining

A. For gravity sewer pipe sizes over 24~~-inch~~ inches in diameter, design calculations and pipe selection shall be submitted by the development design engineer for review;. ~~a~~Approvals will be provided on a project specific basis.

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B. Force main sewer pipe shall be designed to meet the working and surge pressure requirements of the specific application. Design calculations and pipe selection shall be submitted by the development design engineer for review.

C. Different pipe materials shall not be mixed between manholes. If it is anticipated that a mixing of materials will occur, the design engineer shall design a manhole at the point of transition of pipe materials. For previously placed stub-out of a material other than PVC pipe, design engineer shall add a note to the plans calling for removal of the stub-out or change the material of the proposed pipe for that section of pipe between manholes.

6.15.186.3.9 Sewer Pipe Embedment

The types of embedment and backfill for sewer mains are shown in Drawings U201, U202, U203A and U203C of the City Standard Details. Embedment requirements shall be based on sewer mains under proposed pavement, unpaved areas and existing pavement.

6.15.196.3.10 Manholes

Manholes constructed on existing or proposed sewer lines shall be sized as follows:

Table 6.3-D: Manhole Sizing

Pipe Diameter	Manhole Diameter
8-in. to 12-in.	4.0 feet. (For depths greater than 12 feet., use 5.0 feet.)
15-in. to 27-in.	5.0 feet.
30-in. to 36-in.	6.0 feet.

Notes:

[1] Special manholes shall be designed for mains larger than 36-in. diameter pipe.

The types of manholes allowed by the City are shown in Drawings S101, S102, S103 and S107B of the City Standard Details. Additionally, connections to manholes must comply with City Standard Specifications.

Generally, manholes shall be stationed on the main run, and where known, the stations of the side mains should also be indicated. When connecting a proposed main to an existing main at a manhole, the connection shall have the top inside elevation of the outfall main level with the top inside elevation of the proposed main. Connections to brick manholes are prohibited.

At the discretion of Field Operations or Planning and Engineering Division staffWater Utilities, manholes with known deficiencies will be required to be replaced.

A. Manhole Locations

Manholes shall be provided at the following locations to facilitate maintenance, cleaning, and inspection:

1. At the location of lateral connections that are 8-in. in diameter or larger;

2. At 500 feet intervals on sewer mains 15-in. diameter or smaller; at 800 feet internals on mains 18-in. diameter through 30-in. diameter; at 1,000 feet intervals on mains 36-in. diameter through 48-in. diameter; and at 2,000 feet intervals for 54-in. diameter and larger;

3. At all locations where pipe diameter or pipe material changes;

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4. At all locations where the horizontal or vertical alignment of the sewer main changes;~~.~~
5. At the ends of all mains with service connections. Two ~~ends of a~~ main upstream ends may not be combined in one manhole;~~.~~
6. If the main line is less than 150 feet ~~0 ft.~~ long and does not contain any service connections, or additional extensions are not expected or possible, then a Sanitary Sewer Mainline Cleanout may be used. *See* Drawing S402 of the City Standard Details;~~.~~
7. At the end of any pipe segment at least 150 feet ~~ft~~ long;~~.~~
8. At the end of every end-of-line (EOL);
~~8.~~9. Sewer service laterals are to be connected to the sewer main line and not into a manhole unless it is a size-on-size connection;~~.~~
~~9.~~10. Manholes shall not be placed in sidewalks, pedestrian ramps, driveway approaches, or in the bottom or on the slopes of a drainage channel or drainage structure;~~.~~
11. ~~Manholes shall be kept~~At a minimum of 4~~3~~0 feet from any railroad track; and~~.~~
~~10.~~12. Separation of utilities around manholes shall be a minimum distance of five (5) feet , to allow for maintenance and repair.

~~6.15.20~~6.3.11 Highway Crossings

Crossings of State or County-controlled roads shall require the review and approval of the appropriate regulatory agency. Crossings shall meet the requirements made by the controlling agency and by City of Denton Standards. In the event of different requirement levels for the same item, the more stringent standard shall apply.

~~6.15.21~~6.3.12 Railroad Crossings

The design engineer shall, prior to the design of any railroad crossing, contact the appropriate railroad company and regulatory agency and determine if there are any special requirements. In the event City of Denton Design Criteria are more stringent than those of the Railroad Company or regulatory agency, the City's standards shall apply.

~~6.15.22~~6.3.13 Tunneling, Borings, Jacking, and Casing

A. Tunneling, boring, jacking and casing are methods used for sewer line placement under restrictive conditions when open cut construction is not allowed. Only straight pipe alignments for both horizontal and vertical alignments are allowed.

B. Design engineers should consider the location, size and depth of boring and receiving pits when choosing the beginning and ending stations for boring. A typical bore pit is between 35 and 40 ~~ft.~~feet in length to accommodate the boring machine and one joint of pipe. Width of the bore pit can vary depending on the depth and size of pipe, with the narrowest width being approximately 15 feet. The preferred location for the bore pit is the lower elevation end of the bore; allowing any groundwater and/or boring slurry to drain from the tunnel into the bore pit. The water can then be removed by pumping.

C. Steel casing pipe, where required for open-cut or other than open-cut installation, shall conform to City Standard Specification 33 05 07 Steel Casing Pipe, and have an ~~inside diameter (~~ID~~)~~ large

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enough to accommodate a carrier pipe of at least two (2) standard sizes above the pipe being installed.

D. Force mains through casings shall follow the same requirements as are laid out for water mains in Section 6.2.10 of this Manual.

6.3.14 Underground Utility Crossings

The requirements of Section 6.2.12 of this Manual shall govern the crossing of underground utility lines by wastewater mains.

6.3.15 Fence or Wall Crossings

The requirements of Section 6.2.13 of this Manual shall govern the crossing of fences or walls by wastewater mains.

6.3.16 Creek Crossings

When a sewer main crosses a creek or channel, the design engineer must evaluate the condition of the creek bed and ensure erosion control is provided. Backfill material and minimum construction criteria are shown in the City Standard Details S701 and S702. These criteria include creek bed soil and condition, as well as presence of exposed rock. When working in these areas, minimize storage of soil, materials, and equipment near floodways and waterways.

6.3.17 Siphons

For creek or channel crossings where a Low-Water Channel Crossing is not feasible, design of an inverted siphon crossing is permissible when approved by the City's Engineer, through a design deviation request. Inverted siphons shall not have less than two (2) barrels, with a minimum pipe size of eight (8) inches, and shall be provided with necessary appurtenances for convenient flushing and maintenance. Access structures are required at each end of the siphon, with adequate clearance for maintenance and cleaning purposes. Bank and channel stabilization may be required to protect the crossing lines and casing of the carrier pipe may be required to meet environmental or other restrictions.

6.3.18 Abandonment of Sewer Mains

A. The design engineer should note the limits and appropriate conditions for the abandoning of existing wastewater mains which are to be replaced by the construction of any proposed wastewater mains.

B. The design engineer should also make allowances in the design to provide for the existing and proposed mains to be in service simultaneously until all customer services are transferred from the old main to the new main with minimum interruption of service. If the construction of a proposed main necessitates the abandoning of the existing main prior to the new main's placement into service, then provisions for a temporary wastewater main with services must be addressed by the design.

C. Typically, abandoned lines may be left in place with only the ends being plugged with grout or concrete. However, the City may require special abandonment actions including, but not limited to, filling the abandoned wastewater main with grout, removal and proper disposal of all above ground appurtenances, and removal and proper disposal of the abandoned pipe. In situations where a

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manhole is being left in service even though one (1) or more lines into the manhole are being abandoned, the abandoned line shall be cut and plugged outside of the manhole. However, if the City determines that the pavement is in good condition the City may allow the abandoned line to be plugged from inside of the manhole.

~~6.15.28~~6.3.19 Abandonment of Manholes

If a manhole as well as the sewer main is to be abandoned, the method described in ***Abandonment of Sewer Mains***, above, along with the minimum guidelines shown in Drawing S105 of the City Standard Details, shall be used.

~~6.15.29~~6.3.20 Lift Stations

The need to construct a lift station should be determined only after a thorough analysis of the physical and economic factors involved. A Preliminary Engineering Report is required, which lists all factors and adheres to current state regulations. The City reserves the right to review each proposal and determine whether there is enough merit to justify a lift station. Any lift station located in the City of Denton CCN must adhere to these requirements.

A. Preliminary Design Submittal

A preliminary design submittal is required for each lift station proposed. The submittal shall include a written report and a map prepared by a Professional Engineer, licensed by the State of Texas.

1. The plans submitted shall contain the following information, as a minimum:
   a. Be to scale, with the scale indicated;~~.~~
   b. A north arrow;~~.~~
   c. A location map;~~.~~
   d. Delineation of the boundary of the proposed development;~~.~~
   e. Delineation of the boundary of the sewer-shed in which the development lies;~~.~~
   f. The area in acres of the development;~~.~~
   g. The area in acres of the sewer-shed contributing to the l~~L~~ift s~~S~~tation;~~.~~
   h. The proposed land use or uses for the development;~~.~~
   i. The proposed land use or uses for the sewer basin;~~.~~
   j. The proposed lift station site, along with the GPS coordinates;~~.~~
   k. The proposed force main routing and size;~~.~~
   l. Delineation of the ~~one-hundred~~100-year flood plain and ~~Environmentally Sensitive Areas (~~ESAs~~);~~;~~.~~
   m. Location and size of the existing collection system at the tie-in point;~~.~~
   n. Contour lines (2-f~~oo~~t. intervals);~~.~~
   o. Show how storm drainage is taken off site;~~.~~ and
   p. Property lines.~~.~~
2. The written report shall include the following information:

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a. A general narrative about the proposed development and the circumstances that warrant a lift station;~~.~~

b. Influent hydraulic calculations showing:

i. Area in acres of the sewer basin and the development;~~.~~

ii. The area of each proposed land use for the development and for the projected land use(s) for the basin;~~.~~

iii. The design flow for the basin and the development;~~.~~

iv. The ~~maximum~~ peak flow for the basin and the development;~~.~~

v. Elevation of the proposed lift station site;~~.~~ and

vi. The elevation of the proposed discharge point of the force main.

c. Preliminary wet well volume calculations;~~.~~

d. Preliminary force main size;~~.~~

e. Cost estimates for proposed lift station(s) and force main(s), and cost estimates for a gravity line in lieu of the lift station if possible;~~.~~

f. Ground water levels in proposed site areas; and

~~f.~~g. ~~Provide a~~ A copy of the summary transmittal letter to TCEQ showing agency approval of proposed plans.

B. Site Layout

1. Station Siting:

The following are the minimum criteria for station sites:

a. The station shall be protected from the 100-year flood and shall be accessible during a ~~25~~100-year flood;~~.~~

b. The station should be located as remotely as possible from populated areas. The entire station site shall be completely enclosed with an ~~eight (~~8~~)~~ ~~-~~ f~~eet~~. high, opaque concrete or masonry wall, with an opaque sliding gate with a minimum width of ~~sixteen (~~16~~)~~ feet~~.~~ on track flush with the ground. All shall be of an architectural style and colors blending with the development architecture, as approved by the city;~~.~~

c. The station shall have a minimum 16-f~~eet~~. wide drive approach and be accessible by City of Denton service trucks, without requiring vehicles to turn after entering the drive approach to the station;~~.~~

d. The station will include an approved odor~~-~~-control system;~~.~~

e. The station site and its access shall be dedicated as a separate lot to the City, as City property;~~.~~

~~e.~~f. The station site cannot be located within the boundaries of any private entity intended to regulate property including, but not limited to HOAs, COAs, and POAs;

~~f.~~g. The station site shall be located so it may serve as much ~~of~~ as the entire sewer basin as possible. This may require the station to be located off-site of the development. When it is required that the station serve a larger area than the proposed development, the developer may enter into a pro-rata contract with the City to be reimbursed the cost of excess capacity as other developments tie to the system; and~~.~~

~~g.~~ On-site generator must have an unobstructed 36-in.~~ch~~ buffer on all sides and be

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accessible by City service vehicles.

h.

2. Wet Well/ Dry Well Arrangement

a. Orientation shall consider the routing of incoming sewers and force main;~~.~~

b. Orientation shall allow a 2~~two~~-ton vehicle to directly access the wet well or the dry well, forwards and backwards;~~.~~

c. Wet wells and dry wells shall be separated by at least a water and gas tight wall with separate entrances;~~.~~

d. Wet wells shall have sloped bottoms to avoid excess sludge deposits;~~.~~

e. The wet well shall have a lockable aluminum door with an aluminum frame and safety grating. The minimum opening size shall be 4-ft. x 6-ft. with two (2) doors large enough to adequately maintain the wet well. Door and frame shall be Bilco Type K, KD or an approved equal;~~.~~

f. The dry well or valve vault shall have a lockable aluminum door with an aluminum frame and safety grating. The minimum opening size shall be 2-ft. x 3-ft. or large enough to adequately maintain the dry well or meter vault. Door and frame shall be Bilco Type K, KD or an approved equal;~~.~~

g. The wet wells, dry wells, manholes, valve vaults and meter vaults, including decks, shall all be cast-~~-~~in-place concrete only. No other materials are acceptable. *See* City Standard Specification 33 05 64 Concrete Wet wells, Valve Vaults, and Appurtenances for Lift Stations;~~.~~

h. The coating for the wet well exterior and interior walls shall be coated as specified in Table 6.3-E and 6.3-F below, respectively;~~.~~

i. The wet well shall be hydrostatically tested to the top of the wet well for 48 ~~-~~hours prior to placing the lift station into service. Only losses due to evaporation will be acceptable; and~~.~~

j. Provisions shall be made to remove water from the dry well, valve vault or meter vault without allowing gas or water from the wet well into these structures.

3. Exterior Walls (below grade, to be backfilled)

Table 6.3-E: Exterior Wall Coating

Surface Preparation	Coating System
Clean and Dry	Tnemec Series 46H-413 Polyamide Epoxy – Coal Tar 8 – 10 mils in two coats for a total of 13.0 to 20.0 dry mils

4. Interior Walls (Thick Film System)

Table 6.3-F: Interior Wall Coating

Surface Preparation	Coating System

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Table 6.3-F: Interior Wall Coating

	PRIMER	FINISH
Brush-off Blast Cleaning	Tnemec Series 218 Mortarclad ¼-in.~~0.25 in.~~	Tnemec Series 436 Perma-Shield 100 – 125 dry mils

Notes:

[1] In addition to this coating system, the lining products listed in Drawing S101 of the City of Denton Standard Details and Standard Specification 33 01 40 Liners for Sanitary Sewer Structures are acceptable.

5. Site Access

   a. Access will be provided by an all-weather surface of flex-base or better from a public street to the station site.

   b. Access shall be functional during a ~~25~~100-year flood. The road surface shall be above the water level caused by a ~~25~~100-year return period storm.

   c. Every station more than 100 feet from a public street requires a turn-around adjacent to the lift station, sized large enough to accommodate a City service truck with generator.

   d. The equipment rack shall not obstruct vehicle access to the wet well or the dry well; the location must be approved during the review process. It shall be placed at an easily accessible elevation and include a canopy.

   e. Site inside the fence shall be an all-weather surface, such as ¾-in. crushed rock or flex-base.

6. Passive Ventilation

   a. Passive ventilation shall be screened to prevent insect access to the wet well. Minimum diameter of air vents shall be four (4) inches~~-inch diameter~~. Vent outlet shall be at least one (1) foot above the 100-year flood elevation. The passive ventilation system must be sized to vent at a rate equal to a maximum pumping rate not to exceed 600 fpm through a vent pipe.

C. Hydraulic Design

~~I~~For influent fl~~F~~low, ~~T~~the preliminary design report shall include the design flow and the ~~maximum~~ peak flow for the development and the sewer basin. The design flow shall be calculated in accordance with TCEQ rules. Refer to Section 6.3.~~2~~1 Estimated Wastewater Flows herein for ~~maximum~~ peak flow calculations.

1. Pump Capacity

   a. ~~Definition~~ Firm pumping capacity is the pumping capacity of the station with the largest pump out of service.

   ~~Firm pumping capacity is the pumping capacity of the station with the largest pump out of service.~~

   ~~c.~~b. The firm pumping capacity shall be greater than the ~~maximum~~ peak flow for the entire sewer basin. If the sewer basin is significantly larger than the proposed development and it is not feasible to design for this flow, the firm pumping capacity may be designed to handle a portion of the basin with approval from the ~~Director of Water Utilities~~City's Engineer.

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~~d.~~c. The pump curves shall be selected so the pumps will run near the best efficiency point during normal operating conditions. The selected curves shall also be such that the pumps do not approach shut-off head when they are running simultaneously.

~~e.~~d. System head curves, pump curves and head calculations shall be submitted. Calculations and pump curves at both minimum (all pumps off) and maximum (last normal operating pump on) static heads, for a C value of both 100 and 140, must be provided for each pump and for the combination of pumps with modified pump curves.

2. Wet Well Volume

a. Wet well volume for a submersible pump station is the volume contained above the top of the motor, or as specified by the pump manufacturer, to the bottom of the influent pipe. TCEQ Rule §217.60(b)(4) (d) A gravity pipe discharging to a wet well must be located so that the invert elevation is above the liquid level of a pump's "ON~~on~~" setting.

b. Wet well volume for all other non-submersible pump stations is the volume contained in an area from a minimum of two (2) feet above or distance at which vortexing does not occur above the top of the intake of the pump.

c. High level alarm elevation shall be a minimum of 48 inches below the top of the wet well or 48 inches below the flow line elevation of the lowest influent pipe, whichever elevation is lower. Wet well volume shall be calculated by the following method:

$$T = V/(D - Q) + V/Q \qquad \textbf{[Eqn. 6.4]}$$

Where:

T = Total time between successive pump starts in minutes (operating cycle)

D = Rated pump capacity (in GPM)

V = Storage volume between lead pump on and pump off elevations (in gallons)

Q = Inflow to wet well (in GPM)

Note: The operation cycle 'T' shall not be less than 10 minutes for Average Flow and not more than 60 minutes for Minimum Flow conditions.

d. Per TCEQ Rules, 30 TAC § 217.63:

(g) Systems for preventing the discharge of wastewater must operate for a duration at least equal to the longest power outage on record for the past 60 months, or at least 20 minutes, whichever is longer. The design must be based on peak flows, inflow, and infiltration. If the longest power outage on record for the past 60 consecutive months is greater than 48 hours and generators will be used to provide backup power, then the owner must have a contract in place that guarantees fuel supply during an emergency. The owner must also have sufficient storage capacity at the wastewater treatment facility for the fuel required for the duration of the emergency.

(h) For calculation purposes, the owner must assume that the lift station wet well is full to the pump activation level when the power outage period begins.

3. Force Main Capacity

a. Force main capacity shall be sized to meet the capacity of the entire sewer basin. The force main may be designed to handle a portion of the basin with approval from the ~~Director of Water Utilities~~City's Engineer.

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b. The minimum force main size shall be four (4) inches in diameter, except for Grinder Pump lift stations.

c. The minimum recommended velocity is three (3) ~~feet per second (3~~fps~~ fps)~~, and the velocity shall not be less than two (~~2 feet per second (~~2) fps~~)~~ when only the smallest pump is in operation.

~~e.~~d. The maximum velocity through a force main shall not be more than six (6) fps, and will require confirmation per 30 TAC 217.67 that the pipeline will not fail.

D. Pumps

~~Acceptable pumps~~ Pump specifications are listed in the City of Denton Specification 33 25 02 Sewage Pumps. Substitutions or deviations from the list of acceptable pumps requires the approval of the ~~Director of Water Utilities~~City's Engineer. The number of pumps must comply with 30 TAC § 217.61(e). If pumps are to have a variable capacity, Variable Frequency Drives (VFDs) are to be specified. Stations requiring three pumps must be equipped with VFDs on at least two of the pumps.

E. Mechanical

1. Force Mains

~~a. Force main pipe material shall be in accordance with Table 4.9-1. Force mains smaller than 6-inches may be approved with proper design justification, by the Director of Water Utilities.~~

~~b. All fittings shall be ductile iron meeting AWWA C-110 or C-153. Interior of the pipe and fittings shall be lined with American Polybond Plus, which consists of a primer layer of 5 mils thick fusion bonded epoxy and 55 mils thick of modified DuPont Fusabond Polyethylene, or approved equal. Exterior of pipe shall be coated in Protecto 401 Ceramic Epoxy lining, or approved equal.~~

a. Force mains shall be laid to City of Denton Standard Specifications.

b. Plans shall include plan and profile for the force main, including valves every 2,000 feet per 30 TAC § 217.67.

i. Valves ~~will~~ must be resilient wedge gate valves and conform to the Section 33 14 20 Resilient Seated (Wedge) Gate Valves of the City of Denton Standard Specifications;

ii. Valves ~~will~~ must be in a manhole and conform to Section ~~4.11~~6.3.10 of this criteria manual, and Section 33 05 61 Cast-In-Place Concrete Manholes of the City Standard Specifications; and

iii. The force main shall have an isolation valve immediately downstream of the flow meter vault.

~~2. All force main contractors shall~~

~~3. Furnish and install tracer wire in accordance with City of Denton Standard Specification 33 05 97 Utility Markers/Locators, and~~

~~4. Furnish and install non-metallic pipe detection tape per TCEQ requirements. The tape shall~~

~~5. Be laid in the same trench as a force main pipe,~~

~~6. Be located above and parallel to the force main, and~~

~~7. Bear the label "PRESSURIZED WASTEWATER" continuously repeated in at least 1.5 inch tall~~

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~~letters.~~

~~8.~~2. Lift Station Interior Piping

a. Piping inside the lift station shall be ductile iron meeting AWWA C-150 and C-151. All fittings shall be ductile iron meeting AWWA C-110 or C-150. Interior of the pipe and fittings shall be lined with American Polybond Plus, which consists of a primer layer of 5 mils thick fusion bonded epoxy and 55 mils thick of modified DuPont Fusabond Polyethylene, or approved equal.

b. All nut and bolt assemblies inside the wet well shall be ASTM 316 stainless steel~~, unless otherwise allowed~~.

~~9.~~3. Isolation Valves

a. Each pump shall have one (1) isolation valve downstream of the pump, in a separate vault.

b. Isolation valves shall be resilient seat gate valves or plug valves meeting the City of Denton Standard Construction Specifications.

~~0. Isolation valves shall be located in the building for self-priming stations, and in a separate vault for submersible stations, and not inside the wet well.~~

~~11.~~4. Check Valves

a. Check valves shall be controlled closing swing check valves with a lever arm or a ball check. There must be at least 15 feet of vertical head downstream in order to use a ball check valve.

b. A check valve shall be located upstream of the isolation valve, in a separate vault.

~~c. If the station is submersible, then a check valve shall be located with the isolation valve in a separate vault. For self-priming stations, a check valve shall be located in the building. Under no circumstance shall the check valve be allowed in the wet well.~~

~~d.~~c. All nuts and bolts shall be stainless steel.

~~12.~~5. Air Release / Vacuum Valves

a. Air release valves of a type suitable for wastewater service shall be installed along the force main where the force main would be prone to trapped air.

b. The type of valve shall be air release or a combination of air release and vacuum breaker (see Drawing S803 on Sheet 6 of the City Standard Details). The design engineer shall determine the type and location, subject to approval of the ~~Director of Wastewater Utilities~~City's Engineer.

c. Calculations for valve type and valve sizing shall be provided to the City.

d. Locations of the air release/vacuum valves shall be shown on the plan and profile sheets for the force main.

e. Isolation valves for ~~3 inches and smaller~~ air release valves that are three (3) inches or smaller shall be all bronze or brass. Isolation valves four (4) inches ~~and~~ or larger shall meet City of Denton Standard Construction Specification for resilient seat gate valve. The first fitting placed into the force main shall be a brass corporate valve (male corporate fitting).

f. Air release valves shall be fitted with blow off valves, quick disconnect coupling and

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hose to permit back flushing after installation without dismantling the valve.

g. Air release valves must be located in a vault as shown in Standard Details.

~~13.~~6. Generators

a. On-site generators shall be installed to serve as the source of back-up power for lift stations.

b. Generators shall be mounted on a concrete foundation designed to handle the weight of the generator.

F. Electrical, Instrumentation, and Supervisory Control and Data Acquisition (SCADA) Requirements

The City of Denton Water Reclamation D~~d~~epartment performs the build and install of SCADA and telemetry packages. Developers should request the packet and the ~~COD~~ City of Denton will provide a bill of materials for this service.

~~6.15.30~~6.3.21 Low-Pressure or Alternative Collection Systems

Low pressure collection systems may be allowed with specific approval by the ~~Director of Water Utilities~~City's Engineer.

~~6.15.31~~6.3.22 On-Site Sewage Facilities

A. General

Planning, design and operation of on-site sewage facilities within the City of Denton must comply with the current ~~Texas Administrative Code (TAC) Title 30, Part 1 TCEQ Rules,~~30 TAC Ch. 285 for On-Site Sewage Facilities, as amended~~ by the City of Denton~~. The property owner proposing to use an on-site sewage facility shall comply with the criteria listed in this Section, and Section~~s~~ 7.6.16 of the City of Denton ~~Denton Development Code~~DDC, as amended.

B. Permits Required

Any owner of a residential, commercial, or institutional building who utilizes an on-site sewage facility is required to secure a permit from the City of Denton to construct, alter, repair, or extend an on-site sewage facility regardless of the size of the lot or tract of land. Contact the Environmental Services Division at the Pecan Creek Water Reclamation Plant for details on permit fees and maintenance requirements.

C. Site Evaluations

A P~~p~~rofessional E~~e~~ngineer or a professional sanitarian, licensed by the State of Texas, must perform site evaluations.

D. Planning Requirements

A P~~p~~rofessional E~~e~~ngineer or a professional sanitarian, licensed by the State of Texas, must prepare on-site sewage facility plans.

E. On-Site Sewage Facility Land Use Requirements

Lots or tracts of land where an on-site sewage facility is proposed must have the following minimum area size.

1. A minimum of one (1) acre when a public water system serves the tract or lot; and~~.~~

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2. A minimum of two (2) acres when a private water well is located on the tract or lot.

~~6.15.32~~6.3.23 Grease Traps / Grit Traps

A. General

Planning, design, and operation of grease traps within the City of Denton must comply with the most current City of Denton Plumbing Code, Chapter 28; Article VII; Section 26-56 as amended. The property owner proposing to use and operate a grease trap shall comply with the criteria listed in this Section and abide by required responsibilities outlined in City of Denton Code of Ordinances Chapter 26; Article XII – Liquid Waste.

B. Device Required

Any user of the publicly owned treatment works (POTW), as defined by Section 26-153, and meeting the definition of "food service facilities" or "facilities which perform washing, cleaning, or servicing of automobiles, trucks, buses or similar equipment," shall be required to install a grease trap or grit trap in accordance with locally adopted plumbing codes as amended. Food service establishments shall not share grease interceptors unless specifically authorized by the ~~Director of Water Utilities~~City's Engineer.

C. Sample Port Required

Any pretreatment device must have a sample port allowing for the instantaneous grab sampling of the effluent of the device. The sample port must be solely representative of the process wastewater and sanitary tie-ins must be done down-stream of the sampling port. The proposed sampling port must allow for a wide-mouthed 250-~~-~~mL amber glass bottle to be submerged / partially submerged into the effluent.

D. Review Required

Plumbing plans for new facilities must be prepared by a ~~licensed~~ plumber or a ~~licensed~~ P~~p~~rofessional E~~e~~ngineer, licensed by the State of Texas, and submitted as a part of the development process. These plans must show the fixtures draining into the pretreatment device. Plans must also include the flow-through rating of the pretreatment device as well as the grease or solids retention capacity. Plans must also show the location of the down-stream sampling port.

E. Sizing Requirements

1. Definitions

   a. Heavy Food Preparation: A~~shall mean a~~ny area in which foods are prepared utilizing a grill, griddle, deep-fat fryer, commercial type ovens, and/or any similar food preparation equipment; or any area subject to flooding type of wet cleaning procedures due to the cutting or processing of meat, poultry, fish or pork; or any facility subject to rinsing preparation equipment that is exposed to dairy products. Heavy food preparation includes but is not limited to,~~:~~ cafeterias, coffee shops, fast food restaurants, full service restaurants; pizza preparation, donut preparation, and meat and fish markets, etc.

   b. Light Food Preparation: ~~shall mean a~~Any area in which foods are prepared exclusive of the use of fryers, grills or similar equipment. Light food preparation is usually limited to the preparation of hot dogs, sandwiches, salads or other similar foods and fountain-type cold drinks. Light food preparation includes, but is not limited to, sandwich shops, limited-~~-~~menu concession stands, etc.

   c. No Food Preparation: ~~shall mean a~~Any area in which foods are provided pre-wrapped,

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from an approved source, with microwave oven type heating being the maximum handling involved. No food preparation is limited to pre-packaged sandwiches or similar foods, candies and containerized beverages.

Grease Trap Design Criteria

4.2. Sizing Requirements

Table 6.3-G: Grease Trap Design Criteria[1]

Classification	Seating Capacity[2] > 50	Seating Capacity[2] < 50
Heavy Food Preparation	750-gallon. gravity grease interceptor	250-gallon. grease interceptor
Light Food Preparation	250-gallon. gravity grease interceptor	20 GPMgpm flow-through rating or 40-poundlb. retention capacity
No Food Preparation	No interceptor required	

Notes:

[1] Or the minimum size established by the currently adopted International Plumbing Code; whichever is more stringent.

[2] Seating Capacity is measured using locally adopted Maximum Floor Area Allowances per Occupant, found in the currently adopted version of the International Building Code.

Inspections Required

New installations or existing pretreatment devices must be inspected by the City of Denton Pretreatment Program prior to the issuance of a Certificate of Occupancy for new businesses.

6.3.24 Inspections Required

New installations or existing pretreatment devices must be inspected by the City of Denton Pretreatment Program prior to the issuance of a Certificate of Occupancy for new businesses.

6.176.4 Construction Plans

6.17.16.4.1 General

Before any public works construction relative to a development may begin, City staff will verify the construction plans have been approved. Construction may not begin until the construction plans have been approved, all materials used for public improvements have been submitted and approved, all fees (including review and inspection fees) have been paid, all necessary agreements and bonds have been provided, and a Pre-Construction Conference has been held by the City.

6.17.26.4.2 Responsibility

The sealing engineer is responsible for the accuracy, completeness, and conformance of the submitted plans to City standards. The purpose of the City review is to ensure conformance to City policies and standards. The City review is limited to facts as presented on the plans submitted. The City has no project engineering design or quality control review responsibility. The engineer of record certifying the plans is responsible for the accuracy and completeness of the plan documents. The City reserves the right to require plan

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corrections to fit actual field conditions or meet City standards requirements, which are found to be contrary to or omitted from the plans.

~~6.17.3~~6.4.3 Format

Construction plans shall be digitally drawn on 24-in. ~~by~~ x 36-in. size sheets~~;~~ with borders of 22-in. x 34-in., so half-size reproduced plans will be to half-scale fitting 11-in. x 17-in. sheets. Each sheet shall be legible when reduced to half-size. Digital copies of the plans shall also be provided.

~~6.17.4~~6.4.4 Plan Requirements

Construction Plans must contain, as a minimum, information listed in the following sections before they can be approved:

A. General

North arrow, scale, date, and mean sea level elevations of all improvements, based on North America Vertical Datum 1988 (NAVD 88). Only NAVD 88 shall be used for plan elevations; no assumed or NGVD 29 elevations. Plans shall be drawn with a horizontal scale of one (1) inch equals ~~forty (~~40~~)~~ feet as a minimum, and appropriate corresponding vertical scale. The plans shall provide a reference to the elevation benchmark or monument used in the development of the plans. Show all crossings of existing and proposed underground utilities. Plans shall account for future changes in topography. The construction plans shall be signed and sealed by a ~~p~~Professional ~~e~~Engineer, licensed by the State of Texas, prior to bidding the project for construction.

B. Water Systems

Plan sheets must show the horizontal alignment of the proposed water system within street ~~rights-of-way~~ROWs and easements, with horizontal control points for location of the ~~rights-of-way~~ROWs and easements and for location of the water system within the ~~rights-of-way~~ROWs and easements. Sizing of pipe, valves, fittings and appurtenances must be shown on the plan view. All valves, fittings, fire hydrants, and other appurtenances must be stationed and given GPS coordinates (with an accuracy of ± six (6) inches) based on the City of Denton's grid coordinate system. Profile views of water mains 12 inches or larger must be provided showing proposed grade, pipe material, casing pipe size and thickness (if any), and the location, elevation and size of any underground conduit or facility to be crossed. Deflections (if any) must be shown on the plan and profile views, as applicable, with stationing and the degree of deflection. Approved ~~variances~~design deviations (if any) from City Standard Details must be provided. Show all service lines up to and including the meter can/vault. Service lines do not need to be stationed or have GPS coordinates. Adequate detail of other planned and existing improvements shall be shown to indicate planned crossings of utilities, storm drains, and stormwater facilities and potential conflict points.

C. Sanitary Sewer Systems

Plan sheets must show the horizontal alignment of the proposed sanitary sewer system within street ~~rights-of-way~~ROWs and easements, with horizontal control points for location of the ~~rights-of-way~~ROWs and easements and for location of the sanitary sewer system within the ~~rights-of-way~~ROWs and easements. Sizing of pipe, manholes, fittings and appurtenances must be shown on the plan view. Manhole rim elevations, and pipe "IN~~in~~" and "~~o~~OUT~~ut~~" elevations must be shown. All manholes, fittings, and other appurtenances must be stationed and given GPS coordinates (with an accuracy of ± six (6) inches). based on the City of Denton's grid coordinate system. Every sanitary sewer line shall be profiled. Profile views shall show proposed grade, pipe material, casing pipe size

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and thickness (if any), manhole information, and the location, elevation and size of any underground conduit or facility to be crossed. Approved ~~variances~~design deviations (if any) from City Standard Details must be provided. The plan view shall include arrows indicating direction of flow in pipe. Show all service lines to and including the public cleanout. Service lines do not need to be stationed or have GPS coordinates. Adequate detail of other planned and existing improvements shall be shown to indicate planned crossings of utilities, storm drains, and stormwater facilities and potential conflict points.

D. Grading

For situations involving proposed grading over existing water or sanitary sewer systems, provide a grading plan and profile showing the existing and proposed topography in ~~two~~2-~~foo~~t. contours. The grading plan shall consist of contours and spot elevations with water directional arrows to define the flow patterns.

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Section 7: Streetlight Design Criteria

7.1 Overview

The ~~City of Denton has developed this~~ purpose of Section 7 – Streetlight Design Criteria ~~manual~~is to assist developers and engineers in creating an aesthetic, consistent, and safe lighting plan for our streets, sidewalks, and neighborhoods. This ~~manual~~ section outlines the process for design, review, and approval of new lighting projects, as well as ~~the~~ criteria for modernizing existing lighting infrastructure. Streetlights are usually owned by Denton Municipal Electric (DME) which is a part of the City of Denton (t~~T~~he City), however they may be installed, operated, and maintained by DME, other electric utilities, or private owners depending on the location. This ~~criteria manual~~section of the DCM has been created to help navigate the process for selecting, permitting, placing, and maintaining streetlighting throughout the city. This manual does not apply to security, area, pathway, private, or other lighting not associated with a public road.

This manual cannot cover all the situations that might be encountered, required, or requested in the construction and installation of streetlighting. Any apparent discrepancy, omission, error, or requirement necessitating further explanation or interpretation should be referred to DME Engineering (940-349-7117 or 940-349-7173) for further clarification.

The ~~purpose~~ goal of ~~this manual~~the criteria laid out in this Section 7 ~~-~~is to implement the following guiding principles into the application of street designs in the City of Denton:

A. Enhance safety of the community for pedestrians and drivers alike

B. Conserve energy by prioritizing efficient lighting design

C. Minimize impact to the environment including light pollution

D. Minimize impact to neighborhoods and residences by reducing light trespass

E. Provide for a uniform and aesthetic look throughout the city

F. Be fiscally responsible through effective application of design principles

7.1.1 Applicability

The existing streetlight installations throughout the City of Denton have been accepted as is at the time of approval of this manual. Retro-active replacements and upgrades solely for the purpose of bringing existing lighting up to the standards of this manual are not required. This manual is intended to apply to all new projects in the City beginning July 1, 2024. (This means the project has been approved/permitted by Development Services on or after July 1, 2024).

7.1.2 Organization

Section 7 – Streetlight Design Criteria is organized as follows:

A. Overview

B. Requirements

C. Developer & DME Responsibilities

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7.2 Requirements

7.2.1 General

The City adheres to the guidance of ANSI RP-8 Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting for all highways and streets *except for local residential streets with speed limits of 30 mph or less*. ANSI RP-8 acknowledges that vehicle headlights may provide adequate illumination for slower speeds when the driver has sufficient time for reaction and stopping. As per ANSI RP-8, Section 11.6.3.1 – 'When Residential Street Lighting May Not be Needed', for local residential streets (e.g., within a residential development) with speed limits of 30 mph or less, street lighting shall be placed no more than 250 feet apart. A photometric (lighting) study will be required for all new installations except for local residential streets with speed limits of 30 mph or less.

These standards shall apply to all new streetlight installations, upgrades, replacements, and conversions from the date of the adoption of these standards onward.

Easement, right-of-way, and permitting regulations that are not listed in this manual still apply to streetlights. The developer is responsible for knowing and adhering to any laws and regulations governing development and construction relating to the work being done.

Developers are responsible for the design, materials, and installation costs of all streetlighting on public streets within and adjacent to their project. *See* the Developer and DME Responsibilities S~~s~~ection of this manual for more specific descriptions of responsibilities. DME will only energize new streetlights after the installation has been approved by DME. For most lighting installations, following energization, DME will accept ownership and maintenance of streetlights unless the lighting is located on a private drive (i.e. the City has not taken ownership of the street / streetlights) or the lighting is non-standard and will not be owned or maintained by DME.

Streetlights are not normally metered. The City (or customer in certain cases) is charged a monthly usage and maintenance fee per light according to the Denton Municipal Utility Rates Manual. This does not apply to private drives and other private properties where the developer or customer chooses to install lighting other than the standard city approved options. In such cases, DME will provide a metered service point only and the customer will be responsible for all installation, maintenance, and fees associated with the lighting installation in accordance with applicable city codes, ordinances, and utility service standards for the life of the installation.

City streets and street projects will not be considered complete until adequate streetlighting has been installed, approved, and energized. For example, for the streets in a new development to be accepted by and turned over to t~~T~~he City, street lighting must be complete.

7.2.2 Roadway Lighting Requirements

A. Roadway Designations

To determine the proper lighting for a roadway, it is important to determine what type of vehicle and pedestrian traffic the roadway is meant to accommodate. Roadways may be classed into several different categories based on these two variables. The lighting requirements are then applied to provide adequate lighting to mitigate the risks of collision by a vehicle with another object, vehicle, or pedestrian.

Roadways may be classified as *highways and freeways, arterials, collectors,* and *local roads*. In this section of the DCM, local roads may also refer to auxiliary roadways such as *alleys, drives, dead-ends,* and *cul-de-sacs*. Local roads may be residential streets (providing direct access to homes) or

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other local roads providing access to businesses and connecting larger roads together. Local roads generally have speed limits of 30 mph or less, while highways, arterials, and collectors will have higher speed limits. *Local roads* are further broken down into *residential* and *non-residential streets* in portions of this section to allow flexibility in managing light levels in residential neighborhoods. Specific road classification and design information may be found in Section 5 – Transportation Design Criteria of this DCM.

B. Lighting Evaluations and Design

For streetlighting of highways and streets, *except local residential streets with speed limits of 30 mph or less*, lighting shall be designed per ANSI RP-8. A photometric (lighting) study will be required for these new installations. ANSI RP-8 requires that a pedestrian activity classification be made to determine the required lighting levels. *See* ANSI RP-8 for further guidance on pedestrian activity classification and streetlighting design requirements. Additional information may also be found in the TxDOT Highway Illumination Manual, and AASHTO GL-7, "Roadway Lighting Design Guide". All designs adhering to ANSI RP-8 standards shall be verified and documented using appropriate lighting design software. A licensed Professional Engineer in the state of Texas shall stamp all lighting designs before each submittal.

For all local *residential* streets with speed limits of 30 mph or less, street lighting shall be installed at intersections, cul-de-sacs, and no more than 250 feet apart for the remainder of the street. Lighting may be installed along one side of the street, both sides in parallel, both sides alternating, or in the median. Separation distances should be measured along the centerline of the street. Additional lighting may need to be considered if there are obstacles or road geometries that cutoff some of the light. *See* the Sample Local Residential Streetlighting Layout shown below in Figure ~~5~~7.1.

When designing or adding streetlights to existing roadways and/or neighborhoods, consideration should be given to the style and placement of any existing fixtures. New streetlighting shall be chosen from the available styles that most closely matches the style of the existing lighting in the area. Historic poles are only approved for specific applications and areas designated as historic districts or within the Downtown Implementation Plan area.

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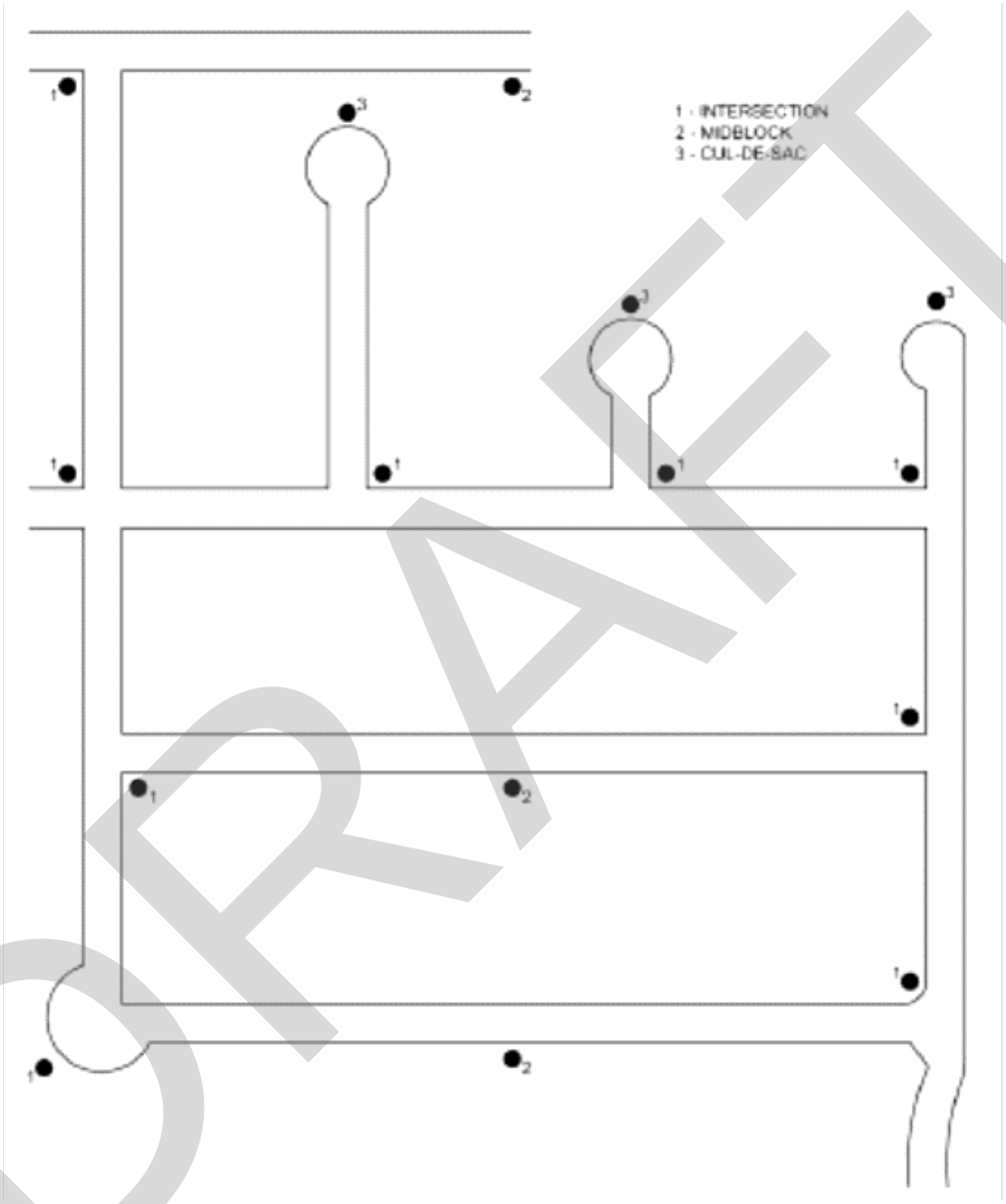

Figure 7.1~~7.1~~ Sample Local Residential Street Lighting Layout

(Lights are shown at intersections, cul-de-sacs, and mid-block when spacing between lights exceeds 250 feet)

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~~E.~~C. Intersection and Crosswalks

Intersections have a much higher number of potential conflict points as vehicles and pedestrians are permitted to cross through normal lanes of traffic. Therefore, additional care is needed when planning intersection lighting. ANSI RP-8 should be used to design lighting at intersections for larger, busier streets as stated previously. *See* Figure 7.2 shown below.

Because of the additional safety concerns for vehicles, cyclists, and pedestrians at crosswalks and intersections, the following examples (taken from ANSI RP-8) are provided to assist streetlight design for local streets. While not strictly required, they should be considered as good lighting practice for these types of locations.

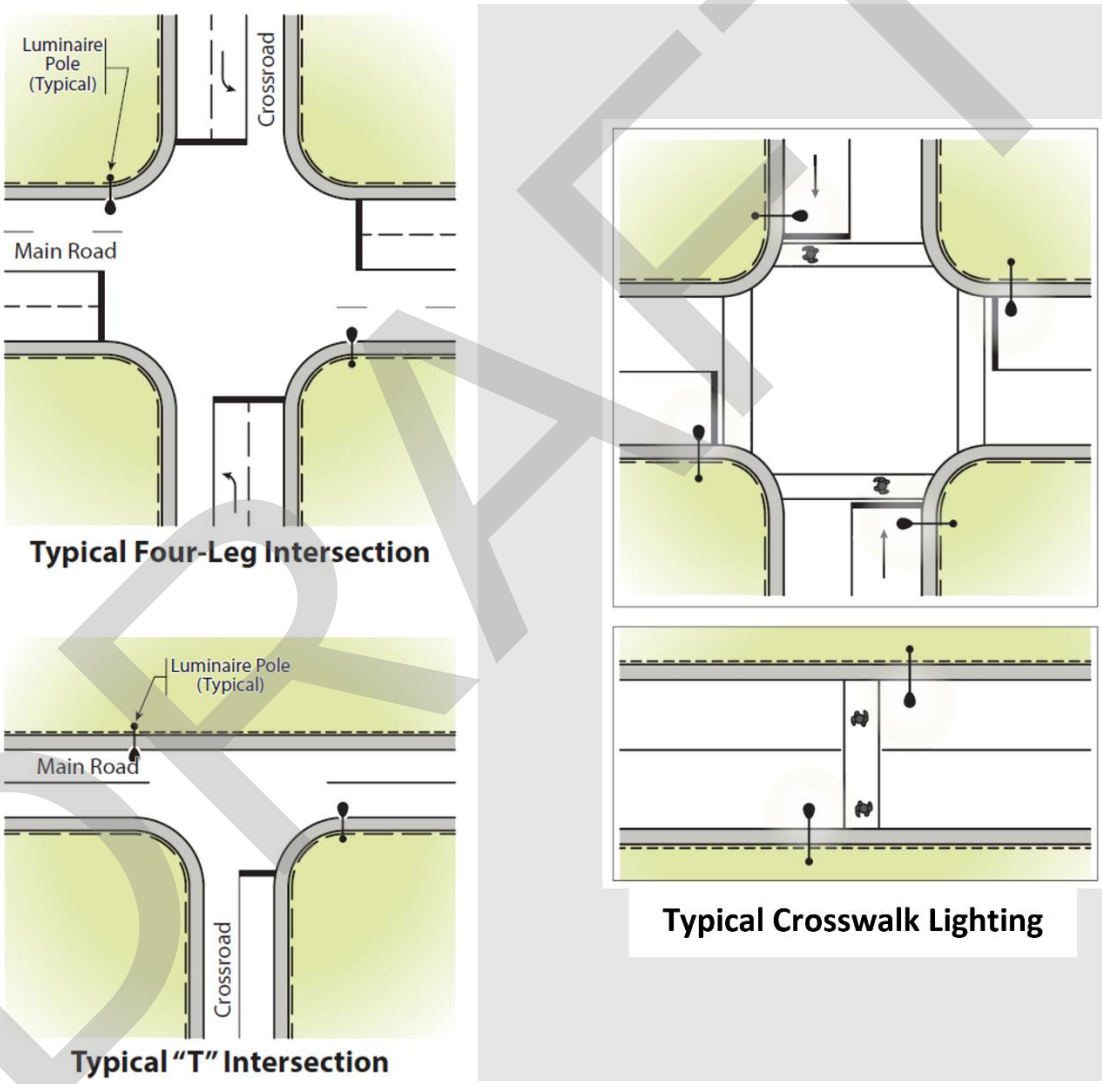

Figure 7.2~~7.2~~ Typical Lighting Schematic for Intersections

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D. Roundabouts and Traffic Circles

Like intersections, roundabouts and traffic circles have a higher number of potential conflict points than normal streets. ANSI RP-8 should be used to design lighting at traffic circles and roundabouts of larger streets. For local streets, an example of round-about lighting design considerations is shown below. Some locations may not require as much lighting as shown depending on the size of the traffic circle. *See* Figure 7.3 shown below.

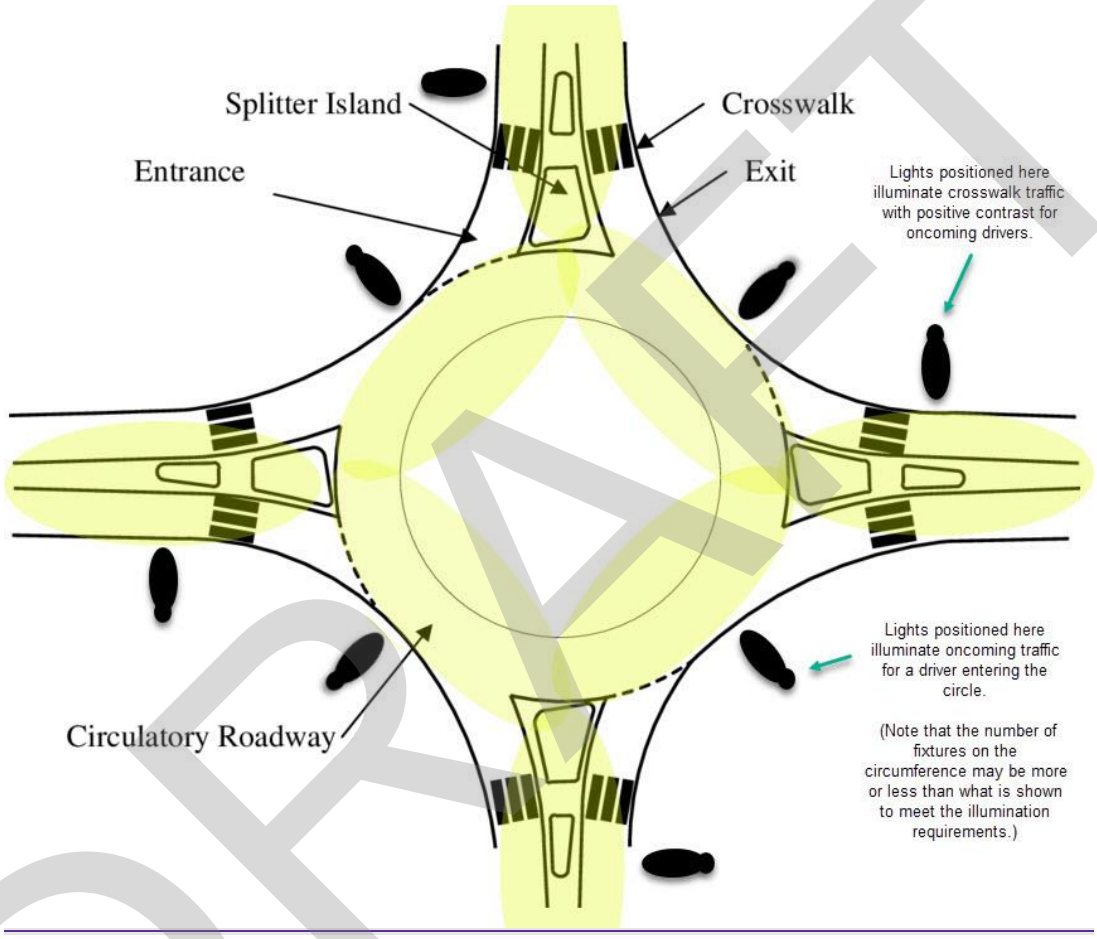

Figure 7.3 Roundabout Lighting Placement Schematic

E. Railroad Crossings

Railroad crossings are slightly different than normal intersections and require lighting adjustments accordingly. It is of course, vitally important that drivers are able to see a train that is crossing, and conversely, that the train engineer has a clear picture of any obstructions while approaching an intersection. Street lighting at railroad crossings should therefore illuminate the intersection while not causing glare for the drivers or train engineer. The following figure illustrates the recommended lighting placement for a railroad crossing. *See* Figure 7.4 shown below.

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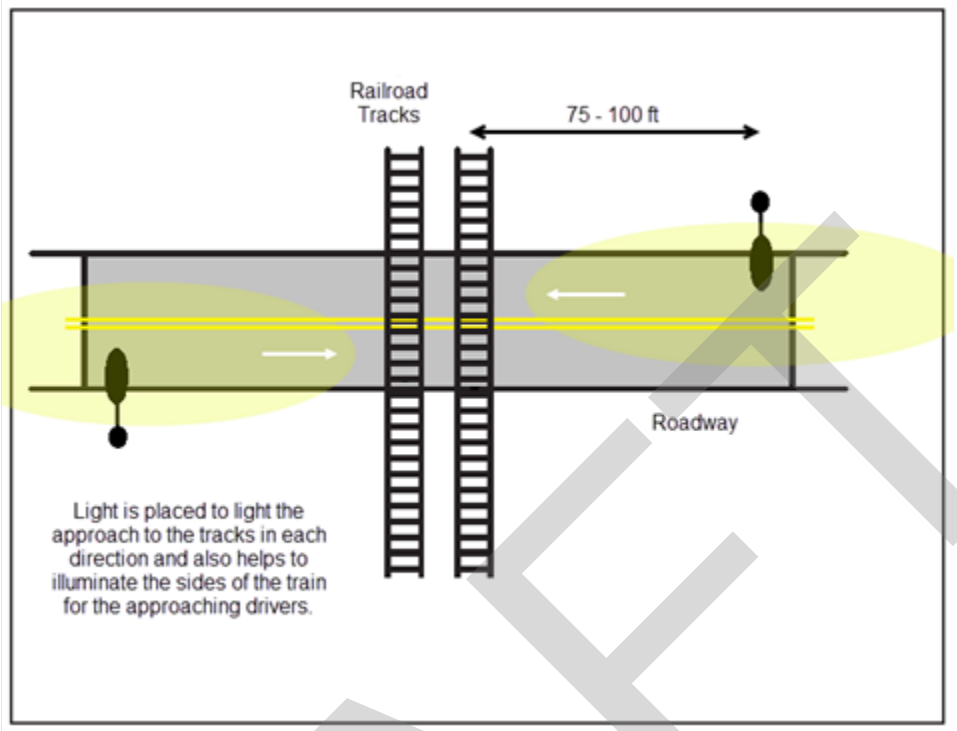

Figure 7.4 Railroad Crossing Schematic

7.2.3 Installation Requirements

A. Placement

1. Highways and Streets (except for local residential streets with speed limits of 30 mph or less)

   Installation should follow TxDOT recommendations in the TxDOT Highway Illumination Manual. Where TxDOT requirements do not apply, the streetlight system shall be installed in the right-of-way or within public utility easements and poles should be placed approximately 2.5 feet back from curbs and 10 feet back from edge of paving for uncurbed roads or, where there is sidewalk abutting the curb, approximately 1 foot behind the sidewalk. Deviations of more than 1 foot in either direction from these requirements must be approved by DME Engineering.

2. Local Residential Streets (speed limits of 30 mph or less)

   The streetlight system shall be installed in the right-of-way or within public utility easements. Poles should be placed approximately 2 feet back from the curb of 10 feet from un-curbed pavement. If a sidewalk abuts the curb, then the pole should be placed approximately 1 foot behind the sidewalk. In a residential neighborhood, streetlights should be placed within 5 feet of common property lines (e.g. between neighbors).

B. Vertical and Horizontal Clearance

New streetlights should not interfere with existing structures or rights-of-way, including sidewalks, nor should the placement preclude the ability to perform maintenance on the pole in a safe manner. *See* National Electric Safety Code (NESC) section 234 for specific clearances required for overhead

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electric installations. The exception to this requirement is when streetlight arms are mounted directly to wooden distribution poles.

Proposed trees should be located at least 25 feet from any streetlight location. When installing new lights in a location with existing trees, consideration should be given to the age and maturity of the tree and whether it will interfere with the light when it is fully grown. DME will be responsible for tree trimming around streetlights to preserve the integrity of streetlighting as needed.

Median-mounted poles should be installed at least 20 feet back from an intersection to minimize the number of vehicle-streetlight collisions due to vehicles and trucks turning too sharply at the intersection.

In areas predominantly served by overhead electric powerlines, streetlights are usually installed by attaching streetlight arms to existing wood distribution poles. Care should be given when planning for lighting in these areas as overhead lines pose a conflict when placing new lighting poles. Clearances must be maintained for safety. Redesign/relocation of existing overhead power lines just to accommodate lighting is costly and time consuming. Utilizing existing wood pole locations and installations on the opposite side of the street are two ideas for additional placement options in these areas.

C. Approved Fixtures and Materials

The approved streetlight components for each class of roadway are listed below in Tables 7.2-A and 7.2-B.

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Table 7.2-A: Approved Luminaires and Hardware by Location

	ROADWAY CLASSIFICATION				
	HIGHWAYS AND FREEWAYS (UNLESS OTHERWISE SPECIFIED BY TXDOT)	ARTERIALS AND LARGE COLLECTORS	COLLECTORS AND LOCAL STREETS	EXISTING RESIDENTIAL LOCAL STREETS (ALSO USED IN HISTORIC DISTRICTS)	NEW RESIDENTIAL LOCAL STREETS (≤< 30 MPH)
Make	Signify Lumec RFL	Signify Lumec RFM	Signify Lumec RFM	Hadco	Gardco
Model	RFL-241W112LED-4K-G2-R2M-UNV-DMG-ML-RCD7-API-GY3	RFM-160W48LED-4K-G2-R2M-UNV-DMG-ML-RCD7-API-GY3	RFM-85W24LED-3K-G2-R2M-UNV-DMG-ML-RCD7-API-GY3	C-1891P RL34AANN2ASNR7 WA3 NNNNSP1	OPF-S-P05-730-T2M-AR1-UNV-SP2-TR7
Wattage	241W LED	160W LED	85W LED	69W LED	66W LED
Lumens	30,188	19,489	8,753	7,734	11,253
Color Temperature	4000k	4000K	3000K	3000K	3000K
Light Distribution Type	Type II	Type II	Type II	N/A	Light II
Voltage	120 – 277V or 347 – 480V	120 – 277V or 347 – 480V	120 – 277V or 347 – 480V	120 - 277V	120 – 277V
B-U-G Rating	B4-U0-G4	B3-U0-G3	B3-U0-G3	B2-U5-G4	B2-U0-G2
Pole Type	Steel, white concrete, or wood	Steel, white concrete, or wood	Steel, white concrete, or wood	Residential - Concrete aggregate Historic – Cast Aluminum	Steel, square, gray
Globe Type	N/A	N/A	N/A	Hadco, RL34 Acrylic Victorian	N/A
Arm Type	8-ft. metal (specs depend on pole type)	8-ft. metal (specs depend on pole type)	8-ft. metal (specs depend on pole type)	N/A	Std-mount, no arm

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Table 7.2-B: Approved Pole Types by Location

Part Information	Part Description	Highway and Freeway [1]	Arterial and Large Collector	Collector and Local Street	Existing Res. Local Street	Historic District [2]	New Res. Local Street [3]
POLE TYPE – WOOD DISTRIBUTION							
N/A	Wood pole. Various heights, but standard id 35 feet. DME warehouse item. Direct buried. Overhead electric service.	Yes	Yes	Yes	Yes	No	No
Arm - Shakespeare #OPAR-8-H	8-ft. curved aluminum arm. DME warehouse item.	-	-	-	-	-	-
POLE TYPE – WHITE CONCRETE							
Lonestar #351101	35-ft. Concrete pole, white color. Single or double arm available. DME warehouse item. Direct buried. Underground electric service.	Yes	Yes	Yes	Yes	No	No
Arm - Curlee #2009032TG-Flat Base	8-ft. flat aluminum arm. DME warehouse item.	-	-	-	-	-	-
POLE TYPE – CONCRETE AGGREGATE							
Lonestar #20004-SJB (Waterford Series)	20-ft. Concrete aggregate pole. Post-top luminaire configuration. Direct buried. Underground electric service.	No	No	No	Yes	No	No
POLE TYPE – ANTIQUE ALUMINUM							
Acuity #PX-CP18-12-F4-AB3/133T3-ANBK	12-ft. antique, decorative aluminum pole. Post-top luminaire configuration. Requires concrete foundation. Underground service.	No	No	Yes[2]	Yes[2]	Yes[2]	No
POLE TYPE - STEEL							
(Single Arm) KW Industries RTSU35-8-11-Gray-18S-N	35-ft. round steel pole, gray color. Single or double arm available. Used for TxDOT designed streetlighting.	Yes[4]	Yes[4]	No	No	No	No
(Double Arm) KW Industries RTSU35-8-11-Gray-28S-N	Part numbers may vary slightly depending on application. Not stocked by DME – custom order item. Breakaway bases with concrete foundations may be required for certain installations and bridges. Direct burial available also. Underground electric service						
Arm(s) – N/A	Arms are included with pole when ordering.	-	-	-	-	-	-
Breakaway base – N/A	Breakaway base included with pole when ordering.	-	-	-	-	-	-

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Part Information	Part Description	Highway and Freeway [1]	Arterial and Large Collector	Collector and Local Street	Existing Res. Local Street	Historic District [2]	New Res. Local Street [3]
POLE TYPE – STEEL RESIDENTIAL							
KW Ind., Part# SSP20-4-11-DGY GARDCO-DM10-BC	20-ft., dark gray, 4-in. square steel pole. Drilled for single-luminaire with std mounting pattern. Includes 3-in. by5-in. handhole and 8-in. bolt circle base pattern. Requires concrete foundation. Underground service.	No	No	No	No	No	Yes

Notes:
[1] Unless, otherwise specified by TxDOT~~7F~~.
[2] Historic streetlighting is only available for use in designated historic districts.
[3] Speed limits of ~~Less than~~ 30 mph or less.
[4] Steel streetlight poles are only used for highways and roadways where TxDOT or City-approved plans require placement of break-away bases or non-standard mounting heights.

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D. Historic Lighting

Historic lighting is a modern light fixture with a decorative pole and fixture that give the lighting the look of early 20th century lighting. Historic lighting has been approved for use only in the *designated historic* districts of Denton. All requests for historic lighting within these districts must be submitted to DME Engineering for design and approval. Historic lighting is not approved for installations outside of the historic districts. The requesting organization, developer, or agency shall be responsible for all costs related to the design and installation of historic streetlights.

E. Control System

All new streetlighting in the DME service area shall have a control node installed which, at a minimum, will turn the light on and off according to ambient light conditions (photocell control) and shall be compatible with the CityTouch lighting control system. *See* Table 7.2-C shown below. Where street lighting is installed by the developer, DME shall provide and install control nodes at the developer's expense. DME will commission the control nodes into the CityTouch program.

Where streetlighting is served by other electric utilities than DME~~ in the City~~, DME does not require or install control nodes.

Table 7.2-C: CityTouch-compatible control node models

Model Number	Voltage (V)	Use	Function
LLC7290	120 – 277	Cobra head lights	Photocell controller
LLC7294	347 – 480	High-voltage cobra head lights	Photocell controller
LLC7291	120 - 277	Post-top lights	Astro-clock (GPS location-based timers)

F. Dimming and Light Trespass

The City adheres to ANSI RP-8 lighting levels for all streets *except* local residential streets with speed limits of 30 mph or less. Lighting that has been designed to ANSI RP-8 cannot be dimmed without diminishing the lighting level which, by definition, no longer meets the RP-8 standard. Thus, all streetlighting that is not in residential neighborhoods with speed limits of 30 mph or less will be maintained at full brightness.

On local residential streets with speed limits of 30 mph or less, the streetlights may be dimmed by resident request at specific locations due to light pollution concerns by residents. DME will dim residential streetlights down as low as 60%.

The City also reserves the right to install house side shields (available only on cobrahead lights) and make other reasonable modifications to the luminaires to minimize impacts to the residents at the DME's discretion.

G. Migratory Birds and Other Flying Species

DME will dim residential streetlights down as low as 50% during select animal migration or activity periods as specified by the City Environmental Services & Sustainability Department.

~~In coordination with the City's Environmental Services & Sustainability Department, DME will~~

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~~coordinate dimming streetlights in residential areas to 50% brightness~~

H. International Dark Sky Association

DME installs and maintains two types of streetlight luminaires (light fixtures), post-top and cobrahead. The cobrahead light fixtures are endorsed by the International Dark Sky Associate (IDA) which makes recommendations on lighting with minimal up-light. The existing post-top lighting fixtures are not IDA endorsed, however an acceptable IDA approved alternate is being considered for all residential ~~developments~~ streets with speeds less than 30 mph.

7.2.4 Construction Requirements

Streetlight construction (e.g. conduit, wiring, etc.) shall follow the DME Standard Construction Drawings, stated below:

A. DSL-ARM

B. DSL-STD

C. DSL-12A

D. DSL-20C

E. DSL-35

Conduit runs should not exceed 700 feet between pulling locations. When bends total 180 degrees conduit runs should be limited to 500 feet or less. No run of conduit should have more than 360 degrees of total bend between pulling points.

The total length of a single lighting circuit at 120V should be less than 1,000 feet, the total length of a single lighting circuit at 240V should be less than 2,000 feet, and the total length of a circuit at 480V should be less than 4,000 feet unless circuit design and loading has been validated by engineering.

Additional design information may be found in the *TxDOT Highway Illumination Manual*.

7.3 Developer and DME Responsibilities

7.3.1 Highways and Streets (except local residential streets with speed ≤ 30 mph)

Developer is responsible for streetlighting design that meets the requirements of ANSI RP-8 for the appropriate roadway characteristics. A photometric (lighting) study shall be required. The final design ~~should~~must be approved and stamped by a Texas licensed professional engineer. Final design must also be approved by DME Engineering.

Lighting levels, placement, and compliance with ANSI RP-8 must be verified and documented with lighting design software. At a minimum, documentation shall be provided to DME Engineering showing:

A. Street geometry (width, number of lanes, median size)

B. Street classifications (arterial, collector, etc.)

C. Pedestrian activity classification

D. Criteria levels applied (illuminance vs. luminance method, and levels)

E. Lighting placements (median, side, parallel, staggered)

F. Maximum separation distance*

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As an alternative to displaying the maximum separation distance as stated in 7.3.1.F above, a layout drawing of the project may be provided with calculation grid values and/or light level isolines indicating that the installation meets the applicable requirements.

For TxDOT projects, the design contractor will provide specific lighting requirements, if any. The design package should dictate where lighting should be placed and what types of poles and fixtures should be used.

For City initiated projects, the City's Engineer or their contractor will design the street lighting and submit to DME Engineering for approval. Once approved, the city's contractor will perform all civil work, and pull wiring and install streetlights and poles. DME will provide service points as needed. DME will also install and commission control nodes for interconnection with CityTouch.

A monthly maintenance, repair, and usage fee will be charged to t~~T~~he City thereafter for all streetlights on public streets per current DME rates.

7.3.2 Local Residential Streets (with speed limits ≤ 30mph)

The Developer (or DME if DME is responsible for the given project) is responsible for the design and layout of streetlights at all intersections, cul-de-sacs, and no more than 250 feet between. DME Engineering shall approve the final design. Once the project is approved and permitted, the Developer is responsible for providing all civil work including grading, trenching, installation of conduit and pull-boxes, etc.

DME is responsible for installation of wire, streetlights and poles, and service points. DME will charge an initial installation cost ~~fee~~ to the developer based on the number of lights.

A monthly maintenance, repair, and usage fee will be charged to The City thereafter for all streetlights on public streets per current DME rates.

For City initiated projects, the City's Engineer or their contractor will design the street lighting and submit to DME for approval. Once approved, the city's contractor will perform all civil work, and pull wiring and install streetlights and poles. DME will provide service points as needed. DME will also install and commission control nodes for interconnection with CityTouch.

For private streets and drives (where the City of Denton does not take ownership of the roadway or streetlights), one of the following will occur:

A. If non-standard lights are installed, DME will provide a metered service point. Developer is responsible for installation of entire streetlighting system. Designated customer (individual, HOA, etc.) will be responsible for monthly power costs and all maintenance. **OR**

B. If standard DME lighting is installed, Developer is responsible for all civil work (grading, trenching, installation of conduit, etc.) and installation of poles and streetlights. DME will pull wires and connect the lights at the Developer's expense. Designated customer (individual, HOA, etc.) will be responsible the monthly streetlight power and maintenance rates. **OR**

C. Exceptions to this rule must be agreed upon by all parties in a formal agreement.

7.3.3 Streetlighting in Non-DME-Served Areas

Standard streetlights have been approved by t~~T~~he City as listed in the General Requirements section of this manual. Electric utilities other than DME may or may not be able to provide the same luminaires. Non-standard lights will not be maintained by DME or t~~T~~he City. DME will provide, install, maintain, and repair standard t~~T~~he City streetlights at the D~~d~~eveloper's expense. The electric service provider will charge the City ~~of Denton~~ according to the rates agreed upon between t~~T~~he City and the electric service provider.

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For streets in non-DME service territories, Developer should coordinate with the electric utility, DME, and the City at the earliest stage of development to determine and agree upon the following:

A. Developer, City/DME, and Customer responsibilities

B. Service points and project design

C. Mode of disconnect for safe maintenance (e.g. in-line fuses, etc.)

D. Mode of billing (metered usage, monthly rate, etc.)

E. Designated customer/developer responsible for fees

F. Other concerns as applicable

7.3.4 Customer/Citizen Requests for addition/removal of Streetlighting

When additional/modified/decreased lighting is requested by a customer, DME will perform an analysis of the lighting to determine if the modifications would provide added safety, visibility, and aesthetic value to a location. Light intrusion, cost, and feasibility will also be considered. At DME's discretion, lighting may be added or modified to bring the streetlighting closer in line with this manual or meet other specific concerns.

In coordination with the City's Environmental Services & Sustainability Department, DME may dim streetlights in residential areas to no lower than ~~will coordinate dimming streetlights in residential areas to~~ 50% brightness

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Section 8: Design Deviations

8.1 Overview

8.1.1 General

All developments within the City ~~of Denton~~ and its extraterrestrial jurisdictions shall conform to the design criteria established in this DCM. In the event that a development cannot comply with the design criteria established ~~cannot be achieved~~, a design deviation process is used to evaluate, document, and approve proposed alternative methods. ~~of compliance.~~

Any deviation from the required design criteria for design of ~~public~~ facilities outlined in this DCM must be submitted as a design deviation request to the City's Engineer and Department Reviewer, prior to incorporating it into the final design of a project.

8.2 Design Deviation Procedure

8.2.1 Request for Design Deviation Submittal and Processing

A. All design deviation requests must be submitted as a formal request to ~~the development's assigned~~ Development Project Facilitat~~or~~ion ~~Engineering Department~~ using the 'Request for Design Deviation Form' included in Appendix ~~XX~~B, along with supporting documentation.

~~1.~~ The 'Request for Design Deviation Form' shall be filled out completely with exception of the portions noted as "For Use by City".

~~2.~~1.

2. Supporting documentation shall include:

   a. ~~-~~All pertinent information on the facilities involved or to be involved.~~:~~ The ~~request shall specifically state the~~ specific portion of this DCM, policies, or design standard(s) for which a design deviation is sought.~~, and include a~~

   b. Description(s) of ~~justification for the design deviation requested. The supporting documentation must illustrate~~ all ~~alternatives attempts~~other design alternatives which the applicant has evaluated in attempts to comply with~~at~~ the design criteria ~~compliance~~ prior to the request for design deviation; and~~.~~

   c. A statement that ~~, and~~ provides justification for the requested design deviation ~~being a more appropriate solution than the alternatives considered.~~ and how it is the necessary and optimal solution when compared with reasonable alternatives for the scenario presented.~~meets the Criteria for Granting of Design Deviation.~~

3. Design deviation requests that do not contain the required Request for Design Deviation Form and supporting documentation are incomplete and will not be reviewed.~~without proper justification and relevant supporting documents will not be reviewed.~~

B. The request and supporting documentation shall be submitted concurrently with Civil Engineering Plans, ~~the~~ Zoning Compliance Plans, Planned Development, or Specific Use Permit submittal. ~~the design submittal.as early as practicable in the public facility design process, but no later than (insert timing of your choice, or end sentence after "design process"). shall be signed by City Engineer or their designee. must be reviewed by Engineering Staff and require the signed approval~~

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~~of the City Engineer, prior to implementation.~~

~~8.1.2~~8.2.2 Criteria for Granting of Design Deviation

A. The ~~City Engineer's evaluation~~ review of ~~An Engineer who wishes to request~~ a design deviation request by the City's Engineer and Department Reviewer ~~for the design of public facilities may do so as long as~~shall ~~may~~ assess whether the request:

1. Clearly demonstrates an exceptional hardship which prevents the design criteria from being met. This hardship cannot be solely self-imposed and should be based upon physical characteristics of the property, environmental conditions, or existing conditions created by surrounding development,
2. Is not detrimental to the public welfare,
3. Does not adversely impact the operations of the system or the public facility in question,
4. Is supported by a signed and sealed engineering analysis performed by a Licensed Professional Engineer in the State of Texas, if requested by the Engineering Department~~;~~, and,
5. Shall not be solely to mitigate a financial hardship. ~~solely reducing costs of construction.financial interests.~~

B. The ~~City Engineer's~~ decision of the City's Engineer and Department Reviewer is guided by the criteria for approval, but is ultimately discretionary based on their ~~professional~~engineering judgment and professional experience.

C. All approved design deviation requests shall be signed by the City's Engineer and Department Reviewer, before implementation.

~~B.~~D. The ~~City Engineer's~~ decision of the City's Engineer and Department Reviewer to grant a design deviation ~~A grantGranting ofthe use of an alternative material, design, or method of construction~~ shall not relieve the applicant's Engineer of the professional obligation and responsibility to ensure any approved alternatives to~~of~~ the use of the material, design, or method of construction are fit for the intended purposes of the facilities at issue. ~~same.~~

~~C.~~ If a design deviation request is denied by the City's Engineer and Department Reviewer~~Manager or designee~~, the applicant may consider reviewing alternatives and resubmitting the application with more information as is deemed necessary, for re-evaluation by the City's Engineer and Department Reviewer~~Manager or designee~~. ~~An applicant may appeal City Engineer's decision pursuant to the process laid out in Section 2.8.3 of the Denton Development Code."And" indicates that all connected items, conditions, provisions, or events apply; and~~

~~D.~~E. ~~"Or" indicates that one or more of the connected items, conditions, provisions, or events apply.~~

~~8.2~~8.3 Revocation of an Approved Design Deviation

~~8.2.1~~8.3.1 Applicability and Procedure

A. An approved design deviation request may be revoked by the City's Engineer and Department Reviewer ~~Engineer~~, if:

1. The supporting documentation that the City's Engineer and Department Reviewer ~~Engineer~~ used to review and approve the design deviation request is materially altered or updated.

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Any individual or entity that receives an approved design deviation request must provide the City's Engineer and Department Reviewer with any ~~material~~ change in plans or conditions to the project that affect the requested deviation as soon as practicable after any such change occurs. Failure to provide these updates may result in design deviation revocation by the City. ~~There are changes to the design which affect the conditions in which the design deviation was reviewed and approved;~~

1. The applicant is shown to have provided inaccurate or incomplete information during review of the design deviation request.
2. The City determines there is a failure to comply with any term, condition, or requirement ~~made a condition of the approval~~ applicable to a design deviation;

B. A decision to revoke a design deviation is effective immediately. Notice of the decision shall be communicated ~~with~~ to the applicant.

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Appendix A: Example Stormwater Facility Checklists

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INSPECTION CHECKLIST FOR SIMPLE DETENTION BASIN

Facility Name: _____ **Facility Agreement Number:** _____

Basin/Pond Number: _____ **Inspected By:** _____ **Date:** _____

Type of Inspection: Annual _____, Quarterly _____, Monthly _____, Routine _____, or Storm Event _____, (# days since event _____)

Basin Conditions:

1.	Is there standing water or wet spots?	Yes	No	Comments
2.	Does sides or bottom show signs of erosion, settling, cracking, etc?	Yes	No	Comments
3.	Does dam or emergency spillway show signs of erosion, settling, cracking, or other problems	Yes	No	Comments
4.	Is there evidence of animal burrowing in dam?	Yes	No	Comments
5.	Is there evidence of changes in shape or volume of basin?	Yes	No	Comments
6.	Do vegetated areas need mowing?	Yes	No	Comments
7.	Are there trees or woody growth in dam?	Yes	No	Comments
8.	Are there areas that need to be re-vegetated?	Yes	No	Comments
9.	Is there any accumulation of silt, trash, debris or litter in the basin?	Yes	No	Comments
10.	Are there any other basin maintenance activities needed?	Yes	No	Comments

Structural Components:

1.	Are pipes, channels, trash racks, etc. free of obstructions?	Yes	No	Comments
2.	Are pipes, spillway or trash racks in need of repair?	Yes	No	Comments
3.	Is the low flow or trickle channel in need of repair?	Yes	No	Comments
4.	Is the outfall channel in need of repair?	Yes	No	Comments
5.	Are there any other structural maintenance activities needed?	Yes	No	Comments

Plan for correcting deficiencies:

_____

_____

_____

_____

Signature:

_____

Owner's Representative

Date:

_____

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ENGINEER'S CHECKLIST FOR STORMWATER FACILITY MAINTENANCE AGREEMENT

Please attach additional sheets as necessary for comments and descriptions. Fit all sheets to 8½" x 11".

ORGANIZATION INFORMATION	
1. Company (Applicant)	**Address:**
2. Contact's Information: Contact Name Mailing Address Telephone Number(s) Email	**3. Execution Information:** Signatory's Name Mailing Address Telephone Number(s) Email

4. Property Location:

(Note: If the property has not been addressed, please enter the legal description)

5. Associated Plat Numbers:

(Note: if request is related to multiple plat applications, please list each individually)

6. Associated Building Permit Numbers:

(Note: if request is related to multiple permits, please list each individually)

AGREEMENT & ATTACHMENT INSTRUCTIONS

If the property owner is a **corporation**, the agreement must be signed by ~~the President or a Vice-President of the company~~a person who is duly authorized to bind the corporation including, but not limited to a President or Vice President. If a **partnership**, the agreement must be signed by the managing partner. If the applicant is a **sole proprietor**, he/she signs the agreement on behalf of him or herself. Additionally, for corporations and partnerships, a copy of the *Articles of Incorporation*, showing signature authority for whoever signs the agreement must also be submitted (Note: Applicants may also submit a board resolution or power of attorney authorizing an agent or assign to sign on behalf of the property owner. The agreement must be completely filled out and three copies submitted to the Planning and Development Department. Signatures on all three agreement drafts must be original and notarized. Lastly, please submit a copy of the deed for the noted property.

NOTE: Agreement and all attachments should be submitted on 8 ½" x 11".

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	Yes	No	N/A	Comments/Descriptions
1. Legal Agreement – Standard agreement form provided by the City.	___	___	___	_____
2. Exhibit "A" - Legal Description (Attached)				
A. Metes and Bounds.	___	___	___	_____
B. Surveyor's Drawing, with seal affixed and marked as "Drainage Easement".	___	___	___	_____
C. Preliminary Plat.	___	___	___	_____
3. Exhibit "B" - Design Plan and Specifications (Attached)				
A. Design Calculations – in accordance with iSWM.	___	___	___	_____
B. Schematic Plan (See Example Detention Plan Schematic)- prepared in accordance with approved construction plans:	___	___	___	_____
• Plan View showing critical structural elements .	___	___	___	_____
• Critical structural elements are clearly labeled in layman terms.	___	___	___	_____
• Profile including a longitudinal section showing all critical structural elements with elevations.	___	___	___	_____
• Cross-sections as needed to show size and general grading. **NOTE: All Schematics should be submitted on 8 ½" x 11".**	___	___	___	_____
C. Landscaping shown per approved Landscape Plans.	___	___	___	_____
4. Exhibit "C" - Operations and Maintenance Plan (Attached)				
A. Routine Maintenance Specifications:				
1. Mowing as needed to control weeds and woody plants.	___	___	___	_____
2. Trash removal from critical structural elements.	___	___	___	_____
3. Additional maintenance.	___	___	___	_____
B. Non-routine Maintenance Activities:				
1. Bank repair and stabilization.	___	___	___	_____
2. Re-vegetation - required when 30% or more of area is unprotected.	___	___	___	_____

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	Yes	No	N/A	Comments/Descriptions Page 3 of 3
3. Sediment removal from the detention/retention facility when:				
• Detention basin – when water depth is reduced 25%				
or more, or basin does not drain within 72 hours.				
• Retention pond – when water depth is 4' or less.				
• Sediment traps/forebay – when depth is reduced by 50% or more.				
4. Structural repair/replacement for all damaged or deteriorated				
structures, trickle channel, trash rack, etc.				
5. Mechanical equipment repairs.				
6. Other maintenance Activities.				

5. Exhibit "D" - Maintenance Checklist *

A. Covers ordinary needs, in layman terms.				
B. Structural components labeled consistent with Schematic Plan.				

*See attached Inspection Checklist for Detention Basin

NOTE: All Exhibits should be submitted on 8 ½" x 11".

(seal)	I certify that this Stormwater Facility Maintenance Agreement, checklist, required attachments, and additional comments, was prepared under my responsible supervision and that the information presented on this checklist and attachments is correct to the best of my knowledge. I also understand that an acceptance of this plan by the City does not waive any City standards or requirements unless a specific waiver request has been submitted and approved. Signed _____ Date _____ Print Name: _____

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Appendix B: Design Deviation Request Form

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Development Services
401 N. Elm Street, Denton, TX 76201 (940) 349-8541

City of Denton Design Deviation Request Form

Submitted by:_____Phone:_____Email:_____
Company:_____Date:_____

Project Information
City of Denton Project Number:_____Project:_____
Type of Development:_____
Location:_____ (include map)

Design Deviation Request (Each deviation from criteria requires a separate submittal and will be evaluated independently.)
Specify section of the DCM/DDC/design standard(s) for which a deviation is sought:

Please explain how the project is unable to meet the design criteria.
(This hardship cannot be solely self-imposed and should be based upon physical characteristics of the property, environmental condition, or existing conditions created by surrounding development.)

What other design alternatives have been evaluated to comply with the design criteria, prior to the request for design deviation:

Detailed explanation of requested design deviation:

The deviation request will be evaluated based on the criteria set forth in DCM 8.2.2.
_____ By submitting the design deviation request, the applicant hereby acknowledges and understands the design deviation procedure. (Please check.)

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CITY OF DENTON

Development Services

401 N. Elm Street, Denton, TX 76201 (940) 349-8541

Supporting Documentation

List and provide attachments supporting the design deviation as stated in the DCM Section 8.2.1.

(drawings, calculations, topographic information, photographs, maps, or other pertinent information)

FOR USE BY THE CITY OF DENTON

Justification of Decision:

Deviation Decision: ☐ Accepted ☐ Denied

Reviewing Department: ☐ Solid Waste ☐ Stormwater ☐ Transportation

☐ Water/Wastewater ☐ Street Light

Department Reviewer:_____ City's Engineer:_____

Date:_____ Date:_____

Signature:_____ Signature:_____

(The deviation request decision must be signed by both the Department Reviewer and the City's Engineer.)

2 of 2

Note: Request the fillable Deviation Request form from your Facilitator.

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DRAFT

Appendix C: Poles and Luminaires - Standard Lighting Fixtures

DRAFT

Figure C.1: Residential Lighting – 20-ft. concrete aggregate pole woth post-top luminaire

Figure C.2: General Street Lighting – Wood (distribution) pole with single-mast arm and cobra head luminaire

DRAFT

DRAFT

Figure C.3: General Street Lighting – 35-ft. white concrete pole with single or double-mast arms and cobra head luminaire

DRAFT

Figure C.4: Historic District Lighting – 12-ft. concrete aggregate pole woth post-top luminaire

DRAFT

DRAFT

City of Denton Criteria Manual Annual Updates

Brett Bourgeois, PE
City Engineer
Engineering Services
ID 23-1855
June 4, 2024

Agenda

- Public Outreach Plan
- Background
- City Criteria Manual Updates
  - Solid Waste and Recycling
  - Stormwater and Drainage
  - Transportation
  - Water and Wastewater
  - Streetlight Design
  - Design Deviations
- Next Steps

- Technical Experts in Attendance
  - Adrian Hill
  - Michael Linder, PE, CFM
  - Christi Upton
  - Farhan Butt, PE
  - Robert Applegate
  - Jerry Fielder, PE

Public Outreach Plan

Date	Public Outreach
September 14, 2023	Developer Town Hall
November 3, 2023	Criteria Manual Updates Published Online
November 9, 2023	Texas Society of Professional Engineers
January 10, 2024	Planning and Zoning Commission Work Session
January 22, 2024	Public Utilities Board Work Session
May 16, 2024	Advertise in Denton Record Chronicle
June 4, 2024	City Council Work Session
June 4, 2024	Public Hearing
July 1, 2024	Effective Date

Background

- Annual Criteria Manual Updates
  - Reviewed by Staff
    - Comments addressed by subject mater experts and reviewed by staff in a series of meetings from July through September
  - Comments from the Public
  - Public Outreach
  - Website Publication
  - Newspaper Publication
  - City Council Work Session and Public Hearing

Governing Documents for the City

Denton Development Code
- Policy and Procedures
- Zoning and Subdivision Regulation

Design Criteria Manual
- Technical and Design Requirements

Construction Specifications
- Standards for Construction

Standard Details
- Drawings of Construction Specifications

Solid Waste and Recycling Criteria Manual Update

- Simplified minimum container enclosure requirements guidance to be more easily understood by applicants
- Provided additional guidance on solid waste collection routes
- Added language specifying that no parking spaces or obstructions can be placed within the swing radius of an enclosure gate

Stormwater Design Criteria Manual Update

- Provide recommendations on water quality treatment of stormwater runoff in accordance with iSWM
  - Propose making this a requirement next year
- Implement Stormwater Facility Maintenance Agreements
- Additional requirements for approving any stormwater diversion
- Added guidance on what constitutes an adverse impact to other properties

Transportation Criteria Manual Update

- Improved organizational format
- Added limitations on driveway profile grade changes without a vertical curve
- Queuing analysis now required for gated entrances and drive-throughs
- Turn lane warrants now consider factors such as truck traffic volume, crash history, and available sight distance
- Increased guidance on how to measure distance separations for driveways and intersections

Water and Wastewater Criteria Manual Update

- Prohibited the placement of manholes in sidewalks, ramps, or driveway approaches
- Provided additional guidance on sizing of water meters
- Required a 5-foot minimum separation between sewer manholes and other utilities to allow for maintenance and repair
- Lift stations must be accessible during the 100-year flood rather than the 25-year flood

Streetlight Design Criteria Added

- Lighting study required for all streets except local residential roads with speeds of 30 mph or less
- Lighting required every 250 feet for local residential roads with speeds of 30 mph or less
- Provides lighting requirements for intersections, cul-de-sacs, railroad crossings, etc.
- Provides approved luminaries, hardware, and pole types

Design Deviations

- Describes process by which applicants may request to deviate from design criteria
- Approval contingent on demonstrating exceptional hardship based upon physical characteristics of property, not detrimental to public welfare, and no adverse impact to public facilities
- Requests will be reviewed and approved or denied by an engineer employed within the City with subject matter expertise relevant to the request

Next Steps

- Public Hearing and Propose Adoption on June 4, 2024
- Effective Date of July 1, 2024

Questions?

Brett Bourgeois, PE

City Engineer

Engineering Services

File #: ID 24-1196, **Version:** 1

AGENDA CAPTION

Consultation with Attorneys - Under Texas Government Code Section 551.071.

Consult with the City's attorneys on the legal status, strategy and options for resolution of litigation in Cause No. 24-1005-481 case style: “City of Denton v. State of Texas v. City of Denton Gerard Hudspeth, Mayor of Denton; Brian Beck, Mayor Pro Tem of Denton; Vicki Byrd, Paul Meltzer, Joe Holland, Brandon Chase McGee, and Chris Watts, Members of the City Council of Denton; Sara Hensley, City Manager of Denton; and Doug Shoemaker, Chief of Police of Denton; in their official capacities,” in the Denton County Court, Denton County, Texas; where public discussion of these legal matters would conflict with the duty of the City's attorneys to the professional conduct of the State Bar of Texas, or otherwise compromise the City's legal position in pending litigation.

File #: ID 24-1117, **Version:** 1

AGENDA CAPTION

Mr. Daniel Cowart regarding Palestine.

File #: ID 24-1118, **Version:** 1

AGENDA CAPTION

Mr. Richard Harris regarding Palestine.

File #: ID 24-1119, **Version:** 1

AGENDA CAPTION

Ms. Kali Wood regarding issues at property and community concerns regarding children.

File #: ID 24-1120, **Version:** 1

AGENDA CAPTION

Mr. Justin Weiss regarding Ceasefire Resolution.

File #: ID 24-1121, **Version:** 1

AGENDA CAPTION

Ms. Amira Rasoul regarding Palestine.

File #: ID 24-1122, **Version:** 1

AGENDA CAPTION

Ms. Donna Smith regarding elections.

File #: ID 24-1127, **Version:** 1

AGENDA CAPTION

Ms. Andrea Nichols regarding Council position on Planning and Zoning.

File #: ID 24-428, **Version:** 1

AGENDA CAPTION

Consider approval of the minutes of the May 14, 2024 Special Called Canvassing Meeting and May 21, 2024 Regular Meeting.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: City Secretary's Office

CM: Sara Hensley

DATE: June 4, 2024

SUBJECT

Consider approval of the minutes of the May 14, 2024 and May 21, 2024 meetings.

BACKGROUND

The minutes drafts are provided for review and formal approval by the City Council.

EXHIBITS

Exhibit 1 – Agenda Information Sheet
Exhibit 2 – May 14, 2024 Minutes
Exhibit 3 – May 21, 2024 Minutes

Respectfully submitted:

Lauren Thoden
City Secretary

CITY OF DENTON CITY COUNCIL MINUTES
May 14, 2024

After determining that a quorum was present, the City Council of the City of Denton, Texas convened in a Special Called Meeting on Tuesday, May 14, 2024, at 12:30 p.m. in the Council Chambers at City Hall, 215 E. McKinney Street, Denton, Texas.

PRESENT: Mayor Gerard Hudspeth, Mayor Pro Tem Brian Beck and Council Members Vicki Byrd, Paul Meltzer, Brandon Chase McGee, and Joe Holland

ABSENT: Council Member Chris Watts

Also present were City Manager Sara Hensley and City Attorney Mack Reinwand.

The posted agenda noted the registration process for public participation at this meeting. However, there were no online registrations or call ins on any items on the agenda.

1. PLEDGE OF ALLEGIANCE

A. U.S. Flag

B. Texas Flag

2. ITEMS FOR INDIVIDUAL CONSIDERATION

A. ID 24-910 Consider adoption of an ordinance of the City of Denton, canvassing the returns and declaring the results of the Regular Municipal Election to elect three City Council Members to Places 5, 6, and a Mayor to Place 7 of the City Council of the City of Denton, held on May 4, 2024; declaring that a Runoff Election is not necessary; and providing an effective date.
ASSIGNED ORDINANCE NO. 24-910

There were no online registrations or call-ins on the item.

The item was presented, and discussion followed.

Mayor Pro Tem Beck moved to adopt the item as presented. Motion seconded by Council Member Holland.

Motion carried.

AYES (6): Mayor Hudspeth, Mayor Pro Tem Beck and Council Members Byrd, Meltzer, Holland, and McGee

NAYS (0): None

ABSENT (1): Council Member Chris Watts

B. ID 24-180 Issue the following to newly Elected Council Members:

- Certificate of Election
- Statement of Officer
- Oaths of Office

C. ID 24-1042 Proclamation: Chris Watts Appreciation
NOT PRESENTED

D. ID 24-182 Election of Mayor Pro Tem.

There were no online registrations or call-ins on the item.

The item was presented and discussion followed.

Mayor Hudspeth opened the nominations process.

Mayor Hudspeth nominated Council Member Holland. Council Member Jester seconded the nomination.

Mayor Hudspeth called a voice vote on the motion to elect Council Member Holland as Mayor Pro Tem.

Motion failed.

AYES (3): Mayor Hudspeth, Council Members Holland and Jester

NAYS (4): Mayor Pro Tem Beck, Council Members Byrd, Meltzer, and McGee

Mayor Hudspeth nominated Council Member Jester. Council Member Holland seconded the nomination.

Motion failed.

AYES (3): Mayor Hudspeth, Council Members Holland and Jester

NAYS (4): Mayor Pro Tem Beck, Council Members Byrd, Meltzer, and McGee

Council Member Jester nominated Council Member Vicki Byrd. Council Member Byrd declined.

Mayor Pro Tem Beck nominated Council Member Paul Melzer. Council Member Byrd seconded the nomination.

Motion carried.

AYES (4): Mayor Pro Tem Beck, Council Members Byrd, McGee, and Meltzer.

NAYS (3): Mayor Hudspeth, Council Members Holland, and Jester.

City Council Meeting Adjourned at 1:13 p.m.

GERARD HUDSPETH MAYOR CITY OF DENTON, TEXAS	LAUREN THODEN CITY SECRETARY CITY OF DENTON, TEXAS

MINUTES APPROVED ON: _____

CITY OF DENTON CITY COUNCIL MINUTES
May 21, 2024

After determining that a quorum was present, the City Council of the City of Denton, Texas convened in a Work Session on Tuesday, May 21, 2024, at 2:00 p.m. in the Council Work Session Room at City Hall, 215 E. McKinney Street, Denton, Texas.

PRESENT: Mayor Gerard Hudspeth, Mayor Pro Tem Paul Meltzer and Council Members Brian Beck, Vicki Byrd, Joe Holland, Jill Jester, and Brandon Chase McGee

ABSENT: None

Also present were City Manager Sara Hensley and City Attorney Mack Reinwand.

The posted agenda noted the registration process for public participation at this meeting. However, there were no online registrations or call ins on any items on the agenda.

WORK SESSION

1. Citizen Comments on Consent Agenda Items

None

2. Requests for clarification of agenda items listed on this agenda for public hearing and individual consideration

• Clarification:

o Council Member Brian Beck: Item M

o Mayor Hudspeth: Item F

• Pulled For Individual Consideration:

o Mayor Hudspeth: Item E

o Mayor Pro Tem Meltzer: Item B

3. Work Session Reports

A. ID 24-113 Receive a report, hold a discussion, and give staff direction regarding potential subject matter to be discussed by a future Charter Review Committee. [Estimated Presentation/Discussion Time : 30 minutes]

The item was presented and discussion followed.

Through Council discussion, the following items received Council consensus to move forward with the committee charge:

1. The committee shall have discretion to review additional sections of the City Charter not listed in the charges as written.
2. The committee shall appoint a Chair and Chair Pro Tem upon convening.
3. Committee nominations/appointments shall be chosen from a Council member's respective district.

Following discussion, Staff report the next steps on the Charter Review Committee.

A resolution issuing the committee charge will be placed on the June 4, 2024 Council Agenda. Committee appointments will take place from June 4 to July 2.

B. ID 24-997 Receive a report, hold a discussion, and give staff direction regarding the updates to Roadway Impact Fees. [Estimated Presentation/Discussion Time: 45 minutes]

The item was presented and discussion followed.

Following discussion, results were as follows: • Staff Recommendation • 20% for Residential, 10% for Non-Residential

The work session ended at 3:27 p.m.

The meeting was recessed for a short break at 3:27 p.m. and reconvened at 6:30 p.m.

REGULAR MEETING

After determining that a quorum was present, the City Council of the City of Denton, Texas convened in a Regular Meeting on Tuesday, May 21, 2024, 2024, at 6:31 p.m. in the Council Chambers at City Hall, 215 E. McKinney Street, Denton, Texas.

PRESENT: Mayor Gerard Hudspeth, Mayor Pro Tem Paul Meltzer and Council Members Brian Beck, Vicki Byrd, Joe Holland, Jill Jester, and Brandon Chase McGee

ABSENT: None

Also present were City Manager Sara Hensley and City Attorney Mack Reinwand.

The posted agenda noted the registration process for in-person, call-in, and public participation at this meeting. While citizen commentary received via the online registration process was not read, each member for the City Council received each online commentary as it was submitted. In-person, call-in, and online comments received are reflected on the exhibit to the minutes of this meeting.

1. PLEDGE OF ALLEGIANCE

A. U.S. Flag
B. Texas Flag

2. PROCLAMATIONS/PRESENTATIONS

A. ID 24-1041 Proclamation: "Theatre Denton, Singin' In The Rain Day"
PRESENTED

3. PRESENTATIONS FROM MEMBERS OF THE PUBLIC

A. Review of procedures for addressing the City Council.

B. Reports from members of the public shall be received through the following two (2) methods. A total of up to seven (7) speakers are permitted to provide public comment and may include any combination of prior registration and open microphone speakers.

1) Pre-registration. This section of the agenda permits any person who has registered in advance to make a citizen report regarding a public business item he or she wishes to be considered by the City Council. Each speaker is allowed a maximum of four (4) minutes to present their report. At the conclusion of each report, the City Council may pose questions to the speaker or may engage in discussion. If the City Council believes that a speaker's report requires a more detailed review, the City Council will give the City Manager or City Staff direction to place the item on a future work session or regular meeting agenda and advise staff as to the background materials to be desired at such meeting.

a. ID 24-1021 Ms. Donna Smith regarding newly elected officials.
PRESENTED

b. ID 24-1022 Mr. Daniel Cowart regarding Palestine.
PRESENTED

c. ID 24-1023 Mr. Justin Weiss regarding making a difference in your community.
PRESENTED

d. ID 24-1024 Mr. Thomas Wood regarding update on drainage/flooding issues.
PRESENTED

e. ID 24-1026 Ms. Amira Rasoul regarding Palestine.
PRESENTED

f. ID 24-1027 Ms. Elizabeth Clinton regarding ceasefire resolution.
PRESENTED

g. ID 24-1040 Mr. Stephen Dillenberg regarding election fraud, election tampering, high crimes and felonies of public servants against Denton's people, and conspiracy to keep cancer.
NOT PRESENTED

2) Open Microphone. This section of the agenda permits any person who has not registered in advance for a citizen report to make comments about public business items not listed on the agenda. Such person(s) shall have registered using the "Virtual White Card" or "By Phone" process outlined by the City on its website or meeting notice.

(2) Additional Citizen Reports (Open Microphone)

Citizen comments received are noted on Exhibit A.

4. CONSENT AGENDA

The Consent Agenda consisted of Items 4.A-V. During the Work Session held earlier in the day, Item 4.B was pulled for Individual Consideration by Mayor Pro Tem Meltzer and Item 4.E was pulled for Individual Consideration by Mayor Hudspeth.

Mayor Pro Tem Meltzer moved to adopt the Consent Agenda, now consisting of Items 4.A, C, D, F-O, and Q-V. Motion seconded by Council Member Beck.

Motion carried.

AYES (7): Mayor Hudspeth, Mayor Pro Tem Meltzer and Council Members Beck, Byrd, Holland, Jester, and McGee

NAYS (0): None

A. ID 24-092 Consider approval of the minutes of the May 7, 2024 Regular Meeting.
APPROVED

C. ID 24-979 Consider approval of a resolution of the City of Denton excusing the April 24, 2024 meeting absence of a Planning and Zoning Commission Member Margie Ellis; and providing an effective date.
ASSIGNED RESOLUTION NO. 24-979

D. ID 24-982 Consider approval of a resolution of the City of Denton excusing the April 10, 2024 meeting absence of a Planning and Zoning Commission Board Member Jordan Villarreal; and providing an effective date.
ASSIGNED RESOLUTION NO. 24-982

F. ID 24-1074 Consider adoption of an ordinance by the City of Denton authorizing the City Attorney to 1) file a motion, under 5.0261 of the Texas Property Code, for the removal of a

discriminatory provision from instrument No. 1933-85058 (DR/243/246) ("Original Deed") with the clerk of Denton County District Court and 2) file a material correction deed under 5.029 of the Texas Property Code to remove all discriminatory provisions from the Original Deed; and providing an effective date.

ASSIGNED ORDINANCE NO. 24-1074

G. ID 24-974 Consider adoption of an ordinance of the City of Denton establishing classifications and positions in the Denton Fire Department; creating and eliminating certain positions; repealing Ordinance No. 24-178 relating to establishing the classifications and prescribing the number of positions in each classification for the Denton Fire Department; providing repealer, cumulative, and severability clauses; and declaring an effective date.

ASSIGNED ORDINANCE NO. 24-974

H. ID 24-993 Consider approval of a resolution of the City of Denton authorizing the submission of an application to the Federal Railroad Administration FY 2023-2024 Consolidated Rail Infrastructure Improvements Program funded by the Infrastructure Investment and Jobs Act (IIJA) in the amount of $1,600,000 to reconstruct a railroad crossing; and providing an effective date.

ASSIGNED RESOLUTION NO. 24-993

I. ID 24-820 Consider adoption of an ordinance of the City of Denton amending Chapter 25, Article III, "Cemeteries" Section 25-168 regarding placement of objects in cemetery, including floral designs and greenery, to allow for the placement of the flag of the United States of America; providing for codification; severability and an effective date.

ASSIGNED ORDINANCE NO. 24-820

J. ID 24-729 Consider adoption of an ordinance of the City of Denton authorizing the City Manager to execute an Interlocal Agreement between the City of Denton and Denton Independent School District for joint facility use and transportation services for Denton Parks and Recreation camps and programs; authorizing the City Manager to perform all obligations of the City under the agreement, including the expenditure of funds in the five (5) year not-to-exceed amount of $1,000,000; and providing an effective date.

ASSIGNED ORDINANCE NO. 24-729

K. ID 24-921 Consider approval of an ordinance of the City of Denton, Texas, a Texas home-rule municipal corporation, authorizing the approval of a Development Agreement between the City of Denton and Bonnie Brae BFR, LLC relating to a modification of the Bonnie Brae Street Phase 6 Improvement Project adjacent to the property located at 2205 North Bonnie Brae Street; authorizing the City Manager to execute said Development Agreement; and providing for the receipt of funds from Bonnie Brae BFR, LLC in the amount of eighty-nine thousand, nine hundred and sixty nine and 30/100 dollars ($89,969.30); authorizing the city manager to expend said funds; and providing an effective date.

ASSIGNED ORDINANCE NO. 24-921

L. ID 24-933 Consider approval of a resolution of the City of Denton denying Harold Peck, Mary Peck, and Peck Investments, Ltd.'s petition for removal of property from the extraterritorial jurisdiction of the City of Denton and denying the City's consent to the reduction of the City's extraterritorial jurisdiction; and providing an effective date.
ASSIGNED RESOLUTION NO. 24-933

M. ID 24-978 Consider adoption of an ordinance of the City of Denton, Texas determining upon the necessity of acquiring real property and authorizing the purchase for public use, the acquisition of approximately 0.6565-acres from the State of Texas for the use and benefit of University of North Texas f/k/a North Texas State Teachers College. ("Owner"), for a water, wastewater and electric easement (Collectively, the "Property Interest") located in the Eugene Puchalski Survey, Abstract No. 996, Denton County, Texas, and being part of City of Denton IH 35N utility relocations (The "Project") ROW CSJ: 0195-03-074; authorizing the City Manager, or Designee, to consummate and accept the purchase, grant and conveyance of the property interest; authorizing the expenditure of funds not to exceed One Million, Six Hundred Thousand Dollars (1,600,000.00) plus closing cost and estimated expenses of $15,000.00 (Total $1,615,000.00); and providing an effective date.
ASSIGNED ORDINANCE NO. 24-978

N. ID 24-795 Consider adoption of an ordinance of the City of Denton providing for the abandonment of a 1.808-acre avigation easement, in all air space above an imaginary horizontal geometric plane at a constant height of six hundred and eighty feet (680) above mean sea level, being located in the Masch Branch Industrial Block A Lot 1, an addition to the City of Denton, Denton County, Texas, in the William Bryan Survey No. 148, as shown on the plat thereof recorded in Cabinet M, Page 131 and granted to the City of Denton by Bret Ellis Wier and Jacquita Lynn Wier, recorded by County Clerk File No. 96-R0041901, the Real Property Records of Denton County, Texas, subject to a reverter; providing for the quitclaim thereof to NW Denton Industrial, L.P.; providing for the terms and conditions of the abandonment, and quitclaim made herein; providing for the indemnification of the City of Denton against damages arising out of the abandonment herein; providing for the consideration to be paid to the City of Denton; providing for severability and an effective date.
ASSIGNED ORDINANCE NO. 24-795

O. ID 24-1018 Consider approval of a resolution of the City of Denton denying Linken Real Estate LP's petition for removal of property from the extraterritorial jurisdiction of the City of Denton and denying the City's consent to the reduction of the City's extraterritorial jurisdiction; and providing an effective date.
ASSIGNED RESOLUTION NO. 24-1018

P. ID 24-1069 Consider adoption of an ordinance of the City of Denton authorizing the City Manager, or designee, to: 1) execute an Interlocal Cooperation Agreement with Denton County for the sale and license of City owned property including: A)- executing a Contract of Sale of 2.364 acres of City owned land to Denton County for the purchase price of Five

Hundred Fifty Thousand and 00/100 ($550,000.00), and B)- executing a License Agreement for approximately 8.662 acres of land for the purposes of the County Outdoor Nature Programming and other public uses, 2) accept $3,450,000.00 in Coronavirus State and Local Fiscal Recovery Funds ("SLRF") under the American Rescue Plan ("ARPA") funding to provide for past costs associated with the renovation completed during the pandemic and to support management and operation of the Denton Community Shelter: and 3)-the dedication from Denton County a 3.201 acre Public Trail Easement, in the Hiram Sisco Survey, Abstract Number 1184, and the J. Brock Survey, Abstract Number 55, all located in the City and County of Denton, Texas; providing for severability; and providing an effective date.

POSTPONED

Q. ID 24-953 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to approve a pre-qualified professional services list of architectural firms for professional architectural services for various vertical capital infrastructure-related projects within the City of Denton; and providing an effective date (RFQ 8376 - for a two (2) year, with the option for one (1) additional one (1) year extension, in the total three (3) year term).

ASSIGNED ORDINANCE NO. 24-953

R. ID 24-956 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Sun Coast Resources, LLC, for the purchase of bulk diesel exhaust fluid (DEF) for the Fleet Services Department; providing for the expenditure of funds therefor; and providing an effective date (RFP 8438 - awarded to Sun Coast Resources, LLC, for one (1) year, with the option for four (4) additional one (1) year extensions, in the total five (5) year not-to-exceed amount of $125,000.00).

ASSIGNED ORDINANCE NO. 24-956

S. ID 24-957 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Artistic Painting Company, Inc., for interior and exterior painting services for the Facilities Management Department; providing for the expenditure of funds therefor; and providing an effective date (RFP 8441 - awarded to Artistic Painting Company, Inc., for one (1) year, with the option for four (4) additional one (1) year extensions, in the total five (5) year not-to-exceed amount of $3,000,000.00).

ASSIGNED ORDINANCE NO. 24-957

T. ID 24-963 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Industrial Disposal Supply Company, LLC, through the Buy Board Cooperative Purchasing Network Contract # 686-22, for the purchase of sewer equipment, sweepers, brush handling trucks, and similar equipment for the Fleet Services Department; providing for the expenditure of funds therefor; and providing an effective date (File 8555 - awarded to Industrial Disposal

Supply Company, LLC, for one (1) year, with the option for four (4) additional one (1) year extensions, in the total five (5) year not-to-exceed amount of $3,790,723.00).

ASSIGNED ORDINANCE NO. 24-963

U. ID 24-970 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute an Interlocal Cooperative Purchasing Agreement with Brazoria County, Texas, under the Texas Government Code, Section 791.001, to authorize Brazoria County, Texas and City of Denton to utilize each entities' solicited contracts for the purchasing of various goods and services; authorizing the expenditure of funds therefor; and declaring an effective date (File 8571 - award an Interlocal Cooperative Purchasing Agreement with Brazoria County, Texas).

ASSIGNED ORDINANCE NO. 24-970

V. ID 24-999 Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a Professional Services Agreement with Kimley-Horn and Associates, Inc., for the design of Highway Safety Improvement Program traffic signals at the intersections of US 77 (North Elm Street) at Loop 288 interchange, FM 2164 (North Locust Street) at Loop 288 interchange, US 380 at Thomas J. Egan Road, and North Western Boulevard at Jim Christal Road for the Capital Projects Department as set forth in the contract; providing for the expenditure of funds therefor; and providing an effective date (RFQ 8377-002 - Professional Services Agreement for design services awarded to Kimley-Horn and Associates, Inc., in the not-to-exceed amount of $340,000.00).

ASSIGNED ORDINANCE NO. 24-999

Pulled for Individual Consideration by Mayor Pro Tem Meltzer.

E. ID 24-1063 Consider adoption of an ordinance of the City of Denton amending Article III "Boards, Commissions and Committees" Division 3, "Rules and Procedures" Section 2.85 Appointment, Nomination and Filling Vacancies on Boards and Commission, providing for codification; severability and an effective date.

Council Member Beck motioned to adopt. Mayor Pro Tem seconded the motion.

Motion failed.

AYES (3): Mayor Pro Tem Meltzer and Council Members Beck and McGee

NAYS (4): Mayor Hudspeth, Council Members Byrd, Holland, and Jester

B. ID 24-100 Consider nominations/appointments to the City's Boards, Commissions, and Committees: Animal Shelter Advisory Committee, Parks, Recreation & Beautification Board, Planning & Zoning Commission, Public Utilities Board, Tax Increment Reinvestment Zone Number One Board.

The Mayor proceeded to take up each appointment vote individually.

Citizen comments received are noted on Exhibit A.

Consider nominations/appointments to the City's Boards, Commissions, and Committees: Animal Shelter Advisory

Council Member Jester motioned to adopt. Mayor Pro Tem Meltzer seconded the motion.

Motion carried.

AYES (7): Mayor Hudspeth, Mayor Pro Tem Meltzer, and Council Members Beck, Byrd, Holland, Jester and McGee.

NAYS (0): None

Consider nominations/appointments to the City's Boards, Commissions, and Committees: Public Utilities Board

Council Member Beck motioned to adopt. Council Member Jester seconded the motion.

Motion carried.

AYES (7): Mayor Hudspeth, Mayor Pro Tem Meltzer, and Council Members Beck, Byrd, Holland, Jester and McGee.

NAYS (0): None

Consider nominations/appointments to the City's Boards, Commissions, and Committees: Planning & Zoning Commission.

Mayor Hudspeth motioned to adopt. Council Member Holland seconded the motion.

Motion failed.

AYES (3): Mayor Hudspeth, Council Members Holland and Jester

NAYS (4): Mayor Pro Tem Meltzer, Council Members Beck, Byrd, and McGee.

Consider nominations/appointments to the City's Boards, Commissions, and Committees: Parks, Recreation & Beautification Board.

Council Member Beck motioned to adopt. Council Member Byrd seconded the motion.

Motion carried.

AYES (7): Mayor Hudspeth, Mayor Pro Tem Meltzer, and Council Members Beck, Byrd, Holland, Jester and McGee.

NAYS (0): None

Consider nominations/appointments to the City's Boards, Commissions, and Committees: Tax Increment Reinvestment Zone Number One Board.

Council Member Beck motioned to adopt. Council Member Byrd seconded the motion.

Motion carried.

AYES (7): Mayor Hudspeth, Mayor Pro Tem Meltzer, and Council Members Beck, Byrd, Holland, Jester and McGee.

NAYS (0): None

5. ITEMS FOR INDIVIDUAL CONSIDERATION

A. A24-0001 Consider adoption of an ordinance of the City of Denton, Texas regarding a Municipal Services Agreement, pursuant to Tex. Loc. Gov't Code Sec. 43.0672, between the City of Denton and Dentex Land, Cattle and Energy, LP for the provision of city services to approximately 92.382 acres of land, generally located north of Johnson Lane, south of Allred Road and 2,325 feet east of John Paine Road; approving a schedule of annexation; authorizing the City Manager to execute the agreement; and providing an effective date. (A24-0001, Dentex Annexation, Angie Manglaris)
ASSIGNED ORDINANCE NO. A24-0001

There were no online registrations or call-ins on the item.

The item was presented, and no discussion followed.

Citizen comments received are noted on Exhibit A.

Council Member Beck moved to adopt the item as presented. Motion seconded by Council Member Byrd.

Motion carried.

AYES (7): Mayor Hudspeth, Mayor Pro Tem Meltzer and Council Members Beck, Byrd, Holland, Jester, and McGee

NAYS (0): None

6. PUBLIC HEARINGS

A. SRN24-0001 Hold a public hearing and consider adoption of an ordinance of the City of Denton, Texas, renaming the section of S. Mayhill Road between the western terminus of existing Edwards Road and the new S. Mayhill Road, approximately 1,000 linear feet north of Leafy Road, in the City of Denton, Denton County, Texas; providing for severability and an effective date. (SRN24-0001a, Street Renaming, Erin Stanley)
ASSIGNED ORDINANCE NO. SRN24-0001

There were no online registrations or call-ins on the item.

The item was presented and no discussion followed.

The public hearing was opened and with no callers in the queue, the public hearing was closed.

With no other callers on queue, the public hearing was closed.

Following discussion, Council Member Jester moved to adopt the item as presented. Motion seconded by Council Member Beck.

Motion carried.

AYES (7): Mayor Hudspeth, Mayor Pro Tem Meltzer and Council Members Beck, Byrd, Holland, Jester, and McGee

NAYS (0): None

B. A24-0001a Hold a public hearing and consider a petition for voluntary annexation of approximately 92.382 acres of land, generally located north of Johnson Lane, south of Allred Road and 2,325 feet east of John Paine Road. (A24-0001a, Dentex Annexation, Angie Manglaris)

All members of the City Council received the comments as submitted and had the opportunity to review all submissions prior to the start of the meeting and consider such comments when voting on the item. The summary of public commentary/registrations are noted on Exhibit A.

The item was presented and no discussion followed.

The public hearing was opened and citizen comments received are noted on Exhibit A.

With no other callers on queue, the public hearing was closed.

Item required no action by Council.

C. Z24-0003a Hold a public hearing and consider adoption of an ordinance of the City of Denton, Texas, regarding a change in the zoning district and use classification from Suburban Corridor (SC) district to Residential 6 (R6) district on approximately 1.52 acres of land generally located 266.11 feet east of Country Club Road and located north of Hobson Lane in the City of Denton, Denton County, Texas; adopting an amendment to the City's official zoning map; providing for a penalty in the maximum amount of $2,000.00 for violations thereof; providing a severability clause and an effective date. The Planning and Zoning Commission voted [5-0] to recommend approval of the request. Motion for approval was made by Commissioner Villarreal and seconded by Commissioner Cole. (Z24-0003a, Vandesmith Tract Rezoning, Bryce Van Arsdale)...Body

ASSIGNED ORDINANCE NO. Z24-0003a

There were no online registrations or call-ins on the item.

The item was presented and discussion followed.

The public hearing was opened and with no callers in the queue, the public hearing was closed.

With no other callers on queue, the public hearing was closed.

Following discussion, Council Member McGee moved to adopt the item as presented. Motion seconded by Council Member Holland.

Motion carried.

AYES (7): Mayor Hudspeth, Mayor Pro Tem Meltzer and Council Members Beck, Byrd, Holland, Jester, and McGee

NAYS (0): None

D. S24-0001a Hold a public hearing and consider adoption of an ordinance of the City of Denton, Texas regarding a request for a Specific Use Permit (SUP) to allow for an Equipment Sales and Rental use on approximately 10 acres of land, generally located on the south side of US 380, approximately 3,800 feet west of Masch Branch Road in the City of Denton, Denton County, Texas; adopting an amendment to the City's Official Zoning Map; providing for a penalty in the maximum amount of $2,000.00 for violations thereof; providing for severability; and establishing an effective date. The Planning and Zoning Commission voted [5-0] to recommend approval. Motion for approval by Commissioner Pruett and second by Commissioner Cole. (S24-0001a, RDO Equipment, Ashley Ekstedt)

ASSIGNED ORDINANCE NO. S24-0001a

All members of the City Council received the comments as submitted and had the opportunity to review all submissions prior to the start of the meeting and consider such comments when voting on the item. The summary of public commentary/registrations are noted on Exhibit A.

The item was presented and no discussion followed.

The public hearing was opened and citizen comments received are noted on Exhibit A.

With no other callers on queue, the public hearing was closed.

Council Member Holland moved to adopt the item as presented. Motion seconded by Council Member Jester.

Motion carried.

AYES (7): Mayor Hudspeth, Mayor Pro Tem Meltzer and Council Members Beck, Byrd, Holland, Jester, and McGee

NAYS (0): None

7. ITEMS FOR INDIVIDUAL CONSIDERATION CONTINUED

A. A24-0001b Conduct the first of two readings of an ordinance of the City of Denton, Texas, annexing approximately 92.382 acres of land, generally located north of Johnson Lane, south of Allred Road and 2,325 feet east of John Paine Road to the City of Denton, Denton County, Texas; providing for a correction to the City map to include the annexed land; and providing for a savings clause and an effective date. (A24-0001b, Dentex Annexation, Angie Manglaris)

All members of the City Council received the comments as submitted and had the opportunity to review all submissions prior to the start of the meeting and consider such comments when voting on the item. The summary of public commentary/registrations are noted on Exhibit A.

The item was presented.

Citizen comments received are noted on Exhibit A.

Following discussion, no action was taken by the City Council.

B. HL24-0001a Consider approval of a resolution of the City of Denton, approving an application for a partial tax exemption of designated historic sites, in accordance with Chapter 10, Article VI, Sections 10-126 through 10-129 of the Denton Municipal Code of Ordinances, for a Local Historic Landmark, located at 903 W Oak Street, located on the

south side of W Oak Street between Fulton Street and Mounts Avenue; providing for severability; and providing an effective date. The Historic Landmark Commission recommends a favorable determination (4-0). (HL24-0001a, 903 W Oak Street - Tax Exemption, Cameron Robertson)

ASSIGNED RESOLUTION NO. HL24-0001a

There were no online registrations or call-ins on the item.

The item was presented, and discussion followed.

Following discussion, Mayor Pro Tem Meltzer moved to adopt the item as presented. Motion seconded by Council Member Byrd.

Motion carried.

AYES (7): Mayor Hudspeth, Mayor Pro Tem Meltzer and Council Members Beck, Byrd, Holland, Jester, and McGee

NAYS (0): None

8. CONCLUDING ITEMS

Council Members expressed items of interest.

Council Meeting Adjourned at 8:45 p.m.

GERARD HUDSPETH	LAUREN THODEN
MAYOR	CITY SECRETARY
CITY OF DENTON, TEXAS	CITY OF DENTON, TEXAS

MINUTES APPROVED ON: _____

May 21, 2024 City Council Regular Meeting - EXHIBIT A							
Name	**Last**	**Address**	**City**	**Agenda Item**	**Position**	**Method**	**Comments**
Mat	Pruneda	1213 Dover	Denton	24-100	Support	CA	
Nick	Stevens	417 Amarillys Street	Denton	24-100	Support	CA	
Greg	Johnson	3190 Teasley	Denton	24-100	Support	CA	
Donna	Smith	3924 Yellowstone Pl	Denton	24-100		CA	
Thomas	Fletcher	6160 Warren Parkway, suite	Frisco	24-0001a	Support	PH	Applicant
Aimee	Bissett	109 N Elm	Denton	S24-0001	Support	PH	Applicant
Willie	Hudspeth		Denton	A24-0001b		IC	
Charles	Lee		Denton	A24-0001b		IC	
Mat	Pruneda	1213 Dover	Denton			Open Mic	
Willie	Hudspeth		Denton				

File #: ID 24-490, **Version:** 1

AGENDA CAPTION

Consider nominations/appointments to the City's Boards, Commissions, and Committees: Planning & Zoning Commission.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: City Secretary's Office

CM: Sara Hensley

DATE: June 4, 2024

SUBJECT

Consider nominations/appointments to the City's Boards, Commissions, and Committees: Planning & Zoning Commission.

BACKGROUND

This item provides for the continued (re)appointment of members whose terms ended in 2021 and 2022. It also provides for appointment to any existing vacancies resulting from resignations or those seats under which existing members are holding over from a previous term.

Exhibit 2 includes those seats for the above-noted Boards, Commissions, and Committees for whom nominations have been received, nominees fully vetted and found to meet all necessary qualifications to serve on the respective board/commission/committee. Only those nominees who have been fully vetted and qualified will be presented for appointment.

This is not a complete listing of nominees received to date as the vetting is still in progress for some or (re)nominations have not been received.

EXHIBITS

Exhibit 1 – Agenda Information Sheet
Exhibit 2 – Nominations List

Respectfully submitted:

Lauren Thoden
City Secretary

BOARDS & COMMISSIONS - NOMINATIONS LIST
June 4, 2024

BOARD/COMMITTEE/COMMISSION	COUNCIL PLACE	NOMINATING CCM	NOMINEE	PRESENT TERM	NEW TERM	STATUS & QUALIFICATION OR PREFERENCE, IF ANY
Planning and Zoning Commission	7	Hudspeth	Erica Garland	N/A	UNEXPIRED September 1, 2023 through August 31, 2025	New

File #: ID 24-1158, **Version:** 1

AGENDA CAPTION

Consider approval of a resolution of the City of Denton creating a Charter Review Committee and setting forth the charges of the 2024-2025 Charter Review; and providing an effective date.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: **City Manager's Office**

CM/DCM/ACM: **Sara Hensley**

DATE: **June 4, 2024**

SUBJECT

Consider adoption of a resolution of the City of Denton creating a Charter Review Committee and setting forth the charges of the 2024-2025 Charter Review; and providing an effective date.

BACKGROUND

The Denton City Charter was originally adopted in February 1959. Section 14-13 of the Charter states that amendments to the charter may be framed and submitted to the voters subject to requirements of the Texas Local Government Code, Chapter 9, and all other applicable laws. Since its original adoption, the charter was further amended in 1976, 1980, 1999, 2006, 2009, and 2017.

On Dec. 5, 2023, the City Council provided direction to move forward with a Charter Amendment Election process, which would include a Charter Review Committee.

On Jan. 9, 2024, the City Council provided additional direction for staff to plan for a May 2025 election, scheduling elements of the process accordingly, and direction that the Charter Review Committee would be composed of 14 members.

On Feb. 20, 2024, the City Council provided direction to move forward with several priority sections of the Charter for Council to review at subsequent work sessions.

On Mar. 19, 2024, staff provided a briefing on Sections 2.01 and 2.02 of the City Charter. Council provided direction to develop Charter Review Committee charges.

On Apr. 2, 2024, staff provided a briefing on Sections 14.03, 14.04, 14.16 of the City Charter. Council provided direction to develop Charter Review Committee charges.

On Apr. 16, 2024, staff provided a briefing on Section 4.12 of the City Charter. Council provided direction to develop Charter Review Committee charges.

On May 7, 2024, staff provided a briefing on Section 6.03 of the City Charter. Council provided direction to develop Charter Review Committee charges.

On May 21, 2024, staff presented the drafted Charter Review Committee charges. Council provided direction regarding the nature of committee appointments.

General Charter Review and Amendment Process:

The City of Denton intends to use the following general process in holding a Charter Amendment Election:

1. **Council Direction to Begin Process.** At the Council's direction, staff will initiate the charter review process and develop information and decision points for council discussion and consideration.
2. **Develop Charter Review Committee Charges.** The Council will discuss elements of the Charter that it wishes to direct the Charter Review Committee to evaluate and potential proposals to consider. These discussions will generally be spread across multiple work sessions.
3. **Charter Review Committee Work.** The Charter Review Committee, after being established and appointed by Council, will meet to receive information, deliberate options, and ultimately make recommendations to the Council regarding which amendments to place on the ballot. A benefit of the committee is that residents participate in the process and provide direct input to the Council.
4. **Council Review and Decision.** Through a series of one or more work sessions, the Council will receive, review, and discuss the recommendations of the committee. The Council may accept, amend, or reject committee recommendations. If a consensus on one or more amendments is reached, the Council may adopt an ordinance that calls an election on the next available uniform election date and outlines the specific text amendments that will be placed on the ballot.

Next Steps:
Council should submit their appointees to the City Secretary's Office email (city.secretary@cityofdenton.com) by July 2, 2024.

RECOMMENDATION
Staff recommends that Council approve the resolution as drafted and begin the appointment process.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

Nov. 3, 2022:	Agenda Committee Discussion
Dec. 6, 2022:	City Council Work Session
Aug. 15, 2023:	2-Minute Policy Pitch
Dec. 5, 2023:	City Council Work Session
Jan. 9, 2024:	City Council Work Session
Feb. 20, 2024:	City Council Work Session
Mar. 19, 2024:	City Council Work Session
Apr. 2, 2024:	City Council Work Session
Apr. 16, 2024:	City Council Work Session
May 7, 2024:	City Council Work Session
May 21, 2024:	City Council Work Session: Presentation & Summary of Charges

EXHIBITS

1. Agenda Information Sheet
2. Proposed Resolution
3. City of Denton Charter

Respectfully submitted:
Kristi Fogle
Chief of Staff

RESOLUTION NO. _____

A RESOLUTION OF THE CITY OF DENTON CREATING A CHARTER REVIEW COMMITTEE AND SETTING FORTH THE CHARGES OF THE 2024-2025 CHARTER REVIEW; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, on February 20, 2024, City Council began selecting sections of the Charter to be amended and gave staff direction to proceed with providing Council with information on specific sections of the Charter; and

WHEREAS, on March 19, 2024, April 2, 2024, April 16, 2024, and May 7, 2024, based on Council direction, staff provided Council with specific sections and timeframes to be considered for a Charter review; and

WHEREAS, on May 21, 2024, staff presented Council with a summary of the structure, scope and all charges to be provided to the advisory Charter Review Committee and Council gave staff direction to move forward with said committee structure, scope and charges; NOW THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY RESOLVES:

SECTION 1. The recitals and findings contained in the preamble of this Resolution are incorporated into the body of this Resolution.

SECTION 2. A Charter Review Committee is hereby created to consider and advise the City Council on whether and in what manner to revise the City Charter based on the charges set forth in Section 6 of this Resolution.

SECTION 3. The Charter Review Committee shall be comprised of 14 members. Charter Review Committee members may have dual membership on any other board or commission of the City, except no member shall be a member of the Planning and Zoning Commission. Each Council member will nominate two individuals to serve on the Charter Review Committee. For Council member places 1, 2, 3, and 4, Charter Review Committee nominees/appointees shall be residents of the Council member's respective district. For Council member places 5, 6, and 7, Charter Review Committee nominees/appointees may reside in any district of the City. City Council shall appoint all committee members.

SECTION 4. A quorum of the Charter Review Committee shall be 8 members and all committee recommendations will be made by a majority vote of the whole committee. The committee shall appoint a Chair and Chair Pro Tem upon convening.

SECTION 5. The Chair of the Charter Review Committee may create subcommittees. All subcommittees shall consist of at least 7 members of the Charter Review Committee. Subcommittees shall make recommendations to the entire Charter Review Committee pursuant to assigned topics. The Chair of the Charter Review Committee shall appoint the chair and all members of each subcommittee. Recommendations of the subcommittee can only be passed by majority vote of the subcommittee.

SECTION 6. The charges of the Charter Review Committee are:

A. To consider and advise the City Council of Denton on whether and in what manner to revise the current City Charter provisions to resolve conflicts with state law, where applicable.
B. To consider and advise the City Council of Denton on whether and in what manner to revise the current City Charter provisions to resolve vague/unclear language, where applicable.
C. To consider and advise the City Council of Denton on whether and in what manner to revise the current City Charter provisions to replace all instances of gendered language with non-gendered language.
D. To consider and advise the City Council of Denton whether and in what manner to revise the current City Charter provisions of Article II, Section 2.01 of the Denton City Charter as to modify the mix of single member and at-large districts.
E. To consider and advise the City Council of Denton whether and in what manner to revise the current City Charter provisions of Article II, Section 2.01 of the Denton City Charter as to increase the two-year term provision to either three or four-year terms, as allowed by State law.
F. To consider and advise the City Council of Denton whether and in what manner to revise the current City Charter provisions of Article II, Section 2.01 of the Denton City Charter as to the addition of new council seats based on population size and projected growth.
G. To consider and advise the City Council of Denton whether and in what manner to revise the current City Charter provisions of Article II, Section 2.02 of the Denton City Charter so as to consider modifying the Mayor and Council stipend.
H. To consider and advise the City Council of Denton whether and in what manner to revise the current City Charter provisions of Article IV, Section 4.12 as to require a statement less than 200 words on the grounds of removal for recall petitions.
I. To consider and advise the City Council of Denton whether and in what manner to revise the current City Charter provisions of Article VI, Section 6.03 as to increase the two-year term of the Municipal Judge to a four-year term.
J. To consider and advise the City Council of Denton whether and in what manner to revise the current City Charter provisions of Article XIV, Section 14.04 as to modify the Ethics Ordinance requirements.
K. To have the discretion to review additional sections of the City Charter not listed in the above charges and consider and advise the City Council of Denton whether and in what manner to revise the current City Charter.

SECTION 7. The Charter Review Committee shall perform its functions in accordance with the intent of this Resolution. The Charter Review Committee members shall serve at the pleasure of the City Council until successors are duly appointed and approved by the Denton City Council.

SECTION 8. Any matters not addressed by this Resolution shall be governed by the "City of Denton Handbook for Boards, Commissions and Council Committees."

SECTION 9. The City Manager, or designee, will provide guidance and assistance to the Charter Review Committee and be responsible for ensuring that records are maintained in accordance with the requirements of the City Secretary's Office. The City Attorney shall provide legal counsel to the Charter Review Committee and subcommittees.

SECTION 10. Upon completion of the aforementioned charges, or on February 14, 2025, whichever is sooner, the Charter Review Committee shall be dissolved without further action of the City Council.

SECTION 11. This Resolution shall become effective immediately upon its passage and approval.

The motion to approve this resolution was made by _____ and seconded by _____, the resolution was passed and approved by the following vote [___ - ___]:

	Aye	Nay	Abstain	Absent
Gerard Hudspeth, Mayor:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this, the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY:_____

PART I
CHARTER[1]

ARTICLE I. INCORPORATION, FORM OF GOVERNMENT AND POWERS

Sec. 1.01. Incorporation.

The inhabitants of the City of Denton, in Denton County, Texas, within the corporate limits as now established or as hereafter established in the manner prescribed by this charter, shall be and continue to be municipal corporation and the inhabitants thereof shall be a body politic and corporate in perpetuity under the name of the "City of Denton," possessing all power, property and interests which it possessed immediately prior to the time this charter takes effect or may hereafter acquire, and having the duties, obligations and liabilities now incumbent upon or hereafter incurred by the city as a municipal corporation.

Sec. 1.02. Boundaries.

The boundaries and limits of the City of Denton until changed in the manner herein provided, shall be the same as have heretofore been established and as exist on the date of the adoption of this charter, which boundaries are more fully set out and described by metes and bounds in a book entitled "Official Corporate Limits of the City of Denton, Texas," which is now, and shall hereafter be, on file in the office of the city secretary of the City of Denton.

Sec. 1.03. Extension of city limits.

The city council, by a vote of not less than four-fifths (⅘) of its membership, shall have the power by ordinance to provide for the alteration and extension of said boundary limits, and the annexation of territory lying adjacent to the City, with or without the consent of the inhabitants of the territory annexed. Upon the introduction of any such ordinance to the City Council, such ordinance shall be published one time in the official newspaper of the City of Denton. Amendments may later be incorporated into the proposed ordinance by a vote of not less than four-fifths (⅘) of the membership of the City Council and publication one time in the official newspaper of the City of Denton. The proposed ordinance, or any amendment thereof shall not thereafter be finally acted upon until at least thirty (30) days after the publication thereof; and upon the final passage of any such ordinance, or any amendment thereto, the boundary limits of the City shall thereafter be as fixed thereby. When any additional territory has been so annexed, same shall be a part of the City of Denton, and the property situated therein shall be subject to and shall bear its pro rata part of the taxes levied by the city, and the inhabitants thereof shall be entitled to and shall possess all the rights and privileges of the citizens of the City of Denton, and shall be under obligations as such citizens.

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[1]Editor's note(s)—Published herein is the city's Home Rule Charter which was adopted by the voters at an election held on February 24, 1959. The original arrangement and section numbers have been retained. Subsequent amendments to the Charter are denoted by a history note at the end of the affected section and/or by a note explaining the effect of the amendment. Obviously misspelled words have been corrected without notation. Words added for clarity are enclosed in brackets.

Sec. 1.04. Form of government.

The municipal government provided by this charter shall be known as the "council-manager government." Pursuant to its provisions and subject only to the limitations imposed by the state Constitution and by this charter, all powers of the City shall be vested in an elective council, hereinafter referred to as "the council," which shall enact local legislation, adopt budgets, determine policies and appoint the city manager, who shall execute the laws and administer the government of the city. All powers of the city shall be exercised in the manner prescribed by this charter, or if the manner be not prescribed, then in such manner as may be prescribed by ordinance.

Sec. 1.05. Powers of the city.

The City of Denton shall have and may exercise all the powers granted to cities by the Constitution or laws of Texas including specifically those powers made available to cities of more than five thousand (5,000) inhabitants by what is known as the Home Rule Amendment to the Constitution of Texas (Article XI, Section 5 and the Home Rule Enabling Act (Vernon's Texas Codes Annotated, Texas Local Government Code Section 5.004, Chapter 9, Chapter 26, and Subchapter E of Chapter 51), as these laws now read or may hereafter be amended. The city may acquire property within or without its corporate limits for any municipal purpose; may cooperate with the government of Texas or any agency thereof, or with the federal government or any agency thereof, or with the government of any county, city, or political subdivision to accomplish any lawful purpose for the advancement of the health, morals, safety, convenience, or welfare of the city or its inhabitants; may sell, lease, mortgage, hold, manage, and control such property as its interest may require; provided the city shall not sell, convey, lease, mortgage, or otherwise alienate the entire assets of any public utility system or any portion thereof essential to continued effective utility service without the prior approval by a majority of the qualified voters of the city who vote at an election held for this purpose; and may exercise the power of eminent domain when necessary or desirable to carry out any of the powers conferred upon it by this Charter or the Constitution or laws of Texas. The enumeration of particular powers in this Charter shall not be held or deemed to be exclusive, but in addition to the powers enumerated herein, implied thereby or appropriate to the exercise thereof, the city shall have and may exercise all other powers which under the Constitution and general laws of this state it would be competent for this Charter to specifically enumerate.

(Ord. No. 99-057, Amend. No. 2, 2-16-99, ratified 5-1-99)

Sec. 1.06. Liabilities, exemptions and limitations.

(a) No property belonging to the city shall be subject to any execution of any kind or nature.

(b) No fund belonging to the city shall be subject to garnishment, attachment or sequestration, and the city shall never be required to answer in any garnishment proceedings.

(c) No assignment of wages or other compensation earned, or to be earned, by any employee of the city shall be valid and the city shall never be required to recognize any such assignment or to answer in any proceeding thereon.

(d) The City of Denton shall never be liable for death or personal injury of a person or for property damages of any kind unless within ninety (90) days after the occurrence causing the damage, death, injury, or destruction a notice in writing by or on behalf of the person injured or claiming damages, if living, or the person's representative, if dead, or the owners of the property injured or destroyed is delivered to the city manager stating specifically and accurately in complete detail when, where, and how the exact death, injury, destruction, or damages occurred, the full extent of the injury, the basis of the claim, and the amount of damages claimed or asserted. This notice shall also include the residence of the claimant by street number on the date the claim is presented, the residence of the claimant for six (6) months immediately preceding

the occurrence of the death, injury, or destruction, and the names and addresses of all witnesses that are known at the time upon who it is relied to establish the claim for damages; provided, however, nothing in this subsection shall be construed to affect or repeal the provision in subsection (e) of this section relating to the liability of the city for damages on account of injuries received on the public streets, highways, alleys, grounds, public works, and public places of the city.

(e) The City of Denton shall never be liable for personal injury or property damages resulting from any defect in any public street, highway, alley, grounds or public work of the city unless the specific defect causing the injury or damage shall have been known to the city manager from personal inspection or written notice thereof for a period of at least twenty-four (24) hours prior to the occurrence of the injury or damage and proper diligence shall not have been used to rectify the defect after such inspection or notice. Such notice shall be required whether the defect arose from any act or omission of the city itself through its agent or employee, or otherwise.

(f) No provision of this section shall ever be so construed to expand the liability of the city.

(Ord. No. 99-057, Amend. No. 3, 2-16-99, ratified 5-1-99; Ord. No. 2006-232, Amend. No. 2, 8-28-06, ratified 11-7-06)

Sec. 1.07. Gender neutral.

Whenever used in this Charter, a word importing the masculine gender only shall extend and be applied to include females, and, where applicable, to firms, partnerships, and corporations, as well as males.

(Ord. No. 99-057, Amend. No. 4, 2-16-99, ratified 5-1-99)

ARTICLE II. THE COUNCIL

Sec. 2.01. Number, selection and term.

(a) The city council shall have seven (7) members, six (6) councilpersons and a mayor. The manner of their election is prescribed herein. Each councilperson shall be elected to and occupy a place on the council, such places being numbered one (1), two (2), three (3), four (4), five (5) and six (6). The mayor's position on the council shall be place seven (7).

(b) Four (4) members of the council whose positions shall be places one (1), two (2), three (3) and four (4), shall be residents of and elected by the qualified voters of single-member geographical districts of the city, known as districts one (1), two (2), three (3) and four (4), as such districts may from time to time be determined by the city council in accordance with Section 2.01(d), and created and described by ordinance. Two (2) members of the council and the mayor shall be elected by the qualified voters of the entire city, commonly known as at large. One (1) at large member, place five (5), shall be a resident of district one (1) or two (2), and one (1) at large member, place six (6), shall be a resident of district three (3) or four (4).

(c) (1) Each member of the council including the mayor shall hold a place on the city council, and shall be elected to such place for a two-year term. No member of the council or the mayor, who has been elected to three (3) consecutive full terms in a place, shall be eligible to file for election for that same place, whether elected before or after the effective date of this provision, without having first been off the council for at least one annual council election cycle. Nothing herein shall be deemed to prohibit the council members or the mayor from being elected to other places on the council or as mayor, so long as otherwise eligible, except that no council member or the mayor shall be elected to or serve for more than twelve (12) consecutive years.

(2) A person who has become ineligible to serve pursuant to Section 2.01(c)(1) shall not be eligible to be elected to a place on the council or as mayor without having first been off the council for at least one annual council election cycle, after which such person shall regain eligibility for office, if otherwise eligible under this Charter.

(d) The council shall from time to time create and describe by ordinance election districts known as districts one (1), two (2), three (3) and four (4). Such districts shall be created so that each will contain, as nearly as possible, a population equivalent to the others, according to the latest available census data.

(Ord. No. 76-12, Amend. No. 1, 4-5-76; Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80; Ord. No. 2009-199, Amend. No. 1, 9-1-09, ratified 11-3-09)

Sec. 2.02. Qualifications.

(a) Each member of the council, in addition to having the other qualifications prescribed by law:

(1) Shall be registered to vote in the city;

(2) Shall have domiciled for at least one year next preceding his or her election within the corporate limits of Denton and, if running within a single member geographic district, or at large place five (5) requiring a domicile in district one (1) or two (2), or at large place six (6) requiring a domicile in district three (3) or four (4), as set forth in Section 2.01, for at least one year preceding his or her election in the district in which elected; further, shall continuously be domiciled within the corporate limits of Denton and, if elected within a single member geographic district, or at large place five (5) requiring a domicile in district one (1) or two (2), or at large place six (6) requiring a domicile in district three (3) or four (4), in the district in which elected throughout his or her term of office.

(3) Shall not hold any other public office of emolument;

(4) Shall have and maintain the eligibility requirements for municipal officers set forth in Section 141.001 of the Texas Election Code, Vernon's Texas Civil Statutes Annotated hereinafter referred to as "Election Code" as it may now read or hereafter be amended.

(b) If a member of the council shall, after being elected, cease to possess any of these qualifications or eligibility requirements, or shall hold another office of emolument, or enter a plea of guilty to a felony, or be convicted of a felony he or she shall immediately forfeit his or her office.

(c) City Councilmember Stipend. Each member of the City Council shall receive compensation in the form of a monthly stipend as set forth in this section. The initial monthly stipend shall be seven hundred fifty dollars ($750.00) for each member of the City Council elected from a district or at large position, and one thousand dollars ($1,000.00) for the Mayor elected at large. These initial amounts shall become effective on ratification of this charter provision.

City Council may, by a separate ordinance, approve an adjustment in the stipend no more frequently than once per fiscal year, but no increase in such compensation shall take effect until commencement of the terms of the Mayor and/or Council Members elected at the next regular election. Any increase in the amount of the stipend shall not exceed three (3) percent of the then-current stipend amount unless approved by a two-thirds (⅔) vote of the Council. The stipend shall be reported in the annual city budget as a separate line item.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80; Ord. No. 99-057, Amend. No. 5, 2-16-99, ratified 5-1-99; Ord. No. 2009-199, Amend. No. 2, 9-1-09, ratified 11-3-09; Ord. No. 2017-237 , § 1(Amends. A, E), 8-15-17, ratified 11-7-17; Ord. No. 2017-373 , § 2(Props. A, E), 11-20-17)

Sec. 2.03. Presiding officer: Mayor and mayor pro tem.

The mayor shall preside at the meetings of the council and shall be recognized as head of the city government for all ceremonial purposes and by the governor for purposes of martial law, but shall not interfere with the managerial duties and responsibilities of the city manager. The mayor shall have all the same powers and privileges as any other councilmember, including entitlement to vote upon all matters considered by the council, but shall have no veto power. The council shall, as soon as possible after the annual election, elect from its membership a mayor pro tem. The mayor pro tem shall act as mayor during the absence or disability of the mayor.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80; Ord. No. 2009-199, Amend. No. 3, 9-1-08, ratified 11-3-09)

Sec. 2.04. Vacancies in council.

Where a vacancy in any place on the council, including that of mayor, shall occur, the vacant place shall be filled by a special election, and, where necessary, by a runoff election, in the same manner as provided in this Charter for the regular election of the councilperson. Such special election shall be held on the first authorized uniform election date following the creation of the vacancy occurring on or after the thirtieth day after the date the election is ordered. The runoff election, where necessary, shall be held in accordance with the requirements of the Election Code and all other applicable laws; provided, however, that where a vacancy shall occur within one hundred and twenty (120) days of a regular election, no special election to fill the vacancy shall be called, unless more than one vacancy occurs.

(Ord. No. 76-12, Amend. No. 2, 4-5-76; Ord. No. 99-057, Amend. No. 6, 2-16-99, ratified 5-1-99; Ord. No. 2009-199, Amend. No. 3, 9-1-09, ratified 11-3-09)

Sec. 2.05. Meetings of the council.

(a) As soon as practicable after each city council election and in accordance with state law, the council shall meet at the city hall and the newly-elected members shall qualify and assume the duties of office. Thereafter, the council shall meet regularly at city hall at such times as may be prescribed by its rules but not less frequently than once each calendar month. Special called meetings may be held from time to time at city hall or other locations accessible to the public.

(b) Special meetings shall be called by the city secretary upon request of the mayor, city manager, or a majority of the members of the council.

(c) The city manager shall attend all meetings of the council and may take part in the discussion of all matters coming before the council but shall have no vote.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80; Ord. No. 2006-232, Amend. No. 3, 8-28-06, ratified 11-7-06)

Sec. 2.06. Quorum, voting.

(a) A majority of the members of the council shall constitute a quorum for the transaction of business, and the affirmative vote of a majority of the council shall be necessary to repeal any ordinance or take any official action in the name of the city, except as otherwise provided in this Charter or by the general laws of the State of Texas.

(b) The ayes and noes shall be taken upon the passage of all ordinances or resolutions and the vote of each member shall be recorded in the minutes.

(Ord. No. 76-12, Amend. No. 3, 4-5-76; Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80)

Sec. 2.07. Rules of procedure, minutes.

The council shall determine its own rules of procedure and order of business. Except as may otherwise be provided by state law, such as certain executive sessions under the Texas Open Meetings Act, being Chapter 551 of the Texas Government Code, minutes of all meetings of the council shall be taken and preserved as a permanent record open to the public for inspection.

(Ord. No. 2006-232, Amend. No. 4, 8-28-06, ratified 11-7-06)

Sec. 2.08. Powers of the council.

Except as otherwise provided by this charter all powers of the city and the determination of all matters of policy shall be vested in the council. Without limitation of the powers granted or delegated to the city by the Constitution, statutes, or this Charter, the council shall have power to:

(a) Appoint and remove the city manager.

(b) Appoint and remove the city attorney, the city auditor, and the municipal court judge.

(c) Approve members of all boards, commissions and committees serving the city.

(d) Adopt the budget of the city.

(e) Fix the salary of the city manager, city auditor, city attorney, and the municipal court judge.

(f) Authorize by ordinance the issuance of bonds, assignments of revenue or warrants.

(g) Approve plats.

(h) Adopt and modify the official map of the city.

(i) Adopt and modify the zoning plan, including any and all zoning and land use regulations to the fullest extent allowed by law.

(j) Provide for the establishment and designation of fire limits and prescribe the kind and character of buildings, structures, or improvements which may be erected therein, and provide for the condemnation of dangerous or dilapidated buildings or structures which increase the fire hazard and the manner of their removal or destruction.

(k) Adopt and modify the building code.

(l) After receiving a recommendation from the planning commission adopt, modify and carry out plans proposed by the planning commission for the clearance of slum districts and rehabilitation of blighted areas, and for the replanning, improvement and redevelopment of any area or district which may have been destroyed in whole or in part by disaster.

(m) Regulate, license and fix the charges or fares made by any person, firm or corporation owning, operating or controlling any vehicle of any character used for the carrying of passengers for hire or the transportation of freight for hire on the public streets or alleys of the city.

(n) Provide by ordinance for the exercise of the police powers of the city.

(o) Establish and maintain a free public library and to cooperate for such purposes with any person, firm, association or political subdivision in the manner prescribed by ordinance.

(p) Provide by ordinance for the exercise by this city of any and all powers of local self-government not made self-enacting by this charter or by statute.

(q) Inquire into the conduct of any office, department or agency of the city and make investigations of municipal affairs.

(r) Provide for an independent audit.

(s) Perform the districting and redistricting function.

(Ord. No. 76-12, Amend. No. 4, 4-5-76; Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80; Ord. No. 2006-232, Amend. No. 5, 8-28-06, ratified 11-7-06)

Sec. 2.09. Ordinances.

(a) In addition to such acts of the council as are required by statutes or by this charter to be by ordinance, every act of the council establishing a fine or other penalty or providing for the expenditure of funds or for the contracting of indebtedness, shall be by ordinance. The enacting clause of all ordinances shall be: "The Council of the City of Denton hereby ordains:"

(b) Every ordinance shall be introduced in written, printed, or electronic form and passed in compliance with section 2.06 of this Article, authenticated by the signatures of the mayor (or mayor pro tem) and the city secretary and systematically recorded in an ordinance book in a manner approved by the council. It shall be necessary to record only the caption or title of each ordinance in the minutes of the council.

(c) A full text of every penal ordinance, or in lieu thereof a descriptive caption or title stating in summary the purpose of the ordinance and the penalty for violation thereof, shall be published at least twice in the official newspaper of the City of Denton within ten (10) days after the passage of such ordinance; provided that any penal ordinance shall become effective not less than fourteen (14) days from the date of its passage. All other ordinances, except those specifically required by this charter to be published, are not required to be published in either the official newspaper of the city or in any other publication, and such ordinances shall become effective upon passage or on the date specified therein.

(d) The council shall have power to cause the ordinances of the city to be corrected, amended, revised, codified and printed in code form as often as the council deems necessary and advisable, and such printed code, when adopted by the council, shall be in full force and effect without the necessity of publishing the same or any part thereof in the official newspaper except that the ordinance adopting the same shall be published one time in the official newspaper of the city. Such printed code shall be admitted in evidence in all courts and places without further proof.

(Ord. No. 2006-232, Amend. No. 6, 8-28-06, ratified 11-7-06)

Sec. 2.10. Council not to interfere in appointments or removals.

Neither the council nor any of its members shall direct or request the appointment of any person to, or his or her removal from, office by any officer appointed by the city council under Section 2.08 of this Charter or by any of his or her subordinates. Except for the purpose of inquiry, the council and its members shall deal with the administrative service solely through the officers appointed by the city council and neither the council nor any member thereof shall give orders to any subordinates of the officers appointed by the city council, either publicly or privately.

(Ord. No. 2009-199, Amend. No. 4, 9-1-09, ratified 11-3-09)

Sec. 2.11. Employee bonds.

The council shall require bonds of all municipal officers and employees who receive or pay out any monies of the city. The amount of such bonds shall be determined by the council and the cost thereof shall be borne by the city.

Sec. 2.12. City secretary.

The city secretary shall be appointed by the city manager subject to the approval of the council. He shall serve as clerk of the council, give notice of its meetings, keep the journal of its proceedings, authenticate by his signature and record in full in a book kept for the purpose all ordinances and resolutions, and perform such other duties as this charter may provide or as the city manager may assign him.

Sec. 2.13. Independent annual audit.

(a) Prior to the end of each fiscal year, the council shall designate a certified public accountant who, as of the end of the fiscal year, shall make an independent audit of accounts and other evidences of financial transactions of the city government and shall submit his report to the council and to the city manager. Such accountant shall have no personal interest, direct or indirect, in the fiscal affairs of the city government or of any of its officers. He shall not maintain any accounts or records of the city business, but within specifications approved by the council, shall post-audit the books and documents kept by the department of finance and any separate or subordinate accounts kept by any other office, department or agency of the city government.

(b) A copy of such audit shall be kept in the office of the city secretary subject to inspection by any citizen during regular office hours.

ARTICLE III. NOMINATIONS AND ELECTIONS

Sec. 3.01. Municipal elections.

(a) The regular election for the choice of members of the City Council as provided in Article II shall be held each year on the uniform election day for municipal elections in May established by the Election Code. The Council may by resolution or ordinance order special elections which shall be held as nearly as practicable according to the provisions for a regular election. The hours and places for holding all City elections shall be determined by the City Council. All elections shall be conducted in accordance with the Election Code and all other applicable laws as they now read or may hereafter be amended.

(b) On the first Saturday in April immediately following adoption of Section 2.01, and the drawing of election district boundaries by the council, the voters shall elect:

  (1) The mayor, place seven (7), for a term of two (2) years.

  (2) Two (2) councilmembers, places five (5) and six (6), for terms of two (2) years each.

  (3) One (1) councilmember for an interim term of one (1) year. This position shall be denominated for such interim term as place four (4) and such councilmember shall be elected from the city at large and may be a resident of any district.

At the next following regular annual municipal election after the one referred to above in this section, the district and at large system provided in Section 2.01 shall take full effect.

(c) Councilmembers holding office at the time the charter amendments to Section 2.01 are adopted (places one (1), two (2) and three (3)) shall serve the remainder of their unexpired terms as at large members of the council.

(d) If any councilmember whose term would not otherwise expire at the time of the canvass of the results of the election specified in Section 3.01(b) shall enter said election, such councilmember's term shall be deemed to have been vacated at the time of the canvass of said election results, whether the candidacy of said councilmember is successful or not.

(e) Neither the mayor nor any member of the council shall become a candidate for election to any position on the council, other than for reelection to the same seat, unless such candidate shall first submit to the city secretary his written resignation from the council to be effective at the time of the canvass of the results of the next regularly scheduled election. If such candidate's unexpired term would otherwise extend beyond the date of such canvass, the city secretary shall notify the council and an election shall be held on the date of the next regularly scheduled election to fill the unexpired term of said resigning councilmember.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80; Ord. No. 99-057, Amend. No. 7, 2-16-99, ratified 5-1-99; Ord. No. 2006-232, Amend. No. 7, 8-28-06, ratified 11-7-06)

Sec. 3.02. Nominations.

(a) Any qualified person may have his or her name placed on the ballot as a candidate for councilmember by filing with the city secretary not more than ninety (90) days nor less than thirty (30) days prior to the date of election an application in substantially the following form:

I, _____, do hereby declare that I am a candidate for the Council of the City of Denton and request that my name be printed upon the official Ballot for that office in the next city election. I am aware of the nepotism law, chapter 573 of the Government Code. I am qualified to serve on the council with respect to the qualifications set forth in the Charter. I reside at _____, Denton, Texas.

	Signed

The foregoing petition was filed with the City Secretary on the _____ day of _____, 19___.

	City Secretary

(b) As an alternative method, any qualified person may be nominated for councilmember by a written petition signed by the greater twenty five (25) qualified voters of the city or one-half of one percent of the total votes received by all candidates for mayor in the most recent mayoral general election, provided the candidate signs the petition certifying his or her acceptance. One such petition shall be circulated and signed for each nominee or candidate. With each signature shall be stated the place of residence of the signer, giving the street and number or other description sufficient to identify it. Nominating petitions shall be filed with the city secretary not more than ninety (90) days nor less than thirty (30) days before the election day, and shall be in substantially the following form:

We, the undersigned electors of the City of Denton, hereby nominate _____ whose residence address is _____ as a candidate for councilmember of the City of Denton, to be voted for at the election to be held on the _____ day of _____, 19___; and we individually certify that we are qualified to vote for a candidate for the council.

Name	Address	Date of Signing

(Spaces for the greater twenty five (25) or one-half of one percent of the total votes received for candidates for Mayor signatures and required data)

Acceptance of Nomination

I am qualified to serve on the council of the City of Denton with respect to the qualifications set forth in this Charter. I hereby accept the nomination for councilmember and agree to serve if elected.

	Signature of Candidate

Statement of Circulator

The undersigned is the circulator of the foregoing petition containing signatures. Each signature was appended thereto in my presence and is the genuine signature of the person whose name it purports to be.

	Signature of Circulator
	Address of Circulator

The foregoing petition was filed with the City Secretary on the _____ day of _____, 19___.

	City Secretary

(Ord. No. 99-057, Amend. No. 8, 2-16-99, ratified 5-1-99)

Sec. 3.03. Official ballot.

The city secretary shall make up the official ballot from the names presented to him. The order in which the names of the candidates for each place shall appear on the ballot shall be determined by lot in a drawing held under the supervision of the city secretary, at which drawing each candidate or his designated representative shall have a right to be present. All official ballots shall be printed at least twenty (20) days prior to the date of any general or special election, and absentee voting shall be governed by the general laws of the State of Texas.

Sec. 3.04. Canvass: Election returns, results.

(a) Immediately after counting the votes, the presiding judge shall deliver the official returns of the election to the city secretary. Not earlier than the third day or later than the sixth day after the election or as otherwise required by the Election Code and all other applicable laws, the city council shall canvass the returns and declare the results. The returns of every municipal election shall be recorded in the minutes of the council.

(b) The candidates receiving the majority of the votes cast for each place shall be declared elected. If no candidate receives a majority, or if there is a tie for any one place, the council shall order a runoff election which shall be held not earlier than the twentieth or later than the thirtieth day after the date the final canvass of the regular election is completed or as otherwise required by the Election Code and all other applicable laws. Only the names of the candidates who tie for the highest number of votes cast for that

place, or the two (2) candidates who receive the highest number of votes with neither having a majority of votes cast for that place, shall be printed on the ballot for each election. In the event of a tie vote at the runoff election, the candidates who tie shall cast lots in the presence of the City Secretary to determine which one shall be declared elected, and said lots shall be cast within five (5) days of the runoff election in accordance with Section 2.028 of the Election Code and all other applicable laws.

(c) Immediately after the election results have been declared the mayor shall deliver certificates of election to the successful candidates. Each councilman shall take the oath of office as soon thereafter as practicable at which time his term of office shall begin.

(Ord. No. 76-12, Amend. No. 1, 4-5-76; Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80; Ord. No. 99-057, Amend. No. 9, 2-16-99, ratified 5-1-99)

Sec. 3.05. Regulation of elections.

Except as otherwise provided by this charter, all city elections shall be governed by the applicable provisions of the Election Code of the State of Texas, as now or hereafter amended. The council shall have the power to make such additional regulations as may be necessary.

State law reference(s)—Elections, V.T.C.A., Election Code § 1.005 et seq.

ARTICLE IV. INITIATIVE, REFERENDUM AND RECALL

Sec. 4.01. Power of initiative.

The electors shall have power to propose any ordinance, except an ordinance appropriating money or authorizing the levy of taxes, and to adopt or reject the proposed ordinance at the polls, such power being known as the initiative. Any initiative ordinance may be submitted to the council by a petition signed by qualified voters of the city equal in number to at least twenty-five percent of the number of votes cast at the last regular municipal election.

Sec. 4.02. Power of referendum.

The electors shall have power to approve or reject at the polls any ordinance passed by the council or submitted by the council to a vote of the electors, except an ordinance appropriating money, issuing bonds or authorizing the levying of taxes, such power being known as the referendum. Within twenty (20) days after the enactment by the council of any ordinance which is subject to a referendum, a petition signed by qualified voters of the city equal in number to at least twenty-five percent (25%) of the number of votes cast at the last preceding regular municipal election may be filed with the city secretary requesting that any such ordinance be either repealed or submitted to a vote of the electors.

Sec. 4.03. Form of petition, committee of petitioners.

Initiative petition papers shall contain the full text of the proposed ordinance. Referendum petition papers shall contain the full text of the ordinance which they propose to repeal. The signatures to initiative or referendum petitions need not all be appended to one paper, but to each separate petition there shall be attached a statement of the circulator thereof as provided by this section. Each signer shall sign his name in ink or indelible pencil and shall give after his name his place of residence by street and number, or other description sufficient to identify the place. There shall appear on each petition the names and addresses of the same five (5) electors, who, as a committee of the petitioners, shall be regarded as responsible for the circulation and filing of the petition.

Attached to each separate petition paper there shall be an affidavit of the circulator thereof that he, and he only, personally circulated the foregoing paper, that it bears a stated number of signatures, that all the signatures were appended thereto in his presence and that he believes them to be the genuine signatures of the persons whose names they purport to be.

Sec. 4.04. Filing, examination and certification of petitions.

All papers comprising an initiative or referendum petition shall be assembled and filed with the city secretary as one instrument. Within twenty (20) days after a petition is filed, the city secretary shall determine whether each paper of the petition bears the required affidavit of the circulator and whether the petition is signed by a sufficient number of qualified voters. After completing his examination of the petition, the city secretary shall certify the result thereof to the council at its next regular meeting. If he shall certify that the petition is insufficient he shall set forth in his certificate the particulars in which it is defective and shall at once notify the committee of the petitioners of his findings.

Sec. 4.05. Amendment of petitions.

An initiative or referendum petition may be amended at any time within ten (10) days after the notification of insufficiency has been sent by the city secretary, by filing a supplementary petition upon additional papers signed and filed as provided in the case of an original petition. The city secretary shall within five (5) days after such an amendment is filed, examine the amended petition and, if the petition is still insufficient, he shall file his certificate to that effect in his office and notify the committee of the petitioners of his findings and no further action shall be had on such insufficient petition. The findings of the insufficiency of a petition shall not prejudice the filing of a new petition for the same purpose.

Sec. 4.06. Effect of certification of referendum petition.

When a referendum petition, or amended petition as defined in section 4.05 of this article, has been certified as sufficient by the city secretary, the ordinance specified in the petition shall not go into effect, or further action thereunder shall be suspended if it shall have gone into effect, until and unless approved by the electors as hereinafter provided.

Sec. 4.07. Consideration by council.

Whenever the council receives a certified initiative or referendum petition from the city secretary, it shall proceed at once to consider such petition. A proposed initiative ordinance shall be read and provision shall be made for a public hearing upon the proposed ordinance. The council shall take final action on the ordinance within sixty (60) days after the date on which such ordinance was certified to the council by the city secretary. A referred ordinance shall be reconsidered by the council and its final vote upon such reconsideration shall be upon the question, "Shall the ordinance specified in the referendum petition be repealed?"

Sec. 4.08. Submission of electors.

If the council shall fail to pass an ordinance proposed by initiative petition, or shall pass it in a form different from that set forth in the petition therefor, or if the council shall fail to repeal a referred ordinance, the proposed or referred ordinance shall be submitted to the electors not less than thirty (30) days nor more than sixty (60) days from the date the council takes its final vote thereon. If no regular election is to be held within such period the council shall provide for a special election.

Sec. 4.09. Form of ballot for initiated and referred ordinances.

Ordinances submitted to a vote of the electors in accordance with the initiative and referendum provisions of this charter shall be submitted by ballot title, which shall be prepared in all cases by the city attorney. The ballot title may be different from the legal title of any such initiated or referred ordinance and shall be a clear, concise statement, without argument or prejudice, descriptive of the substance of such ordinance. If a paper ballot is used it shall have below the ballot title the following propositions, one above the other, in the order indicated: "FOR THE ORDINANCE" and "AGAINST THE ORDINANCE." Any number of ordinances may be voted on at the same election and may be submitted on the same ballot, but any paper ballot used for voting thereon shall be for that purpose only. If voting machines are used, the ballot title shall have below it the same two (2) propositions, one above the other or one preceding the other in the order indicated, and the elector shall be given an opportunity to vote for or against the ordinance.

Sec. 4.10. Results of election, publication.

(a) If a majority of the electors voting on a proposed initiative ordinance shall vote in favor thereof, it shall thereupon be an ordinance of the city. A referred ordinance which is not approved by a majority of the electors voting thereon shall thereupon be deemed repealed.

(b) Initiative ordinances adopted and referendum ordinances approved by the electors shall be published, and may be amended or repealed by the council in the same manner as other ordinances.

Sec. 4.11. Recall of councilmen.

Any member of the city council may be removed from office by a recall election.

Sec. 4.12. Recall petition, committee of petitioners.

Recall petition papers shall contain the name of the councilman (or names of the councilmen) whose removal is sought, and a clear and concise statement of the grounds for his (or their) removal. There shall appear at the head of each petition the names and addresses of five electors, who, as a committee of the petitioners shall be regarded as responsible for the circulation and filing of the petition. Each signer of any petition paper shall sign his name in ink or indelible pencil and give after his name his place of residence by street and number, or other description sufficient to identify the place, and the date his signature was affixed. No signature to such petition shall remain effective or be counted which was placed thereon more than forty-five (45) days prior to the filing of such petition with the city secretary. The signatures to a recall petition need not all be appended to one paper, but to each separate petition there shall be attached an affidavit of the circulator thereof that he, and he only, personally circulated the foregoing paper, that it bears a stated number of signatures, that all signatures were appended thereto in his presence and that he believes them to be the genuine signatures of the persons whose names they purport to be.

Sec. 4.13. Filing and certification of petitions, recall election.

(a) All papers comprising a recall petition shall be assembled and filed with the city secretary as one instrument. Within seven (7) days after a petition is filed, the city secretary shall determine whether each paper bears the names of five (5) electors who constitute a committee of the petitioners, and the required affidavit of the circulator thereof, and whether the petition is signed by qualified voters of the constituency of the councilmember whose removal is sought equal in number to at least twenty-five (25) percent of the number of the votes cast for that councilmember and all of his opponents in the last preceding general municipal election in which he was a candidate. As used herein "constituency" shall mean the qualified voters eligible

to vote for the councilmember whose removal is sought, either by geographical district or at large, as the case may be.

(b) If the city secretary finds the petition insufficient he shall return it to the committee of the petitioners, without prejudice, however, to the filing of a new petition based upon new and different grounds, but not upon the same grounds. If the city secretary finds the petition sufficient and in compliance with the provisions of this Article of the Charter he shall submit the petition and his certificate of its sufficiency to the council at its next regular meeting and immediately notify the councilman whose removal is sought of such action.

(c) If the councilman whose removal is sought does not resign within seven (7) days after such notice the city council shall thereupon order and fix a date for holding a recall election not less than thirty (30) nor more than sixty (60) days after the petition has been presented to the council. If no general election is to be held within this time the council shall provide for a special election.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80)

Sec. 4.14. Recall election ballots.

Ballots used at recall elections shall conform to the following requirements:

(a) With respect to each person whose removal is sought the question shall be submitted: "SHALL (name of person) BE REMOVED FROM THE CITY COUNCIL BY RECALL?"

(b) Immediately below each such question shall be printed the two following propositions, one above the other, in the order indicated:

"YES"

"NO"

Sec. 4.15. Results of recall election.

If a majority of the votes cast at a recall election shall be against the recall of the councilman named on the ballot, he shall continue in office. If a majority of the votes cast at a recall election be for the recall of the councilman named on the ballot, he shall be deemed removed from office and the vacancy shall be filled in the manner prescribed in Article II, section 2.04 of this charter.

Sec. 4.16. Limitations on recalls.

No petition shall be filed against a councilmember within six (6) months after he takes office nor against a councilmember who has been subjected to a recall election and not removed thereby until at least six (6) months after such election. Should a regular election occur during the time when a recall petition is current and should the person(s) being recalled be reelected, the recall petition shall be null and void.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80)

Sec. 4.17. District judge may order election.

Should the city council fail or refuse to order any recall election when all of the requirements for such election have been complied with by the petitioning electors in conformity with this Article of the charter, then it shall be the duty of the District Judge of Denton County, upon proper application therefor, to order such election and effectuate the provisions of this Article of the charter.

ARTICLE V. THE CITY MANAGER

Sec. 5.01. The city manager: Qualifications.

The city manager shall be chosen by the council solely on the basis of his executive and administrative qualifications with special reference to his actual experience in or his knowledge of accepted practice in respect to the duties of his office, as hereinafter set forth, provided that any person who is appointed city manager must have had at least two (2) years of experience as a city manager or assistant city manager, or the equivalent thereof. At the time of his appointment he need not be a resident of the city or state but during his tenure of office he shall reside within the city.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80)

Sec. 5.02. The city manager: Term and salary.

(a) The council shall appoint the city manager for an indefinite term and may remove him by a majority vote of its members. At least thirty (30) days before such removal shall become effective, the council shall by a majority vote of its members adopt a preliminary resolution stating the reasons for his removal. The city manager may reply in writing and may request a hearing at a public meeting of the council, which shall be held not earlier than twenty (20) days nor later than thirty (30) days after the filing of such request. Pending such hearing the council may suspend the city manager from duty but may not suspend or reduce his salary. After such public hearing, if one be requested, and after full consideration, the council by majority vote of its members may adopt a final resolution of removal.

(b) The city manager's salary shall be fixed by the council.

Sec. 5.03. The city manager: Powers and duties.

The city manager shall be the chief executive officer and the head of the administrative branch of the city government. He shall be responsible to the council for the proper administration of all affairs of the city placed under his control by this Charter or by ordinance or resolution of the council, and to that end he shall:

(a) Appoint and remove any employee of the city, except as otherwise provided by this Charter and except as he, or she may authorize the head of a department to appoint and remove subordinates in such department.

(b) Prepare the annual budget and submit it to the council and be responsible for its administration after adoption.

(c) Prepare and submit to the council at the end of the fiscal year a complete report on the finances and administrative activities of the city for the preceding year.

(d) Attend all meetings of the council, with the right to take part in the discussion, but having no vote.

(e) Keep the council advised of the financial condition and future needs of the city and make such recommendations as may seem to him desirable.

(f) Appoint, subject to the approval of the council, the city secretary.

(g) Perform such other duties as may be prescribed by this Charter or required of him by the council not inconsistent with this Charter.

(Ord. No. 2006-232, Amend. No. 8, 8-28-06, ratified 11-7-06)

Sec. 5.04. Absence of city manager.

To perform his duties during his temporary absence or disability, the [city] manager shall designate by letter filed with the city secretary a qualified administrative officer of the city. The administrative officer thus designated shall perform the duties of the [city] manager until he shall return or his disability shall cease or until the council by resolution designates another officer of the city to perform such duties.

Sec. 5.05. Administrative departments.

The city manager is hereby authorized to organize the employees of the city into various departments and divisions with the concurrence of the city council.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80)

Secs. 5.06, 5.07. Reserved.

Editor's note(s)—Ord. No. 79-86, § 2, adopted Dec. 11, 1979, and ratified Jan. 19, 1980, deleted former sections 5.06 and 5.07 which pertained to directors of departments and departmental divisions and were derived unamended from the Charter adopted Feb. 24, 1959.

ARTICLE VI. CITY ATTORNEY, MUNICIPAL COURT AND CITY AUDITOR

Sec. 6.01. City attorney: appointment.

The city attorney, who shall be head of the legal department, shall be a qualified attorney-at-law licensed to practice in the State of Texas. He, or she shall be appointed by the council, and serve at the pleasure of the city council. He, or she shall receive such compensation as may be fixed by the council.

(Ord. No. 2006-232, Amend. No. 9, 8-28-06, ratified 11-7-06)

Sec. 6.02. City attorney: powers and duties.

(a) The city attorney shall represent the city in all litigation and controversies and shall prosecute all cases brought before the municipal court. He, or she shall draft, approve or file his, or her written opinion on the legality of every proposed ordinance before it is acted upon by the council, and shall pass upon all documents, contracts and other legal instruments in which the city may have an interest.

(b) He, or she shall be the legal advisor of the city manager, city council, and of all boards, commissions, agencies, officers and employees with respect to any legal question involving their official powers or duties. He, or she shall perform such other duties as may be required by statute, by this Charter or by ordinance.

(c) The council may authorize the appointment of such assistant city attorneys as may be needed to perform the duties of this department. The city attorney may designate an assistant city attorney to act as city attorney in case of his or her temporary absence of not more than three weeks. The council may authorize the appointment of a temporary city attorney to act for the city attorney in the case of a longer temporary absence or disability.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80; Ord. No. 2006-232, Amend. No. 9, 8-28-06, ratified 11-7-06)

Sec. 6.03. Municipal court.

(a) There is hereby established a court which shall be known as the "Municipal Court No. 1 of the City of Denton." Municipal Court No. 1 shall have the jurisdiction and be conducted as a municipal court of record in accordance with Vernon's Texas Codes Annotated Texas Government Code subchapter FF, chapter 30, §§ 30.1211 through 30.01233 inclusive and applicable state law as these laws may now read or hereafter be amended. All costs and fines imposed by the municipal court shall be paid into the city treasury for the use and benefit of the city. The city council may, by ordinance, create additional municipal courts or municipal courts of record if so authorized under the provisions of applicable law.

(b) The municipal judge shall preside over the municipal court. The municipal judge shall be a qualified attorney-at-law licensed to practice in the State of Texas in good standing and shall have such other qualifications as required by subchapter FF of chapter 30 of the Texas Government Code and other applicable laws as these laws may now read or hereafter be amended. He or she shall be appointed by, and shall serve at the pleasure of the council. The municipal judge shall receive such compensation as may be fixed by the council. The municipal judge shall have all the powers and duties assigned to a municipal judge by the Charter, other city ordinances, subchapter FF of chapter 30 of the Texas Government Code, or other applicable state laws.

(c) There shall be one regularly scheduled session of the court each week and as many other sessions as, in the discretion of the municipal judge, may be necessary for the timely transaction of the business of the court.

(d) The council may appoint such assistant municipal judges or additional municipal judges as may be necessary to perform the duties of the municipal court or a temporary municipal judge to act for the municipal judge in the case of his or her temporary absence or disability, and such assistant, additional, or temporary municipal judge shall receive such compensation as may be set by the council. All such assistant, additional, or temporary municipal judges, when appointed, shall have all of the other powers and duties assigned to the municipal judge herein.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80; Ord. No. 99-057, Amend. No. 10, 2-16-99, ratified 5-1-99)

Sec. 6.04. City Internal Auditor.

The City Internal Auditor shall be appointed by the City Council, shall serve at the pleasure of the City Council, and shall perform such auditing duties herein described or as may be assigned by the Council. The position of the City Internal Auditor is to be held on a continuous, fulltime basis. On an interim basis, the City Council may engage external independent auditing resources to accomplish the Internal Audit function.

The City Internal Auditor is responsible for providing (a) an independent appraisal of City operations to ensure policies and procedures are in place and complied with, inclusive of purchasing and contracting; (b) information that is accurate and reliable; (c) that assets are properly recorded and safeguarded; (d) that risks are identified and minimized; and (e) that resources are used economically and efficiently, and that the City's objectives are being achieved.

The City Internal Auditor is responsible for directing all internal audit functions for the City of Denton to eliminate waste, fraud, and abuse.

(Ord. No. 2006-232, Amend. No. 9, 8-28-06, ratified 11-7-06; Ord. No. 2017-237 , § 1(Amend. C), 8-15-17, ratified 11-7-17; Ord. No. 2017-373 , § 2(Prop. C), 11-20-17)

ARTICLE VII. REVENUE AND TAXATION[2]

Sec. 7.01. Property subject to tax.

The city council is authorized to levy and collect taxes, to seize and sell property for delinquent taxes, to create tax liens, and to exercise all other powers and authority pursuant to the Tax Code, Vernon's Texas Codes Annotated and all other applicable laws as they now read or may hereafter be amended.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80; Ord. No. 99-057, Amend. No. 11, 2-16-99, ratified 5-1-99)

Sec. 7.02. Reserved.

Editor's note(s)—Ord. No. 99-057, Amend. No. 1, adopted February 16, 1999, ratified May 1, 1999, repealed § 7.02, which pertained to payment, delinquencies, and penalties, and derived from Ord. No. 79-86, § 2, adopted Dec. 11, 1979, ratified Jan. 19, 1980.

Sec. 7.03. Reserved.

Editor's note(s)—Ord. No. 99-057, Amend. No. 11, adopted February 16, 1999, ratified May 1, 1999, repealed § 7.02, which pertained to seizure and sale of property for delinquent taxes, and derived from Ord. No. 79-86, § 2, adopted Dec. 11, 1979, ratified Jan. 19, 1980.

Sec. 7.04. Reserved.

Editor's note(s)—Ord. No. 99-057, Amend. No. 11, adopted February 16, 1999, ratified May 1, 1999, repealed § 7.02, which pertained to tax liens, and derived from Ord. No. 79-86, § 2, adopted Dec. 11, 1979, ratified Jan. 19, 1980.

Sec. 7.05. Ratification.

All taxes heretofore assessed by the City of Denton are ratified and all ordinances relating to taxes now in force shall continue until amendment or repeal by the council.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80)

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[2]Editor's note(s)—Ord. No. 79-86, § 2, adopted Dec. 11, 1979, and ratified Jan. 19, 1980, deleted former sections 7.01—7.15 and 7.17—7.23 which pertained to the director of finance; procedures relative to accounting, payment of claims, purchasing, disbursement of funds, payment of claims and audits; the treasurer; the tax assessor-collector; the board of equalization and procedures relative to taxation and were derived from the Charter adopted Feb. 24, 1959, as amended by Ord. No. 76-12, Amend. No. 5, adopted April 5, 1976. Section 2 of Ord. No. 79-86 also renumbered former sections 7.16 and 7.24—7.29 as sections 7.01—7.07.

Sec. 7.06. General powers.

In addition to the powers herein conferred with reference to the assessment and collection of taxes, the City of Denton shall have and may exercise all powers and authority now conferred or that may hereafter be conferred upon cities having a population of more than five thousand (5,000) inhabitants by the general laws of the State of Texas.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80)

Sec. 7.07. Borrowing in anticipation of property taxes.

In any budget year, in anticipation of the collection of the property tax for such year, whether levied or to be levied in such year, the council may by resolution authorize the borrowing of money by the issuance of negotiable notes of the city, each of which shall be designated "Tax Anticipation Note for the Year 19___" (stating the budget year). Such notes shall not be renewable but shall mature and be paid not later than the end of the fiscal year in which the original notes have been issued.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80)

ARTICLE VIII. BUDGET

Sec. 8.01. Fiscal year.

The fiscal year of the city government which began on June 1, 1958, shall end on May 31, 1959. The next succeeding fiscal year shall begin on June 1, 1959, and end on September 30, 1959, and shall constitute an interim fiscal period. After September 30, 1959, the fiscal year of the city shall begin on the first day of October and end on the last day of September of each calendar year. The fiscal year established by this charter shall also constitute the budget and accounting year.

Sec. 8.02. Interim budget.

The city manager shall submit to the council an interim budget which shall be prepared, as nearly as practicable in accordance with the requirements for the budget document herein prescribed, for the interim fiscal period hereinabove established. Following the approval of such interim budget, the council shall enact such appropriation or other ordinances as may be necessary for the effectuation of the interim budget.

Sec. 8.03. Preparation and submission of budget.

Within the time period required by law, the city manager shall submit to the council a proposed budget for the ensuing fiscal year. The budget shall provide a complete financial plan for the fiscal year, and the budget shall be prepared on the basis of policy priorities defined by the council for the city manager at least one hundred twenty (120) days before the end of the fiscal year.

(Ord. No. 76-12, Amend. No. 6, 4-5-76; Ord. No. 2006-232, Amend. No. 10, 8-28-06, ratified 11-7-06)

Sec. 8.04. Public hearing on budget.

The council shall hold a public hearing on the proposed budget.. Any taxpayer of the municipality may attend and may participate in the hearing, which shall be set for a date after the fifteenth day after the date the proposed budget is filed with the city secretary but before the date the city council makes its tax levy. The council shall provide for public notice of the date, time, and location of the hearing. In addition to this notice, the city council shall publish notice before the public hearing related to the budget in at least one newspaper of general circulation in Denton County. This notice shall be published not earlier than the thirtieth or later than the tenth day before the date of the public hearing. The city council shall provide such other notice as may be required by state and all other applicable law. The city council may make such changes in the budget that it considers warranted by the law or by the best interests of the municipal taxpayers and may increase or decrease the items of the budget provided the total proposed expenditures shall not exceed the total anticipated revenue.

(Ord. No. 99-057, Amend. No. 12, 2-16-99, ratified 5-1-99)

Sec. 8.05. Adoption of budget.

The budget shall be finally adopted by the favorable votes of at least a majority of all members of the council after the conclusion of the public hearing. Should the council take no final action at the conclusion of the public hearing and before the end of the fiscal year, the budget as submitted by the city manager shall be deemed to have been finally adopted by the council.

(Ord. No. 99-057, Amend. No. 13, 2-16-99, ratified 5-1-99)

Sec. 8.06. Budget establishes appropriations and tax levy.

Upon final adoption, the budget shall be in effect for the budget year. Final adoption of the budget by the council shall constitute the official appropriation of the several amounts stated therein as proposed expenditures for the budget year. A copy of the budget as finally adopted shall be filed with the city secretary, the county clerk of Denton County and the state comptroller of public accounts in Austin. All appropriations that have not been expended or lawfully encumbered shall lapse at the end of the budget year.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80)

Sec. 8.07. Transfer of appropriations.

At any time during the fiscal year, the city manager may transfer any part of the unencumbered appropriation balance or the entire balance thereof between programs or general classifications of expenditures within an office, department, agency, or organizational unit. At any time during the fiscal year, at the request of the city manager the council may by resolution transfer any part of the unencumbered appropriation balance or the entire balance thereof from one office, department, agency, or organizational unit to another.

(Ord. No. 99-057, Amend. No. 14, 2-16-99, ratified 5-1-99)

Sec. 8.08. Amending the budget.

The budget may be amended for municipal purposes by the affirmative vote of at least five (5) members of the council, in accordance with applicable law.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80; Ord. No. 2006-232, Amend. No. 11, 8-28-06, ratified 11-7-06)

Sec. 8.09. Budget a public record.

The budget, budget message and all supporting schedules shall be a public record in the office of the city secretary open to public inspection. The city manager shall cause sufficient copies of the budget and budget message to be prepared for distribution to interested persons.

ARTICLE IX. BORROWING FOR PERMANENT IMPROVEMENTS

Sec. 9.01. Power to issue bonds.

(a) The City of Denton shall have the right and power to issue general obligation bonds to finance any capital project which it may lawfully construct or acquire or for any other legitimate public purpose. The general obligation bonded debt of the city shall only be increased by the consent of the majority of the qualified voters of the city voting at an election held for that purpose. A bond election shall be ordered and notice given by ordinance, consistent with the requirements for holding elections set forth in Article III of this Charter and in accordance with the applicable laws of the State of Texas as they now read or may hereafter be amended.

(b) The city shall have the power to issue revenue bonds against the anticipated revenues of any municipally-owned utility or other self-liquidating municipal function to pay the debt incurred on account of such utility or function. In no event shall revenue bonds be considered an indebtedness of the city nor be repaid from bonds secured by taxation.

(c) No bonds or warrants shall be issued to fund any overdraft or indebtedness incurred for current expenses of the city government.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80; Ord. No. 99-057, Amend. No. 15, 2-16-99, ratified 5-1-99)

Sec. 9.02. Bond ordinance and election.

(a) After approval by a majority of the qualified voters voting at a general obligation bond election called for the purpose of authorizing the issuance of general obligation bonded debt, the city shall authorize the issuance of such bonds by a bond ordinance passed by an affirmative vote of a majority of all members of the council. The city council may approve the issuance of revenue bonds without an election by authorizing the issuance of such bonds by bond ordinance passed by an affirmative vote of the majority of all members of the council.

(b) Before any bond ordinance is passed by the council an attorney or attorneys specializing in municipal bonds shall be retained by the city to advise with the council in all matters pertaining to the proposed bond ordinance, and no action shall be taken until a written instrument has been prepared by the bond attorneys certifying the legality of the proposal. The bond attorneys shall assist the city attorney and the council in preparing all ordinances and other legal instruments required in the execution and sale of any bonds issued.

(c) The election ordinance on a bond proposal shall provide for proper notice, the calling of the election and the propositions to be submitted. It shall distinctly specify:

    (1) The purpose for which the bonds are to be issued, and where possible, the probable period of usefulness of the improvements for which the bond funds are to be expended.

    (2) The amount thereof.

    (3) The rate of interest, if known.

    (4) The levy of taxes sufficient to pay interest and sinking fund.

(5) That the bonds to be issued shall mature serially within a given number of years.

(6) A determination of the net debt of the city after issuance of the bonds thereby authorized, together with a declaration that the bonds thereby authorized will be within all debt and other limitations prescribed by the Constitution and laws of the State of Texas.

(Ord. No. 99-057, Amend. No. 16, 2-16-99, ratified 5-1-99; Ord. No. 2006-232, Amend. No. 12, 8-28-06, ratified 11-7-06)

Sec. 9.03. Execution of bonds.

All bonds shall be signed by the mayor, countersigned by the city secretary, and imprinted with the seal of the city, and shall be payable at such time as may be fixed, not more than forty (40) years from their date.

Sec. 9.04. Sale of bonds.

All bonds shall be sold in accordance with applicable law.

(Ord. No. 2006-232, Amend. No. 13, 8-28-06, ratified 11-7-06)

Sec. 9.05. Sinking fund for general obligation bonds.

It shall be the duty of the council each year to levy a tax sufficient to pay the interest and provide the necessary sinking fund required by law on all general obligation bonds outstanding, and if a deficiency appears at any time in such fund the council shall, for the next succeeding year, levy an additional tax sufficient to discharge such deficiency.

Sec. 9.06. Bond register.

The director of finance shall prepare, maintain and cause to be filed in the office of the city secretary a complete bond register, showing all bonds, the date and amount thereof, the rate of interest, a schedule of maturity dates, and a record of all bonds and all other transactions of the council having reference to the refunding of any indebtedness of the city. When bonds or their coupons are paid, their payment or cancellation shall be noted in the register.

Sec. 9.07. Misapplication of bond funds.

Any officer or employee of the city who shall wilfully or knowingly, direct or use any funds arising from the issuance of any bond or sinking fund for any other purpose than that for which the fund is created or is herein otherwise authorized, shall be subject to prosecution as provided by the laws of the state on the diversion and conversion of funds belonging to any of the municipalities of the state.

Sec. 9.08. Assessments for improvements.

All of the terms, powers and applicable provisions of Chapter 9, Title 28, of the Revised Civil Statutes of the State of Texas, as now or hereafter amended, relating to assessments for street improvements are hereby adopted as a part of this charter and hereby constitute an alternative authority and method which the City of Denton may use in improving streets, alleys, and public places and levying assessments therefor; provided, the city shall have the power in all cases to make such improvements with its own forces if, in the opinion of the council, the work can be done more expeditiously or economically.

ARTICLE X. PLANNING AND ZONING

Sec. 10.01. Reserved.

Editor's note(s)—Ord. No. 79-86, § 2, adopted Dec. 11, 1979, and ratified Jan. 19, 1980, deleted former section 10.01 which pertained to the director of planning and was derived unamended from the Charter adopted Feb. 24, 1959.

Sec. 10.02. Planning and zoning commission.

(a) There shall be a planning and zoning commission which shall consist of seven (7) members, who, during their respective terms of office and for at least one year prior to beginning thereof, shall be residents of the City of Denton. They shall be appointed by the council for a term of two (2) years, provided four (4) members shall be appointed each odd-numbered year and three (3) members each even-numbered year.

(b) None of the appointed members shall hold any other public office or position in the city while serving on the planning and zoning commission. The planning and zoning commission shall elect its chairman from among its members. Seven (7) members shall serve without pay and shall adopt such rules and regulations as they deem best governing their actions, proceedings, deliberations, and the times and places of meetings, subject to council review.

(c) If a vacancy occurs in the city planning and zoning commission the council shall appoint a commissioner to fill such vacancy for the unexpired term.

(Ord. No. 76-12, Amend. No. 7, 4-5-76; Ord. No. 2006-232, Amend. No. 14, 8-28-06, ratified 11-7-06)

Sec. 10.03. Planning and zoning commission: Powers and duties.

(a) In addition to the powers and duties set forth in this charter, the planning and zoning commission shall have the powers and duties of a planning and zoning commission under state law, including without limitation those under Chapters 211 and 212 of the Texas Local Government Code, as may be amended from time to time, and shall perform such other powers and duties as may be assigned by the council. The planning and zoning commission may:

(1) Make, amend, extend and add to the master plan for the physical development of the city.

(2) Recommend to the council regulations governing the platting or subdividing of land within the city. (The applicable provisions of Chapter 212 of the Texas Local Government Code as now or hereafter amended, are hereby adopted and made a part of this charter, and shall be controlling on the planning and zoning commission.)

(3) Make recommendations to the council regarding proposed changes to the official map of the city and keep such map up-to-date so as to reflect any changes in the boundary or the zoning plan of the city.

(4) Make and recommend plans for the clearance and rebuilding of any slum districts or blighted areas within the city.

(5) Make recommendations to the council regarding proposed changes in the zoning plan and ordinance of this city and have all the power, duty and authority of a zoning commission as provided in Chapter 211

of the Texas Local Government Code, as now or as hereinafter amended, all of which are hereby adopted as a part of this charter.

(6) Submit annually to the City Manager prior to the beginning of the budget year, a list of recommended general obligation capital improvements which in the opinion of the Commission ought to be constructed during the forthcoming five (5) year period. (Such list shall be arranged in order of preference, with recommendations as to which projects should be constructed in which year, and the City Manager shall forthwith furnish a copy of such recommendations to each member of the Council.)

(7) Promote public interest in and understanding of the master plan and of planning, zoning, clearance of blighted areas and development of the city.

(8) Meet not less than once each month and keep a public record of its resolutions, findings and determinations.

(9) Hold such public hearings as it may deem desirable in the public interest and advise the council upon such matters as the council may request its advice.

(b) For the accomplishment of the foregoing purposes the planning and zoning commission is hereby empowered to:

(1) Require information which shall be furnished within a reasonable time from the other departments of the city government in relation to its work.

(2) Request additional assistance for special survey work of the city manager, who may at his discretion assign to the planning and zoning commission, employees of any administrative department or direct such department to make special studies requested by the commission.

(3) In the performance of its functions, enter upon any land and make examinations and surveys.

(4) Make and recommend plans for the replanning, improvement and redevelopment of neighborhoods or of any area or district which may be destroyed in whole or in part or seriously damaged by fire, earthquake, flood or disaster.

(Ord. No. 99-057, Amend. No. 17, 2-16-99, ratified 5-1-99; Ord. No. 2006-232, Amend. No. 15, 8-28-06, ratified 11-7-06)

Sec. 10.04. The master plan.

The master plan for the physical development of the city, with the accompanying maps, plats, charts, descriptive and explanatory matter, shall show the commission's recommendations for the development of city territory, and may include, among other things:

(a) The general location, character and extent of streets, bridges, parks, waterways and other public ways, grounds and spaces.

(b) The general location of public buildings and other public property.

(c) The general location and extent of public utilities, whether publicly or privately owned.

(d) The removal, relocation, widening, extension, narrowing, vacation, abandonment or change of use of such existing or future public ways, grounds, spaces, buildings, property or utilities.

(e) The general extent and location of public housing projects and slum-clearance projects.

Sec. 10.05. Legal effect of master plan.

Except in circumstances where plat approval is not required or the public improvement is so small as not to appear on the master plan, no street, park, or other public way, ground or space, no public building or structure and no public utility whether publicly or privately owned, shall be constructed or authorized in the City until and unless the location and extent thereof shall have been submitted to and approved by the Planning and Zoning Commission; provided that, in case of disapproval, the Commission shall within thirty (30) days communicate its reasons to the Council, which shall have the power to overrule such disapproval, and, upon such overruling, the Council or the appropriate office, department, or agency shall have the power to proceed.

(Ord. No. 99-057, Amend. No. 18, 2-16-99, ratified 5-1-99; Ord. No. 2006-232, Amend. No. 16, 8-28-06, ratified 11-7-06)

Sec. 10.06. Zoning.

(a) For the purpose of promoting health, safety, morals or the general welfare of the community, the council may by ordinance regulate and restrict the height, number of stories and size of buildings and other structures, the percentage of lot that may be occupied, the size of yards, courts and other open spaces, the density of population and the location and use of buildings, structures and land for trade, industry, residence or other purposes. Such ordinance shall provide that the board of adjustment may, in appropriate cases and subject to appropriate principles, standards, rules, conditions and safeguards set forth in the ordinance, authorize variances from and make special exceptions to the zoning regulations in harmony with their general purpose and intent.

(b) For any or all of said purposes the council may divide the city into districts of such number, shape and area as may be deemed best suited to carry out the purposes of this section; and within such districts it may regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures or land. All such regulations shall be uniform for each district, but the regulations in one district may differ from those in other districts.

(c) Such regulations shall be made in accordance with a comprehensive plan and be designed to lessen congestion in the streets; to secure safety from fire, panic and other dangers; to promote health or the general welfare; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; to facilitate the adequate provision of transportation, water, sewerage, schools, parks, public convenience and other public requirements. Such regulations shall be made with reasonable consideration of the character of the district and its peculiar suitability for particular uses, and with a view of conserving the value of buildings and encouraging the most appropriate use of land throughout the city.

Sec. 10.07. Board of adjustment.

The city council shall by ordinance establish a board of adjustment which shall consist of at least seven (7) members who shall have the qualifications, powers, and duties and serve for the terms provided by the city council in an ordinance creating the board. All current members of the board of adjustment and the board shall continue to serve under the current provisions of the City Charter until such ordinance creating the board is enacted and effective.

(Ord. No. 99-057, Amend. No. 19, 2-16-99, ratified 5-1-99)

Sec. 10.08. Platting or subdivision control.

The planning and zoning commission shall recommend to the council the adoption of regulations governing the platting or subdividing within the city or within the area under the extraterritorial jurisdiction of the city, and the owner of every such subdivision shall comply with all of the provisions of Article 974a and 6626, Vernon's Texas Civil Statutes, 1948, [V.T.C.A., Local Government Code § 212.002 et seq. and V.T.C.A., Property Code § 12.001 et seq.] as now or hereafter amended. Such regulation may provide for the harmonious development of the city within the subdivided land with other existing or planned streets and ways or for conformance with the master plan or official map, for adequate open spaces, spaces for traffic, utilities, recreation, light and air and for the avoidance of congestion of population. Such regulations may include requirements as to the extent to which and the manner in which streets and other ways shall be graded and improved and water, sewer and other utility mains, piping, connections or other facilities shall be installed as a condition precedent to the approval of a subdivision.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80; Ord. No. 2006-232, Amend. No. 17, 8-28-06, ratified 11-7-06)

Sec. 10.09. Reserved.

Editor's note(s)—Ord. No. 79-86, § 2, adopted Dec. 11, 1979, and ratified Jan. 19, 1980, deleted former section 10.09 which pertained to the tentative approval of plats and was derived unamended from the Charter adopted Feb. 24, 1959.

Sec. 10.10. Building permits, use and occupancy certificates.

(a) The city shall have the power to prohibit the erection, construction or use of any building or structure of any kind within the city without a permit having first been issued, by the city, for the construction or erection of such building or structure, and without a use and occupancy certificate having been issued for the use actually made of such premises and structure and may authorize a fee to be charged for such permit. In pursuance of this authority the council may authorize the inspection of all buildings and structures during the progress of their construction or thereafter and may require new construction, renovation, or reconstruction to comply with all building regulations.

(b) For the purpose of preserving property values, protecting the public health, preventing the blighting of areas within the city, promoting safety and the public welfare the council may fix a minimum standard for the construction and use of housing accommodations and other structures within this city and prohibit the construction, erection and use of substandard housing and other substandard structures.

(Ord. No. 2006-232, Amend. No. 18, 8-28-06, ratified 11-7-06)

Sec. 10.11. Official map.

The council may by ordinance establish an official map of the city, on which shall be shown and indicated all public streets existing and established by law at the time of the establishment of the official map.

Sec. 10.12. Slum clearance and rehabilitation of blighted areas.

The council may, after receiving a recommendation from the planning and zoning commission adopt, modify and carry out plans for the clearance of slum districts and blighted areas within the city and, for the accomplishment of this purpose, may acquire by purchase or condemnation all privately owned lands, buildings and other real property interests within the district; may establish, locate, relocate, build and improve the streets

and other public open spaces provided for in the plan; may maintain, operate, lease or sell said buildings or any of them; may sell the land or any part thereof designated for buildings and private open spaces upon such terms and conditions and subject to such restrictions as to building uses and open spaces as will substantially carry out and effect the plan.

(Ord. No. 2006-232, Amend. No. 19, 8-28-06, ratified 11-7-06)

ARTICLE XI. PARKS AND RECREATION

Sec. 11.01. Reserved.

Editor's note(s)—Ord. No. 79-86, § 2, adopted Dec. 11, 1979, and ratified Jan. 19, 1980, deleted former section 11.01 which pertained to the director of parks and recreation and was derived unamended from the Charter adopted Feb. 24, 1959.

Sec. 11.02. Park and recreation board.

The city council shall by ordinance establish a board which shall advise the council on parks and recreation and which shall consist of at least seven (7) residents of the city who shall have the qualifications, duties, and powers and serve for the terms provided by the city council in the ordinance creating the board. All current members of the parks and recreation board and the board shall continue to serve under the current provisions of the City Charter until the ordinance creating the board is enacted and effective.

(Ord. No. 99-057, Amend. No. 20, 2-16-99, ratified 5-1-99)

ARTICLE XII. PUBLIC UTILITIES

Sec. 12.01. General powers respecting utilities.

(a) The City of Denton may license, regulate, fix the rates, control and supervise public utilities of all kinds.

(b) In addition to such public utilities as it may now own, the City of Denton may own, acquire, construct, maintain, and operate any other public utility that may be approved by a majority of the qualified voters of the City voting therefor at an election held for such purpose; and shall have power for the purpose of operating and maintaining any such utility, and for distributing such service throughout the city or any portion thereof, but in such condemnation proceedings no allowance shall be made for the value of any franchise and only the actual physical assets shall be purchased by the City.

Sec. 12.02. Rates.

The city shall have the power, subject to limitations imposed by state law and this Charter, to fix and, from time to time, revise such rates and charges as it may deem advisable for supplying such utility services as the city may provide. The utilities shall provide no free services; the rates and charges for services to city departments and other public agencies shall be the same as the regular rates and charges fixed for similar services to consumers generally. The rates and charges for services to consumers outside the corporate limits of the city may be greater but shall not be less than the rates and charges for similar service to consumers within the corporate limits of the city.

Sec. 12.03. Excess revenues of utility systems.

(a) Any money remaining in the "System Fund" after all necessary expenses of operation and maintenance of the utility systems, including salaries, labor and materials, have been paid, upon proper approval, and after all payments have been made into the several funds required and provided to be made by the ordinance or ordinances authorizing the issuance of any revenue bonds of the city, now outstanding or hereafter authorized and issued which may be payable from and secured by a pledge of the net earnings of the light, water or sewer systems, shall be deemed "Excess Revenues" for the purposes of this section. "System Fund" as used herein shall mean the fund (or funds as may be required by outstanding bond issues) into which are deposited the gross incomes derived from the operation of the above named utility systems.

(b) Excess Revenues shall be utilized at the times and for the purposes as follows:

(1) After all of the requirements of the various funds have been met, there shall be computed a return on the net investment in the utility system. The "Net Investment" figure used in these computations shall be taken from the independent audit of the utility systems for the last fiscal period. The city shall be entitled to receive annually on the net investment from excess revenues, if any, not more than six (6) percent of the net investment.

(2) Any remaining excess revenues shall be used for the redemption and retirement of utility revenue bonds, as they become available at not more than fair market value. If utility revenue bonds are not available, these funds shall immediately be invested in short-term United States Government securities or at the option of the city, placed on time deposit in the city depository to draw interest. As utility revenue bonds become available, sufficient United States Government securities shall be sold or time deposits withdrawn to purchase the longest maturities available on the market.

Sec. 12.04. Disposal of utility properties.

No sale, conveyance, lease, or other alienation of the entire assets of any utility system or any part thereof essential to continued effective utility service, shall ever be made unless such sale, lease, or disposal is approved by a majority vote of all the qualified voters voting in an election held for that purpose in the City of Denton.

(Ord. No. 99-057, Amend. No. 22, 2-16-99, ratified 5-1-99)

Sec. 12.05. Cooperation of other city departments.

The [public utilities] board shall have the right to request the services of any officer or department of the city government; provided, however, that the utility system shall pay out of its revenues a proportionate part of the expenses of the department used in an amount agreed upon by the city manager and the board. If they fail to agree, the final decision on any such expenses shall be made by the city council.

Sec. 12.06. Reserved.

Editor's note(s)—Ord. No. 79-86, § 2, adopted Dec. 11, 1979, and ratified Jan. 19, 1980, deleted former section 12.06 which pertained to the director of utilities and was derived unamended from the Charter adopted Feb. 24, 1959.

Sec. 12.07. The public utilities board.

(a) There is hereby created a public utilities board to be composed of seven (7) members, or as many members as there are councilmembers, whichever is greater, appointed by the council for four-year terms and until

their respective successors have been appointed and qualified. Members of the board may be removed by the council only for cause and only after charges have been filed and published and the member has been given a reasonable opportunity to defend himself in an open public hearing before the council. Vacancies shall be filled for any unexpired term in the same manner as provided for regular appointments.

(b) The city manager and director of utilities shall be ex officio members of the board. They shall attend all meetings of the board and shall have the right to discuss any matter that is under consideration by the board but shall have no vote.

(c) Members of the public utilities board shall have the same qualifications as are required by membership on the city council.

(d) At its organizational meeting, and annually thereafter as soon as the newly appointed member (or members) has qualified; the board shall select from its own membership a chairman, vice-chairman, and secretary. A majority of the regularly appointed members shall constitute a quorum. The board shall determine its own rules and order of business. The board shall meet at least once each month; all meetings shall be conducted in accordance with the Texas Open Meetings Act, chapter 551 of the Texas Government Code, as it may now read or hereafter be amended and all other applicable laws and a permanent record of proceedings shall be maintained, except as otherwise provided by law.

(Ord. No. 76-12, Amend. No. 8, 4-5-76; Ord. No. 99-057, Amend. No. 23, 2-16-99, ratified 5-1-99; Ord. No. 2006-232, Amend. No. 20, 8-28-06, ratified 11-7-06)

Sec. 12.08. Powers and duties of the public utilities board.

(a) The board shall serve the department of utilities and city council as a consulting, and advisory board.

(b) The annual budget for the department of utilities shall be prepared by the director and submitted to the board in the form required by the city manager. The board shall review the budget, make such changes therein as they deem appropriate, then return it to the director who shall deliver it to the city manager for incorporation without any changes, in the proposed general budget of the city and transmission to the council.

(c) The public utilities board is hereby authorized to expend such funds for information and advertising as shall be budgeted for this purpose.

(d) All actions recommending expansion of the system and the making of additions and betterments thereto or extensions thereof, the incurring of indebtedness, the issuance of bonds, and the fixing of rates and charges for utility services shall be submitted to the board for review and approval; provided, that in case of disapproval, the board shall within thirty (30) days communicate the reasons for its disapproval to the council, which shall have the power to overrule such disapproval, and, upon such overruling, the council or the appropriate department shall have power to proceed; and provided further that all rates and charges for utility services shall be reviewed by the board and revised or reenacted by the council at intervals not exceeding five (5) years and beginning with the year 1960.

(e) The board shall submit annually to the planning and zoning commission (for incorporation in its report), prior to the beginning of the budget year, a list of recommended capital improvements, which in the opinion of the board ought to be constructed during the forthcoming five (5) year period. Such list shall be arranged in order of preference, with recommendations as to which projects should be constructed in which year.

(f) It shall be the duty of the board to act in an advisory capacity to the council, with authority to hold public hearings and to study and recommend policies relating to the operation, promotion, enlargement, future planning and such other matters involving city-owned utilities as may be referred to it by the council. At intervals not exceeding ten (10) years the council shall at the expense of the utilities involved, cause a

general management survey to be made of all utilities under the jurisdiction of the board by a competent management consulting or industrial engineering firm, the report and recommendations of which shall be made public; provided, that the first such survey shall be made within three (3) years of the effective date of this Charter.

(Ord. No. 2006-232, Amend. No. 21, 8-28-06, ratified 11-7-06)

ARTICLE XIII. FRANCHISES

Sec. 13.01. Franchises: public utilities.

(a) The city council may by ordinance grant, renew and extend all franchises of all public utilities operating within the city, and, with the consent of the franchise holder, amend such franchise. No franchise shall ever be granted for a longer term than twenty (20) years. No franchise for a term of twenty (20) years shall be granted except upon the condition that the City of Denton shall have the right, at any time after the expiration of eighteen (18) years, to purchase the property of such franchise holder, or cause a purchaser to buy such property and thereby terminate or transfer the franchise and all privileges enjoyed thereunder, provided that the purchase when made by the city shall not in the case of a fixed term franchise take effect until the expiration of twenty (20) years from the time such franchise was granted.

(b) The city shall have the power to provide and fix in any franchise the amount or amounts (or the basis for determining the same), to be paid in case it shall buy or cause a purchaser to buy any such property.

(c) Every ordinance granting, amending, renewing or extending a public utility franchise shall be passed by a majority vote of the entire city council at three (3) regular meetings of the council; no such ordinance shall take effect until thirty (30) days after its final passage; pending such time the full text of the ordinance shall be published once each week for three (3) consecutive weeks in the official newspaper published in the City of Denton, and the expense of such publication shall be borne by the grantee of the franchise; and such ordinance shall be subject to referendum as provided in Article IV of this Charter. No public utility franchise shall be transferable except with the approval of the council expressed by ordinance.

(d) After due notice and hearing, the council may by ordinance cancel or repeal a public utility franchise for failure of the grantee to comply with the terms of the franchise.

Sec. 13.02. Franchises: use of streets.

The city may by ordinance grant franchises or permits for the use and occupancy of streets, avenues, alleys or other public grounds belonging to or under the control of the city. Before such ordinance can become effective it shall be passed by a majority vote of the entire city council at two (2) regular meetings of the council; no such ordinance shall take effect until twenty-one (21) days after its final passage; pending such time the full text of the ordinance shall be published once each week for two (2) consecutive weeks in the official newspaper of the City of Denton, and the expense of such publication shall be borne by the grantee of the franchise and such ordinance shall be subject to referendum as provided in Article IV of this Charter.

Sec. 13.03. Franchise fee.

The holder or grantee of any franchise or license to use public streets, alleys, highways, or other public property may be required, as compensation for the right or privilege enjoyed, to pay to the City of Denton each year such reasonable sum (not less than two (2) percent of the gross receipts of the business pursued by the holder of the franchise earned for service rendered in the City of Denton), or to pay compensation, rent, or any other fee or charge authorized by law, including, without limitation, specific charges per service line, access line

fees, and all other legally permissible charges for the use of its streets, alleys, highways, and other public property, as the council may determine by ordinance or by contract with any such utility, which compensation shall be in addition to all ad valorem and corporation taxes paid by the utility.

(Ord. No. 99-057, Amend. No. 24, 2-16-99, ratified 5-1-99)

Sec. 13.04. Regulation of utilities.

The city council shall have the power and the duty to:

(a) Determine, fix and regulate the charges, fares or rates of all public utilities operating within the city, provided the council shall not prescribe any rate of compensation which will yield more than a fair return upon the fair value of the physical property used and useful in rendering service to the public.

(b) Require such franchise holders who request an increase in rates, charges or fares to reimburse the city for reasonable expenses incurred in employing independent rate consultants to conduct investigations, present evidence and advise the council on such requested increase.

(c) Prescribe reasonable standards of service and quality of products to be furnished by each utility and prevent unjust discrimination.

(d) Require such extensions of plant and service and such maintenance of plant and fixtures as may be necessary to provide adequate and efficient service.

(e) Collect from every public utility operating in the city its fair and just proportion of the expense of excavating, grading, paving, repaving, constructing, reconstructing, draining, repairing, maintaining, lighting, sweeping and sprinkling such portions of the alleys, bridges, culverts, viaducts and other public places and ways of the city as may be occupied or used in whole or in part by such utilities; or compel such public utility to perform, at its own expense, its just share of such excavating, grading, paving, repaving, constructing, reconstructing, draining, repairing, maintaining, lighting, sweeping and sprinkling.

(f) Prescribe the form of accounts which shall be kept by each utility; provided, that if the utility shall keep its accounts in accordance with the uniform system of accounts for said utility as prescribed by the National Association of Railroad and Public Utility Commissioners, the Federal Power Commission, the Federal Communications Commission, the Railroad Commission of Texas, or their respective successors, this shall be deemed sufficient compliance with this paragraph.

(g) Examine or cause to be examined at any time the accounts and other records of any utility operating within the city for the purpose of ascertaining any fact relating to the business done by such utility and pertinent to the council's power of regulation.

(h) The council shall provide means and prescribe regulations for independent testing of all gas, water, light and other public utility meters on complaint of any person who may be dissatisfied with the readings of the employees of those utilities, whether owned by private corporations or by the City of Denton.

(i) Enact and enforce such reasonable regulations and restrictions as may be deemed desirable or conducive to the safety, welfare and accommodation of the public.

(j) The City of Denton shall have power to prohibit the use of any street, alley, highway, boulevard or grounds of the city by any telegraph, telephone, electric light, street railway, interurban railway, gas company or any other character of public utility without first obtaining the consent of the governing authorities expressed by ordinance, and upon paying such compensation as may be prescribed and upon such conditions as may be provided for by such ordinances, and the City of Denton shall have the

power to require all telegraph, telephone and electric light companies to place their wires underground.

(k) Require each utility operating in the city to file with the city such reports and other information pertaining to its operations that are required by its franchise agreement with the city, this Charter, city code, other applicable laws, or that may be required from time to time by the council.

(l) Fix appropriate penalties to enforce compliance with all rules and regulations enacted by the council.

(m) Give due notice and a fair hearing to persons or corporations to be affected by such rules and regulations before they shall be adopted.

(Ord. No. 2006-232, Amend. No. 22, 8-28-06, ratified 11-7-06; Ord. No. 2006-297, § 2, 10-3-06, ratified 11-7-06)

Sec. 13.05. Other conditions.

All franchises heretofore granted are recognized as contracts between the City of Denton and the grantee, and the contractual right as contained in any such franchise shall not be impaired by the provisions of this Charter, except that the power of the City of Denton to exercise the right of eminent domain in the acquisition of any utility property is in all things reserved, and except the general power of the city heretofore existing and herein provided for to regulate the rates and services of a grantee which shall include the right to require proper and adequate extension of plant and service and the maintenance of the plant and fixtures at the highest reasonable standard of efficiency. Every public utility franchise hereafter granted shall be held subject to all of the terms and conditions contained in the various sections of this Article whether or not such terms are specifically mentioned in the franchise. Nothing in this Charter shall operate to limit in any way, as specifically stated, the discretion of the council or the electors of the city in imposing such terms and conditions as may be reasonable in connection with any franchise grant.

Sec. 13.06. Franchise records.

The city secretary shall compile and maintain a public record of all franchises heretofore or hereafter granted by the City of Denton.

ARTICLE XIV. GENERAL PROVISIONS

Sec. 14.01. Reserved.

Editor's note(s)—Ord. No. 79-86, § 2, adopted Dec. 11, 1979, and ratified Jan. 19, 1980, deleted former section 14.01 which pertained to the health officer and was derived unamended from the Charter adopted Feb. 24, 1959.

Sec. 14.02. Publicity of records.

All public records collected, assembled, or maintained by the city in accordance with the transaction of official business shall be available to the public during normal business hours, subject to the exceptions and regulations authorized by applicable state law.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80)

Sec. 14.03. Official newspaper.

The city council shall annually select and designate by resolution the official newspaper of the city in which all ordinances and official notices that are required to be published shall be published.

Sec. 14.04. Ethics Ordinance Requirement.

The City Council shall adopt an ethics ordinance. The ethics ordinance shall prohibit the use of public office for private gain and shall incorporate the conflict of interest standards that appear in V.T.C.A., Local Government Code, Ch. 171 and all state law as presently exist or may be hereafter amended or adopted. The Council may adopt more stringent standards than those that appear in state law, but the ethics ordinance shall at a minimum include the following components:

(1) Definition of a prohibited improper economic interest and personal gain;

(2) Definition of recusal and improper participation when a potential conflict of interest is present;

(3) Avoidance of appearance of conflict of interest; and

(4) Administration and enforcement of ethics ordinance, including the power to subpoena witnesses and documents, coupled with strong and meaningful remedies for infraction.

(Ord. No. 2017-237 , § 1(Amend. D), 8-15-17, ratified 11-7-17; Ord. No. 2017-373 , § 2(Prop. D), 11-20-17)

Editor's note(s)—Ord. No. 2017-237 , § 1(Amend. D), adopted August 15, 2017, ratified 11-7-17 repealed the former §§ 14.04, 14.05 and enacted a new § 14.04 as set out herein. The former §§ 14.04, 14.05 pertained to personal interest and nepotism and derived from Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80; Ord. No. 99-057, Amend. No. 25, 2-16-99, ratified 5-1-99; Ord. No. 2006-232, Amend. No. 23, 8-28-06, ratified 11-7-06.

Sec. 14.05. Reserved.

Editor's note(s)—See Editor's Note for § 14.04.

Sec. 14.06. Oath of office.

Every officer of the city shall before entering upon the duties of his office take and subscribe to the following oath or affirmation, to be filed and kept in the office of the city secretary:

"I, _____, do solemnly swear (or affirm) that I will faithfully execute the duties of the office of _____ of the City of Denton, Texas, and will to the best of my ability preserve, protect and defend the Constitution and laws of the United States and of this State and the Charter and ordinances of this City; and I furthermore solemnly swear (or affirm) that I have not directly or indirectly paid, offered or promised to pay, contributed or promised to contribute any money, or valuable thing, or promised any public office or employment, as a reward for the giving or withholding a vote at the election at which I was elected. (or if the office is one of appointment, "to secure my appointment.") So Help Me God."

Sec. 14.07. Continuation of present offices.

All persons holding administrative office either by election or appointment at the time this Charter becomes effective shall continue in office and in the performance of their duties until provision shall have been made in accordance therewith for the performance of such duties or the discontinuance of such office. The powers conferred and the duties imposed upon any office, department or agency of the city by the laws of the state shall,

if such office, department or agency be abolished by this Charter or under its authority, be thereafter exercised and discharged by the office, department or agency designated by the council unless otherwise provided herein.

Secs. 14.08, 14.09. Reserved.

Editor's note(s)—Ord. No. 79-86, § 2, adopted Dec. 11, 1979, and ratified Jan. 19, 1980, deleted former sections 14.08 and 14.09 which pertained to the commissioners and mayor holding office when the present Charter was adopted and which were derived unamended from said Charter adopted on Feb. 24, 1959.

Sec. 14.10. Continuance of contracts and public improvements.

All contracts entered into by the city, or for its benefit, prior to the taking effect of this Charter, shall continue in full force and effect. Public improvements for which legislative steps have been taken under laws or charter provisions existing at the time this Charter takes effect may be carried to completion as nearly as practicable in accordance with the provisions of such existing laws and charter provisions.

Sec. 14.11. Effect of charter on existing law.

All ordinances, resolutions, rules and regulations now in force under the city government and not in conflict with any provisions of this Charter shall remain in force under this Charter until altered, amended or repealed by the council after this Charter takes effect.

Sec. 14.12. Severable provisions.

If any section, subsection, sentence, clause or phrase of this Charter, or the application thereof to any person or circumstance, is held invalid by a court of competent jurisdiction, such invalidity shall not affect any other provisions or applications of this Charter which can be given effect without the invalid provision or application, and to this end the provisions of this Charter are declared severable.

Sec. 14.13. Amending the charter.

Amendments to this Charter may be framed and submitted to the voters of the city in the manner provided by Vernon's Texas Codes Annotated, Texas Local Government Code Chapter 9 and all other applicable laws, as they now read or may hereafter be amended.

(Ord. No. 99-057, Amend. No. 26, 2-16-99, ratified 5-1-99)

Sec. 14.14. Submission of charter to electors.

The Charter Commission in preparing this Charter finds and decides that it is impracticable to segregate each subject so as to permit a vote of "yes" or "no" on the same, for the reason that the Charter is so constructed that in order to enable it to work and function it is necessary that it should be adopted in its entirety. For these reasons the Charter Committee directs that this Charter be voted upon as a whole and that it shall be submitted to the qualified voters of the City of Denton at an election to be held for that purpose on the 24th day of February, 1959.

Sec. 14.15. When provisions take effect.

If a majority of the qualified voters voting in such election shall vote in favor of the adoption of this Charter the present city commission, after canvassing the returns, shall enter an official order upon the records of the city

declaring the same adopted and this Charter shall be in full force and effect on and after the date of official adoption.

We, the undersigned members of the Denton Charter Commission, heretofore duly elected to prepare a Charter for the City of Denton, Texas, do hereby certify that this publication constitutes a true copy of the proposed Charter for the City of Denton, Texas, as unanimously adopted by the members thereof.

SAM B. McALISTER, Chairman

STANLEY A. MUNSON, Vice Chairman

ETHELYN DAVIS, Secretary

Tom Harpool	Walter B. McClurkan
Don Robinson	H. W. Kamp
Roland Laney	James R. Reed
M. G. Ramey	David Mulkey
W. D. Barrow	Mrs. W. F. "Pat" Hamilton
Lee E. Johnson	Paul P. Young

Sec. 14.16. Boards and commissions.

Members of boards and commissions of the City of Denton shall serve at the pleasure of the council. Members of such boards and commissions may be removed by the council only for cause and only after being given notice by the council.

(Ord. No. 79-86, § 2, 12-11-79, ratified 1-19-80)

CHARTER COMPARATIVE TABLE ORDINANCES

This table shows the location of the sections of the basic Charter and any amendments thereto.

Ordinance Number	Date	Election Date	Section	Section this Code
	2-24-59		1.01—14.16	1.01—14.16
76-12	4- 5-76		Amend. No. 1	2.01
				3.04
			Amend. No. 2	2.04
			Amend. No. 3	2.06
			Amend. No. 4	2.08
			Amend. No. 6	8.03
			Amend. No. 7	10.02
			Amend. No. 8	12.07
79-86	12-11-79	1-19-80	2	2.01—2.03
				2.05, 2.06
				2.08
				3.01
				3.04
				4.13
				4.16

				5.01
				5.05
				6.02, 6.03
				7.01—7.07
				8.06
				8.08
				9.01
				10.08
				14.02
				14.04
				14.16
99-057	2-16-99	5- 1-99	Amend. No. 2	1.05
			Amend. No. 3	1.06
			Amend. No. 4	1.07
			Amend. No. 5	2.02
			Amend. No. 6	2.04
			Amend. No. 7	3.01
			Amend. No. 8	3.02
			Amend. No. 9	3.04
			Amend. No. 10	6.03
			Amend. No. 11	7.01
			Rpld	7.02, 7.03, 7.04
			Amend. No. 12	8.04
			Amend. No. 13	8.05
			Amend. No. 14	8.07
			Amend. No. 15	9.01(a)
			Dltd	9.01(d)
			Amend. No. 16	9.02(a)
			Amend. No. 17	10.03(a)(6)
			Amend. No. 18	10.05
			Amend. No. 19	10.07
			Amend. No. 20	11.02
			Amend. No. 22	12.04
			Amend. No. 23	12.07(a), (d)
			Amend. No. 24	13.03
			Amend. No. 25	14.04
			Amend. No. 26	14.13
2006-232	8-28-06	11- 7-06	Amend. No. 2	1.06(f)
			Amend. No. 3	2.05(a)
			Amend. No. 4	2.07
			Amend. No. 5	2.08
			Amend. No. 6	2.09(b)
			Amend. No. 7	3.01(a)
			Amend. No. 8	5.03
			Amend. No. 9	6.01

				6.02
				6.04
			Amend. No. 10	8.03
			Amend. No. 11	8.08
			Amend. No. 12	9.02(a)
			Amend. No. 13	9.04
			Amend. No. 14	10.02
			Amend. No. 15	10.03
			Amend. No. 16	10.05
			Amend. No. 17	10.08
			Amend. No. 18	10.10(a)
			Amend. No. 19	10.12
			Amend. No. 20	12.07(d)
			Amend. No. 21	12.08(a)
				12.08(e)
			Amend. No. 22	13.04
			Amend. No. 23	14.05
2006-297	10- 3-06	11- 7-06	2	13.04
2009-199	9- 1-09	11- 3-09	Amend. No. 1	2.01(a)
			Amend. No. 2	2.02(a)(2)
			Amend. No. 3	2.03
				2.04
			Amend. No. 4	2.10
2017-237	8-15-17	11- 7-17	Amend. A	2.02(a)
			Amend. C	6.04
			Amend. D Rpld	14.04, 14.05
			Added	14.04
			Amend. E Added	2.02(c)
2017-373	11-20-17	11- 7-17	Prop. A	2.02(a)
			Prop. C	6.04
			Prop. D Rpld	14.04, 14.05
			Added	14.04
			Prop. E Added	2.02(c)

File #: ID 24-1068, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance by the City of Denton authorizing the City Manager to execute a reimbursement agreement with the Union Pacific Railroad Company, a Delaware Corporation ("UPRR" for the purpose of preliminary engineering services at mile post 723.03 (Choctaw Subdivision) Denton (Denton County), Texas for the City's Bonnie Brae Phase 2 Vintage Blvd project: providing for the expenditure of funds in the not-to-exceed amount of forty thousand dollars ($40,000.00); authorizing the expenditure of funds therefor; and providing an effective date.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Capital Projects/Engineering/Public Works

ACM: Cassandra Ogden

DATE: June 4, 2024

SUBJECT

Consider adoption of an ordinance by the City of Denton authorizing the City Manager to execute a reimbursement agreement with the Union Pacific Railroad Company, a Delaware Corporation ("UPRR" for the purpose of preliminary engineering services at mile post 723.03 (Choctaw Subdivision) Denton (Denton County), Texas for the City's Bonnie Brae Phase 2 Vintage Blvd project; providing for the expenditure of funds in the not-to-exceed amount of forty thousand dollars ($40,000.00); authorizing the expenditure of funds therefor; and providing an effective date.

BACKGROUND

The Bonnie Brae Phase 2 Vintage Blvd project completed construction of a traffic signal at the intersection of Vintage Blvd and US-377. Due to the close proximity of the Union Pacific Railroad (UPRR) to the traffic signal, signal preemption by the railroad is required. Traffic signal preemption allows the traffic signal controller to communicate with the lights and gates of the railroad. When preemption is activated, the traffic signal will clear lanes of traffic ensuring cars are not trapped between the gates. Approval of this agreement will allow for the engineering work to be completed by UPRR for their portion of the preemption coordination.

RECOMMENDATION

Staff recommends approval of the reimbursement agreement with Union Pacific Railroad.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

On Nov. 19, 2019 City Council approved the contract with Pavecon Public Works LP which installed the traffic signal (Ordinance 19-2728)

ESTIMATED SCHEDULE OF PROJECT

Engineering is expected to take 3-6 months followed by the execution of a construction agreement.

FISCAL INFORMATION

The City's financial obligation of $40,000.00 for preliminary engineering services will be funded on an as needed basis for reimbursement.

EXHIBITS
Exhibit 1 – Agenda Information Sheet
Exhibit 2 – Ordinance and Agreement

Respectfully submitted:
Cassandra Ogden
Assistant City Manager

For information concerning this agreement, contact Seth Garcia, PMP, at 940-349-8938.

Legal point of contact: Benjamin Samples at 940-349-8312.

ORDINANCE NO. 24-

AN ORDINANCE BY THE CITY OF DENTON AUTHORIZING THE CITY MANAGER TO EXECUTE A REIMBURSEMENT AGREEMENT WITH THE UNION PACIFIC RAILROAD COMPANY, A DELAWARE CORPORATION ("UPRR" FOR THE PURPOSE OF PRELIMINARY ENGINEERING SERVICES AT MILE POST 723.03 (CHOCTAW SUBDIVISION) DENTON (DENTON COUNTY), TEXAS FOR THE CITY'S BONNIE BRAE PHASE 2 VINTAGE BLVD PROJECT; PROVIDING FOR THE EXPENDITURE OF FUNDS IN THE NOT-TO-EXCEED AMOUNT OF FORTY THOUSAND DOLLARS ($40,000.00); AUTHORIZING THE EXPENDITURE OF FUNDS THEREFOR; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Bonnie Brae phase 2 Vintage Blvd project installed a traffic signal at the intersection of US-377 and Vintage Blvd; and

WHEREAS, The UPRR has presented the City with a Reimbursement Agreement for preliminary engineering services related to highway interconnect of traffic signals to active warning devices, a copy of which is attached hereto and made a part hereof Exhibit A (the "Agreement") including the fee associated; and

WHEREAS, on November 19, 2019, council authorized the contract with Pavecon Public Works LP, for the construction of the Bonnie Brae Phase 2 Vintage Widening Project which includes the installation of the traffic signal at the intersection of US-377 and Vintage Blvd; and

WHEREAS, the UPRR requires an approved Reimbursement Agreement between the City and the UPRR providing preliminary engineering services for the City's traffic signal preemption; and

WHEREAS, the City Council having considered the importance of the Project to the citizens of Denton and finding that it is in the public's health and safety interest, is of the opinion that it should approve the Agreement;

NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The findings and recitations contained in the preamble of this ordinance are incorporated herein by reference as true and as if fully set forth in the body of this ordinance.

SECTION 2. The City Manager, or designee, is hereby authorized to execute the Reimbursement Agreement for Preliminary Engineering Services with the Union Pacific Railroad, a copy of which is attached hereto as Exhibit "A" and made a part hereof for all purposes.

SECTION 3. The City Manager, or designee, is hereby authorized to expend funds in an amount not to FORTY THOUSAND DOLLARS ($40,000.00).

SECTION 4. The City Manager is further authorized to carry out all duties and agreements to be performed by the City under the Agreement.

SECTION 5. The City Manager, or designee, is the City's designated, authorized official, with the power to authorize, accept, reject, alter or terminate the Agreement on behalf of the City and act on behalf of the City of Denton in all matters related to the Agreement and any subsequent agreements that may result.

SECTION 6. This Ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____. The ordinance was passed and approved by the following vote [___ - ___]:

	Aye	Nay	Abstain	Absent
Gerard Hudspeth, Mayor:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

By: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

By: Benjamin N. Samples, AA

EXHIBIT A
(UPRR Reimbursement Agreement)

REIMBURSEMENT AGREEMENT
PRELIMINARY ENGINEERING SERVICES

Effective Date:

Estimate: $40,000.00

THIS REIMBURSEMENT AGREEMENT (**Agreement**) is made and entered into as of the **Effective Date**, by and between UNION PACIFIC RAILROAD COMPANY, a Delaware corporation (**Railroad**), and CITY OF DENTON, TEXAS (**Agency**).

RECITALS

A. Agency desires to initiate the project more particularly described on Exhibit A attached hereto (**Project**).

B. The Project will affect Railroad's track and right of way at or near the Project area more particularly described on Exhibit A.

C. Railroad agrees to collaborate with Agency on the conceptualization and development of the Project in accordance with the terms and conditions of this Agreement.

AGREEMENT

NOW THEREFORE, the parties hereto agree as follows:

1. Railroad, and/or its representatives, at Agency's sole cost and expense, agrees to perform (or shall cause a third-party consultant to perform on Railroad's behalf) the preliminary engineering services work described on Exhibit B attached hereto (**PE Work**). Agency acknowledges and agrees that: (a) Railroad's review of any Project designs, plans and/or specifications, as part of the PE Work, is limited exclusively to potential impacts on existing and future Railroad facilities and operations; (b) Railroad makes no representations or warranties as to the validity, accuracy, legal compliance, or completeness of the PE Work; and (c) Agency's reliance on the PE Work is at Agency's own risk.

2. Notwithstanding the Estimate **(Estimate)**, Agency agrees to reimburse Railroad and/or Railroad's third-party consultant, as applicable, for one hundred percent (100%) of all actual costs and expenses incurred for the PE Work. During the performance of the PE Work, Railroad will provide (and/or will cause its third-party consultant to provide) progressive billing to Agency based on actual costs in connection with the PE Work. Within sixty (60) days after completion of the PE Work, Railroad will submit (and/or will cause its third-party consultant to submit) a final billing to Agency for any balance owed for the PE Work. Agency shall pay Railroad (and/or its third-party consultant, as applicable) within thirty (30) days after Agency's receipt of any progressive and final bills submitted for the PE Work. Bills will be submitted to the Agency using the contact information provided on Exhibit C. Agency's obligation hereunder to reimburse Railroad (and/or its third-party consultant, as applicable) for the PE Work shall apply regardless whether Agency declines to proceed with the Project or Railroad elects not to approve the Project.

3. Agency acknowledges and agrees that Railroad may withhold its approval for the Project for any reason in its sole discretion, including without limitation, impacts to Railroad's safety, facilities, or operations. If Railroad approves the Project, Railroad will continue to work with Agency to develop final plans and specifications, and prepare material and force cost estimates for any Project related work performed by Railroad.

4. If the Project is approved by Railroad, Railroad shall prepare and forward to Agency a Construction and Maintenance Agreement (**C&M Agreement**) which shall provide the terms and conditions for the construction and ongoing maintenance of the Project. Unless otherwise expressly set forth in the C&M Agreement, the construction and maintenance of the Project shall be at no cost to Railroad. No construction work on the Project affecting Railroad's property or operations shall commence until the C&M Agreement is finalized and executed by Agency and Railroad.

5. Neither party shall assign this Agreement without the prior written consent of the other party, which consent shall not be unreasonably withheld, conditioned, or delayed.

6. No amendment or variation of the terms of this Agreement shall be valid unless made in writing and signed by the parties.

7. This Agreement sets forth the entire agreement between the parties regarding the Project and PE Work. To the extent that any terms or provisions of this Agreement regarding the PE Work are inconsistent with the terms or provisions set forth in any existing agreement related to the Project, such terms and provisions shall be deemed superseded by this Agreement to the extent of such inconsistency.

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement as of the Effective Date.

CITY OF DENTON, TEXAS	**UNION PACIFIC RAILROAD COMPANY,** a Delaware Corporation
Signature	Signature
Printed Name	Erik Lewis Printed Name
Title	Manager I, Engineering – Public Projects Title

Exhibit A
Project Description and Location

Project Description

City of Denton, TX proposes to interconnect highway traffic signals at Fort Worth Drive with the active warning devices at the crossing at the location referred to below.

Location

Choctaw Subdivision

DOT	Crossing Type	Milepost	Street Name
795327T	Public	723.03	Vintage Boulevard

Exhibit B
Scope of Project Services

Scope of work includes, but is not limited to the following

- Field diagnostic(s) and inspections
- Plan, specification, and construction review
- Project design
- Preparation of Project estimate for force account or other work performed by the Railroad
- Meetings and travel

Exhibit C
Billing Contact Information

Name	Seth Garcia
Title	
Address	401 N Elm Street, Denton, TX, 76201
Work Phone	(940) 349-8938
Cell Phone	
Email	seth.garcia@cityofdenton.com
Agency Project No.	

File #: ID 24-958, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton, Texas approving a Second Amendment to an Economic Development Program Grant Agreement with NorthStar Bank of Texas, an assignee of Windjammer, LTD., dated March 23, 2004; and providing an effective date.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: **Economic Development**

ACM: **Christine Taylor, Assistant City Manager**

DATE: **June 4, 2024**

SUBJECT

Consider adoption of an ordinance of the City of Denton, Texas approving a Second Amendment to an Economic Development Program Grant Agreement with NorthStar Bank of Texas, an assignee of Windjammer, LTD., dated March 23, 2004; and providing an effective date.

BACKGROUND

The City has an existing economic development program agreement with NorthStar Bank of Texas under a First Amendment that assigned the grant agreement from Windjammer, Ltd. to NorthStar Bank of Texas in 2009 (Ordinance 2009-113). Per that agreement, the City can formally consent to the assignment and make the necessary amendments to the contract upon acceptance.

The City of Denton originally entered into a Chapter 380 Economic Development Program Grant Agreement with Windjammer, Ltd. (Shelton Enterprises), developer of the Unicorn Lake mixed-use development in 2004 (Ordinance 2004-093). In return for the construction of public infrastructure, the developers of the 134-acre project received a grant that equals one-half penny of the sales tax generated by the development for a period of 15 years and will complete the 180 program grant installments in November 2025.

The City of Denton received notification that the NorthStar Bank of Texas merged with Independent Bank on August 31, 2017 (Exhibit 3). Independent Bank assumed the obligations of NorthStar Bank under the Agreement. This amendment does not change any of the incentive terms of the underlying economic development program grant agreement and is prepared to reflect the bank merger.

FISCAL INFORMATION

There will be no fiscal impact as a result of this amendment. The Second amendment documents the Bank merger of NorthStar Bank of Texas with Independent Bank.

EXHIBITS

1. Agenda Information Sheet
2. Ordinance and Second Amendment
3. Bank Merger Notification Letter

Submitted by:
Erica Sullivan
Economic Development Program Administrator

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, TEXAS APPROVING A SECOND AMENDMENT TO AN ECONOMIC DEVELOPMENT PROGRAM GRANT AGREEMENT WITH NORTHSTAR BANK OF TEXAS, AN ASSIGNEE OF WINDJAMMER, LTD., DATED MARCH 23, 2004; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, pursuant to Ordinance Number 2004-093, the City of Denton and Windjammer, Ltd. entered into an Economic Development Program Grant Agreement (the "Agreement") to stimulate the development of a commercial property known as the Unicorn Lake Development; and

WHEREAS, the Economic Development Program Grant Agreement was amended under a first Amendment, adopted on May 5, 2009 assigning the Economic Development Program Grant Agreement from Windjammer, Ltd. to NorthStar Bank of Texas through ordinance 2009-113; and

WHEREAS, in 2017, NorthStar Bank of Texas merged with Independent Bank, a Texas state financial institution ("Assignee"), pursuant to which Independent Bank assumed the rights and obligations of NorthStar Bank of Texas under the Agreement; and

WHEREAS, as required by the Agreement, Independent Bank provided written notice of the Assignment to the City; and

WHEREAS, the City deems it necessary to further amend the Agreement to reflect the merger and correctly identify the Grantee under the Agreement as Independent Bank; NOW THEREFORE,

THE COUNCIL OF THE CITY OF DENTON, TEXAS HEREBY ORDAINS:

SECTION 1. The findings and recitations in the preamble of this Ordinance are found to be true and are incorporated herein by reference.

SECTION 2. The City Manager, or their designee, is hereby authorized to execute a Second Amendment to Economic Development Program Grant Agreement (the "Second Amendment") in substantially the form attached hereto as Exhibit A and made part of this ordinance for all purposes.

SECTION 3. The City Manager, or their designee, is hereby authorized to execute the City of Denton's rights and duties as set forth in the Agreement as amended.

SECTION 4. This ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____, the ordinance was passed and approved by the following vote [___ - ___]:

	Aye	Nay	Abstain	Absent
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Scott Bray Scott Bray 2024.05.31 12:29:28 -05'00'

Exhibit A

ECONOMIC DEVELOPMENT PROGRAM GRANT AGREEMENT FOR THE UNICORN LAKE DEVELOPMENT

AMENDMENT 2

This Amendment 2 to Economic Development Program Grant Agreement dated March 23, 2004 is made by and between Windjammer, Ltd., a Texas limited partnership, and The City Of Denton, Texas, a Texas municipal corporation ("City").

WHEREAS, pursuant to Ordinance Number 2004-093, the City of Denton and Windjammer, Ltd. entered into an Economic Development Program Grant Agreement (the "Agreement") to stimulate the development of a commercial property known as the Unicorn Lake Development; and

WHEREAS, the Economic Development Program Grant Agreement was amended under a first Amendment, adopted on May 5, 2009 assigning the Economic Development Program Grant Agreement from Windjammer, Ltd. to NorthStar Bank of Texas through ordinance 2009-113; and

WHEREAS, in 2017, NorthStar Bank of Texas merged with Independent Bank, a Texas state financial institution ("Assignee"), pursuant to which Independent Bank assumed the rights and obligations of NorthStar Bank of Texas under the Agreement; and

WHEREAS, as required by the Agreement, Independent Bank provided written notice of the Assignment to the City;

NOW, THEREFORE, for good and valuable consideration, the City and Assignee hereby agree as follows:

1. The recitals set forth above are true and correct and are incorporated herein by reference.
2. Assignee shall assume all rights, powers, and obligations of NorthStar Bank of Texas, as assignee of Windjammer, Ltd., pursuant to the Agreement as amended by Amendment 1.
3. Throughout the Agreement, all references to "Windjammer, Ltd." shall be stricken and replaced with references to "Independent Bank."
4. The persons executing this Amendment 2 to the Agreement have full power and authority to bind the parties to the provisions hereof.
5. All other provisions, terms, covenants, duties, rights, obligations, and agreements contained in the Agreement shall remain in full force and effect.
6. This Amendment 2 to Agreement may be executed in any number of counterparts, each of which shall be an original, but all of which together shall constitute one and the same instrument.

In witness whereof, the parties hereto have executed this Amendment 2 to Agreement as of the _____ day of _____, 2024.

CITY OF DENTON

BY: _____
SARA HENSLEY
CITY MANAGER

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Scott Bray Scott Bray 2024.04.10 10:16:48 -05'00'

INDEPENDENT BANK

BY: Daniel W. Brooks
DAN BROOKS
VICE CHAIRMAN

THIS AGREEMENT HAS BEEN
BOTH REVIEWED AND APPROVED
as to financial and operational
obligations and business terms

_____
Signature

Director of Economic Development
Title

Economic Development
Department

THE STATE OF TEXAS §
§
COUNTY OF DALLAS §

This instrument was acknowledged before me on the 6th day of May, 2024, by Dan Brooks, Vice Chairman of Independent Bank, a Texas state financial institution.

PATRISIA MAYA HAASE
Notary Public, State of Texas
Comm. Expires 11-03-2024
Notary ID 132763277

P. Maya Haase
Notary Public, State of Texas

Independent Bank

August 31, 2017

Dear Valued Customer,

As you may know, Northstar Bank recently merged with Independent Bank. Independent Bank is founded on the belief that we have a deep responsibility to solve problems and build healthy communities – through purpose-driven, high-performance banking.

Our entire team is pleased to offer you a full suite of commercial services, including ACH Origination, Lockbox, Positive Pay & ACH Blocking, Remote Deposit Capture, Wire Transfer services and more.

Over the weekend of October 6 - 9, 2017, we will begin the process of converting your commercial services from the data processing systems previously maintained by Northstar Bank to Independent Bank's data processing and online banking systems.

IMPORTANT

★ Sept. – Oct. 2017 ★

In an effort to provide a seamless continuation of your commercial services, Independent Bank may ask for your participation in conversion-related activities. Please do not discard future communications from Independent Bank. They may contain important information related to your specific services.

Independent Bank is providing your company with written notice to amend your original service agreement(s) with Northstar Bank. This agreement amendment will apply to your company and all accounts and/or subsidiaries and affiliates utilizing Treasury Management services. You do not need to do anything further for your company to consent to the enclosed amendment(s)/agreement(s).

It is our commitment to deliver a superior banking experience to every customer.

Thank you for your support,

Treasury Management
Independent Bank
Treasury.support@ibtx.com
972.529.3363 Main

File #: ID 24-946, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton approving a grant to Eagle Surveying, LLC for improvements located at 212 W. Sycamore St. from the Downtown Reinvestment Grant Program in an amount not to exceed $50,000.00; and providing for an effective date.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: **Economic Development**

ACM: **Christine Taylor, Assistant City Manager**

DATE: **June 4, 2024**

SUBJECT

Consider adoption of an ordinance of the City of Denton approving a grant to Eagle Surveying, LLC for improvements located at 212 W. Sycamore St. from the Downtown Reinvestment Grant Program in an amount not to exceed $50,000.00; and providing for an effective date.

BACKGROUND

The building at 212 W. Sycamore St. was opened in May 1965 as the new location for Denton County Teachers Federal Credit Union (now DATCU). The building was further expanded to its current footprint in 1969. DATCU moved out of the building in 2015 when it relocated its corporate headquarters to Corinth. A plumbing company occupied the building until late last year.

The existing building is approximately 3,510 SF. The architect laid out the space to expand the building sufficiently to accommodate the business's growing needs. As has been done with the other surrounding buildings (222 S. Elm and 212 S. Elm), they intend to add a second floor. The architect worked at preserving the original portion of the building and adding the much-needed space with an overall design that complements each other. The architect and Historical Preservation Officer worked together to ensure the preservation of the original brick, leaving it exposed, and reintroducing the standing seam metal roof, finished in a copper color to pay homage to the original copper roof.

The goal is to make the addition feel as if it was originally intended by using new materials that are compatible with the historic materials, features, size, scale, and proportion. The proposed renovations will significantly upgrade the utilities of the building as well as overall energy efficiency.

The project is located within the Tax Increment Reinvestment Zone Number One and Downtown Square Districts. It has been reviewed by the Historic Preservation Officer for Design Consistency, as outlined in the Denton Development Code Section 4.10.1, and received approval to proceed with the proposed updates to the building façade and interior.

Projected Improvements include: Façade/Building Rehab and Interior/Code Improvements
Project Submitted Expenses: $1,465,727.93
Grant Request: $50,000
Applicable Policy Limits:

- *Façade/Building Rehab*: Grants are limited to a 50% match of the eligible project's costs, with a cap of $50,000 per grant for facade, roof and foundation work. Roof and foundation repair may constitute no more than half of the request and shall only be considered for funding if included as a portion of a larger project. Paint-only grants are limited to a 50% match with a cap of $7,500 per grant.

- *Interior/Code Improvements:* Grants are limited to a 50% match with a cap of $50,000 per grant

PRIOR ACTION/REVIEW

March 7, 2024 - Downtown Economic Development Committee (DEDC) reviewed and scored the applications. The building renovation application received an average score of 34 points, making it eligible for a recommendation of up to $50,000. These scores support the recommendations to approve the applications as requested. The grant application request and DEDC recommendation is for $50,000.

March 27, 2024 – Downtown Denton Tax Increment Reinvestment Zone Number One Board reviewed the application and voted to recommend City Council approve the Downtown Reinvestment Grant Program application in the amount not to exceed $50,000, as recommended by the DEDC for Eagle Surveying, LLC, located at 212 W. Sycamore St.

OPTIONS

1. Recommend approval of grant recommended by the Downtown TIRZ #1 Board.
2. Recommend a lessor amount than recommended by the Downtown TIRZ #1 Board.
3. Do not recommend approval of grant application.

EXHIBITS

Exhibit 1 – Agenda Information Sheet
Exhibit 2 – Ordinance and Agreement
Exhibit 3 - HPO Review
Exhibit 4 – Presentation
Exhibit 5 – LLC Search

Respectfully submitted:
Kristen Pulido
Main Street Program Manager

ORDINANCE NO._____

AN ORDINANCE OF THE CITY OF DENTON APPROVING A GRANT TO EAGLE SURVEYING, LLC FOR IMPROVEMENTS LOCATED AT 212 W. SYCAMORE FROM THE DOWNTOWN REINVESTMENT GRANT PROGRAM IN AN AMOUNT NOT TO EXCEED $50,000.00; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, on April 3, 2007, the City Council approved the Downtown Reinvestment Grant Program (the "Program") by Ordinance No. 2007-072; and

WHEREAS, on December 14, 2021, the City Council approved changes to the Program by Ordinance No. 21-2626; and

WHEREAS, Eagle Surveying, LLC, owner of the property located at 212 W. Sycamore. (the "Property"), applied for a $50,000.00 grant in accordance with the Program; and

WHEREAS, the Tax Increment Financing Reinvestment Zone Number One Board and the Downtown Economic Development Committee reviewed the application in accordance with the Program and recommend a grant in an amount not to exceed $50,000.00; and

WHEREAS, it is in the public interest and benefits the Downtown TIRZ to award the Downtown Reinvestment Grant, thereby stimulating economic development and promoting desired redevelopment in the downtown area of the City of Denton; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The findings and recitations in the preamble of this ordinance are found to be true and incorporated herein by reference as if fully set forth in the body of this ordinance.

SECTION 2. The City Council of the City of Denton hereby approves the Agreement attached hereto authorizing a grant in an amount not to exceed $50,000.00 from the Program.

SECTION 3. The City Manager, or their designee, is hereby authorized to execute the Agreement and to carry out the duties and responsibilities of the City, including the expenditure of funds as provided in the Agreement.

SECTION 4. This Ordinance shall become effective immediately upon its passage and approval.

The motion to approve this Ordinance was made by _____ and seconded by _____; the Ordinance was passed and approved by the following vote [___ - ___]:

	Aye	Nay	Abstain	Absent
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Scott Bray Scott Bray 2024.05.31 12:29:28 -05'00'

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DOWNTOWN REINVESTMENT GRANT AGREEMENT

This Downtown Reinvestment Grant Agreement (the "Agreement") is entered into by and between the City of Denton, Texas (the "City"), duly acting herein by and through its City Manager, and Eagle Surveying, LLC, a Texas limited liability company with a principal place of business at 212 W. Sycamore St., Denton, TX 76201 ("Owner").

WHEREAS, the City Council of Denton, Texas (the "City Council") has, by Ordinance No. 2007-072, elected to offer downtown reinvestment grant incentives and has adopted guidelines and criteria governing downtown reinvestment grant incentive agreements known as the Downtown Reinvestment Grant Program Policy (the "Program"), a copy of which is on file in the City of Denton Economic Development Office and which is incorporated herein by reference; and

WHEREAS, the Program constitutes appropriate "guidelines and criteria" governing downtown reinvestment grant incentive agreements to be entered into by the City;

WHEREAS, the Owner will be the owner or have a leasehold interest, as of the Effective Date (as hereinafter defined), of certain real property more particularly described in Exhibit "A" attached hereto and incorporated herein by reference and made a part of this Agreement for all purposes (the "Premises"); and

WHEREAS, on the 13th day of February, 2024, Owner submitted an application for a reinvestment grant with various attachments to the City concerning the contemplated use of the Premises (the "Application"), which is attached hereto and incorporated herein by reference as Exhibit "B"; and

WHEREAS, the City Council of the City of Denton finds that the contemplated use of the Premises, the Improvements (as hereinafter defined) to the Premises as set forth in this Agreement, and the other terms hereof are consistent with encouraging development in accordance with the purposes and are in compliance with the Program and similar guidelines and criteria adopted by the City and all applicable law;

NOW, THEREFORE, the City Manager and Owner for and in consideration of the premises and the promises contained herein do hereby contract, covenant, and agree as follows:

I.
TERMS AND CONDITIONS OF REIMBURSEMENT GRANT

A. In consideration of and subject to the Owner meeting all the terms and conditions of reimbursement set forth herein, the City will pay to the Owner the following reimbursement grant:

1. A reimbursement grant in an amount not to exceed $50,000 (the "Grant") attributable to new Improvements, as hereinafter defined, being constructed on the Premises.

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2. The Grant will be distributed to Owner as a lump sum reimbursement upon completion of the Project, the receipt of adequate documentation of expenditure of the Grant amount on costs necessary and related to the Improvements as described in Exhibit "B" attached hereto, and approval of the completed Improvements by the City.

B. A condition of receiving the Grant is that, by February 13, 2025, Owner will rehab the façade, renovate the building's exterior, and improve the interior to bring up to code as described in Exhibit "B" (collectively, the "Improvements") on the Premises.

C. A condition of the Reimbursement is that the Improvements be completed and used substantially in accordance with the description of the project set forth in Exhibit "B" and comply with the requirements of the Program.

D. Owner agrees to comply with all the terms and conditions set forth in this Agreement.

E. The parties expressly understand and agree that City's payment of the Grant is contingent upon City's receipt and appropriation of adequate funds to pay the Grant. If adequate funds are not available to make the payment under this Agreement, City may, at its option, either reduce the amount of the Grant or terminate the Agreement.

F. It is expressly understood that this Agreement in no way obligates the City to provide more funds than the Grant amount.

II.
CONDITION OF REIMBURSEMENT

A. Prior to payment of any portion of the Grant, all ad valorem real property taxes with respect to the Premises and all other property in the City owned by the Owner shall be current.

B. Prior to the payment of any portion of the Grant, Owner shall have constructed the Improvements as specified in Exhibit "B."

C. If alterations to the Improvements are made for any reason within one (1) year from final payment of the Grant, Owner is required to reimburse the City in the full amount of the Grant, unless Owner has received advance written approval of the alterations from the City.

D. Prior to the award of the Grant, Owner shall own or have a leasehold interest in the Premises.

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III.
RECORDS AND EVALUATION OF PROJECT

A. The Owner shall provide access and authorize inspection of the Premises by City employees and allow sufficient inspection of financial information related to construction of the Improvements to ensure that the Improvements are made, and performance thresholds are met according to the specifications and conditions of this Agreement. Such inspections shall be done in a way that will not interfere with Owner's business operations.

IV.
GENERAL PROVISIONS

A. The City has adopted guidelines and criteria for the Program that allow it to enter into this Agreement containing the terms set forth herein.

B. The City has determined that procedures followed by the City to enter into this Agreement and the obligations of the parties to this Agreement conform to the requirements of the Code and the Program.

C. In the event of any conflict between the City zoning ordinances, or other City ordinances or regulations, and this Agreement, such ordinances or regulations shall control.

D. Owner represents and warrants that Owner is authorized to make the Improvements to the Premises.

V.
NOTICE

All notices called for or required by this Agreement shall be addressed to the following, or such other party or address as either party designated in writing, by certified mail postage prepare, by hand delivery or via facsimile:

OWNER:

Dan Rick
222 S. Elm St.
Suite 200
Denton, Texas 76201

CITY:

Sara Hensley, City Manager
City of Denton
215 East McKinney
Denton, Texas 76201
Fax No. 940.349.8596

VI.
CITY COUNCIL AUTHORIZATION

This Agreement was authorized by the City Council by passage of Ordinance No. _____ authorizing the City Manager to execute this Agreement on behalf of the City.

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VII.
SEVERABIILTY

In the event any section, subsection, paragraph, sentence, phrase or word is held invalid, illegal or unconstitutional, the balance of this Agreement shall stand, shall be enforceable and shall be read as if the parties intended at all times to delete said invalid section, subsection, paragraph, sentence, phrase, or word. In the event that (i) the term of the Grant with respect to any property is longer than allowed by law, or (ii) the Grant applies to a broader classification of property than is allowed by law, then the Grant shall be valid with respect to the classification of property abated hereunder, and the portion of the term, that is allowed by law.

VIII.
OWNER STANDING

Owner, as a party to this Agreement, shall be deemed a proper and necessary party in any litigation questioning or challenging the validity of this Agreement or any of the underlying ordinances, resolutions, or City Council actions authorizing same and Owner shall be entitled to intervene in said litigation.

IX.
APPLICABLE LAW

This Agreement shall be construed under the laws of the State of Texas and is fully performable in Denton County, Texas. Venue for any action under this Agreement shall be in Denton County, Texas.

X.
ENTIRE AGREEMENT

This instrument with the attached exhibits contains the entire agreement between the parties with respect to the transaction contemplated in this Agreement.

XI.
BINDING

This Agreement shall be binding on the parties and the respective successors, assigns, heirs, and legal representatives.

XII.
COUNTERPARTS

This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

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XIII.
SECTION AND OTHER HEADINGS

Section or other headings contained in this Agreement are for reference purposes only and shall not affect in any way the meaning or interpretation of this Agreement.

XIV.
NO JOINT VENTURE

Nothing contained in this Agreement is intended by the parties to create a partnership or joint venture between the parties, and any implication to the contrary is hereby disavowed.

XV.
AMENDMENT

This Agreement may be modified in writing by the parties hereto to include other provisions which could have originally been included in this Agreement or to delete provisions that were not originally necessary to this Agreement.

XVI.
FORCE MAJEURE

If, because of flood, fire, explosions, civil disturbances, strikes, war, acts of God, or other causes beyond the control of either Party, either Party is not able to perform any or all of its obligations under this Agreement, then the respective Party's obligations hereunder shall be suspended during such period but for no longer than such period of time when the party is unable to perform.

XVII.
INDEMNIFICATION

OWNER SHALL INDEMNIFY, SAVE AND HOLD HARMLESS THE CITY, ITS ELECTED OFFICIALS, OFFICERS, AGENTS, ATTORNEYS AND EMPLOYEES (COLLECTIVELY, THE "INDEMNITEES") FROM AND AGAINST ANY CLAIM, DEMAND, ACTION OR CAUSE OF ACTION WHICH DIRECTLY OR INDIRECTLY ARISES FROM CITY'S GRANT AND OWNER'S PERFORMANCE OF ITS OBLIGATIONS HEREUNDER AND ANY CONTESTS OR CHALLENGES TO THE LEGAL AUTHORITY OF THE CITY OR OWNER TO ENTER INTO THIS AGREEMENT AND ANY AND ALL LIABILITIES, LOSSES, COSTS OR EXPENSES (INCLUDING ATTORNEY'S FEES AND DISBURSEMENTS) THAT ANY INDEMNITEES SUFFER OR INCURS AS A RESULT OF ANY OF THE FOREGOING; PROVIDED, HOWEVER, THAT OWNER SHALL HAVE NO OBLIGATION UNDER THIS PARAGRAPH TO THE CITY WITH RESPECT TO ANY OF THE FOREGOING ARISING OUT OF THE GROSS NEGLIGENCE OR WILLFUL MISCONDUCT OF THE CITY OR THE BREACH BY THE CITY OF THIS AGREEMENT.

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This Agreement is executed to be effective on the executed date of the ____ day of _____, 2024, (the "Effective Date") by duly authorized officials of the City and Owner.

CITY OF DENTON

_____
SARA HENSLEY, CITY MANAGER

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Scott Bray Scott Bray 2024.05.08 15:59:59 -05'00'

OWNER:
EAGLE SURVEYING, LLC

By: DocuSigned by: Dan Rick 23DDE580595C460...
DAN RICK, Manager

DocuSign Envelope ID: D9DC3D8B-6984-4788-B849-6A8646738A98

EXHIBIT A
LEGAL DESCRIPTION OF THE PREMISES

Being Lot 2, Block 1 of SYCAMORE ADDITION, an Addition in the City of Denton, Denton County, Texas according to the Conveyance Plat thereof recorded under Doc Number 2023-8, Plat Records, Denton County, Texas.

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EXHIBIT B
APPLICATION AND IMPROVEMENTS

DocuSign Envelope ID: D9DC3D8B-6984-4788-B849-6A8646738A98

EXHIBIT A

CITY OF DENTON
DOWNTOWN REINVESTMENT GRANT PROGRAM APPLICATION

Department of Economic Development
401 N. Elm St., Denton, TX 76201
940-349-7776
www.cityofdenton.com
ED@cityofdenton.com

DocuSign Envelope ID: D9DC3D8B-6984-4788-B849-6A8646738A98

Downtown Reinvestment Grant Program Application

Please return completed the application with necessary attachments and signatures to the Economic Development Department office at 401 N. Elm St., Denton, Texas. If you have any application questions, please contact the Economic Development Department at 940-349-7776.

Applicant Name	DAN RICK	Date	2/13/24
Business Name	EAGLE SURVEYING, LLC		
Mailing Address	222 S. ELM ST, STE 200 DENTON, TX 76201		
Contact Phone	940-600-9004	Email Address	DAN@EAGLESURVEYING.COM
Building Owner (if different from applicant)			
Historical/Current Building Name			
Project Site/Address	212 W. SYCAMORE ST., DENTON		

Type of Work: (check all that apply)

- ☐ Paint Only
- ☐ Signage
- ☐ Utility Upgrades
- ☒ Facade & Building Renovation
- ☐ Awnings
- ☐ Impact Fees
- ☒ Interior/Code Improvements
- ☐ Fire Suppression System

Details of planned improvements relating to grant request (attach additional information if necessary).

SEE ATTACHED

DocuSign Envelope ID: D9DC3D8B-6984-4788-B849-6A8646738A98

How will this project benefit Downtown?

SEE ATTACHED

Legal Description of the property:

LOT 2, BLOCK 1
SYCAMORE ADDITION

Project Categories	Estimated Costs	Grant Requested
Facade/Building Rehab	$879,436.76	
Awnings		
Signs		
Impact Fees		
Utility Upgrades		
Interior/Code Improvements	$586,291.17	
Fire Suppression System		
Totals	$1,465,727.93	

TOTAL COST OF PROPOSED PROJECT $ 1,465,727.93

TOTAL GRANT REQUEST
(May not exceed 50% of TOTAL COST up to $50,000) $ 50,000.—

Attach all required color samples of paint, awning/canopy, sign design, etc., as well as photographs of building's exterior facade, roof and foundation.

Paul Rill
Applicant's Signature

2/13/24
Date

DocuSign Envelope ID: D9DC3D8B-6984-4788-B849-6A8646738A98

DOWNTOWN REINVESTMENT GRANT AGREEMENT FORM

Please complete and return with the Downtown Reinvestment Grant Application to the Economic Development office, 401 N. Elm St., Denton, Texas. If you have any questions, please contact the Economic Development Department at 940- 349-7776.

I have met with a representative from the Economic Development Department, and I have read and fully understand the Downtown Reinvestment Grant procedures established by the Denton City Council. I intend to use this grant program for the aforementioned renovation projects to advance the efforts of revitalization and historic preservation of Denton's historic downtown. *I have not received, nor will I receive insurance monies for this revitalization project.*

I understand that if I am awarded a Downtown Reinvestment Grant by the City of Denton, any deviation from the approved project may result in the partial or total withdrawal of the grant. (If I am awarded a reinvestment grant for facade, awning or sign work and the facade, sign or awning is altered for any reason within **one (1) year** from construction, I may be required to reimburse the City of Denton immediately for the full amount of the grant.)

Business/Organization Name EAGLE SURVEYING, LLC

Applicant's Signature | *Printed Name* DAN RICK | *Date* 2/13/24

Building Owner's Signature (if different from applicant) | *Printed Name* | *Date*

This section is to be completed by Economic Development staff.

Date considered by DEDC | *Recommendation* | *Staff Signature*

Date considered by TIRZ #1 Board | *Recommendation* | *Staff Signature*

Date considered by City Council | *Approval* | *Staff Signature*

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REVIEW PROCESS

Total project scores can range from 0 to 35 points.

Recommendations will be based on:

0-9 points	=	No funding
10-14 points	=	Grant recommendation of up to $7,500
15-19 points	=	Grant recommendation up to $15,000
20-24 points	=	Grant recommendation up to $25,000
25-29 points	=	Grant recommendation up to $35,000
30-40 points	=	Grant recommendation up to $50,000

All grants will be subject to a recommendation by the Downtown Economic Development Committee, TIRZ #1 Board, and approval by the Denton City Council.

Grant applications will be scored based on:

- **Economic Impact - 0-5 Points**
  - Total investment dollars as provided in the grant application
  - Investment in structure construction or renovation (excluding purchase price)
  - Investment in furniture, fixtures and equipment; estimated taxable sales

- **Historic Accuracy/Design - 0-5 Points**
  - New construction/complements existing buildings
  - Restores building to historic accuracy
  - Renovation of building with historic marker (Local, state or national historic marker)

- **Upgrades to Utilities/Impact Fees - 0-5 Points**
  - Requires upgrades in electrical service
  - Increases existing water/wastewater capacity
  - No existing utilities to structure
  - Extends water/wastewater lines (improves additional properties)
  - Impact fees may be ranked depending upon percentage of fees to eligible expenses

- **Increases Population - 0-5 Points**
  - Increases consumer traffic (day or night)
  - Increases quality residential units
  - Increases walkability or pedestrian activity/accessiblity

- **Interior/Code Improvements - 0-5 points**
  - Asbestos and mold abatement
  - Fire suppression systems
  - ADA improvements

- **Other - 0-15 Points**
  Including, but not limited to:
  - Partners with other businesses (i.e., shared parking)
  - Project is a "target" business (i.e., grocery, pharmacy, locally owned)
  - Promotes development of Denton arts and entertainment
  - Longevity of business

- **Fire Suppression System – 40 points**
  - Fire Suppression Systems applications automatically receive the maximum score

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Renovation of 212 W. Sycamore St., Denton

Eagle Surveying is purchasing the building located at 212 W. Sycamore St. in Denton to be used as our new corporate office. We opened for business in 2016 and leased two rooms at 210 S. Elm St. for our first office. Over the years, as Eagle grew, we leased more space within the 210 S. Elm building until the opportunity to relocate to the newly renovated 222 S. Elm St. building became an option. Eagle has been proud to call that building home for the past several years, but we have once again found ourselves needing more space and flexibility than a leased building would accommodate. We are excited to purchase the building on Sycamore and the plans to expand it to approximately 5,650 SF, nearly doubling the space we currently have.

The building currently located at 212 W. Sycamore St. was opened in May 1965 as the new location for Denton County Teachers Federal Credit Union (now DATCU). The building was further expanded to its current footprint in 1969. DATCU moved out of the building in 2015 when it relocated its corporate headquarters to Corinth. The building was occupied by a plumbing company until late last year. We really like the mid-century modern design and hope to only improve upon it.

The existing building is approximately 3,510 SF. As we've worked with our architect to lay out the space to sufficiently accommodate our growing needs, we've determined that we need to expand the building. As has been done with the other surrounding buildings (222 S. Elm and 212 S. Elm), we intend to add a second floor to the building. We feel that our architect has done a great job preserving the original portion of the building and adding the much-needed space with an overall design that complements each other. Our goal is to make the addition feel as if it was originally intended. The proposed renovations will significantly upgrade the utilities to the building as well as the overall energy efficiency.

We believe this project will greatly benefit and enhance the southern section of the TIRZ area. Projects like these will likely encourage other improvements and development in this area. This project will facilitate the growth of a Denton-based small business in the downtown area, allowing us to continue offering our services throughout the DFW Metroplex from here. We are excited to better expose this unique part of downtown through these redevelopment efforts.

One of the objectives of this project is to improve the quality of pedestrian traffic within the 200 S. Elm block of businesses. Pedestrian traffic between office buildings is essential and encouraged due to the shared relationships between the current tenants. We also hope to improve the alleyway that connects all the properties along the block with a pedestrian and bicycle-friendly design while maintaining a slow-moving flow of vehicular traffic to the parking areas. We feel that supporting the secondary 'frontage' back entrances for each business can help to enhance property aesthetics and encourage walkability and safety throughout the block.

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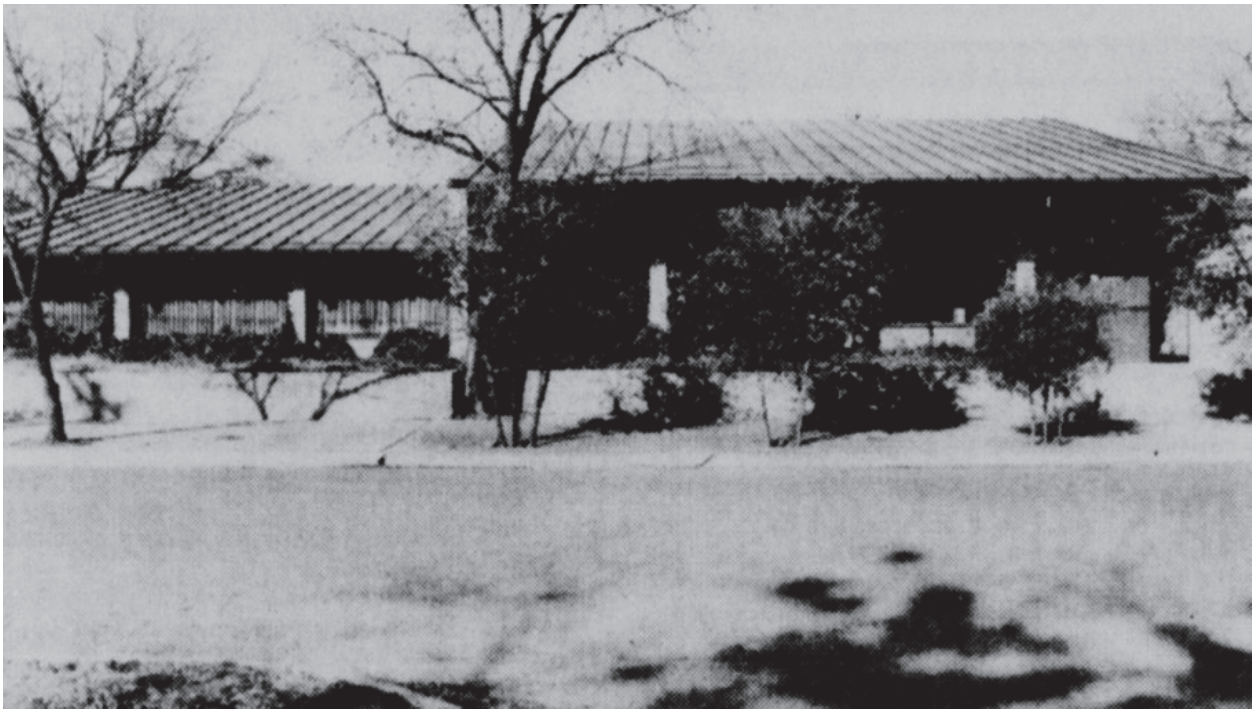
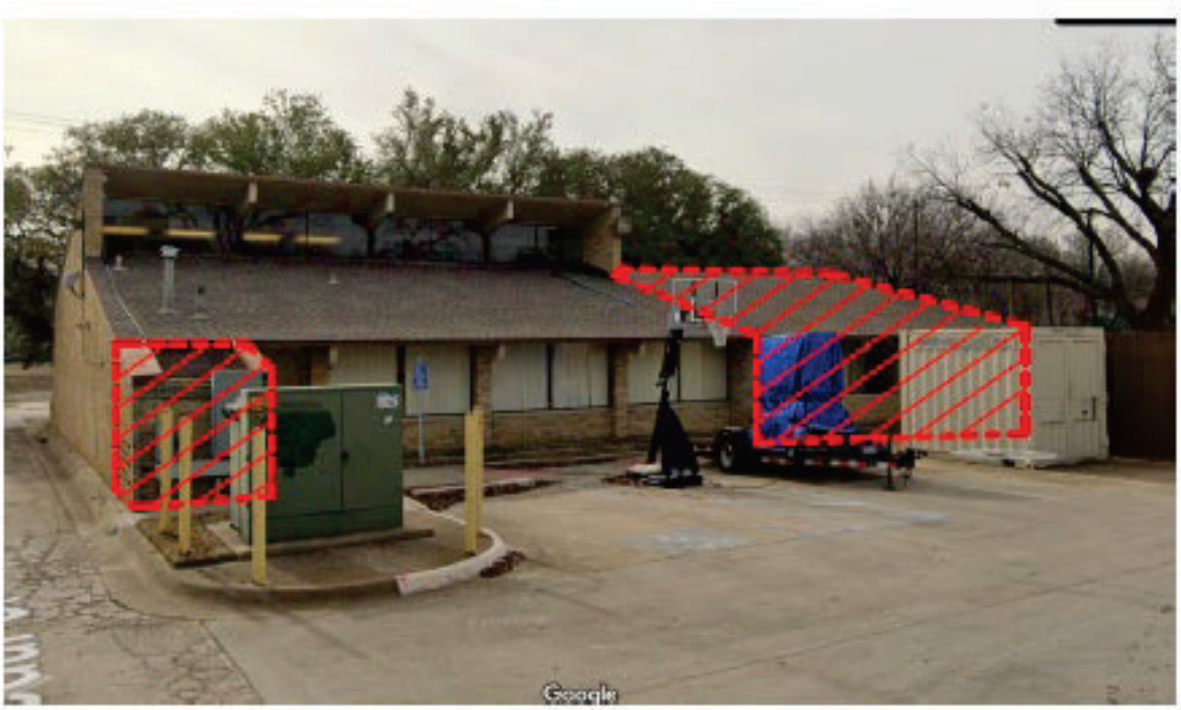
Renovation of 212 W. Sycamore St., Denton

Photo of 212 W. Sycamore – circa 1969



Existing photos with some description of intended demo for 212 W. Sycamore St.



EXISTING TO BE DEMOLISHED - NORTHEAST VIEW

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Renovation of 212 W. Sycamore St., Denton

EXISTING TO BE DEMOLISHED - SOUTHWEST VIEW

Elevations of the renovations proposed for 212 W. Sycamore St.

NORTH ELEVATION

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Renovation of 212 W. Sycamore St., Denton

WEST ELEVATION

EAST ELEVATION

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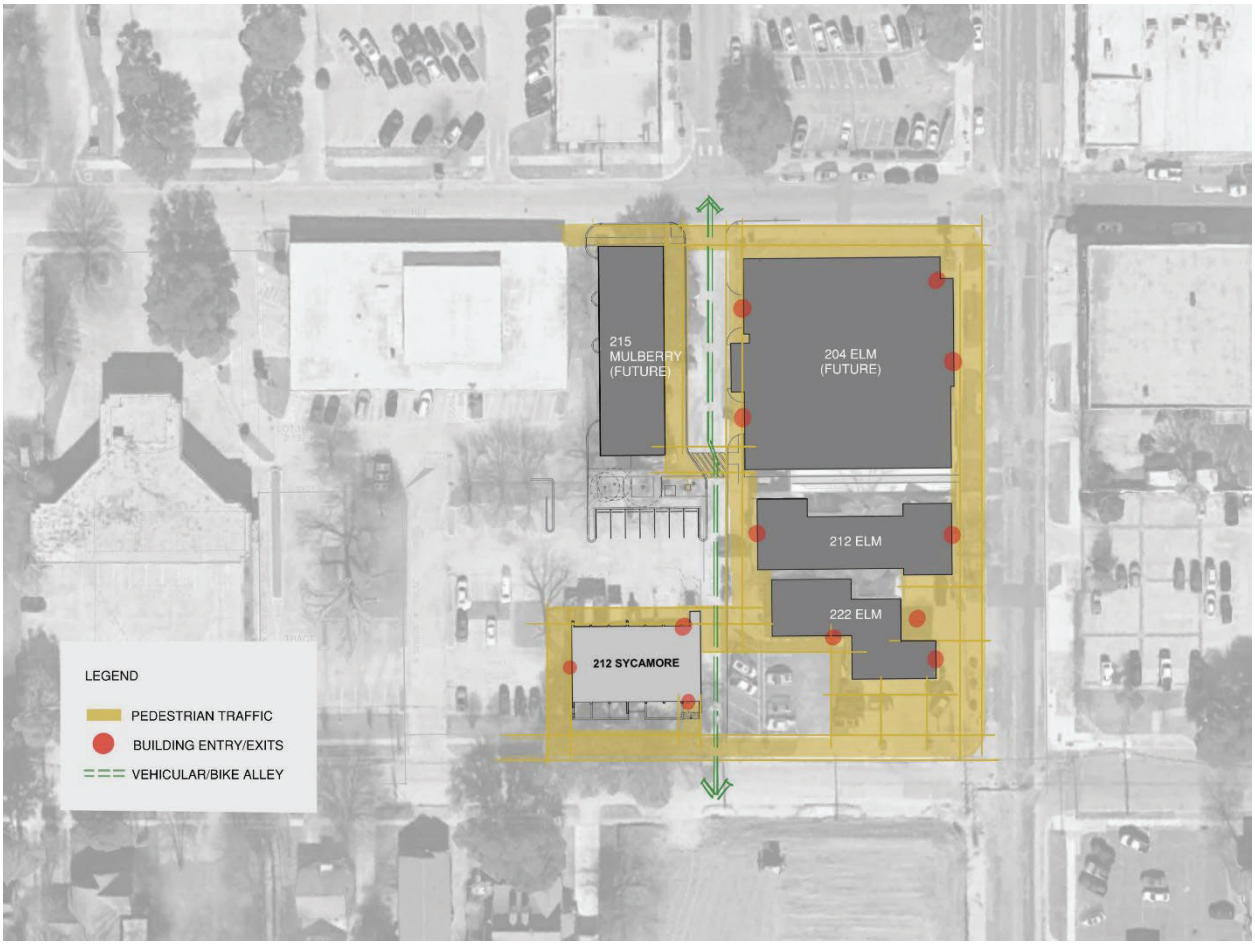
Improvements to pedestrian traffic



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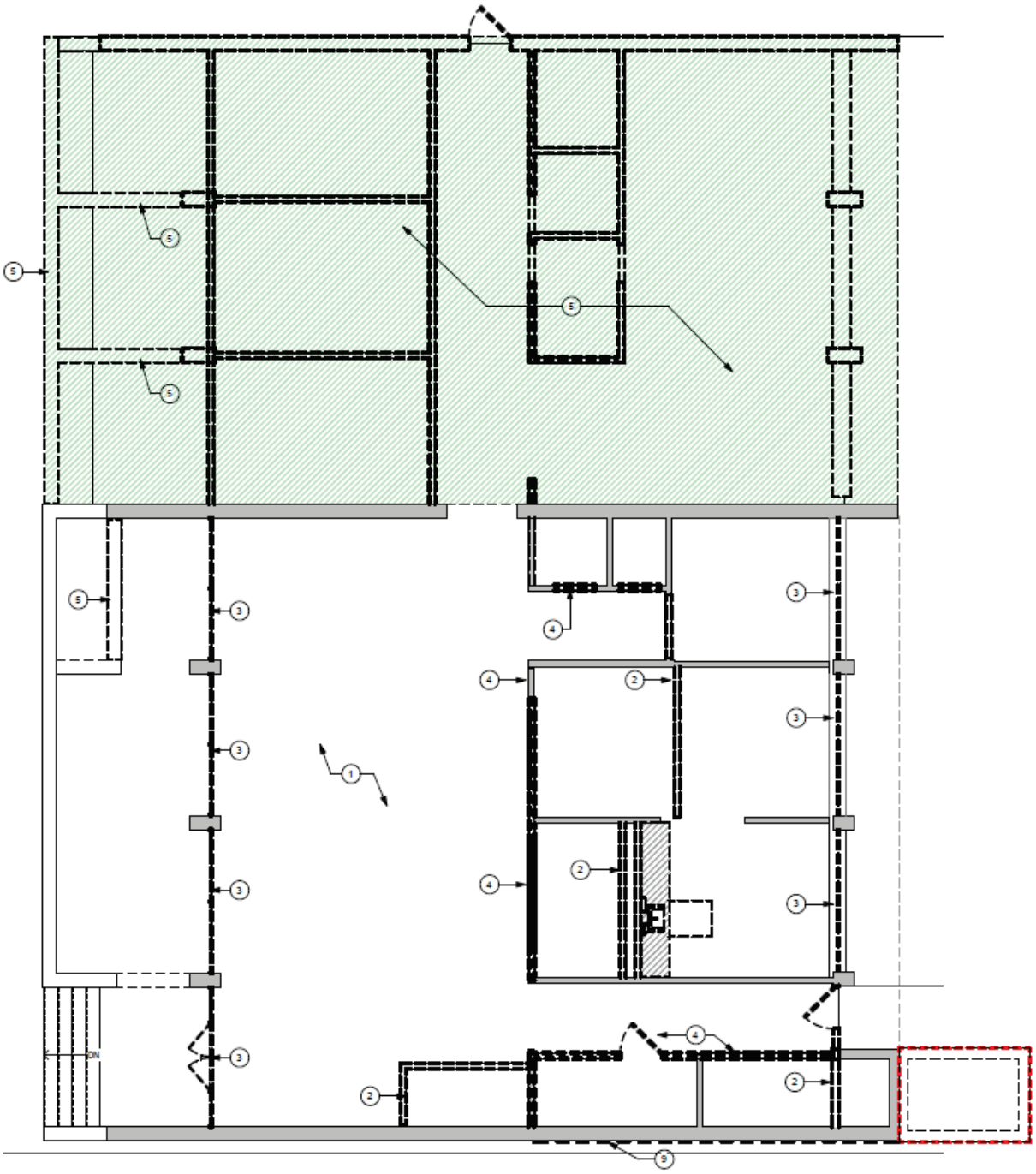
Renovation of 212 W. Sycamore St., Denton

Existing floor plan of 212 W. Sycamore St.



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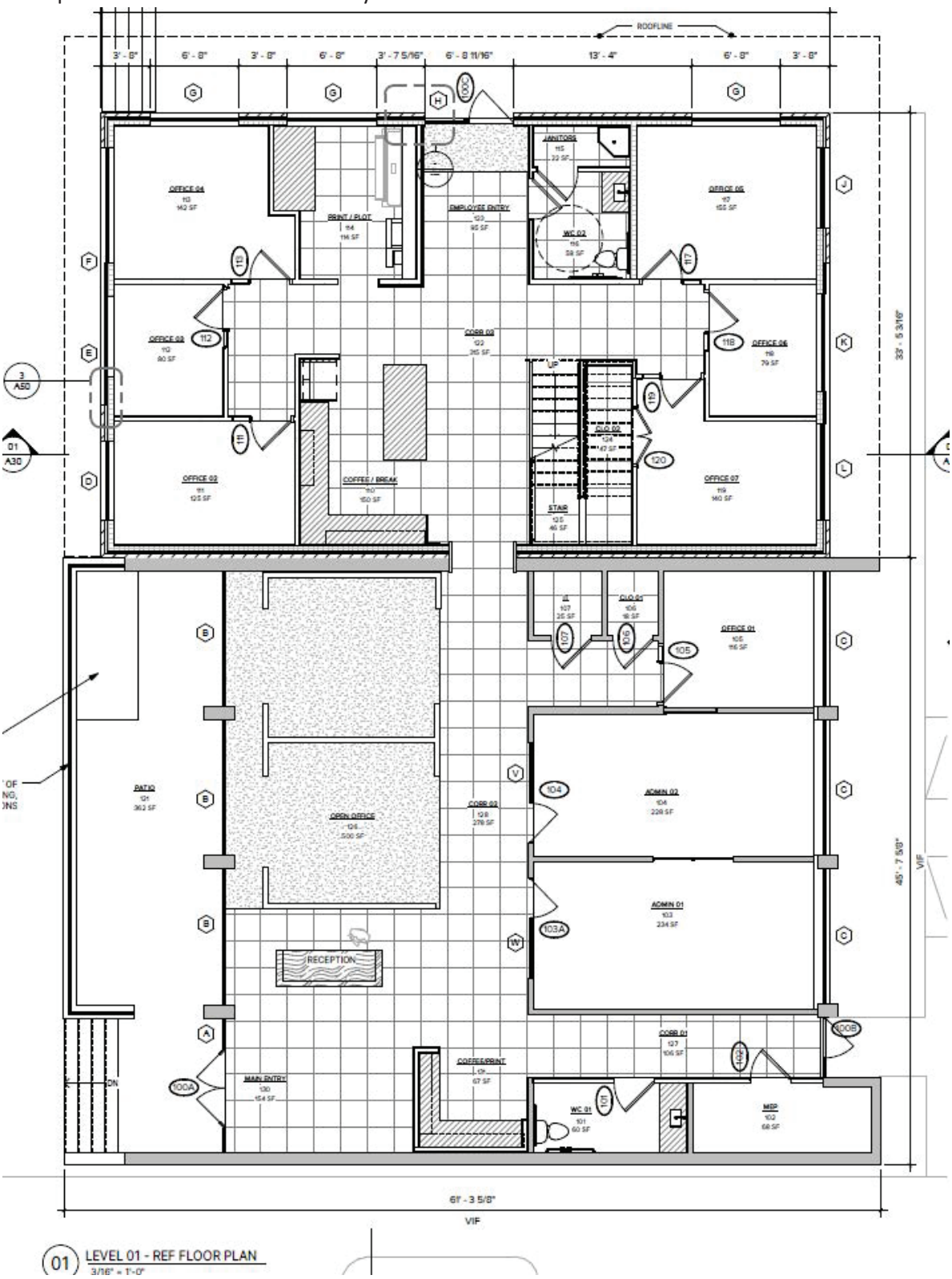
Renovation of 212 W. Sycamore St., Denton

Floor plan for the renovated 212 W. Sycamore St. – first floor

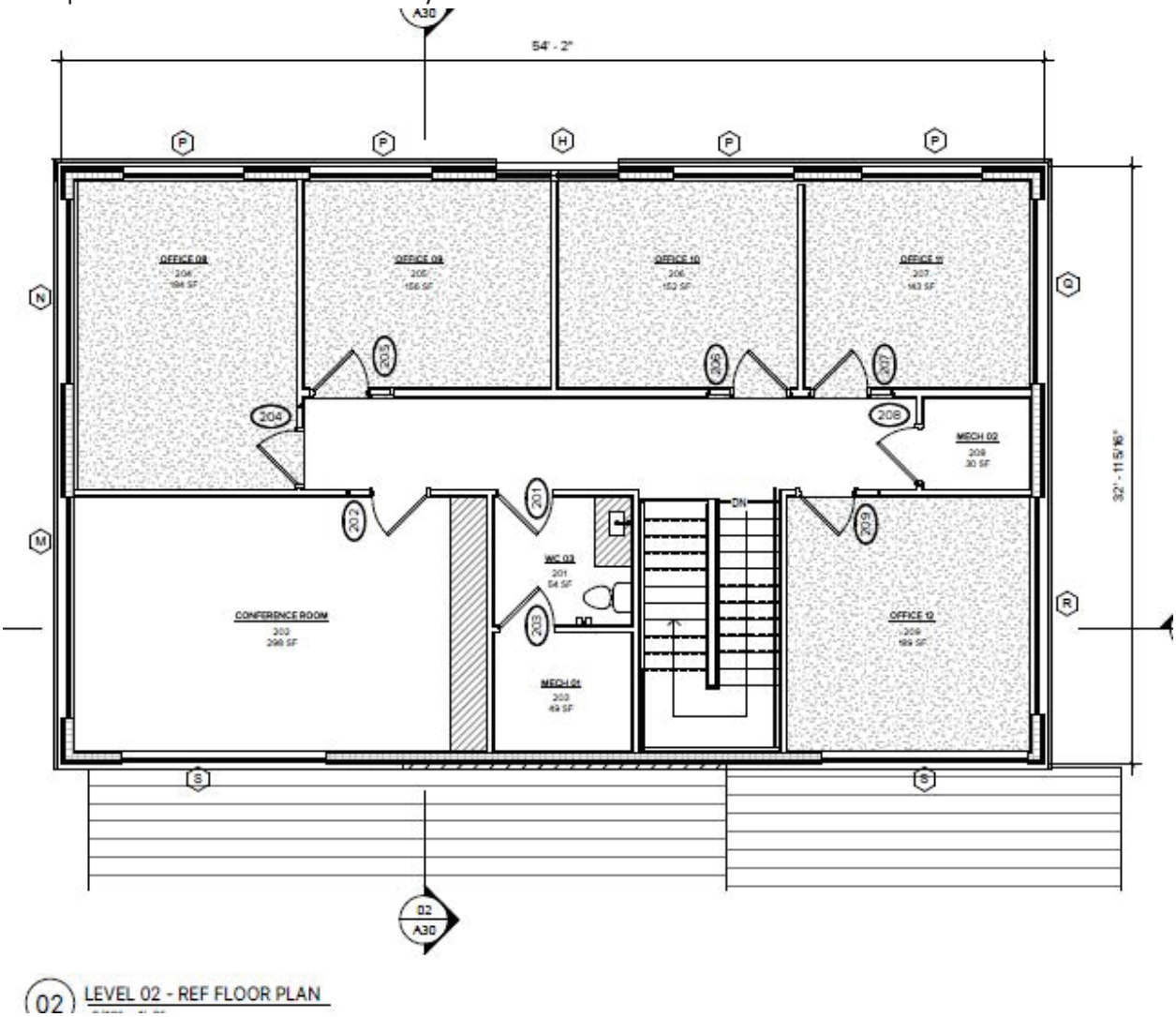


01 LEVEL 01 - REF FLOOR PLAN
3/16" = 1'-0"

DocuSign Envelope ID: D9DC3D8B-6984-4788-B849-6A8646738A98

Renovation of 212 W. Sycamore St., Denton

Floor plan for the renovated 212 W. Sycamore St. – second floor



02 LEVEL 02 - REF FLOOR PLAN

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Renovation of 212 W. Sycamore St., Denton

Existing pictures of 212 W. Sycamore St.

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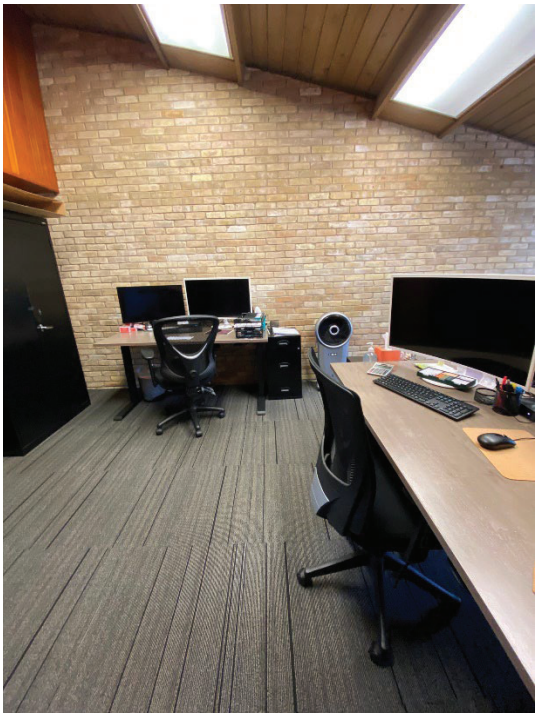
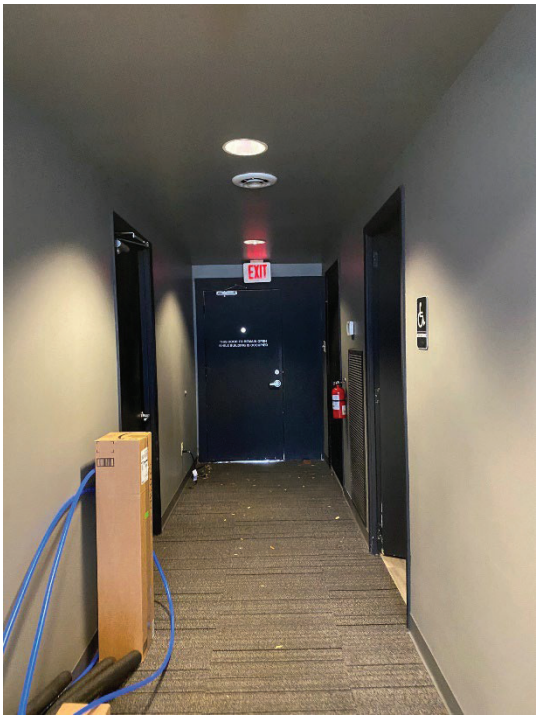
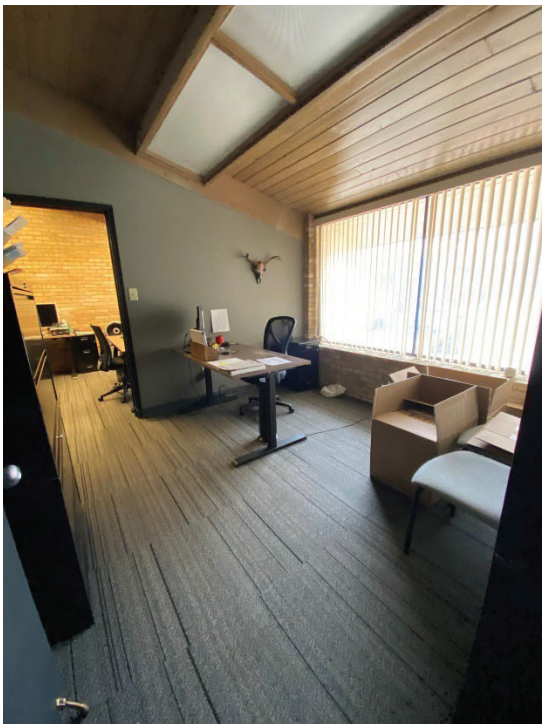
Renovation of 212 W. Sycamore St., Denton

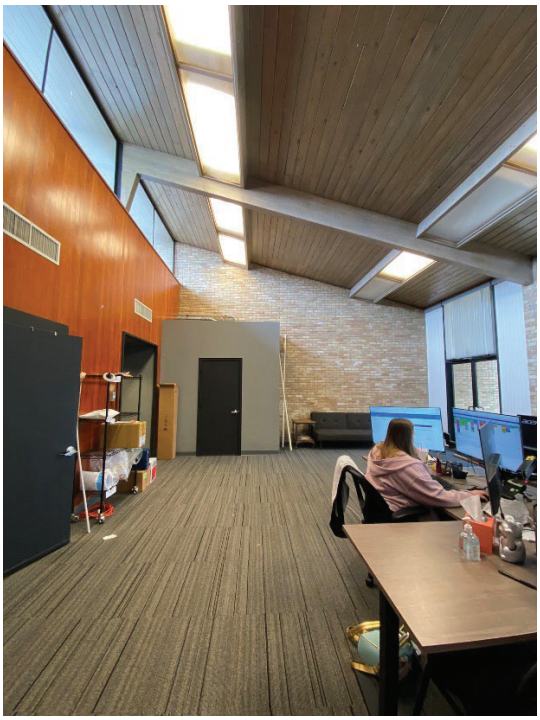
DocuSign Envelope ID: D9DC3D8B-6984-4788-B849-6A8646738A98

Renovation of 212 W. Sycamore St., Denton









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PROJECT ESTIMATE

Project Name: 212 W Sycamore
Project Address: 212 W Sycamore
Contract Type: GMP
New Build / Remodel: Remodel
Total Square Feet 5,650
Estimated Project Duration (weeks): 22

ARCHDEN CONSTRUCTION SERVICES, LLC

Description	Quantity	Unit	Unit Price					Total Cost	Enter %	Comments
Total Construction Cost								$ 1,258,384.00		
General Contractor OH & Profit (enter %)								$ 88,086.88	7.00%	
Insurance (enter %)								$ 7,550.30	0.60%	Builders Risk Policy
								$ -	0.00%	
Texas Remodel Tax								$ 111,706.75	8.25%	
Grand Total Project Cost	**5650**	**SF**	**$ 259**					**$ 1,465,727.93**		
								$1,417,915	$ 47,812.64	

Description			LABOR		MATERIAL		OTHER			
	Quantity	Unit	Unit Price	Amount	Unit Price	Amount	Amount	Total Cost	% of Total Construction Cost	Name of Subcontractor & Notes
DIVISION 1a: GENERAL CONDITIONS								**$ 119,152.00**	**9%**	
Project Management / On Site Supervision	22	wks	2850	62700				**$ 62,700.00**	**5%**	
City of Denton Permits	5650	ls	1.48	8362	0	0		**$ 8,362.00**	**1%**	estimated - $1.48 * sq Ft - Actual calculated during plan review
3rd party energy code inspection	0	ls	0	0	0	0	300	**$ 300.00**	**0%**	
printing / reprographics	1	ls	0	0	750	750		**$ 750.00**	**0%**	
small tools / safety / misc	6	mo	0	0	500	3000		**$ 3,000.00**	**0%**	
Boom/Fork lift	2	ls	0	0	2500	5000		**$ 5,000.00**	**0%**	boom lift, scissor lift
scissor lift	3	mo	0	0	500	1500		**$ 1,500.00**	**0%**	boom lift, scissor lift
fork lift	0	mo	0	0	0	0		**$ -**	**0%**	boom lift, scissor lift
temp power	6	mo	0	0	250	1500	1500	**$ 3,000.00**	**0%**	
temp water	6	mon	0	0	150	900		**$ 900.00**	**0%**	
Temporary Bathrooms & wash station	6	mo	0	0	750	4500		**$ 4,500.00**	**0%**	
temp fence	430	mo	0	0	10	4300		**$ 4,300.00**	**0%**	
	0	ls	0	0	0	0		**$ -**	**0%**	
Cleaning & Waste Management	15	ea	0	0	850	12750		**$ 12,750.00**	**1%**	
final power wash parking / sidewalks	1	ea	0	0	0	0	1200	**$ 1,200.00**	**0%**	
temp labor / misc cleaning	6	mo	500	3000	0	0		**$ 3,000.00**	**0%**	
Final Clean	5,650	ea	0.6	3390	0	0		**$ 3,390.00**	**0%**	
Scaffolding Rental	1	ea	0	0	0	0	4500	**$ 4,500.00**	**0%**	
	0	ls	0	0	0	0		**$ -**	**0%**	
DIVISION 1b: GENERAL REQUIREMENTS								**$ 3,995.00**	**0%**	
3rd Party Testing - concrete	1	ea	0	0	0	0	1500	**$ 1,500.00**	**0%**	
3th Party Testing - Soils	1	ea	0	0	0	0	0	**$ -**	**0%**	not required - no compacted fill - will use gravel or flexbase
Asbestos Survey	0	ea	0	0	0	0	995	**$ 995.00**	**0%**	ERI Consulting
soils report	0	ea	0	0	0	0	1500	**$ 1,500.00**	**0%**	GeoScience Engineers
DIVISION 2: EXISTING CONDITIONS								**$ 31,747.00**	**3%**	
building demolition	1500	sf	0	0	0	0	9400	**$ 9,400.00**	**1%**	Tactical Demolition
interior/ext select demo	2000	sf	0	0	0	0	5450	**$ 5,450.00**	**0%**	Tactical Demolition
Electrical demolition - generator, transformer, etc.	1	LS	0	2500	0	0		**$ 2,500.00**	**0%**	
Mechanical Demo - recover refrigerant, demo units	1	LS	0	2500	0	0		**$ 2,500.00**	**0%**	
sawcut & remove approach & drive for new sidewalk	1799	sf	3	5397	0	0		**$ 5,397.00**	**0%**	
sawcut & remove - interior plumbing	0	sf	0	0	0	0	2500	**$ 2,500.00**	**0%**	
additional demo	0	sy	0	0	0	0	4000	**$ 4,000.00**	**0%**	
	0	ls	0	0	0	0		**$ -**	**0%**	
DIVISION 3: CONCRETE								**$ 37,806.00**	**3%**	
Foundation extension - new building	330	SF	0	0	20	6600		**$ 6,600.00**	**1%**	
grade beams w/ flex base fill	90	lf	0	0	75	6750		**$ 6,750.00**	**1%**	
concrete patio	350	Sf	0	0	6	2100		**$ 2,100.00**	**0%**	
curb pour back	20	LF	0	0	10	200		**$ 200.00**	**0%**	
sidewalk	1780	sf	0	0	5	8900		**$ 8,900.00**	**1%**	
ADA ramp	0	LF	0	0		0	1500	**$ 1,500.00**	**0%**	
steps	0	LF	0	0	0	0	1000	**$ 1,000.00**	**0%**	
Footer for monument sign	0	SF	0	0	0	0	1000	**$ 1,000.00**	**0%**	
concrete sawcut pourback	0	SF	0	0		0	2500	**$ 2,500.00**	**0%**	
gypcrete topper 2nd floor	1814	sf		0	4	7256		**$ 7,256.00**	**1%**	
		ls	0	0	0	0		**$ -**	**0%**	
DIVISION 4: MASONRY								**$ 46,732.00**	**4%**	
Brick - building	1700	sf	0	0	0	0		**$ -**	**0%**	
brick	6552	ea	1.5	9828	2	13104	1500	**$ 24,432.00**	**2%**	interstate imperial brick
sand/mortar/accessories/etc.	6552	ea	0	0		0	10000	**$ 10,000.00**	**1%**	
patio - masonry patio enclosure	95	sf	0	0	40	3800		**$ 3,800.00**	**0%**	
masonry monument sign	1	LS	0	0	1500	1500		**$ 1,500.00**	**0%**	
brick - patch / repair	1	LS	0	0	2500	2500		**$ 2,500.00**	**0%**	
Scaffolding Rental	1	LF	0	0	4500	4500		**$ 4,500.00**	**0%**	
	0	ls	0	0	0	0		**$ -**	**0%**	

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Description			LABOR		MATERIAL		OTHER	Total Cost	% of Total Construction Cost	Name of Subcontractor & Notes
	Quantity	Unit	Unit Price	Amount	Unit Price	Amount	Amount			
DIVISION 5: METALS								$ 13,150.00	1%	
stair guard/hand rail	35	LF	0	0	150	5250		$ 5,250.00	0%	
stair hand rail - wall mount	30	LF	0	0	75	2250		$ 2,250.00	0%	
patio railing	35	Lf	0	0	50	1750		$ 1,750.00	0%	
	0	LF	0	0	0	0		$ -	0%	
misc steel reinforcements / lintels / accents	1	LF	1200	1200	1500	1500		$ 2,700.00	0%	
	0	sf	0	0	0	0		$ -	0%	
under eave breakmetal wraps	6	ea	50	300	150	900		$ 1,200.00	0%	
	0	EA	0	0	0	0		$ -	0%	
		LF		0	0	0		$ -	0%	
DIVISION 6: WOODS & PLASTICS								$ 189,167.00	15%	
Wood framing	3510	sf	6.5	22815	0	0		$ 22,815.00	2%	
lumber package	3510	sf	0	0	20	70200		$ 70,200.00	6%	
lumber waste	1	ls	0	0	0	0	$ 10,530.00	$ 10,530.00	1%	
Simpson tie down package	0	ls	0	0	0	0	5000	$ 5,000.00	0%	
Exterior siding - WP-1	1000	sf	2	2000	16	16000	2547	$ 20,547.00	2%	Delta - inlcuding sales tax & shipping (higher grade finish - C&Bt - $21.69/SF, VG - $23.34/SF) - expecting undetermined price increase in coming month
Exterior siding - WP-2	75	sf	2	150	13	975		$ 1,125.00	0%	Delta Millworks
soffitn - WP-3	900	sf	6	5400	11	9900	150	$ 15,450.00	1%	
	0	sf	0	0	0	0		$ -	0%	
Mill work	82	LF		0	450	36900		$ 36,900.00	3%	
	0	LF	0	0	0	0		$ -	0%	
	0	ea	0	0	0	0		$ -	0%	
Stair tread & risers	22	ea	50	1100	250	5500		$ 6,600.00	1%	assumes wood risers
	0	SF	0	0	0	0		$ -	0%	
DIVISION 7: THERMAL & MOISTURE PROTECTION								$ 81,670.00	6%	
	0	ls	0	0	0	0		$ -	0%	
window flashing / sealing	1	SF	0	0	0	0	4500	$ 4,500.00	0%	
Joint Protection (Sealants etc)	1	ls	0	0	0	0	2500	$ 2,500.00	0%	
envelope insulation	3510	ls	0	0	0	0	11080	$ 11,080.00	1%	RM Insulation
interior batt insulation	3510	ls	0	0	1	3510		$ 3,510.00	0%	
standing seam roof	5720	sf	0	0		0	56580	$ 56,580.00	4%	Classic Superroof
metal coping - MT-2	1	ls	0	0	0	0		$ -	0%	
exterior gutters/downspouts	1	ls	0	0	3500	3500		$ 3,500.00	0%	
	0	LF	0	0	0	0		$ -	0%	
DIVISION 8: OPENINGS								$ 151,475.00	12%	
interior doors	25	ea	175	4375	1000	25000		$ 29,375.00	2%	P-lam doors - standard laminate
Interior door frames	25	ea	0	0	305	7625		$ 7,625.00	1%	Raco style pre-finished frame
Interior door hardware	25	ea	0	0	175	4375		$ 4,375.00	0%	commercial grade 2 lock & hinges
Interior sliding/pocket doors	1	LS	0	0	2000	2000		$ 2,000.00	0%	
exterior storefront doors - single	2	ea	0	0	2150	4300		$ 4,300.00	0%	
exterior storefront doors - double	1	ea	0	0	3500	3500		$ 3,500.00	0%	
	0	ls	0	0	0	0		$ -	0%	
Exterior storefront windows	1850	ls	0	0	50	92500		$ 92,500.00	7%	
interior sidelight glass	13	ea	50	650	150	1950		$ 2,600.00	0%	
interior storefront system for offices	80	sf	0	0	65	5200		$ 5,200.00	0%	
	0	ls	0	0	0	0		$ -	0%	
DIVISION 9: FINISHES								$ 160,580.00	13%	
Gypsum Board	5650	LS	0	0	4	22600		$ 22,600.00	2%	
tape bed texture	5650	sf	0	0	4	22600		$ 22,600.00	2%	
	0	SF	0	0	0	0		$ -	0%	
Ceilings - Acoustic tegular pattern tile	620	SF	0	0	7	4340		$ 4,340.00	0%	
Ceilings - expanded metal	245	SF	0	0	15	3675		$ 3,675.00	0%	
Ceilings - drywall	2815	SF	0	0	4	11260		$ 11,260.00	1%	
Interior painting	5650	sf	0	0	3.5	19775		$ 19,775.00	2%	
exterior painting	5650	SF	0	0	2	11300		$ 11,300.00	1%	
	0	SF	0	0	0	0		$ -	0%	
Quartz/Stone Countertop	157	sf	20	3140	55	8635		$ 11,775.00	1%	
	0	SF	0	0	0	0		$ -	0%	
Rubber Base	1250	SF	6	7500	0	0		$ 7,500.00	1%	
Ceramic Floor Tile	60	SF	10	600	0	0		$ 600.00	0%	
Wall Ceramic Tile	475	SF	10	4750	0	0	250	$ 5,000.00	0%	
Stone Floor Tile - corridors, entry, break	1500	SF	18	27000	0	0	1000	$ 28,000.00	2%	
transitions & schluter	1	ls	0	0	500	500		$ 500.00	0%	
water proofing / tile base	64	sf	0	0	5	320		$ 320.00	0%	
Carpet tile - offices	332	yds	0	0	30	9960		$ 9,960.00	1%	
LVT plank flooring	250	SF	2	500	3.5	875		$ 1,375.00	0%	
		SF	0	0	0	0		$ -	0%	
DIVISION 10: SPECIALTIES								$ 1,545.00	0%	
restroom signage	3	sub	0	0	40	120		$ 120.00	0%	
restroom mirror - allowance	3	ls	0	0	150	450		$ 450.00	0%	
grab bars	3	ls	0	0	100	300		$ 300.00	0%	
TP dispenser	3	ea	0	0	50	150		$ 150.00	0%	
paper towel dispensers	3	ls	0	0	50	150		$ 150.00	0%	
fire extinguisher	3	LF		0	125	375		$ 375.00	0%	assumes wall hung
DIVISION 11: EQUIPMENT								$ 12,600.00	1%	
dishwasher	1	LF	0	0	1200	1200		$ 1,200.00	0%	
refrigerator	1	LF	0	0	2500	2500		$ 2,500.00	0%	
garbage disposal	1	LF	0	0	300	300		$ 300.00	0%	
undercounter refrigerator	2	LF	0	0	1500	3000		$ 3,000.00	0%	
micro/oven combo	2	LF	0	0	2800	5600		$ 5,600.00	0%	
DIVISION 22: PLUMBING								$ 42,800.00	3%	
Plumbing	1	ea	0	0	40000	40000		$ 40,000.00	3%	
upgraded restroom sink vanities	2	ls	0	0	1400	2800		$ 2,800.00	0%	3rd restroom to have stone/granite top

Description				LABOR		MATERIAL		OTHER	Total Cost	% of Total Construction Cost	Name of Subcontractor & Notes
		Quantity	Unit	Unit Price	Amount	Unit Price	Amount	Amount			
		0	ls	0	0	0	0		$ -	0%	
		0	ls	0	0	0	0		$ -	0%	
DIVISION 23: HEATING, VENTILATING & AIR CONDITIONING (HVAC)									$ 68,200.00	5%	
	HVAC Equipment	14	tons	0	0	4800	67200		$ 67,200.00	5%	
	unit condensate lines - install & tie in	1	ls	0	0	1000	1000		$ 1,000.00	0%	
		1	ls	0	0	0	0		$ -	0%	
DIVISION 26: ELECTRICAL									$ 101,700.00	8%	
	Electrical	5650	ls	9	50850	9	50850		$ 101,700.00	8%	
	exterior site lighting	0	ls	0	0	0	0		$ -	0%	
		0	ls	0	0	0	0		$ -	0%	
DIVISON 27: TELECOMMUNCATIONS									$ 9,975.00	1%	
	raceways	1	ls	0	0	1500	1500		$ 1,500.00	0%	
	data cabling rough in	5650	ls	0	0	1.5	8475		$ 8,475.00	1%	
		0	ls	0	0	0	0		$ -	0%	
DIVISION 31: EARTHWORK									$ 4,900.00	0%	
	foundation/sidewalk soil haul off	1	ls	1200	1200	0	0		$ 1,200.00	0%	
	fine grade / clean up - pre landscape	1	AC	1200	1200	0	0		$ 1,200.00	0%	
	gravel or flex infill for sidewalk & ramp	1	ls	1000	1000	1500	1500		$ 2,500.00	0%	
DIVISION 32: EXTERIOR IMPROVEMENTS									$ 83,690.00	7%	
	pavement re-stripe and ADA signage	1	LS	0	0	0	0	3500	$ 3,500.00	0%	
	new paving	2000	sf	0	0	6.5	13000		$ 13,000.00	1%	
01.21.08	Demo & re-pave S. Cedar St	2750	ls	0	0	15	41250		$ 41,250.00	3%	uknown scope of work - working with city on specifications
	new curb & gutter	120	lf	0	0	17	2040		$ 2,040.00	0%	
	Termite Post/Pre-treat	1	LS	0	0	0	0	1200	$ 1,200.00	0%	
	landscaping	1	ls	0	0	0	0	10000	$ 10,000.00	1%	
	Irrigation	1	ls	0	0	0	0	10000	$ 10,000.00	1%	
	planters	4	ea	0	0	300	1200		$ 1,200.00	0%	
	trim trees	5	ea	0	0	300	1500		$ 1,500.00	0%	
		0	sf	0	0	0	0		$ -	0%	
		0	ls	0	0	0	0		$ -	0%	
GC ALLOWANCES and/or OTHER SPECIALTIES									$ 97,500.00	8%	
01.21.00	Unknowns / Sub Bidding Differences / Contingency	0	ls	0	0	0	0	50000	$ 50,000.00	4%	
01.21.01		0	ls	0	0	0	0		$ -	0%	
01.21.02	window tint	1	ls	0	0	5000	5000		$ 5,000.00	0%	
01.21.03	window treatments	1	ls	0	0	10000	10000		$ 10,000.00	1%	
01.21.04	internet, Network, WAP's & Data terminations	1	ls	0	0	5000	5000		$ 5,000.00	0%	
01.21.05	security / door access control	1	ls	0	0	12000	12000		$ 12,000.00	1%	
01.21.06	cameras	1	ls	0	0	6500	6500		$ 6,500.00	1%	
01.21.07	audio / visual	1	ls	0	0	9000	9000		$ 9,000.00	1%	
		0	ls	0	0	0	0		$ -	0%	

Submitted by: _____ **Date:** _____

-41,049

Signature: _____

Title: _____

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MK | OA

WORK IN PROGRESS SET - NOT FOR CONSTRUCTION

2210 EAGLE 212

212 W SYCAMORE STREET, DENTON, TX

DESIGN DEVELOPMENT

01.04.24

OWNER:
EAGLE SURVEYING
222 W ELM STREET, SUITE 200, DENTON, TX 76201
DAN RICK 940.222.3009

ARCHITECT:
MKOA (Morgan Kennedy Office of Architecture, LLC)
MORGAN KENNEDY 940.331.5237

CONTRACTOR:
ARCHDEN CONSTRUCTION SERVICES, LLC
JASON ABT 972.971.1577

REVISION SCHEDULE

No.	Description	Date
00.01	SCHEMATIC	11.20.23
00.02	DEVELOPMENT	01.04.24

INDEX OF DRAWINGS

SHEET NUMBER	SHEET NAME	CURRENT REVISION	ISSUANCE DATE
A07	ARCHITECTURAL SITE PLAN	00.02	01.04.24
A08	DEMOLITION PLANS & ELEVATIONS	00.02	01.04.24
A10	FLOOR PLANS	00.02	01.04.24
A14	REFLECTED CEILING PLANS	00.02	01.04.24
A20	EXTERIOR ELEVATIONS	00.02	01.04.24
A21	EXTERIOR ELEVATIONS	00.02	01.04.24
A91	CONCEPT RENDERINGS	00.01	11.20.23

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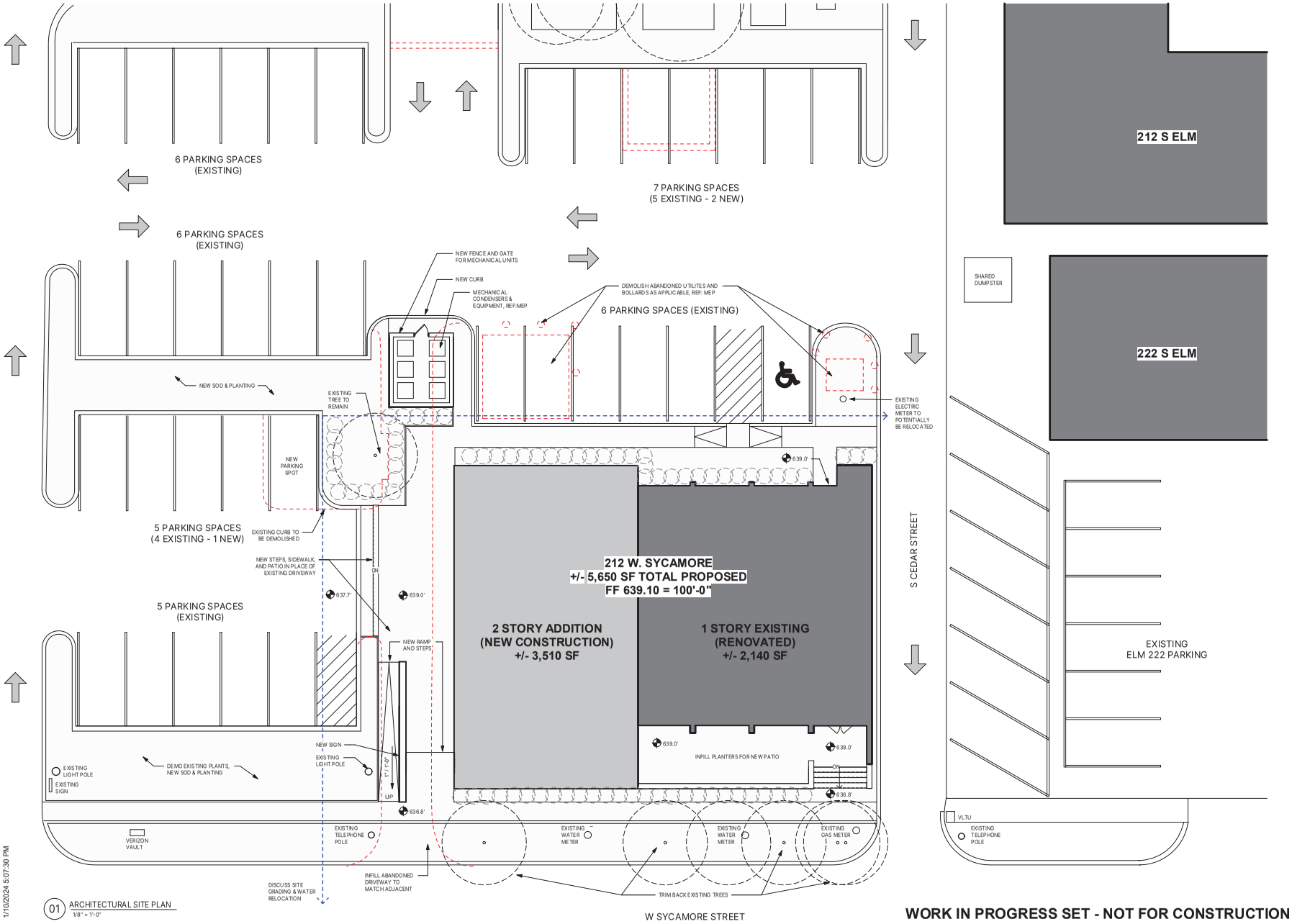

01 ARCHITECTURAL SITE PLAN
1/8" = 1'-0"

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WORK IN PROGRESS SET - NOT FOR CONSTRUCTION

MKOA
MORGAN KENNEDY OFFICE OF ARCHITECTURE, LLC

EAGLE 212

212 W SYCAMORE STREET, DENTON, TX

REV	DESCRIPTION	DATE
00.01	SCHEMATIC	11.20.23
00.02	DEVELOPMENT	01.04.24

PROJECT NUMBER 2210
STATUS DESIGN DEVELOPMENT
DATE 01.04.2024

A07

ARCHITECTURAL SITE PLAN

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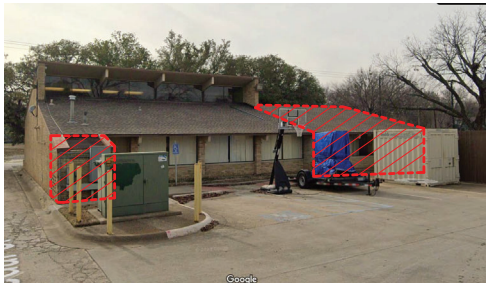
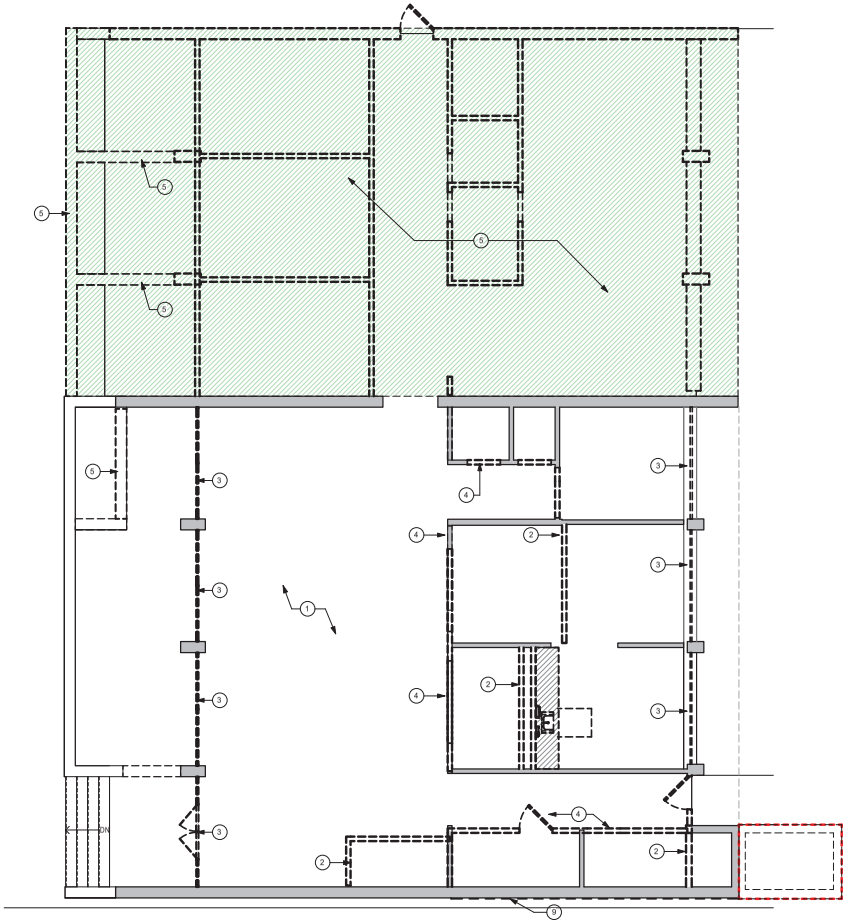
DEMOLITION KEY NOTES

1. REMOVE EXISTING FLOORING AND SUBSTRATE IN ITS ENTIRETY. CLEAN AND PREP FLOORS TO RECEIVE NEW FINISH.
2. REMOVE PORTION OF WALL AND PREP TO RECEIVE NEW FINISH, OPENING, AND/OR WALLS. PATCH AND REPAIR ADJACENT WALLS AFFECTED BY REMOVAL OF WALL.
3. REMOVE GLAZING SYSTEM IN ITS ENTIRETY. PREP ADJACENT WALLS, FLOORS, AND HEADERS TO RECEIVE NEW GLAZING SYSTEM.
4. REMOVE DOOR AND FRAMING IN ITS ENTIRETY. PREP WALL TO RECEIVE NEW DOOR AND/OR WALL INFILL.
5. REMOVE ROOF AND EXTERIOR WALLS, IN AREA SHOWN, IN ITS ENTIRETY, DOWN TO THE SLAB. PREP SLAB, AND ADJACENT WALLS TO REMAIN, FOR NEW CONSTRUCTION.
6. REMOVE PLUMBING FIXTURES/CAP DRAINS..... NEED TO PULL THIS INFO FROM AN OLDER PROJECT.
7. ANY DROP CEILINGS TO REMOVED
8. ANY LIGHT FIXTURES TO BE REMOVED? ARE WE KEEPING EXISTING WIRING?
9. REMOVE EXISTING EXTERIOR BRICK CLADDING SYSTEM IN IT ENTIRETY. REFER TO ELEVATIONS FOR EXACT LOCATION. PATCH AND REPAIR ADJACENT EXTERIOR SHEATHING/BARRIER AND PREP TO RECIEVE NEW CLADDING.
10.



EXISTING TO BE DEMOLISHED - NORTHEAST VIEW

EXISTING TO BE DEMOLISHED - SOUTHWEST VIEW



01 DEMOLITION FLOOR PLAN
3/16" = 1'-0"

WORK IN PROGRESS SET - NOT FOR CONSTRUCTION

MKOA
MORGAN KENNEDY OFFICE OF ARCHITECTURE, LLC

EAGLE 212

212 W SYCAMORE STREET, DENTON, TX

REV	DESCRIPTION	DATE
00.01	SCHEMATIC	11.20.23
00.02	DEVELOPMENT	01.04.24

PROJECT NUMBER 2210
STATUS DESIGN DEVELOPMENT
DATE 01.04.2024

A08

DEMOLITION PLANS & ELEVATIONS

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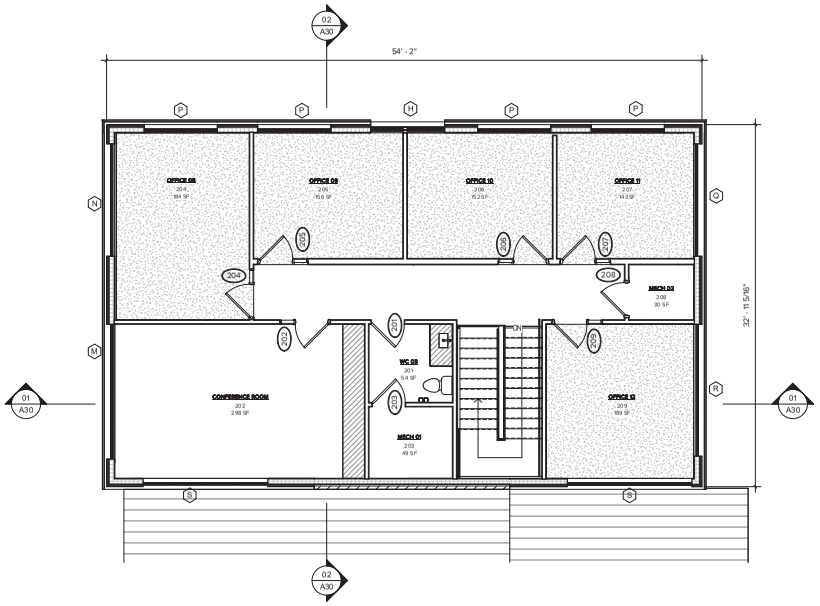
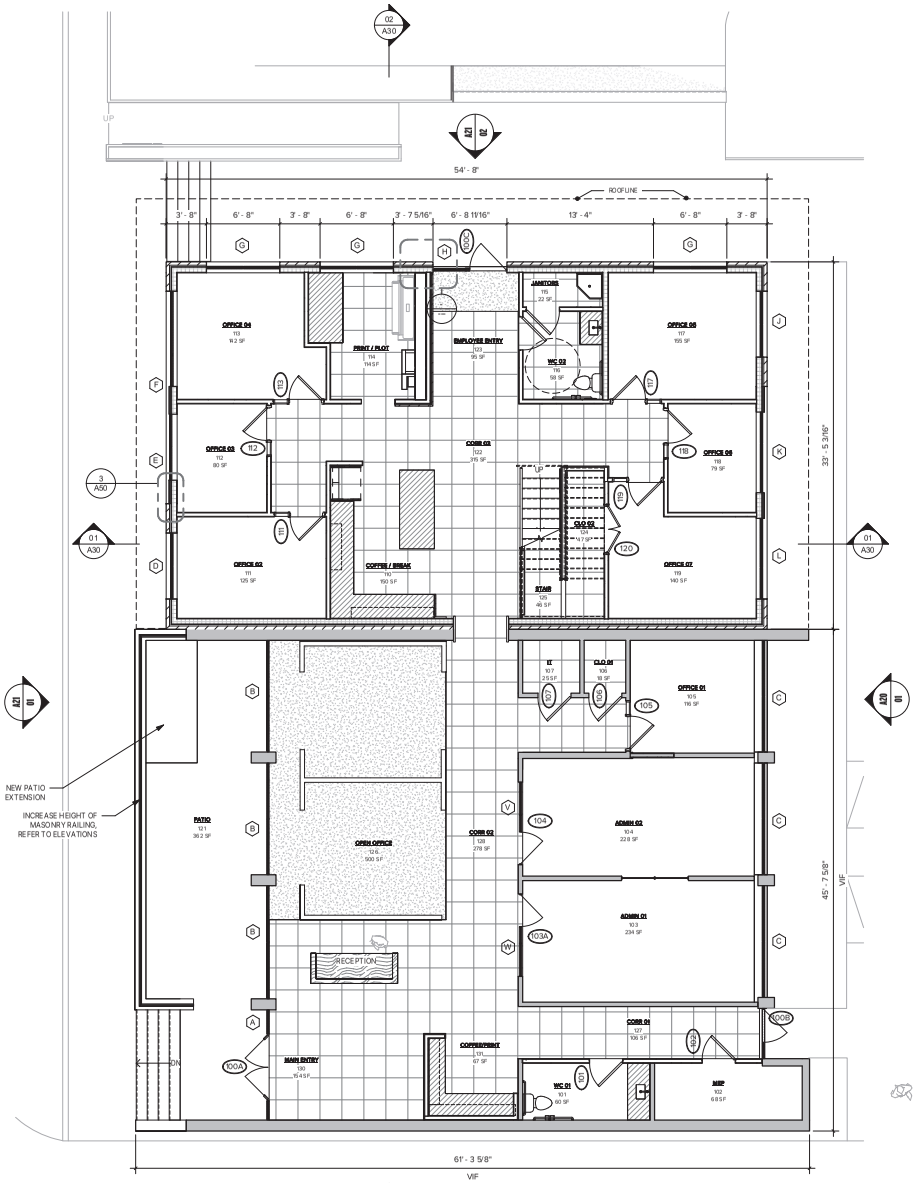


02 LEVEL 02 - REF FLOOR PLAN
3/16" = 1'-0"



01 LEVEL 01 - REF FLOOR PLAN
3/16" = 1'-0"

WORK IN PROGRESS SET - NOT FOR CONSTRUCTION

MKOA
MORGAN KENNEDY OFFICE OF ARCHITECTURE, LLC

EAGLE 212

212 W SYCAMORE STREET, DENTON, TX

REV	DESCRIPTION	DATE
00.01	SCHEMATIC	11.20.23
00.02	DEVELOPMENT	01.04.24

PROJECT NUMBER 2210
STATUS DESIGN DEVELOPMENT
DATE 01.04.2024

A10
FLOOR PLANS

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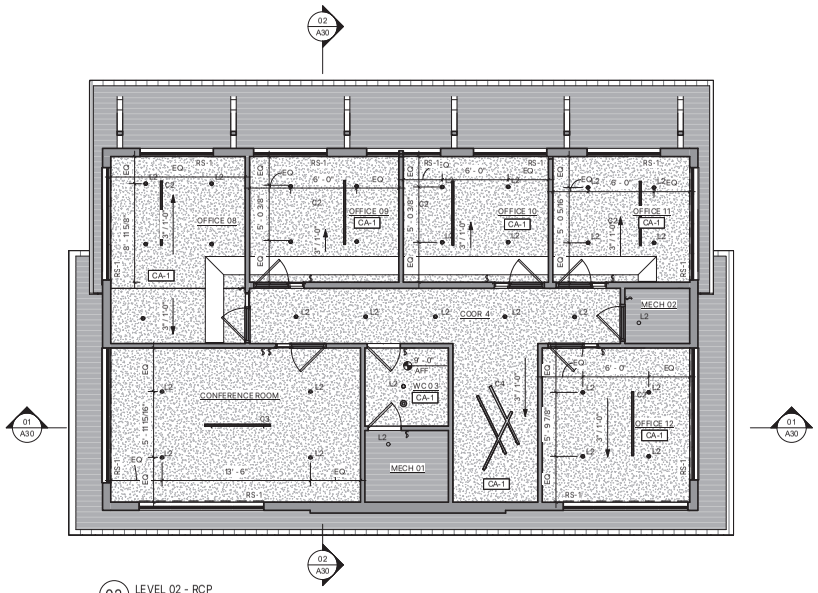
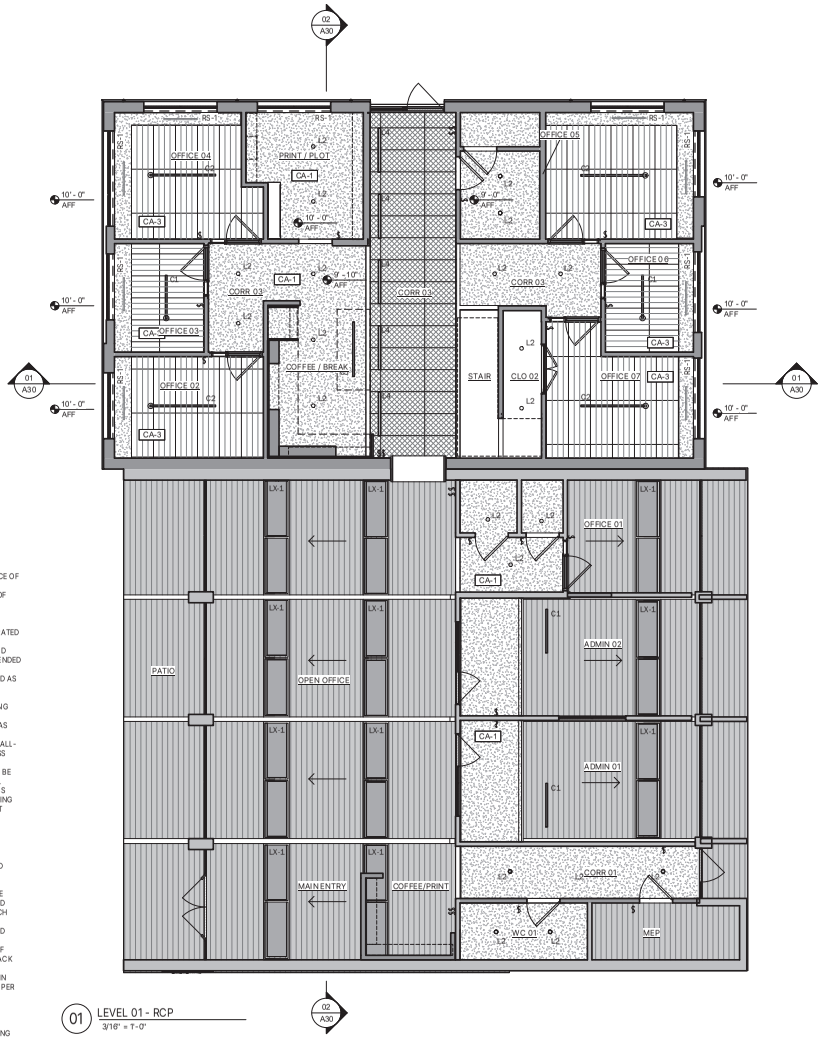


02 LEVEL 02 - RCP
3/16" = 1'-0"



01 LEVEL 01 - RCP
3/16" = 1'-0"

CEILING PLAN LEGEND

- PAINTED GYP BD CEILING SYSTEM, CA-1, REF FINISH SCHEDULE
- 1x5 ACOUSTICAL CEILING SYSTEM, CA-2A
- 2x2 ACOUSTICAL CEILING SYSTEM, CA-2B
- METAL IN LAY GRID SYSTEM, CA-3
- WOOD VENEER FINISH ON SUBSTRATE, CA-4B
- WOOD VENEER FINISH ON SUBSTRATE, CA-4C
- EXPOSED TO STRUCTURE w/ K-13 ACOUSTICAL (BLACK) SPRAY, CA-6
- EXPOSED TO STRUCTURE w/ K-13 ACOUSTICAL (BLACK) SPRAY, WOOD SLAT CEILING SYSTEM, CA-7A
- EXPOSED TO STRUCTURE w/ K-13 ACOUSTICAL (BLACK) SPRAY & WOOD, MDF, AND ACOUSTICAL PANEL SUSPENDED SYSTEM, CA-7B
- EXPOSED TO STRUCTURE w/ K-13 ACOUSTICAL (BLACK) SPRAY, WOOD SLAT CEILING SYSTEM, CA-7C
- MOTORIZED ROLLER SHADE, RS-1

* REFER ELECTRICAL PLANS FOR FIRE SUPPRESSION, PULL STATIONS AND ALARM DESIGN INTENT

LIGHTING LEGEND

L1	LED SURFACE MOUNTED CAN LIGHT
L2	LED RECESSED CAN LIGHT,
L3	DECORATIVE PENDANT / FLUSHMOUNT
L4	DECORATIVE LINEAR
EX	EXHAUST FAN
C1	LED 4FT LINEAR PENDANT
C2	LED 6FT LINEAR PENDANT
C3	LED 6FT SPECIALTY PENDANT
C4	LED FEATURE PENDANT
EL1	EXTERIOR RECESSED
EL2	EXTERIOR DECORATIVE WALL SCONCE
EL3	EXT PATH LIGHT
EL5	EXTERIOR WALL MTD FLOOD LIGHT
EL6	EXTERIOR WALL MTD FLOOD (MOTION)
RS-1	MOTORIZED ROLLER SHADE

CEILING PLAN NOTES

1. ALL CEILING DIMENSIONS SHOWN ARE TAKEN FROM FACE OF SUBSTRATE.
2. CEILING HEIGHTS LISTED ARE TO BE TAKEN FROM TOP OF SLAB AND SHALL BE CONSISTENT ACROSS THE ENTIRE PROJECT.
3. PROVIDE FIRE RATED PARTITIONS, DOORS, AND PENETRATIONS AT WALLS DENOTED TO RECEIVE 1-HR RATED FIRE PROTECTION.
4. ALL PENDANT LIGHTING FIXTURES SHALL BE PURCHASED WITH ADDITIONAL LENGTH AND BE POSITIONED TO INTENDED HEIGHT AT DIRECTION OF ARCHITECT UPON INSTALL.
5. GYPSUM BOARD CEILING SYSTEMS, CA-1, TO BE PAINTED AS SCHEDULED.
6. POSITION ALL MECHANICAL, ELECTRICAL, LIGHTING, PLUMBING, AND ACCESS CONTROL ELEMENTS REQUIRING MAINTENANCE OR OTHER ACCESS PANELS SHALL BE POSITIONED ABOVE ACCESSIBLE CEILING SYSTEMS OR AS APPROVED BY THE ARCHITECT ON SITE.
7. ALL REQUIRED ACCESS PANELS IN GYP SHALL BE DRYWALL-FACED, MUC-IN / TRIMLESS FLANGE, SPEC: BEST ACCESS DOORS, BA-F2A, OR EQUAL, SIZE AS NEEDED.
8. ALL EXPOSED ELECTRICAL AND DATA CONDUITS SHALL BE RUN TIGHT TO THE CEILING DECKING AND STRUCTURAL MEMBERS, IF AT ALL POSSIBLE. ROUTE CONDUIT ACROSS STRUCTURAL MEMBERS WHERE HIDDEN BY OTHER CEILING ELEMENTS, RATHER THAN EXPOSED CONDITIONS. PAINT CONDUIT TO MATCH DECKING AS SHEDULED.

LIGHTING NOTES

1. PROVIDE UL COMPLIANT BACK BOXES AT ALL RECESSED LIGHTING FIXTURES.
2. EXTEND PENDANT LIGHTING FIXTURES AS DIRECTED IN FIELD BY DESIGNER OR OWNER. PURCHASE ADJUSTABLE HEIGHT PENDANTS. STANDARD RULE OF THUMB: 7' HEAD HEIGHT AT PENDANTS UNLESS AT FIXED ISLANDS, WHICH ARE TO BE POSITIONED 32" ABOVE COUNTERTOP.
3. ALIGN ALL LIGHT FIXTURES AS SHOWN ON LIGHTING AND SWITCHING PLANS BY CENTERLINES.
4. COORDINATE W/ OWNER FOR IN-FIELD ADJUSTMENTS OF LIGHTING FIXTURES UPON POSITIONING OF LIGHTING BACK BOXES.
5. ALL EXTERIOR LIGHTING FIXTURES AND FIXTURES WITHIN SHOWER AREAS ARE TO BE EXTERIOR MOISTURE RATED PER MANUFACTURER.
6. ALL SWITCHES SHALL BE GANGED TOGETHER, GANGS BEYOND 5 SWITCHES SHALL RECEIVE SMART DIGITAL CONTROL PANELS (LUTRON, OR EQUAL).
7. ALL CEILING FANS ARE TO BE CENTERED AMONG LIGHTING FIXTURES AND/OR IN THE ROOM AS NOTED.
8. ALL SWITCHES SHALL BE MOUNTED AT 48" AFF UNLESS NOTED OTHERWISE.

WORK IN PROGRESS SET - NOT FOR CONSTRUCTION

MKOA
MORGAN KENNEDY OFFICE OF ARCHITECTURE, LLC

EAGLE 212

212 W SYCAMORE STREET, DENTON, TX

REV	DESCRIPTION	DATE
00.02	DEVELOPMENT	01.04.24

PROJECT NUMBER 2210
STATUS DESIGN DEVELOPMENT
DATE 01.04.2024

A14

REFLECTED CEILING PLANS

1/10/2024 5:07:32 PM

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MATERIAL LEGEND

WP-1 DELTA MILLWORKS OR SIMILAR THERMAL OAK, CLEAR SEALER, 6" WIDE, SSB EDGES, W/ SS FASTENERS, COLOR: DARK, VERT./HORIZ INSTALL PER ELEVATIONS.

WP-2

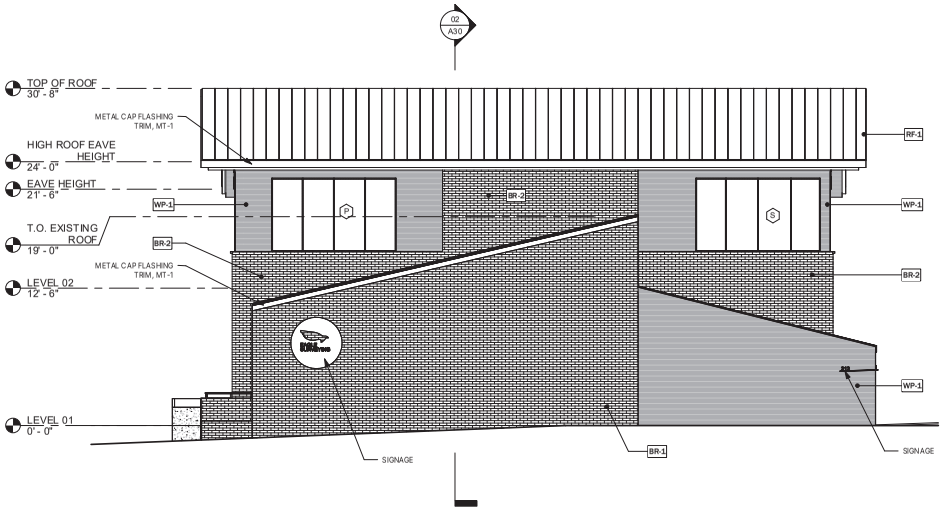
WP-3

BR-1 STAINED BRICK: WHITE

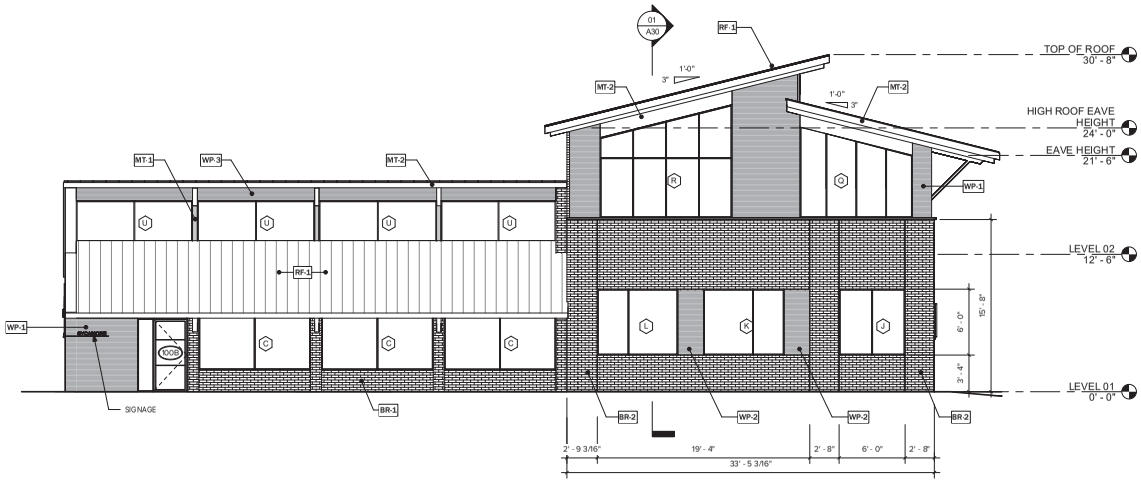
BR-2

MT-1 BREAK METAL WALL PANELS, PROVIDE CONCEALED FASTENERS, MATCH WINDOW COLORS ADJACENT

RF-1 PRE-FINISHED STANDING SEAM METAL ROOF COLOR: BLACK - MATCH ADJACENT BUILDING



02 CD - EAST ELEVATION
3/16" = 1'-0"



01 CD - NORTH ELEVATION
3/16" = 1'-0"

WORK IN PROGRESS SET - NOT FOR CONSTRUCTION

MKOA
MORGAN KENNEDY OFFICE OF ARCHITECTURE, LLC

EAGLE 212

212 W SYCAMORE STREET, DENTON, TX

REV	DESCRIPTION	DATE
00.01	SCHEMATIC	11.20.23
00.02	DEVELOPMENT	01.04.24

PROJECT NUMBER 2210
STATUS DESIGN DEVELOPMENT
DATE 01.04.2024

A20

EXTERIOR ELEVATIONS

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MATERIAL LEGEND

WP-1 DELTA MILLWORKS OR SIMILAR THERMAL OAK, CLEAR SEALER, 6" WIDE, SSB EDGES, W/ SS FASTENERS, COLOR: DARK, VERT./HORIZ INSTALL PER ELEVATIONS.

WP-2

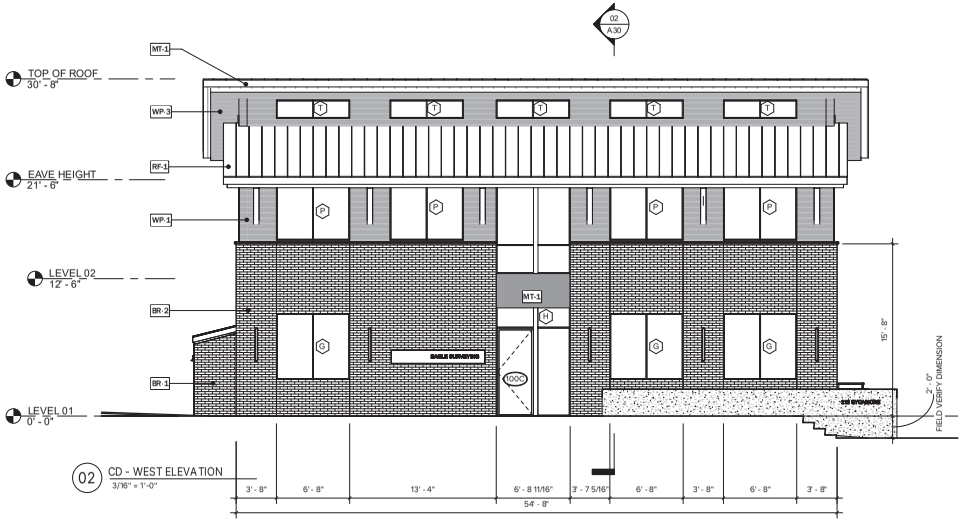
WP-3

BR-1 STAINED BRICK: WHITE

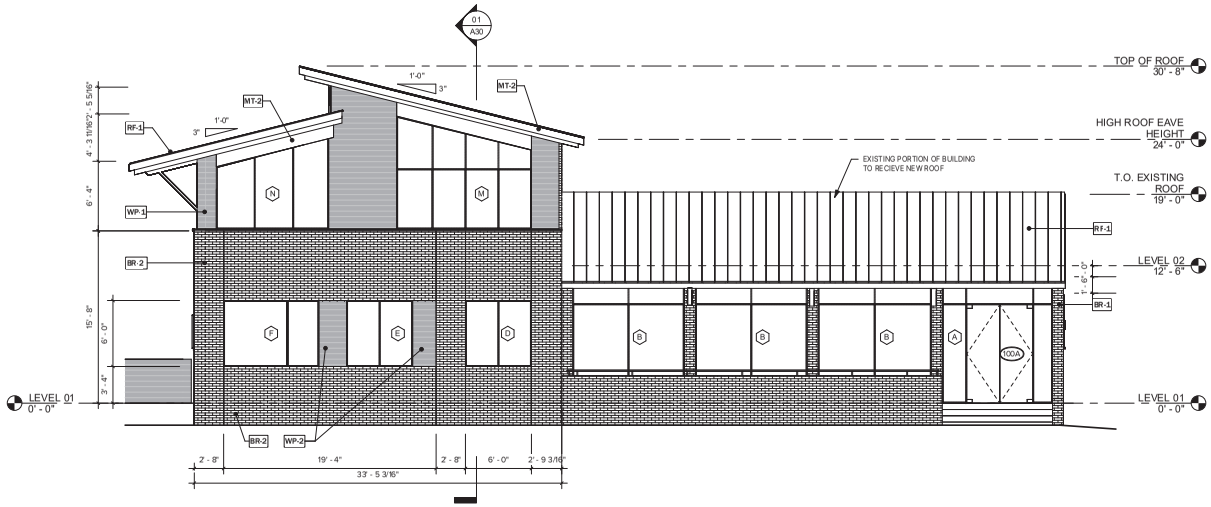
BR-2

MT-1 BREAK METAL WALL PANELS, PROVIDE CONCEALED FASTENERS, MATCH WINDOW COLORS ADJACENT

RF-1 PRE-FINISHED STANDING SEAM METAL ROOF COLOR: BLACK - MATCH ADJACENT BUILDING



02 CD - WEST ELEVATION
3/16" = 1'-0"



01 CD - SOUTH ELEVATION
3/16" = 1'-0"

WORK IN PROGRESS SET - NOT FOR CONSTRUCTION

MKOA
MORGAN KENNEDY OFFICE OF ARCHITECTURE, LLC

EAGLE 212

212 W SYCAMORE STREET, DENTON, TX

REV	DESCRIPTION	DATE
00.01	SCHEMATIC	11.20.23
00.02	DEVELOPMENT	01.04.24

PROJECT NUMBER 2210
STATUS DESIGN DEVELOPMENT
DATE 01.04.2024

A21

EXTERIOR ELEVATIONS

1/10/2024 5:07:33 PM

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NOTE:
CONCEPT RENDERINGS FOR DESIGN INTENT ONLY,
REFERENCE DRAWING SET FOR FINAL DIRECTION

WEST ELEVATION

NORTH ELEVATION

EAST ELEVATION

WORK IN PROGRESS SET - NOT FOR CONSTRUCTION

MKOA
MORGAN KENNEDY OFFICE OF ARCHITECTURE, LLC

EAGLE 212

212 W SYCAMORE STREET, DENTON, TX

REV	DESCRIPTION	DATE
00.01	SCHEMATIC	11.20.23

PROJECT NUMBER 2210
STATUS DESIGN DEVELOPMENT
DATE 01.04.2024

A91

CONCEPT RENDERINGS

1/10/2024 5:07:33 PM

640

Planning Division | Development Services
401 N Elm St., Denton, TX 76201 • (940) 349-8532

February 29, 2024

Dan Rick, Eagle Surveying, LLC
222 S Elm Street, Ste 200
Denton, TX 76201

RE: 212 W Sycamore Street – Rehabilitation of Original Structure and New Addition

Dear Mr. Rick:

The proposed project, according to the Downtown Reinvestment Grant Program Ordinance No. 22-2567, is subject to review under the Secretary of the Interior's *Standards for Rehabilitation*. The Standards for Preservation, Restoration, and Reconstruction do not apply. Below are the Secretary of the Interior's Standards for Rehabilitation requirements that apply to the proposed project.

Standards for Rehabilitation
Definition: *Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.*

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
   The property at 212 W Sycamore Street, which was formerly used by the Denton County Teachers Federal Credit Union (now DATCU), will be used as it was historically (i.e., office space), but a new addition is proposed to ensure the property can support the growing business. Therefore, the proposed addition will require minimal change to the original building's distinctive materials, features, spaces, and spatial relationships as described elsewhere in this report.

2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces and spatial relationships that characterize a property will be avoided.

   The historic character of the building at 212 W Sycamore Street will be largely retained and preserved. The portion of the existing building to remain would preserve the original brick, leaving it exposed, and reintroduce the standing seam metal roof, finished in a black color, with the possibility of changing the finish to a copper color to pay homage to the original copper roof. Any deteriorated brick would utilize the brick removed from the western façade and the rear (north) entrance. This brick would be utilized to help extend the existing garden beds to allow for the creation of a patio. Also, the proposed addition will not adversely affect the spatial relationships that characterize the property, maintaining the spacing between the main structure at 212 W Sycamore Street and the

neighboring commercial buildings to the north and east. The proposed addition will be constructed to compliment the original, main building.

3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
   The proposed project does not create a false sense of historical development. The proposed two-story addition will be constructed with new materials and utilize architectural features that are complimentary to, but not mimicking the Mid-Century Modern style of the original bank building.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
   The circa 1969 addition to the main structure at 212 W Sycamore Street, though historic, does not lend itself to the functionality of the proposed office use. The original structure, which was constructed in 1965, will be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

   The proposed project would retain and bring back some of those distinctive materials, features, finishes, and construction techniques that are unique to the existing building, such as the standing seam metal roof, as supported by photographic documentation. Those examples of craftsmanship will continue to be preserved in the construction of the new addition as well.

6. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
   The proposed project would rehabilitate the existing building at 212 W Sycamore Street, apart from the circa 1969 addition, and replace the original addition with a new two-story, modern addition. The proposed project would not destroy historic materials except where removed for the construction of the new two-story addition. However, the portion of the existing building to remain would preserve the original brick, leaving it exposed, and reintroduce the standing seam metal roof, finished in a black color, with the possibility of changing the finish to a copper color to pay homage to the original copper roof. Any deteriorated brick would utilize the brick removed from the western façade and the rear (north) entrance. This brick would be utilized to help extend the existing garden beds to allow for the creation of a patio. Additionally, the new addition would be constructed of brick with large single pane windows and utilize a black standing seam metal roof to compliment the 1960s building. Also, the new addition would not negatively affect spatial relationships that characterize the property, largely staying within the existing structure and circa 1969 additions footprint. The new addition will also be differentiated from the old using new materials and architectural features, that would still be compatible with the historic materials, features, size, scale, and proportion, and building placement and massing to protect the integrity of the original building at 212 W Sycamore Street and its surrounding environment.

7. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
   The proposed west addition and alterations to the building at 212 W Sycamore Street would not affect the essential form and integrity of the historic property, nor would the environment be impaired. The existing buildings circa 1969 addition would be removed with the construction of the new addition, the rear entrance reconstructed with new oak boards, as well as the garden beds on the front (south) façade extended and infilled for a new patio use. The patio would utilize the original brick removed from the rear entrance. However, if the addition and patio were to be removed in the future, the original garden beds could be revealed, and a new exterior wall could be constructed to match the original building structure. Additionally, the rear entrance could be reconstructed with brick material, so to match the original.

Based on the evaluation criteria stated above and an evaluation of the documentation submitted by the applicant, staff believes that the rehabilitation of the original, main building at 212 W Sycamore Street and the construction of a new two-story addition to replace the circa 1969 addition meets the Secretary of the Interior's Standards for Rehabilitation and the intent of the ordinance. The scope of work is further described in Exhibits A and B.

Please note that any work that deviates from the work proposed above and within the exhibits will require additional review by the Historic Preservation Officer (HPO). Additionally, if the applicant has received funding through the Downtown Reinvestment Grant Program, any work deviations should be discussed with staff prior to permitting to keep the applicant in substantial conformance with the program.

Please use this approval letter as a record of staff's review. If you have any questions or require additional information, please contact me at (940) 349-8532 or via email at cameron.robertson@cityofdenton.com.

Sincerely,

Cameron Robertson

Cameron Robertson, AICP
Historic Preservation Officer

Exhibits
Exhibit A – Renovation of 212 W Sycamore Street
Exhibit B – Proposed Drawings

212 W. Sycamore St.

Eagle Surveying, LLC

Location

Building Entry/Exits

About the Project

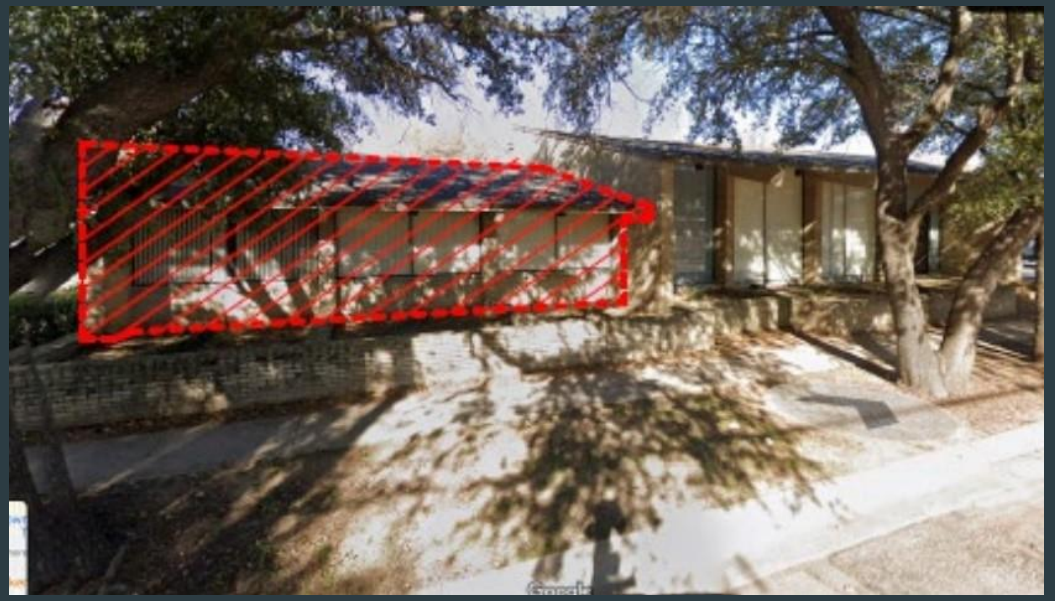
- Purchased the old DATCU building which open in May 1965
- Building footprint was expanded in 1969
- Active business since 2016 (8 years)
- Will keep the Mid-Century Modern Design
- Will add a new two-story addition to the building which will add much-needed space and compliment the original building
- Increases additional development in the southern TIRZ area
- Will improve the alleyway for a pedestrian and bicycle-friendly design for all connecting businesses
- Grant categories
  - Façade & Building Rehabilitation
  - Interior/Code Improvements
- Projected project cost of $1,465,727.93

212 W. Sycamore

1940

1969

Renovation of 212 W. Sycamore St.



Existing to be demolished-Southwest View

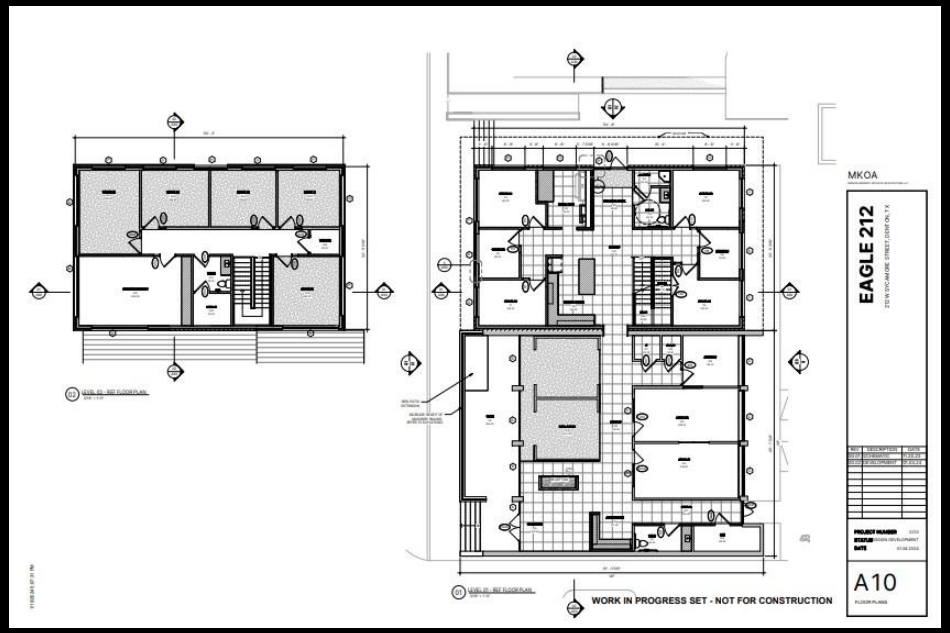
West Elevation

Renovation of 212 W. Sycamore St.

Existing to be demolished-Northeast View

North Elevation

Interior/Code Improvements



Eligible Expenses

Project Category	Estimated Cost	Grant Limit
Façade/Building Rehab	$879,436.76	50% up to $50,000
Interior/Code Improvements	$586,291.17	50% up to $50,000
PROPOSED PROJECT COSTS:	**$1,465,727.93**	
TOTAL GRANT REQUEST:	**$50,000**	

212 S. Elm, *Axis Realty Group*

222 S. Elm, *Station 222*

Texas Secretary of State
Jane Nelson

UCC | Business Organizations | Trademarks | Notary | Account | Help/Fees | Briefcase | Logout

BUSINESS ORGANIZATIONS INQUIRY - VIEW ENTITY

Filing Number: 802337605
Original Date of Filing: November 24, 2015
Formation Date: N/A
Tax ID: 32058907976
Duration: Perpetual

Entity Type: Domestic Limited Liability Company (LLC)
Entity Status: In existence
FEIN:

Name: Eagle Surveying, LLC
Address: 210 SOUTH ELM STREET SUITE 104
DENTON, TX 76201 USA

REGISTERED AGENT | FILING HISTORY | NAMES | MANAGEMENT | ASSUMED NAMES | ASSOCIATED ENTITIES | INITIAL ADDRESS

Last Update	Name	Title	Address
November 26, 2023	BRAD ANDRUS	MANAGER	8855 FM 1173 KRUM, TX 76249 USA
November 26, 2023	DANIEL RICK	MANAGER	4409 NAPA VALLEY ARGYLE, TX 76226 USA

File #: ID 24-1089, **Version:** 1

AGENDA CAPTION

Consider approval of a resolution of the City of Denton authorizing the submission of an application to the U.S. Department of Transportation (DOT) Federal Highway Administration (FHWA) Fiscal Year 2023 Active Transportation Infrastructure Investment Program (ATIIP) in the not-to-exceed amount of $11,500,000 for the Pecan Creek Trail Shared Use Path; and providing an effective date.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Parks and Recreation, Finance

ACM: Christine Taylor, Cassey Ogden

DATE: June 4, 2024

SUBJECT

Consider approval of a resolution of the City of Denton authorizing the submission of an application to the U.S. Department of Transportation (DOT) Federal Highway Administration (FHWA) Fiscal Year 2023 Active Transportation Infrastructure Investment Program (ATIIP) in the not-to-exceed amount of $11,500,000 for the Pecan Creek Trail Shared Use Path; and providing an effective date.

STRATEGIC ALIGNMENT

This action supports Key Focus Area: Strengthen Community and Quality of Life.

BACKGROUND

On March 19, 2024, the U.S. Department of Transportation (DOT) and the Federal Highway Administration (FHWA) opened applications to the Fiscal Year 2023 Active Transportation Infrastructure Investment Program (ATIIP). FY 2023 ATIIP is funded by the Bipartisan Infrastructure Law (BIL) enacted as the Infrastructure Investment and Jobs Act (IIJA). The program funds projects that improve safety, efficiency, and reliability of active transportation networks and communities.

On January 24, 2023, City Council adopted the Pecan Creek Regional Trail Master Plan. The trail's starting point is from the DCTA Rail Trail and Fred Moore Park, with the endpoint providing a connection toward Lewisville Lake, estimated to be 11.6 miles long. The Parks and Recreation Department (PARD) submitted a grant application to the TXDOT Transportation Alternatives program to fund Segments 1, 3, and 4a of the trail. Grant funding in the amount of $10.8 million was received.

The proposed grant funding completes the remainder of the trail - Segments 2, 4b, & 5. The trail will include 10’ wide multi-use concrete path segments starting at Woodrow Lane and continuing south and east to the Townsend Green Community, roughly following Pecan Creek. The project includes two bridges, 911 emergency signage, ADA ramps, incidental trailhead amenities, lighting for safety, and landscaping.

PARD is preparing a detailed application requesting grant funding in the amount of $10.8 million from FHWA ATIIP. This resolution authorizes a not to exceed amount of $11.5 million in the circumstance that estimated costs increase between the date of this resolution and when the application is submitted on June 17, 2024. The requested match from the City is $3,000,000 and is an overmatch of the required 20% of estimated project costs. DOT requires a resolution from the governing body supporting the application and funding of the project.

RECOMMENDATION

Staff recommends approval of the resolution.

FISCAL INFORMATION

The grant funds projects at 80%, with a minimum 20% local match requirement. PARD is estimating the project to cost $10.8 million in grant funding. The City's required match of 20% is $2.16 million. The City plans to overmatch the requirement by funding $3 million. The estimated total project cost is $13.8 million. The City's match will be funded using 2023 Bond funds.

EXHIBITS

Exhibit 1 Agenda Information Sheet
Exhibit 2 Resolution
Exhibit 3 Pecan Creek Trail Master Plan

Respectfully submitted:
Gary Packan, Director of Parks and Recreation
Jessica Williams, Chief Financial Officer

Prepared By:
Janay Tieken, Parks Foundation Liaison & Fund Manager
Daniel Jones, Senior Grants Analyst

RESOLUTION NO. _____

A RESOLUTION OF THE CITY OF DENTON AUTHORIZING THE SUBMISSION OF AN APPLICATION TO THE U.S. DEPARTMENT OF TRANSPORTATION (DOT) FEDERAL HIGHWAY ADMINISTRATION (FHWA) FISCAL YEAR 2023 ACTIVE TRANSPORTATION INFRASTRUCTURE INVESTMENT PROGRAM (ATIIP) IN THE NOT-TO-EXCEED AMOUNT OF $11,500,000 FOR THE PECAN CREEK TRAIL SHARED USE PATH; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the U.S. DOT FHWA opened the Fiscal Year 2023 ATIIP on March 19, 2024 for project applications that improve the safety, efficiency, and reliability of active transportation networks and communities; improve connectivity between active transportation modes and public transportation; enhance the resiliency of on- and off-road active transportation infrastructure and help protect the environment; and improve quality of life in disadvantaged communities through the delivery of connected active transportation networks and expanded mobility opportunities; and

WHEREAS, the ATIIP funds may be used for planning and design and construction of safe, accessible, and equitable pedestrian and bicycle network connectivity through the development of infrastructure that will provide substantial additional opportunities for walking and bicycling; and

WHEREAS, the ATIIP funds require a local matching share of at least 20 percent of total project costs; and

WHEREAS, the City of Denton is eligible to apply for the funds under the application criteria; and

WHEREAS, the City has developed the necessary application materials and desires to make an application to the USDOT FHWA Fiscal Year 2023 Active Transportation Infrastructure Investment Program ; and

WHEREAS, grant applications are due on June 17, 2024; NOW THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY RESOLVES:

SECTION 1. The application for the USDOT FHWA Fiscal Year 2023 Active Transportation Infrastructure Investment Program is hereby authorized.

SECTION 2. The City Manager, or designee, is designated, delegated, and authorized to request grant funding under the USDOT FHWA Fiscal Year 2023 ATIIP, including the submission of FHWA's application, and act on behalf of the City of Denton in all matters related to the grant application, receipt of funds, and any subsequent grant contracts and grant projects that may result.

SECTION 3. Should the project be funded, then the City of Denton shall comply with the requirements of the USDOT and FHWA.

SECTION 4. The City of Denton supports funding this project as described in the Fiscal Year 2023 ATIIP application and is willing to commit to the project's development, implementation, construction, maintenance, management, and financing.

SECTION 5. The City of Denton is willing and able to enter into an agreement with USDOT FHWA should the project be selected for funding.

SECTION 6. The project funds and any project-funded equipment and facilities will be used solely for the purposes for which they are intended under the grant.

SECTION 7. This resolution is effective immediately upon its passage.

The motion to approve this resolution was made by _____ and seconded by _____, the resolution was passed and approved by the following vote [____-____]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

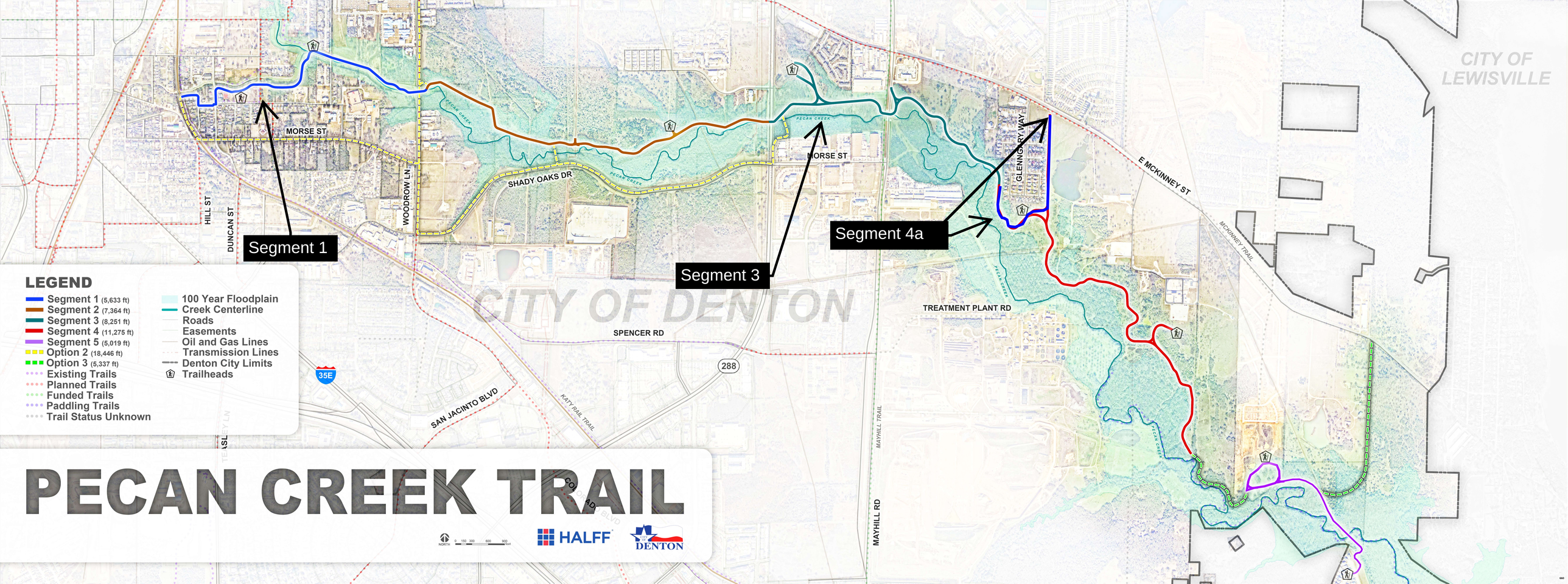
_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Susan Keller


PECAN CREEK TRAIL
LEGEND
Segment 1 (5,633 ft)
Segment 2 (7,364 ft)
Segment 3 (8,251 ft)
Segment 4 (11,275 ft)
Segment 5 (5,019 ft)
Option 2 (18,446 ft)
Option 3 (5,337 ft)
Existing Trails
Planned Trails
Funded Trails
Paddling Trails
Trail Status Unknown
100 Year Floodplain
Creek Centerline
Roads
Easements
Oil and Gas Lines
Transmission Lines
Denton City Limits
Trailheads
Segment 1
Segment 3
Segment 4a
CITY OF DENTON
CITY OF LEWISVILLE
MORSE ST
HILL ST
DUNCAN ST
WOODROW LN
SHADY OAKS DR
PECAN CREEK
GLENNGARY WAY
E MCKINNEY ST
MCKINNEY TRAIL
TREATMENT PLANT RD
SPENCER RD
288
35E
SAN JACINTO BLVD
KATY RAIL TRAIL
MAYHILL TRAIL
MAYHILL RD
HALFF
DENTON

File #: ID 24-1091, **Version:** 1

AGENDA CAPTION

Consider approval of a resolution of the City of Denton ratifying the submission of an application to the U.S. Department of Justice (DOJ) Office of Community Oriented Policing Services (COPS) FY24 Community Policing Development (CPD) Microgrants Program in the amount of $175,000 for a recruitment and retention program for Police Officers; and providing an effective date.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Police, Finance

CM/ACM: Sara Hensley, Cassey Ogden

DATE: June 4, 2024

SUBJECT

Consider approval of a resolution of the City of Denton ratifying the submission of an application to the U.S. Department of Justice (DOJ) Office of Community Oriented Policing Services (COPS) FY24 Community Policing Development (CPD) Microgrants Program in the amount of $175,000 for a recruitment and retention program for Police Officers; and providing an effective date.

BACKGROUND

On March 21, 2024, the DOJ opened the FY24 CPD Microgrants Program for applications to provide grants to local, state, tribal, and territorial law enforcement agencies to implement demonstration or pilot projects that offer creative ideas to advance crime fighting, community engagement, problem solving, or organizational changes in support of community policing.

The Police Department is proposing a grant application requesting $175,000 to fund a program with the goals of bolstering officer ranks, ensuring both numerical sufficiency and diversity reflective of the community. This funding will enable a partnership with a recruitment vendor to attract diverse, high-quality applicants through targeted media and marketing strategies. Additionally, grant funds will enhance engagement and outreach efforts, particularly targeting Hispanic and female demographics, aligning with the community's demographics and internal diversity goals. The department's recruitment team will organize events and visit nontraditional locations to increase applications from underrepresented groups, with a focus on sustained year-over-year growth in both female and Hispanic officer representation.

Police Department staff prepared the necessary grant application materials and submitted to DOJ on May 21, 2024.

RECOMMENDATION

Staff recommends approval of the resolution.

FISCAL INFORMATION

The maximum grant award for this project is $175,000 and requires no local match.

EXHIBITS

Exhibit 1 Agenda Information Sheet
Exhibit 2 Resolution

Respectfully submitted:
Jessica Robledo, Interim Police Chief
Jessica Williams, Chief Financial Officer

Prepared by:
Logan Mayfield, Funding Analyst
Daniel Jones, Senior Grant Analyst

RESOLUTION NO. _____

A RESOLUTION OF THE CITY OF DENTON RATIFYING THE SUBMISSION OF AN APPLICATION TO THE U.S. DEPARTMENT OF JUSTICE (DOJ) OFFICE OF COMMUNITY ORIENTED POLICING SERVICES (COPS) FY24 COMMUNITY POLICING DEVELOPMENT (CPD) MICROGRANTS PROGRAM IN THE AMOUNT OF $175,000 FOR A RECRUITMENT AND RETENTION PROGRAM FOR POLICE OFFICERS; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the DOJ COPS office opened the FY24 Community Policing Development Microgrants Program on March 21, 2024, for applications to provide grants to local, state, tribal, and territorial law enforcement agencies to implement demonstration or pilot projects that offer creative ideas to advance crime fighting, community engagement, problem solving, or organizational changes in support of community policing; and

WHEREAS, the organizations eligible for funding include all local, state, tribal, and territorial law enforcement agencies; and

WHEREAS, the City of Denton is eligible to apply for the funds under the application criteria; and

WHEREAS, the grant is proposed to provide $175,000 in funding to the City for a recruitment and retention program; and

WHEREAS, the City has developed the necessary application materials required to make an application to the DOJ CPD Microgrants Program; and

WHEREAS, a grant application was submitted on May 22, 2024. NOW THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY RESOLVES:

SECTION 1. The application for the FY24 Community Policing Development Microgrants Program is hereby ratified.

SECTION 2. The City Manager, or designee, is designated, delegated, and authorized to request grant funding under the DOJ COPS FY24 Community Policing Development Microgrants Program (Grant Program), including the submission of the application, and act on behalf of the City of Denton in all matters related to the grant application and any subsequent grant contracts and grant projects that may result.

SECTION 3. Should the project be funded, then the City of Denton shall comply with the requirements of the Grant Program.

SECTION 4. The project funds and any project-funded equipment and facilities will be used solely for the purposes for which they are intended under the Grant Program.

SECTION 5. This resolution is effective immediately upon its passage.

The motion to approve this resolution was made by _____ and seconded by _____, the resolution was passed and approved by the following vote [____-____]:

	Aye	Nay	Abstain	Absent
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Susan Keller

File #: ID 24-1098, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton, A Texas Home-Rule Municipal Corporation, authorizing the City Manager to execute an interlocal cooperative agreement with the City of Sanger, Texas, under the Texas Government Code, Section 791.001, to authorize the City of Denton to exchange one remote supervisory electric automatic switchgear; and declaring an effective date.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Denton Municipal Electric

GENERAL MANAGER: Antonio Puente

DATE: June 4, 2024

SUBJECT

Consider adoption of an ordinance of the City of Denton, A Texas Home-Rule Municipal Corporation, authorizing the City Manager to execute an interlocal cooperative agreement with the City of Sanger, Texas, under the Texas Government Code, Section 791.001, to authorize the City of Denton to exchange one remote supervisory electric automatic switchgear; and declaring an effective date.

INFORMATION/BACKGROUND

This contract will provide the City of Sanger with (one) 1-remote supervisory PME 9, 600A, 3-Phase, pad-mounted "Switchgear", within 60 days of the execution of this contract. The City of Sanger currently has (one) 1-remote supervisory PME 9, 600A, 3-Phase, pad-mounted, switchgear, on order and which will replace the switchgear DME provides through this agreement within 30 days of the City of Sanger receiving the "switchgear".

This "switchgear" is an urgent need for the City of Sanger because they did not anticipate the extended lead times currently affecting the supply chain. The City of Denton and DME will be able to help the City of Sanger's largest customer by providing the City of Sanger with this asset. By providing this asset to Sanger, provides regional assistance to the City of Sanger and does not hinder operations, maintenance, or construction projects within the City of Denton.

PRIOR ACTION/REVIEW (COUNCIL, BOARDS, COMMISSIONS)

None

RECOMMENDATION

Enter a contract with City of Sanger, for the exchange of (one) 1-Remote Supervisory PME 9, 600A, 3-Phase, pad-mounted "Switchgear", from Denton Municipal Electric.

PRINCIPAL PLACE OF BUSINESS

City of Sanger
Sanger, Texas

FISCAL INFORMATION

This switchgear has a current cost of $96,359.00.

EXHIBITS

Exhibit 1 – AIS – City of Sanger Switchgear
Exhibit 2 - Ordinance
Exhibit 3 - ILA Denton Sanger Electric Switchgear

Respectfully submitted:
Jerry Fielder, P.E. (940) 349-7173
Engineering Division Manager

For information concerning this acquisition, contact: Randy Key, 940-349-7665.

Legal point of contact: Marcella Lunn at 940-349-8333.

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, A TEXAS HOME-RULE MUNICIPAL CORPORATION, AUTHORIZING THE CITY MANAGER TO EXECUTE AN INTERLOCAL COOPERATIVE AGREEMENT WITH THE CITY OF SANGER, TEXAS, UNDER THE TEXAS GOVERNMENT CODE, SECTION 791.001, TO AUTHORIZE THE CITY OF DENTON TO EXCHANGE ONE REMOTE SUPERVISORY ELECTRIC AUTOMATIC SWITCHGEAR; AND DECLARING AN EFFECTIVE DATE.

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The City Manager, or their designee, is hereby authorized to execute the Interlocal Cooperative Agreement with the City of Sanger under Section 791.001 of the Texas Government Code, a copy of which is attached hereto and incorporated by reference herein (the "Agreement").

SECTION 2. The City Council of the City of Denton hereby expressly delegates the authority to take any actions that may be required or permitted to be performed by the City of Denton under this ordinance to the City Manager of the City of Denton, or their designee.

SECTION 3. This ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____. This ordinance was passed and approved by the following vote [___ - ___]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Marella Wan

INTERLOCAL AGREEMENT

This Interlocal Agreement (the "Agreement") is made and entered into this ____ day of _____. 2024, between the City of Denton, Texas, a home-rule municipal corporation (hereinafter the "City") and the City of Sanger, Texas, a home-rule municipal corporation (hereinafter "City of Sanger" or "Sanger") (each, a "party," collectively, the "parties").

WHEREAS, both the City and Sanger have the authority to enter into this Agreement pursuant to Chapter 791, Texas Government Code; and

WHEREAS, the exchange of one (1) Remote Supervisory PME 9, 600A, 3-phase, pad-mounted, serial number 670-23-00398 for a Remote Supervisory PME 9, 600A, 3-phase, pad-mounted (serial number to be provided upon Sanger's receipt) contemplated under this Agreement is of mutual interest and benefit to City of Sanger and the City. The purpose of this Agreement is for the exchange of an electric automatic switchgear to City of Sanger which is intended to provide electrical service to the Wal Mart Distribution Center in Sanger, Texas.

WHEREAS, it is mutually beneficial to both parties to execute this Agreement whereby each entity can achieve common objectives relating to the provision of electricity service to their respective residents.

WHEREAS, The City of Sanger agrees to utilize the equipment purchased by the City in this Agreement for the express purpose of an electric automatic switchgear to City of Sanger which is intended to provide electrical service to Wal Mart Distribution Center in Sanger, Texas.

NOW THEREFORE, in consideration of the mutual representations, terms and covenants hereafter set forth, the parties hereby agree as follows:

1. STATEMENT OF WORK. The City will deliver one (1) Remote Supervisory PME 9, 600A, 3-phase, pad-mounted, serial number 670-23-00398 "Switchgear" to City of Sanger within sixty (60) business days of the execution of this Agreement.

2. LOCATION. The City of Sanger will provide the City with information as to where the City of Sanger will take delivery of the remote supervisory PME-9 prior to delivery by the City.

3. RECOUPMENT BY THE CITY OF SANGER. The City of Sanger will provide to City (1) remote supervisory PME9 switchgear of exact specification of the equipment described in Section 1 to the City within thirty (30) days of the City of Sanger receiving the unit purchased in accordance with RFP #2023-08 awarded to Power Standard for RELOCATING ELECTRIC POWER DISTRIBUTION FACILITIES for the City of Sanger. City of Sanger will deliver to the City the equipment at a location identified by the City.

4. WARRANTY. The City will transfer and assign the manufacturer's warranty to the Transformer to City of Sanger upon delivery of such switchgear. The City makes no other representation or warranty as to the switchgear and its fitness for a particular purpose, merchantability, workmanship, manufacture, or otherwise. The City of Sanger will transfer and assign the manufacturer's warranty to the Transformer to City upon delivery of such switchgear.

5. BREACH / OPPORTUNITY TO CURE. The parties hereto expressly covenant and agree that in the event either party is in default of its obligations herein, the party not in default shall provide to the party in default at least thirty (30) days written notice to cure said default before exercising any of its rights as provided for in this Agreement.

6. LIABILITY. The parties to this Agreement and their respective officers and employees shall not be deemed to assume any liability for the acts, omissions, and negligence of the other party.

7. FORCE MAJEURE. Except for the obligation for the payment of money, if either party fails to fulfill its obligations hereunder when such failure is due to an act of God, or other circumstance beyond its reasonable control, then said failure shall be excused for the duration of such event and for such a time thereafter as is reasonable to enable the parties to resume performance under this Agreement; provided, however, if City of Sanger's delivery of the equipment is delayed for any reason the City can elect to receive payment equal to the cost of the equipment instead of waiting for delivery of the equipment.

8. DISPUTE RESOLUTION. The City and the City of Sanger must use the dispute resolution process provided in Chapter 2260 of the Texas Government Code to attempt to resolve a dispute arising under this Agreement and such process is a required prerequisite to suit in accordance with Chapter 107, Texas Civil Practice and Remedies Code. Nothing in this Agreement waives or relinquishes the right of City of Sanger or the City to claim any exemptions, privileges and immunities as may be provided by law.

9. GOVERNING LAW AND REMEDIES. This Agreement shall be construed by and governed by the laws of the State of Texas. Venue for any legal action necessary to enforce the Agreement will be in Denton County, Texas. No remedy herein conferred upon any party is intended to be exclusive of any other remedy, and each such remedy shall be cumulative and shall be in addition to every other remedy given hereunder or now or hereafter existing at law or in equity or by statute or otherwise. No single or partial exercise by any party of any right, power or remedy hereunder shall preclude any other or further exercise thereof.

10. ENTIRE AGREEMENT. This Agreement contains the entire agreement between the parties and supersedes any prior oral or written agreements, commitments, understandings, or communications with respect to the subject matter of the Agreement. No amendments or modification of this Agreement shall be effective unless set forth in writing executed by duly authorized representatives of each party.

11. WAIVER AND AMENDMENT. No waiver of any provision hereof or of any right or remedy hereunder shall be effective unless in writing and signed by the party against whom such waiver is sought to be enforced. No delay in exercising, no course of dealing with respect to, or no partial exercise of any right or remedy hereunder shall constitute a waiver of any right or remedy, or future exercise thereof.

12. ASSIGNMENT. This Agreement may not be assigned in whole or in part by any of the Parties without prior written consent of the other Party.

13. SEVERABILITY. If any section, paragraph, sentence, clause, or provision hereof is held by a court of competent jurisdiction to be invalid, the same shall not affect the remaining portions of this Agreement and such remaining portions shall remain in full force and effect.

14. NOTICE. Any notice required to be given in connection with this Agreement shall be in writing and shall be deemed effective if hand delivered, or if sent by United States certified mail, return receipt requested, postage prepaid, or if sent by private receipted courier guaranteeing same-day or next-day delivery, addressed to the respective party at its address provided below. If sent by U.S. certified mail in accordance with this Section, such notices shall be deemed given and received on the earlier of (a) actual receipt at the address of the named addressee, or (b) on the third (3rd) business day after deposit with the United States Postal Service. Notice given by any other means shall be deemed given and received only upon actual receipt at the address of the named addressee.

Party:	City	City of Sanger

Name:	Denton Municipal Electric	City of Sanger
Attn:	Antonio Puente	
Address:	1659 Spencer Road, Denton, TX 76205	
Telephone:	940-349-8487	
Email:	Antonio.Puente@cityofdenton.com	

15. NO THIRD-PARTY BENEFICIARIES. For purposes of this Agreement, including its intended operation and effect, the parties specifically agree and contract that: (1) the Agreement only affects matters / disputes between the parties to this Agreement, and is in no way intended by the parties to benefit or otherwise affect any third person or entity notwithstanding the fact that such third person or entity may be in contractual relationship with the City of Sanger or the City, or both; and (2) the terms of this Agreement are not intended to release, either by contract or by operation of law, any third person or entity from obligations owed by them to either the City of Sanger or the City.

The parties have caused this Agreement to be executed by their duly authorized representative.

City of Denton

By: _____
Name: Sara Hensley
Title: City Manager

City of Sanger

By: _____
Name: John Noblitt
Title: City Manager

ATTEST:
Lauren Thoden, City Secretary

By: _____

THIS AGREEMENT HAS BEEN BOTH REVIEWED AND APPROVED
as to financial and operational obligations and business terms.

By: _____
Name: _____
Title: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

Marcella Lunn
By: _____

File #: ID 24-173, **Version:** 1

AGENDA CAPTION

Consider approval of a resolution of the City Council of the City of Denton, Texas, establishing a date for a public hearing to consider the amendment of Land Use Assumptions, Roadway Capital Improvements Plan, and the imposition of updated Roadway Impact Fees; and providing for an effective date.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Development Services/Engineering Services

ACM: Cassandra Ogden

DATE: June 4, 2024

SUBJECT

Consider approval of a resolution of the City Council of the City of Denton, Texas, establishing a date for a public hearing to consider the amendment of Land Use Assumptions, Roadway Capital Improvements Plan, and the imposition of updated Roadway Impact Fees; and providing for an effective date.

BACKGROUND

The City of Denton has been in the process of updating the Roadway Impact Fees as the next step after the adopted 2022 Mobility Plan.

The City of Denton retained Kimley-Horn to complete the Roadway Impact Fee update as the final step of the 2022 Mobility Plan and Roadway Impact Fee Updates. The City of Denton has presented to the Capital Improvement Advisory Committee (CIAC) on October 26, November 14, 2022, December 14, 2022, and March 20, 2024, at a Developer Town Halls on October 27, 2022, and September 14, 2023, and at City Council on November 15, 2022, December 6, 2022, December 12, 2023, and May 21, 2024. The final 2022 Roadway Impact Fee study, included as Exhibit 3, sets the maximum assessable impact fee per service unit that can be charge in each impact fee service area. Detailed information about how the fee is calculated, along with a list of all projects, is included in the study. Staff posted the Roadway Impact Fee Study to the City website and provided the information to the development community December 2023 via email to receive feedback.

The City is working to adopt the roadway impact fees in accordance with the Chapter 395 Local Government Code associated with the Land Use Assumptions and the Capital Improvement Plans at least every 5 years. The last adopted Roadway Impact Fee Study was adopted in 2016.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

Capital Improvement Advisory Committee (CIAC) – October 26, 2022 – Received Direction
Capital Improvement Advisory Committee (CIAC) – November 14, 2022 – Received Direction
City Council – November 15, 2022 – Received Direction
City Council – December 6, 2022 – Received Direction
Capital Improvement Advisory Committee (CIAC) – December 14, 2022 – Received Direction
City Council – December 12, 2023 – Received Direction
Capital Improvement Advisory Committee (CIAC) – March 20, 2024 – Received Direction
City Council – May 21, 2024 – Received Direction

ESTIMATED SCHEDULE OF PROJECT

- Anticipated proposed public hearing for Land Use Assumptions, Capital Improvement Plan, Maximum Allowable Fee and Collection Rate on July 16, 2024

- Anticipated proposed adoption of Land Use Assumptions, Capital Improvement Plan, Maximum Allowable Fee and Collection Rate on July 16, 2024

EXHIBITS
Exhibit 1 – Agenda Information Sheet
Exhibit 2 – Resolution
Exhibit 3 – Draft Roadway Impact Fee Study
Exhibit 4 – Presentation

Respectfully submitted:
Brett Bourgeois, PE
City Engineer

Legal point of contact: Benjamin Samples at 940-349-8312.

RESOLUTION NO. _____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DENTON, TEXAS, ESTABLISHING A DATE FOR A PUBLIC HEARING TO CONSIDER THE AMENDMENT OF LAND USE ASSUMPTIONS, ROADWAY CAPITAL IMPROVEMENTS PLAN, AND THE IMPOSITION OF UPDATED ROADWAY IMPACT FEES; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, on March 20, 2024, the Capital Improvement Advisory Committee ("CIAC") reviewed and discussed the proposed amendments to the land use assumptions, capital improvements plan, and updated roadway impact fees; and

WHEREAS, the City has made its land use assumptions and capital improvements plan available to the public; and

WHEREAS, the City has adopted a roadway impact fee, and in accordance with Chapter 395 of the Local Government Code, the impact fee and the associated Land Use Assumptions and Capital Improvements Plan shall be updated at least every five years.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF DENTON, TEXAS:

SECTION 1.

That July 16, 2024, is hereby established as the public hearing date to discuss the proposed amendment of roadway capital improvements plan, and the imposition of updated roadway impact fees in the City of Denton.

SECTION 2.

That a copy of said Land Use Assumptions, Roadway Capital Improvements Plan, and the amount of the proposed roadway impact fee will be made available to the public on or before the date of the publication of the public hearing notice.

SECTION 3.

That this Resolution shall take effect immediately from and after its passage.

[Signatures to appear on following page.]

The motion to approve this resolution was made by _____ and seconded by _____, the resolution was passed and approved by the following vote [___ - ___]:

	Aye	Nay	Abstain	Absent
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Benjamin N. Samples, AA

CITY OF DENTON, TEXAS

ROADWAY IMPACT FEE STUDY

May 2024

Prepared for

Prepared by:
Kimley-Horn and Associates, Inc.
801 Cherry Street,
Unit 11, Suite 1300
Fort Worth, TX 76102
Phone 817.335.6511

TBPE Firm Registration Number: F-928
Project Number: 067390001

© Kimley-Horn and Associates, Inc.

CITY OF DENTON, TEXAS
ROADWAY IMPACT FEE STUDY

May 2024

Prepared for the City of Denton

Prepared by:

Kimley-Horn and Associates, Inc.

801 Cherry Street, Unit 11, Suite 1300

Fort Worth, TX 76102

Phone 817 335 6511

TBPE Firm Registration Number: F-928

Project Number: 067390001

© Kimley-Horn and Associates, Inc.

THIS DOCUMENT IS INCOMPLETE AND IS RELEASED TEMPORARILY FOR INTERIM REVIEW ONLY.

PETER C. KELLY, P.E.
SERIAL NUMBER. 125337
DATE: 05/15/2024

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EXECUTIVE SUMMARY

Introduction

Impact Fees are a mechanism for funding the public infrastructure necessitated by new development. Across the country, they are used to fund police and fire facilities, parks, schools, roads and utilities. In Texas, the legislature has allowed their use for water, wastewater, roadway and drainage facilities. They have been used to fund public water and wastewater improvements since 1998 and transportation improvements since 2016 in the City of Denton.

In the most basic terms, impact fees are meant to recover the incremental cost of the impact of each new unit of development creating new infrastructure needs. In the case of roadway impact fees, the infrastructure need is the increased capacity on arterial and collector roadways that serve the overall transportation system. The purpose of the 2022 Roadway Impact Fee Study is to identify the fee per unit of new development necessary to fund these improvements in accordance with the enabling legislation, Chapter 395 of the Texas Local Government Code.

Impact Fee Basics

Transportation Impact Fees are determined by several key variables, each described below in greater detail.

Impact Fee Study

The primary purpose of the 2022 Roadway Impact Fee Study is to determine the maximum impact fee per unit of new development chargeable as allowed by the state law. This determination is not a recommendation; the actual fee amount ultimately collected is at the discretion of the Denton City Council, so long as it does not exceed the maximum assessable allowed by law. The study looks at a period of 10 years to project new growth and corresponding capacity needs, as required by state law. The study and corresponding maximum fees must be restudied at least every five years. However, the study can be updated at any time to accommodate significant changes in any of the key variables of the impact fee equation.

Service Areas

A Service Area is a geographic area within which a unique maximum impact fee is determined. All fees collected within the Service Area must be spent on eligible improvements within the same Service Area. For Roadway Impact Fees, the Service Area may not exceed six miles. In Denton, this restriction necessitated the creation of five separate Service Areas. A map of the Service Areas can be found on Page 6.

In defining the Service Area boundaries, the project team considered the corporate boundary, required size limit, adjacent land uses, and topography. Since each Service Area has a unique maximum impact fee, the per-unit maximum fee for an identical land use will vary from one Service Area to the next. For this reason, the team contained areas of uniform land use within the same Service Area boundary where possible.

Land Use Assumptions

The maximum Roadway Impact Fee determination is required to be based on the projected growth and corresponding capacity needs in a 10-year window. This study considers the years 2022-2032.

In order to arrive at a reasonable projection of growth, all vacant parcels were inventoried. It was assumed that vacant parcels would develop according to the Future Land Use Plan specified in the Comprehensive Plan (Pg. 8). To project future development in the ten-year window, the known developing areas within the city were assumed to be fully developed by the year 2032. Research of historical building permits was performed to compare the projected growth of these known development areas against historical data.

Roadway Impact Fee Capital Improvement Plan (CIP)

The Roadway Impact Fee CIP is distinct and separate from the City's traditional Capital Improvements Plan. The Roadway Impact Fee CIP is simply the list of projects eligible for funding through impact fees. Only those capacity improvements included in the City's adopted Mobility Plan are included in the Roadway Impact Fee CIP. Capacity improvements may include the addition of lanes, intersection improvements, or the extension of a new road. Resurfacing or other maintenance activities do not qualify as capacity improvements under impact fee law in Texas.

Only the projects listed in the Roadway Impact Fee CIP are eligible to utilize impact fee funds. In order to optimize future flexibility, all capacity improvement projects included in the Mobility Plan are included in the Roadway Impact Fee CIP and will be eligible to utilize impact fee funds. Only the costs associated with providing the additional capacity necessitated by 10-years of growth can be used to calculate the maximum impact fee.

In order to calculate the maximum impact fee, the total cost of the Roadway Impact Fee CIP at build-out was reduced to account for:

- The portion of new capacity that will address existing needs, and
- The portion of new capacity that will not be necessitated until beyond the 10-year growth window.

A ratio that compares 10 years' demand for capacity to the net supply of capacity (total new capacity in the Roadway Impact Fee CIP minus existing needs) can be calculated. This ratio, which may not exceed 100%, is then applied to the cost of the net capacity supplied. The result is a determination of the costs attributable to the next 10 years' growth, which is then used to calculate the maximum impact fee in accordance with state law. The result is known as the cost of the Roadway Impact Fee CIP Attributable to Growth (i.e. recoverable portion of the Roadway Impact Fee CIP):

SERVICE AREA:	A	B	C	D	E
Recoverable Cost of Roadway Impact Fee CIP and Financing	$99,742,506	$61,268,086	$147,114,364	$61,257,141	$89,881,134

Service Units

The impact fee law defines a service unit as follows: "Service Unit means a standardized measure of consumption attributable to an individual unit of development calculated in accordance with generally accepted engineering or planning standards and based on historical data and trends applicable to the political subdivision in which the individual unit of development is located during the previous 10 years."

The 2022 Roadway Impact Fee Study defines a *service unit* as the number of vehicle-miles. Based on the City's 10-year growth projections the associated demand (consumption) values for each service area are as follows in terms of vehicle-miles:

SERVICE AREA:	A	B	C	D	E
Total Veh-Mi Demand Over Ten Years	39,968	16,374	31,332	11,634	24,148

Impact Fee Calculation

The maximum impact fee allowable in each of the five service areas is then calculated by dividing the Roadway Impact Fee CIP Attributable to Growth by the number of vehicle-miles in the corresponding Service Area in the above table. This calculation is performed for each service area individually; each service area has a stand-alone Roadway Impact Fee CIP and 10-year growth projection.

Below is the listing of the 2022 Roadway Impact Fee Study's Maximum Assessable Impact Fee Per Service Unit (Vehicle-Mile):

SERVICE AREA:	A	B	C	D	E
2022 Roadway Impact Fee Study Maximum Assessable Fee Per Vehicle-Mile	$2,496	$3,742	$4,695	$5,265	$3,722

Chapter 395 Required Adoption Process

Chapter 395 of the Texas Local Government Code stipulates a specific process for the adoption of Roadway Impact Fees. A Capital Improvement Advisory Committee (CIAC) is required to review the Land Use Assumptions and Roadway Impact Fees CIP used in calculating the maximum fee, and to provide the Committee's findings for consideration by the City Council. This CIAC also reviews the Roadway Impact Fee ordinance and provides its findings to the City Council. The composition of the CIAC is required to adequately represent the building and development communities. The City Council then conducts a first public hearing on the Land Use Assumptions and Roadway Impact Fee CIP and a second public hearing on the Roadway Impact Fee Ordinance.

Following policy adoption, the CIAC is tasked with advising the City Council of the need to update the Land Use Assumptions or the Roadway Impact Fees CIP at any time within five years of adoption. Finally, the CIAC oversees the proper administration of the Impact Fee, once in place, and advises the Council as necessary.

Collection and Use of Transportation Impact Fees

Roadway Impact fees are assessed when a final plat is recorded. The assessment defines the impact of each unit at the time of platting, according to land use, and may not exceed the maximum impact fee allowed by law. Roadway Impact Fees are collected when a building permit is issued. Therefore, funds are not collected until development-impacts are introduced to the transportation system. Funds collected within a service area can be used only within the same service area. Finally, fees must be utilized within 10 years of collection, or must be refunded with interest.

I. INTRODUCTION

Chapter 395 of the Texas Local Government Code describes the procedure political subdivisions must follow in order to create and implement impact fees. Senate Bill 243 (SB 243) amended Chapter 395 in 2001 to define an Impact Fee as "a charge or assessment imposed by a political subdivision against new development in order to generate revenue for funding or recouping the costs of capital improvements or facility expansions necessitated by and attributable to the new development."

The City retained Kimley-Horn and Associates, Inc. to provide professional transportation engineering services for the 2022 Roadway Impact Fee Study. This report includes details of the Roadway Impact Fee calculation methodology in accordance with Chapter 395, the applicable Land Use Assumptions, development of the Roadway Impact Fee Capital Improvements Plan, and the Land Use Equivalency Table.

This report references two of the basic inputs to the Roadway Impact Fee:

1) **Land Use Assumptions** (Pg. 3)

2) **Roadway Impact Fee Capital Improvements Plan (CIP)** (Pg. 9)

Information from these Land Use Assumptions and Roadway Impact Fee CIP is used extensively throughout the remainder of the report.

There is a detailed discussion of the methodology for the computation of impact fees. This discussion is broken into three components:

1) **Methodology for Roadway Impact Fees** (Pg. 20)

2) **Roadway Impact Fee Calculation** (Pg. 36)

3) **Plan for Financing and the Ad Valorem Tax Credit** (Pg. 38)

The components of the **Computation Method for Roadway Impact Fee** include development of:

- Service Areas (Pg. 20)
- Service Units (Pg. 20)
- Cost Per Service Unit (Pg. 22)
- Roadway Impact Fee CIP Costing Methodology (Pg. 22)
- Summary of Roadway Impact Fee CIP Costs (Pg. 25)
- Service Unit Calculation (Pg. 31)

The Roadway Impact Fee is then calculated as:

- Maximum Assessable Impact Fee Per Service Unit (Pg. 36)
- Service Unit Demand Per Unit of Development (Pg. 43)

The report also includes a section concerning the **Plan for Financing and the Ad Valorem Tax Credit**. This involves the calculation of the applicable credit required by law to offset the City's use of ad valorem taxes to help fund the Roadway Impact Fee CIP. This plan, prepared by NewGen Strategies, and upon which we relied, details the maximum assessable impact fee per service unit the City of Denton may apply under Chapter 395 of the Texas Local Government Code.

II. LAND USE ASSUMPTIONS

A. Purpose and Overview

In order to assess an impact fee, Land Use Assumptions must be developed to provide the basis for residential and employment growth projections within a political subdivision. As defined by Chapter 395 of the Texas Local Government Code, these assumptions include a description of changes in land uses, densities, and development in the service area. The land use assumptions are then used in determining the need and timing of transportation improvements to serve future development.

Information from the following sources was compiled to complete the land use assumptions:

- Denton Plan 2040 (City of Denton Comprehensive Plan)
- Denton County Appraisal District (DCAD)
- North Central Texas Council of Governments (NCTCOG)
- City of Denton staff
- Denton 2022 Mobility Plan

The Land Use Assumptions include the following components:

- **Land Use Assumptions Methodology** – An overview of the general methodology used to generate the land use assumptions.
- **Roadway Impact Fee Service Areas** – Explanation of the division of Denton into service areas for transportation facilities.
- **Residential and Employment**– Data on residential and employment growth within the service area over the next ten years (2022 – 2032).
- **Land Use Assumptions Summary** – A synopsis of the land use assumptions.

The residential and employment estimates and projections were compiled in accordance with the following categories:

Residential: Number of residential dwelling units, both single and multi-family.

Employment: Square feet of building area based on three (3) different classifications. Each classification has unique trip making characteristics.

Retail: Land use activities which provide for the retail sale of goods which primarily serve households and whose location choice is oriented toward the household sector, such as grocery stores and restaurants.

Service: Land use activities which provide personal and professional services, such as government and other professional offices.

Basic: Land use activities that produce goods and services such as those which are exported outside of the local economy, such as manufacturing, construction, transportation, wholesale, trade, warehousing, and other industrial uses.

The above categories in the Land Use Assumptions match those used to develop the travel demand model for the City of Denton. These broader categories are used in the development of the assumptions for impact fees; however, expanded classifications used in the assessment of impact fees are found in the Land Use / Vehicle-Mile Equivalency Table (Pg. 45).

B. Land Use Assumptions Methodology

The residential and employment growth projections formulated in this report were performed using reasonable and generally accepted planning principles. The following factors were considered in developing these projections:

- Character, type, density, and quantity of existing development;
- Current zoning plans;
- Future Land Use Plan (based on Denton 2040 Comprehensive Plan);
- Growth trends;
- Location of vacant land;

- Physical restrictions (i.e. flood plains, railroads); and
- Physical development capacity of Denton.

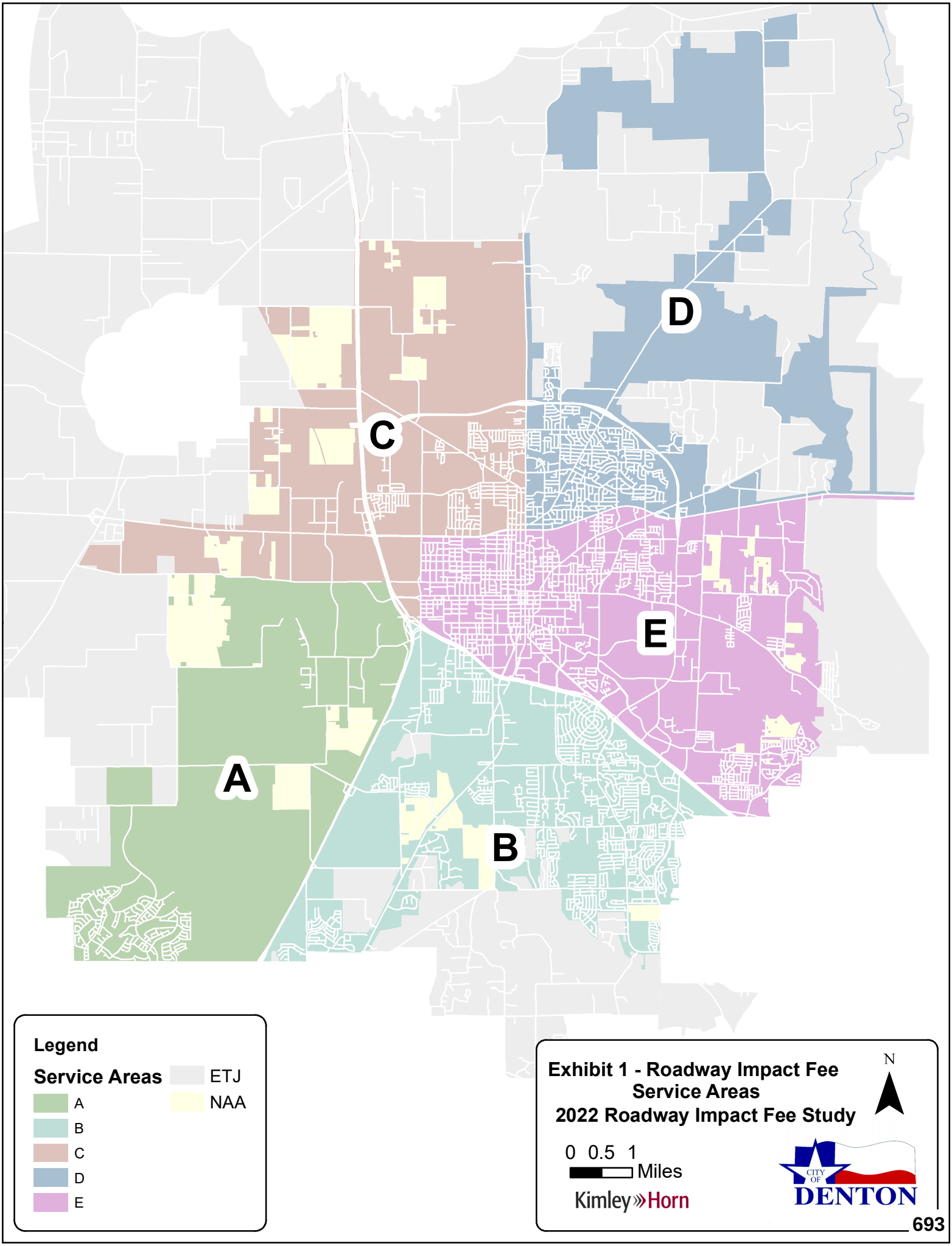
Existing residential and employment estimates were obtained using Denton Central Appraisal District (DCAD) parcel data and an aerial survey of existing development.

For the remaining undeveloped areas, assumptions based upon the City's Future Land Use Plan were used to estimate the ultimate buildout of residential and employment development. To project future development in the ten-year window, the known developing areas within the city were assumed to be fully developed by the year 2032.

C. Roadway Impact Fee Service Areas

The geographic boundary of the proposed impact fee service areas for transportation facilities is shown in **Exhibit 1**. The City of Denton is currently divided into five (5) service areas, each based upon the six (6) mile limit, as required in Chapter 395 (explained on Pg. 20). For roadway facilities, the service areas as required by state law are limited to areas within the current corporate limits. Therefore, areas within the extraterritorial jurisdiction (ETJ) and non-annexation areas (NAAs) are excluded from this study.

It should be noted that at locations where service area boundaries follow a City thoroughfare facility, the proposed boundary is intended to follow the centerline of the roadway, unless otherwise noted. In cases where a service area boundary follows the City Limits, only those portions of the transportation facility within the City Limits are included in the service area.


D
C
E
A
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Legend
Service Areas
A
B
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ETJ
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Exhibit 1 - Roadway Impact Fee
Service Areas
2022 Roadway Impact Fee Study
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DENTON

D. Residential and Employment

Residential and Employment estimates for the base year (2022) were performed based upon a survey of the existing land uses on DCAD parcel data, and aerial verification. Build-out projections were prepared by combining the existing land uses within the service area with reasonable density assumptions for undeveloped land based upon the Denton 2040 Comprehensive Plan - Future Land Use Plan. Ten-year growth projections were prepared based upon historic growth trends, location of recent and known development within the City, and consultation with City staff. **Exhibit 2** presents the existing City limits and the proposed service areas, combined with the Future Land Use Plan.

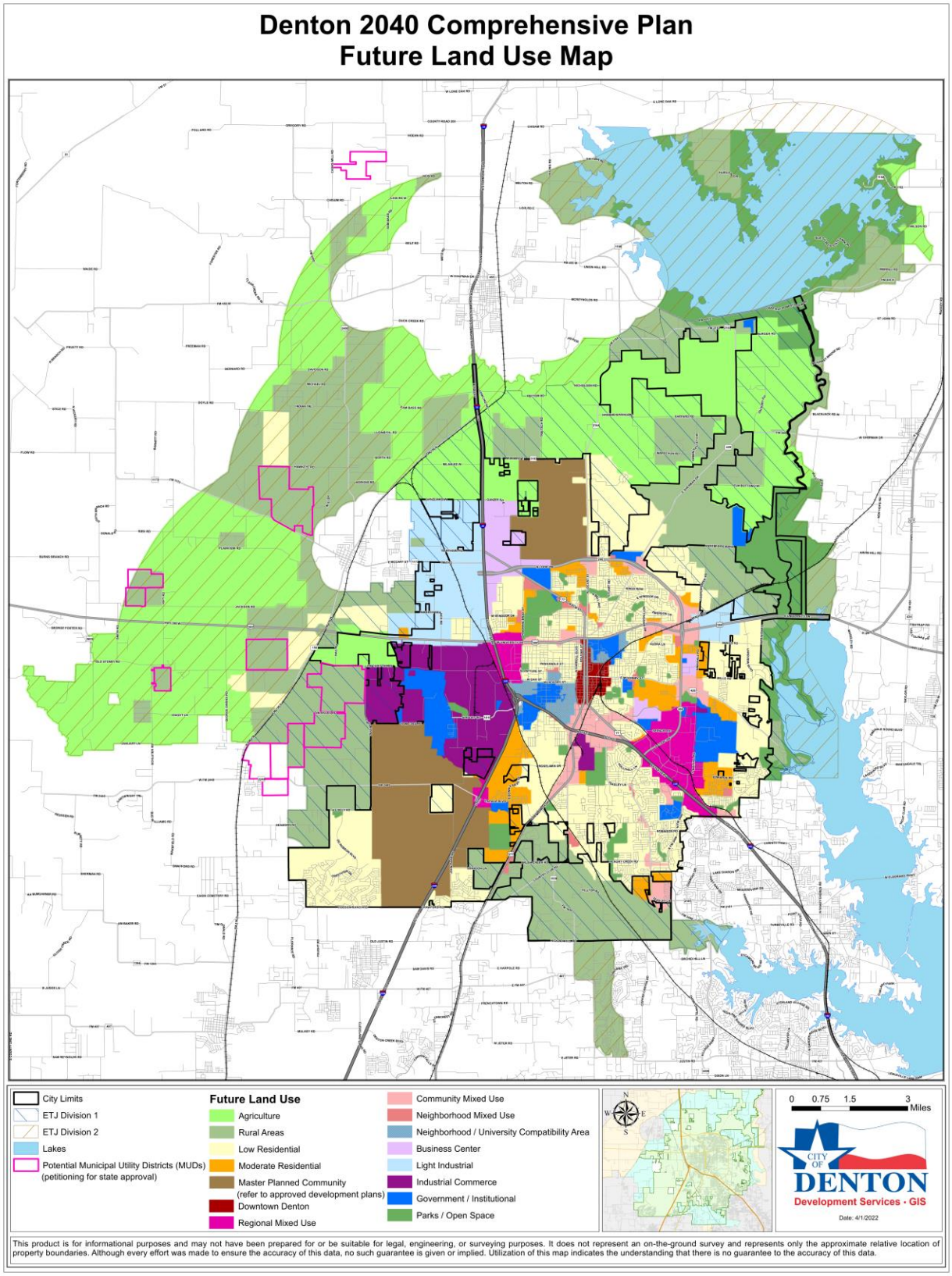
E. Land Use Assumptions Summary

Table 1 summarizes the residential and employment 10-year growth projections. The projected growth over the next ten years is reasonable compared to the historical growth over the previous ten years, as described in the Land Use Assumptions Methodology (page 4).

Table 1. Residential and Employment 10-Year Projections

Service Area	Residential		Employment		
	Single Family	Multi-Family	Basic	Service	Retail
	Dwelling Units		Sq. Ft.	Sq. Ft.	Sq. Ft.
A	3,212	970	2,843,000	591,000	871,000
B	2,009	387	415,000	238,000	285,000
C	1,538	1,015	3,518,000	689,000	446,000
D	847	215	815,000	206,000	287,000
E	1,219	1,291	1,831,000	519,000	505,000
Sub-Total	**8,825**	**3,878**	**9,422,000**	**2,243,000**	**2,394,000**
Total	**12,703**		**14,059,000**		

Exhibit 2– Citywide Future Land Use Map



III. ROADWAY IMPACT FEE CAPITAL IMPROVEMENTS PLAN

Development of a 10-year Roadway Impact Fee Capital Improvement Plan is required per Chapter 395 of the Texas local Government Code. To accomplish this, the current Denton Mobility Plan has been updated using a Denton-specific Travel Demand Model. The Travel Demand Model was developed using the existing roadway network and residential and employment data to develop a baseline scenario. This scenario was calibrated using existing vehicle counts. Several build-out scenarios were run using the build-out residential and employment data to assist in completing the updated mobility plan map. This updated mobility plan map serves as the basis for this Roadway Impact Fee CIP. The Roadway Impact Fee CIP includes arterial and collector class roadway facilities that serve the overall transportation system, as well as major intersection improvements. All the facilities identified are included in the proposed mobility plan map.

The proposed Roadway Impact Fee CIP is listed in **Tables 2.A – 2.E** and mapped in **Exhibits 3.A – 3.E.** The tables show the length of each project as well as the facility's Mobility Plan classification. The Roadway Impact Fee CIP was developed in conjunction with input from City of Denton staff and represents those projects that will be needed to accommodate the growth projected in the Land Use Assumptions section of this report.

Table 2.A. 10-Year Roadway Impact Fee Capital Improvements Plan – Service Area A

Proj. #	IF Class	Roadway	Limits	Length (mi)	% In Service Area
A-1	SA	CORBIN	IH-35W TO CORBIN	0.58	100%
A-2	SA	CORBIN	500' S OF SPRINGSIDE TO CORBIN	0.27	100%
A-3	PA	FM 1515	IH 35W TO CORBIN	1.13	100%
A-4	PA	FM 1515	CORBIN TO WESTERN	0.22	100%
A-5	PA	FM 1515	WESTERN TO WESTCOURT	0.29	100%
A-6	PA	FM 1515	WESTCOURT TO MASCH BRANCH	0.12	100%
A-7	PA	FM 1515	TOM COLE TO 3435' W OF TOM COLE	0.65	100%
A-8	PA	FM 1515	3435' W OF TOM COLE TO 530' E OF C WOLFE	0.71	100%
A-9	PA	H LIVELY	C WOLFE TO 2145' W OF H LIVELY	0.41	50%
A-10	PA	H LIVELY	2145' W OF H LIVELY TO 2150' W OF ED ROBSON	0.74	100%
A-11	C	IH-35-CORBIN	IH-35 TO CORBIN	0.84	100%
A-12	SA	JIM CHRISTAL	IH 35 TO OLD SH 24	0.59	100%
A-13,C-10	SA	JIM CHRISTAL	OLD SH 24 TO WESTERN	0.55	50%
A-14,C-11	SA	JIM CHRISTAL	WESTERN TO MASCH BRANCH	0.66	50%
A-15,C-12	SA	JIM CHRISTAL	MASCH BRANCH TO THOMAS J EGAN	1.13	50%
A-16,C-13	SA	JIM CHRISTAL	THOMAS J EGAN TO 515' E OF C WOLFE	0.75	50%
A-17	C	PRECISION-WESTERN	PRECISION TO WESTERN	0.65	100%
A-18	PA	ROBSON RANCH	IH 35W TO ED ROBSON	1.65	50%
A-19	PA	ROBSON RANCH	ED ROBSON TO YARBROUGH	1.35	50%
A-20	SA	SPRINGSIDE	CORBIN TO UNDERWOOD	0.35	100%
A-21	SA	SPRINGSIDE	UNDERWOOD TO WESTCOURT	0.16	100%
A-22	C	TJ EGAN-LOOP 288	LOOP 288 TO 2440' W OF LOOP 288	0.46	100%
A-23	PA	C WOLFE	1140' S OF TOM COLE TO FM 2449	1.38	50%
A-24	PA	C WOLFE	FM 2449 TO H LIVELY	0.63	50%
A-25	C	CORBIN	IH-35-CORBIN TO SPRINGSIDE	0.39	100%
A-26	C	J CHRISTAL-H LIVELY	FM 2449 TO H LIVELY	0.63	100%
A-27	C	PRECISION	JIM CHRISTAL TO 1635' N OF FM 1515	0.45	100%
A-28	SA	THOMAS J EGAN	JIM CHRISTAL TO 2915' S OF JIM CRISTAL	0.55	100%
A-29	SA	THOMAS J EGAN	1830' N OF FM 1515 TO FM 1515	0.35	50%
A-30	PA	UNDERWOOD	SPRINGSIDE TO UNDERWOOD CONNECTOR	0.76	100%
A-31	SA (1/2)	WESTCOURT	FM 1515 TO SPRINGSIDE	0.79	100%
A-32	PA (1/3)	WESTERN	JIM CHRISTAL TO AIRPORT	1.23	100%
A-33	PA	WESTERN	FM 1515 TO SPRINGSIDE	0.79	100%

Note: The 10-Year Roadway Impact Fee CIP is not in a prioritized order.

Table 2.B. 10-Year Roadway Impact Fee Capital Improvements Plan – Service Area B

Proj. #	IF Class	Roadway	Limits	Length (mi)	% In Service Area
B-1	C	ALLRED	BONNIE BRAE TO BRUSH CREEK	0.81	50%
B-2	PA	ALLRED	BRUSH CREEK TO JOHN PAINE	0.30	50%
B-3	PA	BRUSH CREEK	815' E OF COUNTRY CLUB TO COUNTRY CLUB	0.15	100%
B-4	PA	BRUSH CREEK	COUNTRY CLUB TO 1935' W OF COUNTRY CLUB	0.37	100%
B-5	PA	BRUSH CREEK	2180' E OF FORT WORTH TO FORT WORTH	0.41	100%
B-6	PA	BRUSH CREEK	FORT WORTH TO 590' E OF ALLRED	0.68	100%
B-7	SA	CORBIN	BONNIE BRAE TO IH-35W	0.66	100%
B-8	C	CREEKDALE	PIMLICO TO RIVERCHASE	0.61	100%
B-9	C	CREEKDALE	THISTLE WAY TO OAKBLUFF	0.39	100%
B-10	C	EL PASEO	BELMONT TO COUNTRY CLUB	0.36	100%
B-11	PA	FM 1515	BONNIE BRAE TO IH 35W	0.15	100%
B-12	PA (1/3)	HICKORY CREEK	FM 2499 TO NAUTICA	0.22	100%
B-13	PA (1/3)	HICKORY CREEK	NAUTICA TO TEASLEY	0.25	100%
B-14	PA (1/3)	HICKORY CREEK	TEASLEY TO MONTECITO	0.85	100%
B-15	PA (1/3)	HICKORY CREEK	MONTECITO TO 1435' W OF BIDDY BYE	0.42	50%
B-16	PA	HICKORY CREEK	1435' W OF BIDDY BYE TO 815' E OF COUNTRY CLUB	0.38	100%
B-17	SA	HOBSON LANE	TEASLEY TO MONTECITO	0.13	100%
B-18	SA	HOBSON LANE	MONTECITO TO FORRESTRIDGE	0.28	100%
B-19	SA	HOBSON LANE	FORRESTRIDGE TO COUNTRY CLUB	0.72	100%
B-20	C	PARVIN	MCCORMICK TO HIGHLAND PARK	0.50	100%
B-21	SA	ROBINSON	230' E OF WHEELER RIDGE TO TEASLEY	0.52	100%
B-22	SA	RYAN	TEASLEY TO MONTECITO	0.76	100%
B-23	SA	RYAN	MONTECITO TO FORRESTRIDGE	0.63	100%
B-24	SA	RYAN	FORRESTRIDGE TO COUNTRY CLUB	0.66	100%
B-25	PA (1/3)	VINTAGE	FORT WORTH TO BONNIE BRAE	0.87	100%
B-26	PA (1/3)	VINTAGE	BONNIE BRAE TO NAPA VALLEY	0.14	100%
B-27	PA (1/3)	VINTAGE	NAPA VALLEY TO IH 35W	0.65	100%
B-28	C	WILLOWWOOD	1250' W OF HIGHLAND PARK TO BONNIE BRAE	0.24	100%
B-29	SA	BONNIE BRAE	IH 35E TO FM 1515	0.14	100%
B-30	SA	BONNIE BRAE	FM 1515 TO WILLOWWOOD	1.09	100%
B-31	SA	BONNIE BRAE	HIGHLAND PARK TO ROSELAWN	0.48	50%
B-32	SA	COUNTRY CLUB	FORT WORTH TO HOBSON	0.08	100%
B-33	SA	COUNTRY CLUB	HOBSON TO RYAN	1.00	100%
B-34	SA	COUNTRY CLUB	RYAN TO HICKORY CREEK	0.66	50%
B-35	PA	FORT WORTH	COUNTRY CLUB TO VINTAGE	1.32	100%
B-36	PA	FORT WORTH	VINTAGE TO BONNIE BRAE	1.07	100%
B-37	PA	FORT WORTH	BONNIE BRAE TO BRUSH CREEK	0.24	100%
B-38	PA	FORT WORTH	BRUSH CREEK TO CRAWFORD	1.11	100%
B-39	Completed	JOHN PAINE	JOHNSON TO ATHENS	0.42	100%
B-40	SA	JOHN PAINE	VINTAGE TO 1045' S OF VINTAGE	0.20	100%
B-41	C	PARVIN-ROSELAWN	PARVIN TO ROSELAWN	0.52	100%
B-42	PA (1/3)	TEASLEY	IH 35E TO LONDONDERRY	0.25	100%
B-43	PA (1/3)	TEASLEY	LONDONDERRY TO HOBSON	0.97	100%
B-44	PA (1/3)	TEASLEY	LILLIAN B MILLER TO PENNSYLVANIA	0.36	100%
B-45	PA (1/3)	TEASLEY	PENNSYLVANIA TO HOBSON	0.21	100%

Note: The 10-Year Roadway Impact Fee CIP is not in a prioritized order.

Table 2.C. 10-Year Roadway Impact Fee Capital Improvements Plan – Service Area C

Proj. #	IF Class	Roadway	Limits	Length (mi)	% In Service Area
C-1	PA	BARTHOLD	MASCH BRANCH TO 5200' W OF IIH 35	0.98	50%
C-2	SA	BOBCAT	FM 2164 TO IH-35	2.75	100%
C-3	SA	FM 1173	IH 35 TO 4605' W OF IH 35	0.87	100%
C-4	SA	FM 1173	4605' W OF IH 35 TO LOVERS	0.41	50%
C-5	SA	FM 2164-IH 35	FM 2164 TO IH 35	2.73	100%
C-6	PA	GANZER	FM 2164 TO GANZER	2.40	100%
C-7	PA	GANZER	2900' E OF IH 35 TO IH 35	0.55	100%
C-8	PA	GANZER	1620' E OF BARTHOLD TO BARTHOLD	0.31	50%
C-9	PA	GANZER	BARTHOLD TO RECTOR	0.49	50%
A-13,C-10	SA	JIM CHRISTAL	OLD SH 24 TO WESTERN	0.55	50%
A-14,C-11	SA	JIM CHRISTAL	WESTERN TO MASCH BRANCH	0.66	50%
A-15,C-12	SA	JIM CHRISTAL	MASCH BRANCH TO THOMAS J EGAN	1.13	50%
A-16,C-13	SA	JIM CHRISTAL	THOMAS J EGAN TO 515' E OF C WOLFE	0.75	50%
C-14	SA	JIM CHRISTAL	945' W OF C WOLFE TO NAIL	0.59	50%
C-15	SA	JIM CHRISTAL	NAIL TO 2045' W of Nail	0.39	50%
C-16	C	MARSHALL	2845' N OF HAMPTON TO HAMPTON	0.54	100%
C-17	C	MARSHALL	HAMPTON TO US 380	0.59	100%
C-18	SA	MASCH BRANCH	MASCH BRANCH TO DARBY SMITH	0.65	100%
C-19	C	WESTWARD	NORTHWAY TO BONNIE BRAE	0.22	100%
C-20	SA (1/2)	RINEY	US 77 TO 2460' W OF US 77	0.47	100%
C-21	SA (1/2)	RINEY	2460' W OF US 77 TO BONNIE BRAE	0.19	100%
C-22	PA (1/3)	US 77	WINDSOR TO FM 2164	0.22	100%
C-23	PA (1/3)	US 77	RINEY TO WINDSOR	0.46	100%
C-24	PA (1/3)	US 77	RINEY TO RINEY	0.40	100%
C-25	PA (1/3)	US 77	BONNIE BRAE TO RINEY	0.75	100%
C-26	PA (1/3)	US 77	LOOP 288 TO BONNIE BRAE	0.33	100%
C-27	PA (1/3)	US 77	IH 35 TO LOOP 288	0.87	100%
C-28	C	MASCH BRANCH-NAIL	MASCH BRANCH TO 1295' W OF MASCH BRANCH	0.25	100%
C-29	C	MASCH BRANCH-NAIL	1050' E OF LOOP 288 TO 1550' W OF LOOP 288	0.49	100%
C-30	C	MASCH BRANCH-NAIL	1335' W OF THOMAS J EGAN TO 775' E OF C WOLFE	0.48	100%
C-31	C	MASCH BRANCH-NAIL	775' E OF C WOLFE TO 690' W OF C WOLFE	0.28	50%
C-32	C	MASCH BRANCH-NAIL	690' W OF C WOLFE TO NAIL	0.58	100%
C-33	SA	WESTGATE	WESTGATE TO 1460' E OF IH-35	0.18	100%
C-34	SA	WINDSOR	US 77 TO HINKLE	0.46	100%
C-35	SA (1/2)	WINDSOR	HINKLE TO BONNIE BRAE	0.99	100%
C-36	SA (1/2)	WINDSOR	WESTGATE TO 145' W OF CLARENDON	0.10	100%
C-37	SA (1/2)	WINDSOR	220' W OF WINDSOR FARMS TO IH 35	0.17	100%
C-38	SA	WINDSOR	IH 35 TO MASCH BRANCH	1.24	100%
C-39	SA	BARTHOLD	GANZER TO 2600' S OF GANZER	0.49	100%
C-40	PA	BONNIE BRAE	MILAM TO LOOP 288	3.13	100%
C-41	SA	BONNIE BRAE	LOOP 288 TO US 77	0.24	100%
C-42	SA	BONNIE BRAE	US 77 TO RINEY	0.38	100%
C-43	SA	BONNIE BRAE	RINEY TO WINDSOR	0.66	100%
C-44	SA	BONNIE BRAE	WINDSOR TO US 380	0.68	100%
C-45,E-29	SA	BONNIE BRAE	US 380 TO PANHANDLE	0.55	50%
C-46,E-30	SA	BONNIE BRAE	PANHANDLE TO SCRIPTURE	0.20	50%
C-47,E-31	SA	BONNIE BRAE	SCRIPTURE TO OAK	0.22	50%
C-48,E-32	SA	BONNIE BRAE	OAK TO HICKORY	0.07	50%
C-49,E-33	SA	BONNIE BRAE	HICKORY TO PRAIRIE	0.27	50%
C-50,E-34	SA	BONNIE BRAE	PRAIRIE TO IH 35E	0.16	50%
C-51	PA	C WOLFE	US 380 TO WESTERN-NAIL	0.51	100%
C-52	C	FALLMEADOW	MEADOWLEDGE TO GARDENVIEW	0.17	100%
C-53,D-22	PA	FM 2164	MILAM TO LOOP 288	2.62	50%
C-54,D-28	SA	LOCUST	LOOP 288 TO HERCULES	0.43	50%
C-55,D-29	SA	LOCUST	HERCULES TO BELL	0.45	50%
C-56,D-30	SA	LOCUST	BELL TO WINDSOR	0.24	50%
C-57,D-31	SA	LOCUST	WINDSOR TO FM 2164	0.25	50%
C-58	SA	LOVERS	FM 1173 TO MASCH BRANCH	0.78	100%
C-59	SA	LOVERS	1085' N OF MASCH BRANCH TO MASCH BRANCH	0.21	100%
C-60	SA	LOVERS LN CONNECTOR	LOVERS TO LOOP 288	0.06	100%
C-61	SA	LOVERS LN CONNECTOR	LOOP 288 TO 1085' N OF MASCH BRANCH	0.08	100%
C-62	SA	MASCH BRANCH	1295' S OF FM 1173 TO JACKSON	0.79	50%
C-63	SA	MASCH BRANCH	LOVERS TO US 380	0.72	100%
C-64	SA	MASCH BRANCH	US 380 TO JIM CHRISTAL	0.78	100%
C-65	SA	MILAM-LOOP 288	MILAM TO LOOP 288	2.71	100%
C-66	SA	MILAM-US 77	MILAM TO GANZER	1.51	100%
C-67	SA	MILAM-US 77	GANZER TO LONG	0.73	100%
C-68	SA	MILAM-US 77	LONG TO US 77	0.53	100%
C-69	C	NICOSIA	LOOP 288 TO BEALL	0.12	100%
C-70	SA	THOMAS J EGAN	US 380 TO JIM CHRISTAL	0.76	100%
C-71	PA	WESTERN	US 380 TO JIM CHRISTAL	0.80	100%

Note: The 10-Year Roadway Impact Fee CIP is not in a prioritized order.

Table 2.D. 10-Year Roadway Impact Fee Capital Improvements Plan – Service Area D

Proj. #	IF Class	Roadway	Limits	Length (mi)	% In Service Area
D-1	SA	BOBCAT	560' W OF FM 2164 TO FM 2164	0.11	50%
D-2	C	FISHTRAP	MINGO TO GEESLING	0.36	50%
D-3	PA	GANZER	15,500' E OF SHERMAN TO 4600' W OF SHERMAN	3.41	100%
D-4	SA	GRIBBLE SPRINGS	INDIAN WELLS TO 3015' W OF INDIAN WELLS	0.57	50%
D-5	SA	HARTLEE FIELD	4220' E OF COOPER CREEK TO COOPER CREEK	0.80	50%
D-6	SA	HARTLEE FIELD	COOPER CREEK TO 5170' W OF COOPER CREEK	0.98	50%
D-7	C	HARTLEE FIELD	600' E OF SHERMAN TO SHERMAN	0.11	50%
D-8	SA	HARTLEE FLD-FM 2164	HARTLEE FIELD TO SHERMAN	0.43	100%
D-9	SA	HARTLEE FLD-FM 2164	SHERMAN TO 3500' W OF SHERMAN	0.66	100%
D-10	SA	HARTLEE FLD-FM 2164	STUART TO 1485' W OF STUART	0.28	50%
D-11	SA	HARTLEE FLD-FM 2164	475' W OF FM 2164 TO FM 2164	0.09	100%
D-12	C	LONG	510' W OF FM 2164 TO FM 2164	0.10	100%
D-13	SA	MINGO	E CITY LIMITS TO COOPER CREEK	0.09	100%
D-14	SA	MINGO	COOPER CREEK TO LOOP 288	0.44	100%
D-15	SA	MINGO	LOOP 288 TO US 380	0.43	100%
D-16	C	KINGS ROW	SILVER DOME TO LOOP 288	0.50	100%
D-17	C	SILVER DOME	COOPER CREEK TO FARRIS RD	0.41	50%
D-18	C	COLLINS	HARTLEE FIELD TO 2730' S OF HARTLEE FIELD	0.84	50%
D-19	SA	COOPER CREEK	SHERMAN TO HARTLEE FIELD	1.91	100%
D-20	SA	COOPER CREEK	SILVER DOME TO MINGO	0.83	50%
D-21	PA	COOPER CREEK	MINGO TO US 380	0.32	100%
C-53,D-22	PA	FM 2164	MILAM TO LOOP 288	2.62	50%
D-23	PA	GREEN VALLEY	2395' S OF FM 2153 TO 2935' N OF SHEPARD	1.47	100%
D-24	SA	GREEN VALLEY	WARSCHUN TO SHERMAN	0.40	100%
D-25	SA	INDIAN WELLS	1615' S OF FM 2153 TO 4930' N OF GRIBBLE SPRINGS	0.73	100%
D-26	SA	INDIAN WELLS	4930' N OF GRIBBLE SPRINGS TO 2905' N OF GRIBBLE	0.38	50%
D-27	SA	INDIAN WELLS	2905' N OF GRIBBLE SPRINGS TO GRIBBLE SPRINGS	0.55	50%
C-54,D-28	SA	LOCUST	LOOP 288 TO HERCULES	0.43	50%
C-55,D-29	SA	LOCUST	HERCULES TO BELL	0.45	50%
C-56,D-30	SA	LOCUST	BELL TO WINDSOR	0.24	50%
C-57,D-31	SA	LOCUST	WINDSOR TO FM 2164	0.25	50%
D-32	SA	SHERMAN	LOOP 288 TO HERCULES	0.31	100%
D-33	SA	SHERMAN	HERCULES TO KINGS	0.36	100%
D-34	SA	SHERMAN	KINGS TO WINDSOR	0.38	100%
D-35	SA	SHERMAN	WINDSOR TO WILSONWOOD	0.19	100%
D-36	SA	SHERMAN	WILSONWOOD TO CORONADO	0.22	100%
D-37	SA	SHERMAN	CORONADO TO GREENWOOD	0.31	100%
D-38	SA	SHERMAN	GREENWOOD TO BELL	0.16	100%
D-39	SA	SHERMAN	BELL TO LOCUST	0.32	100%
D-40	C	WINDSOR	LOOP 288 TO DOMINION	0.16	100%

Note: The 10-Year Roadway Impact Fee CIP is not in a prioritized order.

Table 2.E. 10-Year Roadway Impact Fee Capital Improvements Plan – Service Area E

Proj. #	IF Class	Roadway	Limits	Length (mi)	% In Service Area
E-1	C	AUDRA	LOOP 288 TO 1185' W OF LOOP 288	0.22	100%
E-2	SA	BLAGG	LAKEVIEW TO GEESLING	0.71	100%
E-3	SA	BLAGG	GEESLING TO 2175' W OF GEESLING	0.41	100%
E-4	SA	BLAGG	235' E OF MAYHILL TO MAYHILL	0.04	50%
E-5	PA (1/3)	DALLAS	TEASLEY TO IH 35E	0.87	100%
E-6	C	DUCHESS	TRAILHEAD TO WOODROW	0.76	100%
E-7	SA	FM 426	LANEY TO GRISSOM	0.57	100%
E-8	Completed	MCKINNEY	GRISSOM TO LOOP 288	1.65	100%
E-9	SA	MCKINNEY	LOOP 288 TO CARDINAL	0.13	100%
E-10	SA	MCKINNEY	CARDINAL TO MOCKINGBIRD	0.22	100%
E-11	SA	MCKINNEY	MOCKINGBIRD TO MACK	0.61	100%
E-12	SA	MCKINNEY	MACK TO AUDRA	0.29	100%
E-13	SA	MILLS	TRINITY TO MAYHILL	1.40	100%
E-14	SA	MILLS	LAKEVIEW TO MAYHILL	0.41	100%
E-15	SA	MINGO	US 380 TO OLD NORTH	0.14	100%
E-16	SA	MINGO	OLD NORTH TO NOTTINGHAM	0.48	100%
E-17	SA	MINGO	NOTTINGHAM TO PERTAIN	0.56	100%
E-18	SA	MINGO	PERTAIN TO RUDDELL	0.18	100%
E-19	SA	MINGO	RUDDELL TO WILLIS	0.11	100%
E-20	SA	MINGO	WILLIS TO WITHERS	0.44	100%
E-21	SA	MINGO	WITHERS TO PAISLEY	0.04	100%
E-22	SA	MINGO	PAISLEY TO BELL	0.19	100%
E-23	SA (1/2)	MORSE	MAYHILL TO KIMBERLY	0.22	100%
E-24	SA	SHADY OAKS	WOODROW TO TEASLEY	0.58	100%
E-25	SA	SPENCER	MAYHILL TO LOOP 288	0.44	100%
E-26	C	TREATMENT PLANT	MCKINNEY TO POST OAK	0.63	100%
E-27	SA	TREATMENT PLANT	POST OAK TO 1325' W OF POST OAK	0.25	100%
E-28	SA	TREATMENT PLANT	1325' W OF POST OAK TO MAYHILL	0.75	100%
C-45,E-29	SA	BONNIE BRAE	US 380 TO PANHANDLE	0.55	50%
C-46,E-30	SA	BONNIE BRAE	PANHANDLE TO SCRIPTURE	0.20	50%
C-47,E-31	SA	BONNIE BRAE	SCRIPTURE TO OAK	0.22	50%
C-48,E-32	SA	BONNIE BRAE	OAK TO HICKORY	0.07	50%
C-49,E-33	SA	BONNIE BRAE	HICKORY TO PRAIRIE	0.27	50%
C-50,E-34	SA	BONNIE BRAE	PRAIRIE TO IH 35E	0.16	50%
E-35	C	CARDINAL	ORIOLE TO MCKINNEY	0.42	100%
E-36	PA	GEESLING	US 380 TO BLAGG	0.46	100%
E-37	PA	GEESLING	US 380 TO BLAGG	1.02	100%
E-38	PA (1/3)	LAKEVIEW	POST OAK TO SHADY SHORES	0.26	100%
E-39	PA (1/3)	MAYHILL	US 380 TO PROMINENCE	0.44	100%
E-40	PA (1/3)	MAYHILL	PROMINENCE TO 770' N OF RUSSELL NEWMAN	0.39	100%
E-41	PA (1/3)	MAYHILL	770' N OF RUSSELL NEWMAN TO RUSSELL NEWMAN	0.15	50%
E-42	PA (1/3)	MAYHILL	RUSSELL NEWMAN TO 460' S OF RUSSELL NEWMAN	0.09	50%
E-43	PA (1/3)	MAYHILL	460' S OF RUSSELL NEWMAN TO MILLS	0.20	100%
E-44	PA (1/3)	MAYHILL	MILLS TO MCKINNEY	0.37	100%
E-45	PA (1/3)	MAYHILL	MCKINNEY TO MORSE	0.39	100%
E-46	PA (1/3)	MAYHILL	MORSE TO SPENCER	0.67	100%
E-47	PA (1/3)	MAYHILL	SPENCER TO EDWARDS	0.60	100%
E-48	PA (1/3)	MAYHILL	2725' N OF COLORADO TO COLORADO	0.52	100%
E-49	PA (1/3)	MAYHILL	COLORADO TO IH 35E	0.44	100%
E-50	PA	MAYHILL CONNECTOR	MAYHILL TO QUAILCREEK	0.13	100%
E-51	C	MOCKINGBIRD	MCKINNEY TO 625' N OF DUCHESS	0.16	100%
E-52	SA	MOCKINGBIRD	DUCHESS TO SHADY OAKS	0.41	100%
E-53	SA	MOCKINGBIRD	SHADY OAKS TO SPENCER	0.53	100%
E-54	PA	POST OAK	MILLS TO SPENCER	1.30	100%
E-55	PA	POST OAK	TREATMENT PLANT TO EDWARDS	1.27	100%
E-56	PA	POST OAK	EDWARDS TO POCKRUS PAGE	0.51	100%
E-57	C	SWISHER	EDWARDS TO POCKRUS PAGE	0.50	100%
E-58	PA (1/3)	TEASLEY	DALLAS TO IH 35E	0.35	100%
E-59	C	N STAR	SPENCER TO ROY	0.32	100%
E-60	C	ROY	MAYHILL TO N STAR	0.21	100%

Note: The 10-Year Roadway Impact Fee CIP is not in a prioritized order.

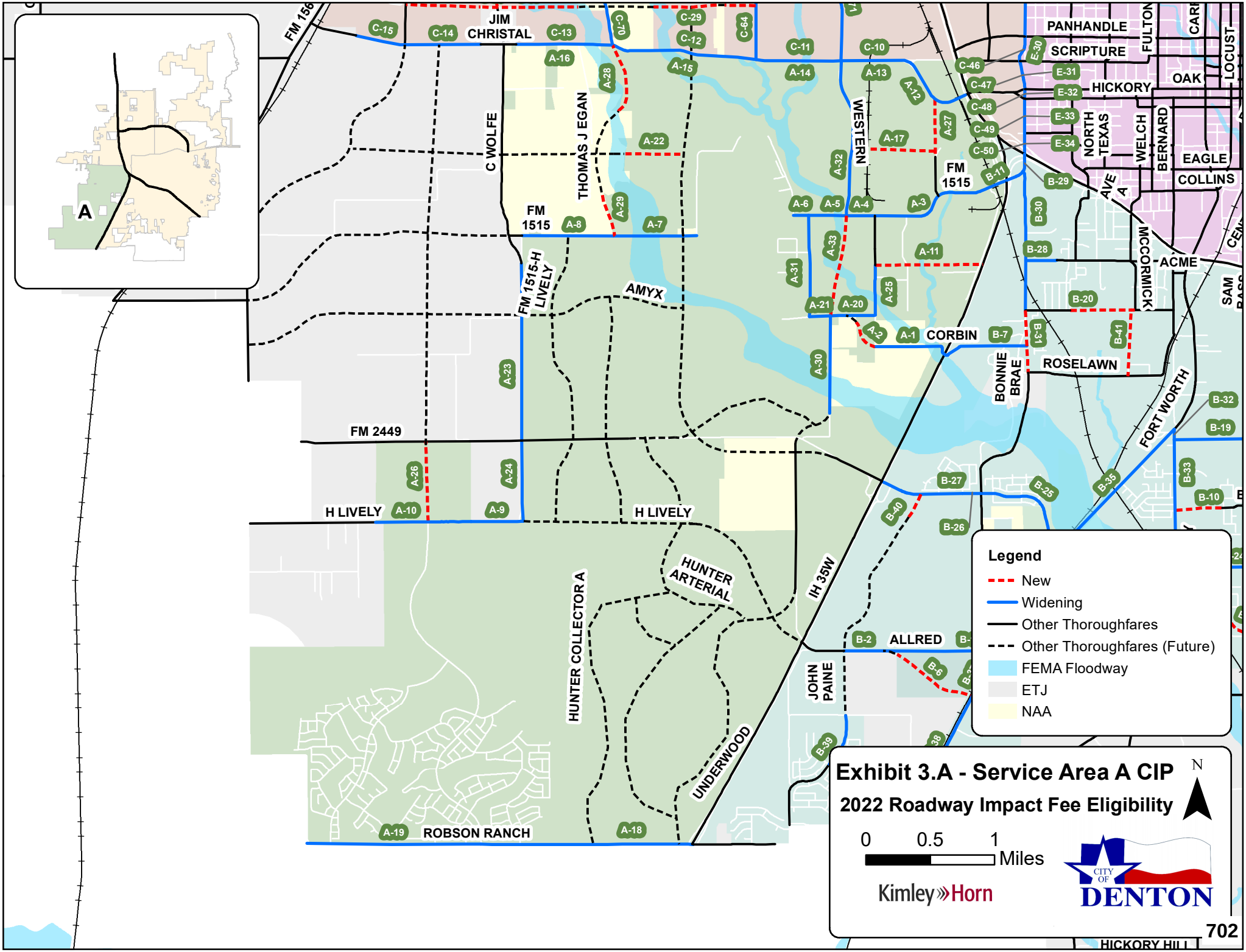


Exhibit 3.A - Service Area A CIP
2022 Roadway Impact Fee Eligibility
Legend
New
Widening
Other Thoroughfares
Other Thoroughfares (Future)
FEMA Floodway
ETJ
NAA
0
0.5
1
Miles
N
Kimley»Horn
CITY OF DENTON
A
FM 156
JIM CHRISTAL
C WOLFE
THOMAS J EGAN
FM 1515
FM 1515-H LIVELY
AMYX
FM 2449
H LIVELY
HUNTER ARTERIAL
HUNTER COLLECTOR A
UNDERWOOD
ROBSON RANCH
IH 35W
JOHN PAINE
ALLRED
CORBIN
ROSELAWN
BONNIE BRAE
WESTERN
PANHANDLE
SCRIPTURE
HICKORY
NORTH TEXAS
WELCH
BERNARD
EAGLE
COLLINS
ACME
MCCORMICK
FORT WORTH
OAK
FULTON
LOCUST
HICKORY HILL

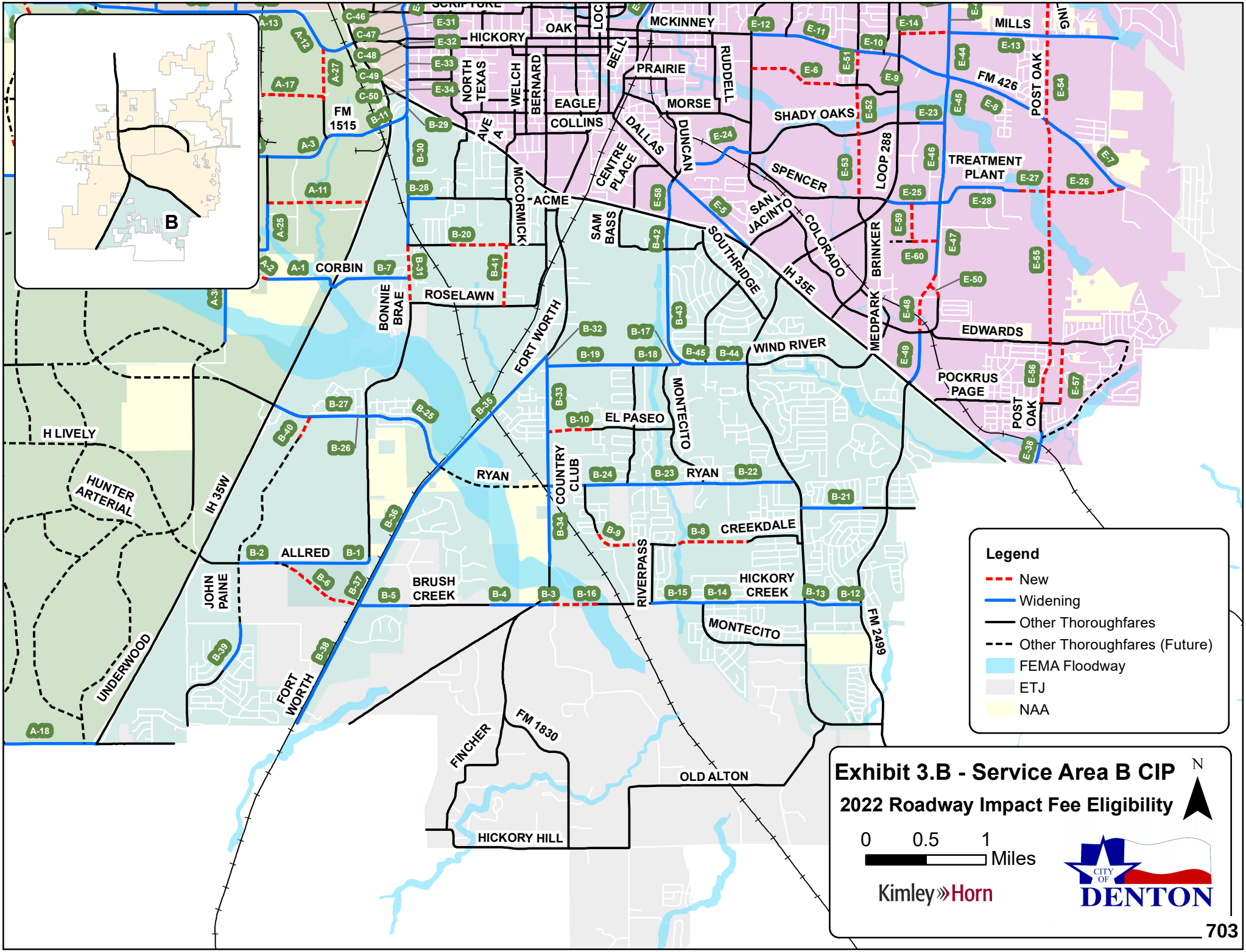


Exhibit 3.B - Service Area B CIP
2022 Roadway Impact Fee Eligibility
N
0 0.5 1 Miles
Kimley»Horn
CITY OF DENTON
Legend
New
Widening
Other Thoroughfares
Other Thoroughfares (Future)
FEMA Floodway
ETJ
NAA
B
MCKINNEY
HICKORY
OAK
PRAIRIE
EAGLE
COLLINS
MORSE
NORTH TEXAS
WELCH
BERNARD
BELL
RUDDELL
DALLAS
DUNCAN
CENTRE PLACE
SHADY OAKS
SPENCER
SAN JACINTO
COLORADO
LOOP 288
BRINKER
MEDPARK
SOUTHRIDGE
IH 35E
TREATMENT PLANT
FM 426
POST OAK
MILLS
EDWARDS
POCKRUS PAGE
WIND RIVER
ACME
MCCORMICK
SAM BASS
FORT WORTH
ROSELAWN
BONNIE BRAE
CORBIN
FM 1515
EL PASEO
MONTECITO
COUNTRY CLUB
RYAN
CREEKDALE
RIVERPASS
HICKORY CREEK
BRUSH CREEK
ALLRED
JOHN PAINE
UNDERWOOD
H LIVELY
HUNTER ARTERIAL
IH 35W
FM 2499
FM 1830
FINCHER
OLD ALTON
HICKORY HILL

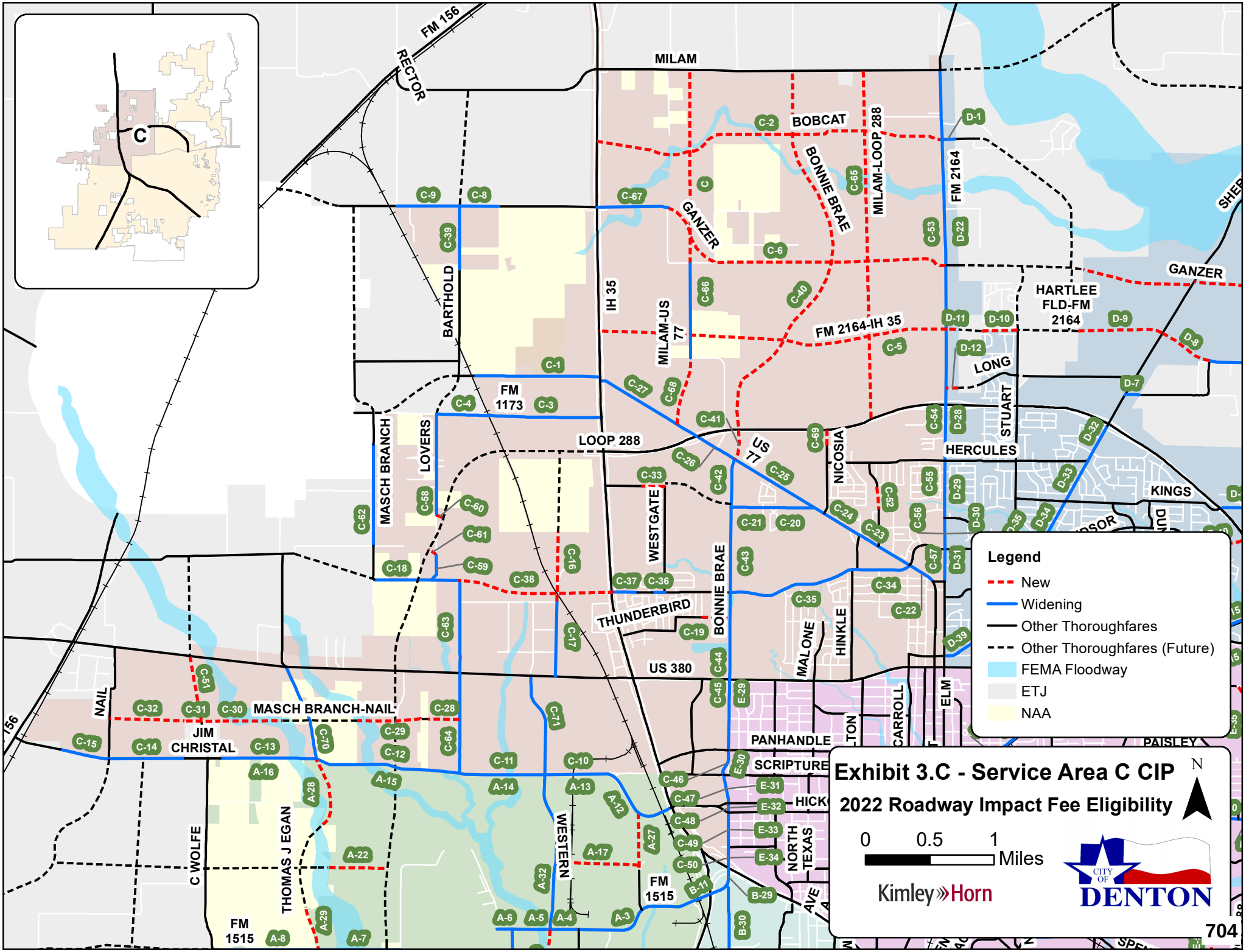


Exhibit 3.C - Service Area C CIP
2022 Roadway Impact Fee Eligibility
Legend
New
Widening
Other Thoroughfares
Other Thoroughfares (Future)
FEMA Floodway
ETJ
NAA
0
0.5
1
Miles
N
Kimley»Horn
CITY OF DENTON
MILAM
BOBCAT
BONNIE BRAE
MILAM-LOOP 288
FM 2164
GANZER
HARTLEE FLD-FM 2164
FM 2164-IH 35
LONG
STUART
HERCULES
KINGS
NICOSIA
US 77
LOOP 288
IH 35
MILAM-US 77
BARTHOLD
MASCH BRANCH
LOVERS
FM 1173
WESTGATE
THUNDERBIRD
US 380
MALONE
HINKLE
CARROLL
ELM
PAISLEY
PANHANDLE
SCRIPTURE
NORTH TEXAS
WESTERN
FM 1515
MASCH BRANCH-NAIL
NAIL
JIM CHRISTAL
C WOLFE
THOMAS J EGAN
RECTOR
FM 156
SHER

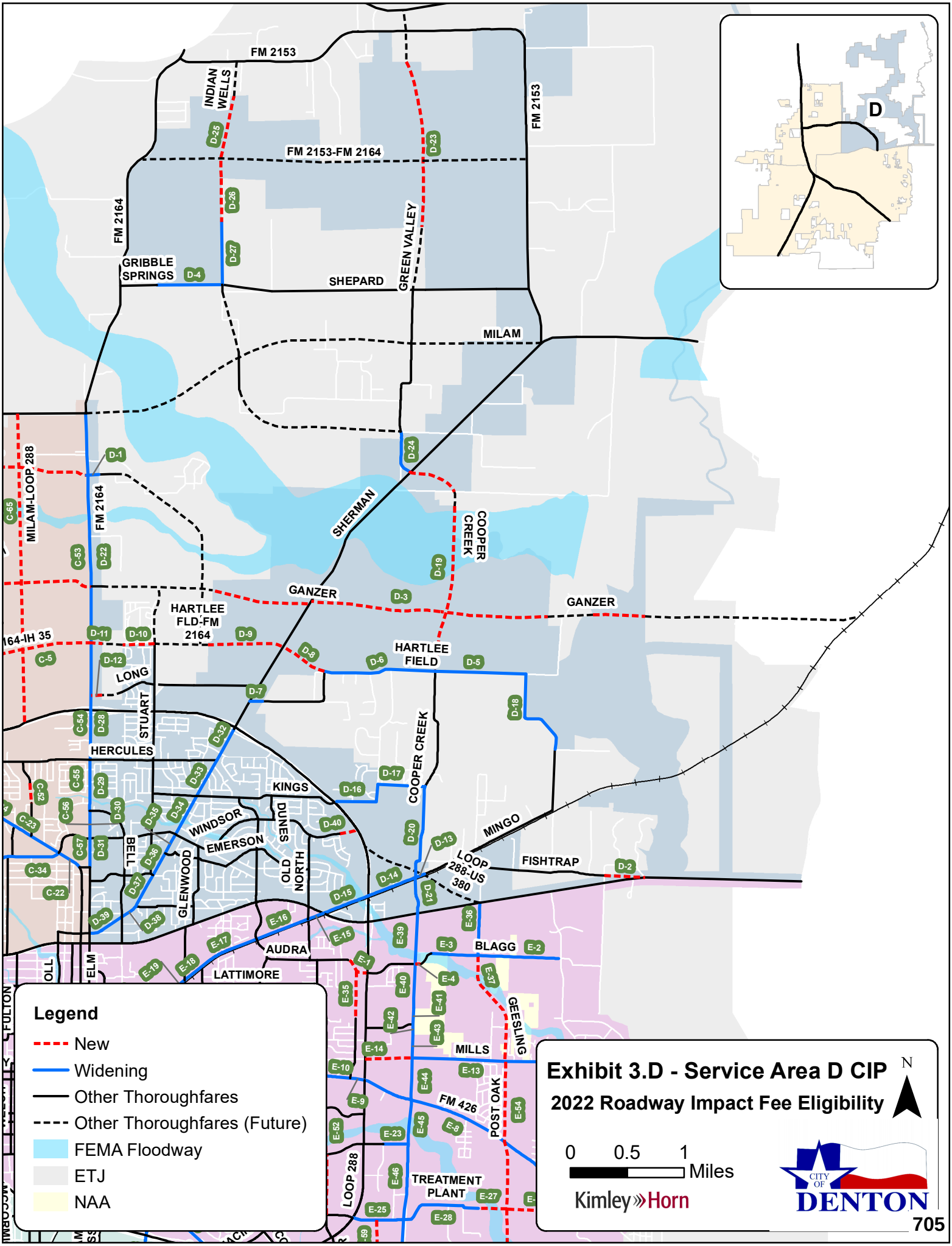


Exhibit 3.D - Service Area D CIP
2022 Roadway Impact Fee Eligibility
N
0 0.5 1 Miles
Kimley»Horn
CITY OF DENTON
Legend
New
Widening
Other Thoroughfares
Other Thoroughfares (Future)
FEMA Floodway
ETJ
NAA
D
FM 2153
INDIAN WELLS
FM 2153-FM 2164
FM 2164
GRIBBLE SPRINGS
SHEPARD
GREEN VALLEY
MILAM
MILAM-LOOP 288
SHERMAN
COOPER CREEK
GANZER
HARTLEE FLD-FM 2164
HARTLEE FIELD
164-IH 35
LONG
STUART
HERCULES
KINGS
WINDSOR
EMERSON
DUNNES
OLD NORTH
GLENWOOD
BELL
ELM
MINGO
LOOP 288-US 380
FISHTRAP
AUDRA
LATTIMORE
BLAGG
GEESLING
MILLS
FM 426
POST OAK
LOOP 288
TREATMENT PLANT
FULTON
D-1
D-2
D-3
D-4
D-5
D-6
D-7
D-9
D-10
D-11
D-12
D-13
D-14
D-15
D-16
D-17
D-18
D-19
D-20
D-21
D-22
D-23
D-24
D-25
D-26
D-27
D-28
D-29
D-30
D-31
D-32
D-33
D-34
D-35
D-36
D-37
D-38
D-39
D-40
C-5
C-22
C-23
C-34
C-52
C-53
C-54
C-55
C-56
C-57
C-65
E-1
E-2
E-3
E-4
E-8
E-9
E-10
E-13
E-14
E-15
E-16
E-17
E-18
E-19
E-23
E-25
E-27
E-28
E-35
E-36
E-37
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E-40
E-41
E-42
E-43
E-44
E-45
E-46
E-52
E-54

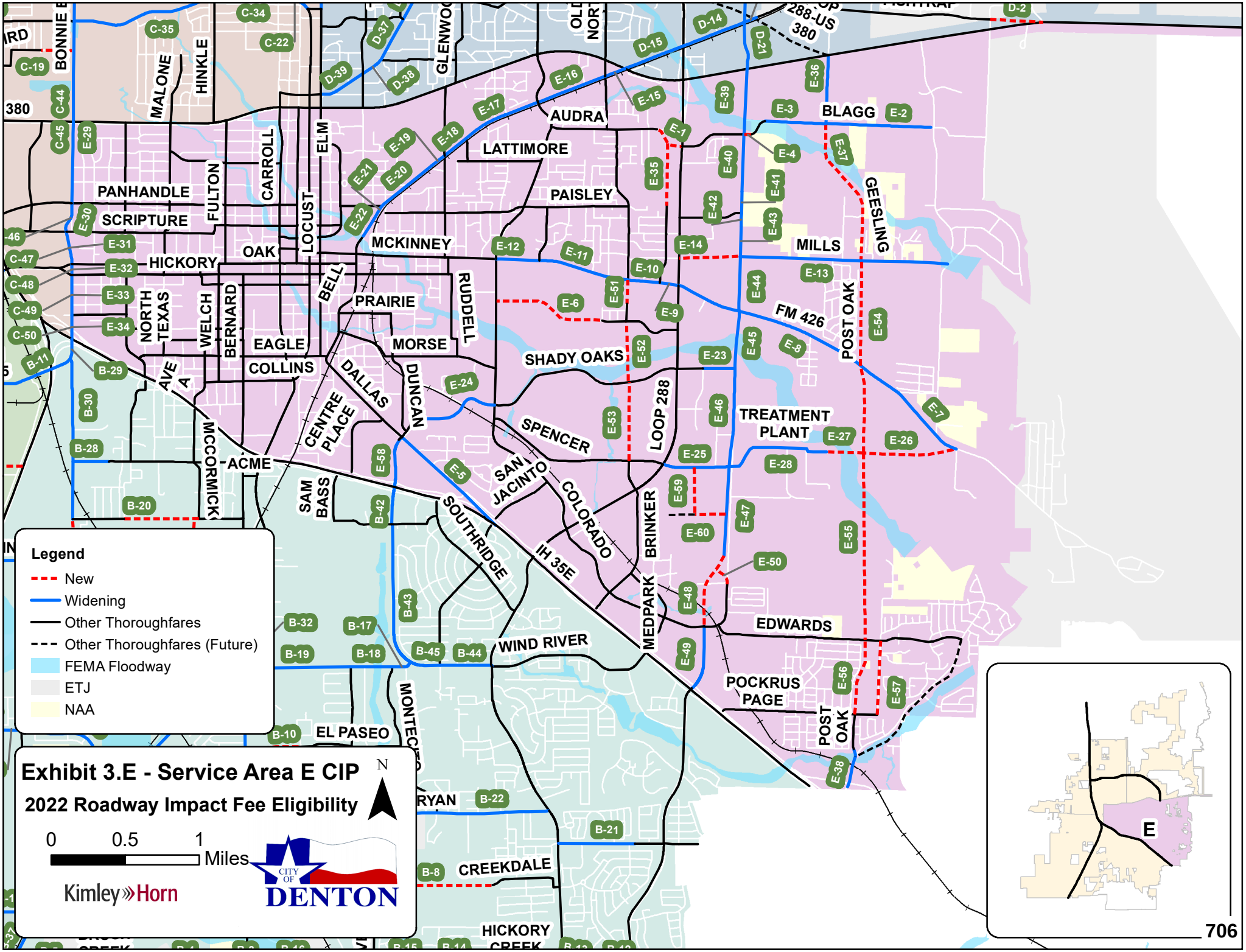
Exhibit 3.E - Service Area E CIP
2022 Roadway Impact Fee Eligibility
Legend
New
Widening
Other Thoroughfares
Other Thoroughfares (Future)
FEMA Floodway
ETJ
NAA
0
0.5
1
Miles
N
Kimley»Horn
CITY OF DENTON
E
BONNIE
MALONE
HINKLE
GLENWOOD
AUDRA
BLAGG
LATTIMORE
PAISLEY
PANHANDLE
SCRIPTURE
FULTON
CARROLL
ELM
LOCUST
MCKINNEY
OAK
HICKORY
MILLS
GEESLING
NORTH TEXAS
WELCH
BERNARD
BELL
PRAIRIE
RUDDELL
EAGLE
MORSE
COLLINS
DALLAS
DUNCAN
SHADY OAKS
FM 426
POST OAK
AVE A
CENTRE PLACE
SPENCER
LOOP 288
TREATMENT PLANT
ACME
MCCORMICK
SAM BASS
SAN JACINTO
COLORADO
SOUTHRIDGE
IH 35E
BRINKER
MEDPARK
EDWARDS
WIND RIVER
POCKRUS PAGE
EL PASEO
MONTECITO
RYAN
CREEKDALE
HICKORY CREEK
288-US 380
380

IV. COMPUTATION METHOD FOR ROADWAY IMPACT FEES

A. Service Areas

The five (5) service areas used in the 2022 Roadway Impact Fee Study are shown in **Exhibit 1**. These service areas cover the entire corporate area of the City of Denton. Chapter 395 of the Texas Local Government Code specifies that "the service area is limited to an area within the corporate boundaries of the political subdivision and shall not exceed six (6) miles."

B. Service Units

The "service unit" is a measure of consumption or use of the capital facilities by new development. In other words, it is the unit of measure used in the 2022 Roadway Impact Fee Study to quantify the supply and demand for roads in the City. For transportation purposes, the service unit is defined as a vehicle-mile. Below is the definition for vehicle-mile.

Vehicle-Mile: The capacity consumed in a single lane in the PM peak hour by a vehicle making a trip one mile in length. The PM Peak is used as the basis for transportation planning and the estimation of trips caused by new development.

Total Vehicle-Miles of Supply: Based on the total length (miles), number of lanes, and capacity (vehicles per hour) provided by the Denton Mobility Plan (see **Appendix B**).

Total Vehicle-Miles of Demand: Based on the 10-year growth projections (Pg. 35). The demand is equal to PM Trip Rate (trips) * Trip Length (miles).

The capacity values used in the 2022 Roadway Impact Fee Study are based upon Thoroughfare Capacity Criteria published by the North Central Texas Council of Governments (NCTCOG) and applied to City of Denton thoroughfare standards. **Tables 3A** and **3B** show the service volumes as a function of the facility classification and type.

Table 3A. Service Volumes for Proposed Facilities

(used in Appendix B – Roadway Impact Fee CIP Service Units of Supply)

Facility Classification	Median Configuration	Hourly Vehicle-Mile Capacity per Lane-Mile of Roadway Facility
Primary Arterial (PA)	Divided	850
Secondary Arterial (SA)	Divided	750
Collector (C)	Undivided	550

Table 3B. Service Volumes for Existing Facilities

(used in Appendix C – Existing Roadway Facilities Inventory)

Roadway Type	Description	Hourly Vehicle-Mile Capacity per Lane-Mile of Roadway Facility
2U-R	Rural Cross-Section (i.e., gravel, dirt, etc.)	150
2U-H	Two lane undivided – Arterial Type	725
2-1W	Two lane – one way couplet	650
2U	Two lane undivided	425
3-1W	Three lane - one way couplet	700
3U	Three lane undivided (two-way, left-turn lane)	550
4U	Four lane undivided	550
4D	Four lane divided	750
6D	Six lane divided	850

C. Cost Per Service Unit

A fundamental step in the impact fee process is to establish the cost for each service unit. In the case of the Roadway Impact Fee, this is the cost for each vehicle-mile of travel. Thus, it is the cost to construct a roadway (lane-mile) needed to accommodate a vehicle-mile of travel. The cost per service unit is calculated for each service area based on the roadway projects within that service area.

The second component of the cost per service unit is the determination of the number of service units in each service area. This number is the measure of the growth in transportation demand that is projected to occur in the ten-year period.

D. Roadway Impact Fee CIP Costing Methodology

All of the project costs for an arterial or collector facility which serves the overall transportation system are eligible to be included in the Roadway Impact Fee Capital Improvements Plan. Chapter 395 of the Texas Local Government Code specifies that the allowable costs are "…including and limited to the:

1. Construction contract price;
2. Surveying and engineering fees;
3. Land acquisition costs, including land purchases, court awards and costs, attorney's fees, and expert witness fees; and
4. Fees actually paid or contracted to be paid to an independent qualified engineer or financial consultant preparing or updating the capital improvements plan who is not an employee of the political subdivision."

The engineer's opinion of the probable costs of the projects in the Roadway Impact Fee CIP is based, in part, on the calculation of a unit cost of construction. This means that a cost per linear foot of roadway is calculated based on an average price for the various components of roadway construction. This allows the probable cost to be determined by the type of facility being constructed, the number of lanes, and the length of the project. The cost for location specific items such as bridges, highway ramps, drainage structures, and any other

special components are added to each project, as appropriate. The detailed costing components are provided in the costing sheets in **Appendix A**. The following is a detailed description of the costing methodology for the Roadway Impact Fee CIP.

1. Project Information

In order to correctly estimate the cost of a roadway project, several attributes are first identified:

- Project Number – Identifies which Service Area the project is in with a corresponding number. The corresponding number does not represent any prioritizations and is used only to identify projects. For example, Project A-10 is in Service Area A and is the 10th project on the list.
- Roadway Name – A unique identifier for each project. In some cases abbreviations are used for the project name. In cases where roadway names are unknown the connecting limits may be used such as FM 1515 – H Lively represents a roadway link that connects FM 1515 to H Lively.
- Limits – Represents the beginning and ending location for each project.
- Length (ft) – The distance measured in feet that is used to cost out the project.
- Roadway Classification – The costing class to be used in the analysis. The impact fee class provides the width for the various elements in the roadway. The construction costs are variable, based on the proposed Mobility Plan classification of the roadway. For example, PA stands for Primary Arterial. A PA Impact Fee Class means the entire roadway is to be constructed. Additional classifications are utilized in cases where a portion of the facility currently exists and the road is only to be widened. The following notations are used for these projects:
    - "(1/2)" for facilities where half the facility still needs to be constructed;
    - "(1/3)" for future six-lane principal arterials facilities where two additional median lanes are needed
    - "(2/3)" for future six-lane principal arterials facilities where four additional lanes are needed

2. Construction Cost

A typical roadway project consists of a number of costs, including the following: planning, survey, design engineering, permitting, right-of way acquisition, and construction and inspection. While the construction cost component of a project may actually consist of approximately 100 various pay items, a simplified approach was used for developing the conceptual level project costs. The pay items used to estimate construction costs are shown in **Table 4.**

Table 4. Construction Cost Pay Items

Pay Items
• Unclassified Street Earthwork • Lime Stabilization • Concrete pavement and curb • Sidewalk (and Trail when applicable) • Topsoil • Block Sodding • Turn lanes

3. Allowances

A percentage of the paving construction cost is allotted for various major construction component allowances, as appropriate. These allowances include mobilization, traffic control, pavement markings and signage, roadway drainage, illumination, minor water and sewer adjustments, landscaping, irrigation and SWPPP. These allowance percentages are also based on historical data and are shown in the example project costing sheets in the **Appendix.**

In addition, allowances are provided for streams and channel crossings, railroad crossings, and intersection improvements where needs are anticipated. The construction cost subtotal is given a fifteen percent (15%) allowance for contingency and ROW costs, sixteen percent (16%) for engineering, surveying, and SUE, and three and a half percent (3.5%) of the construction cost total is added for inspection and materials testing. In addition, if City funds

were previously spent or are currently allocated to a project, those amounts are also included in the total cost.

The Impact Fee Project Cost Total is then the Construction Cost Total plus engineering, surveying, testing, and inspection; plus ROW/contingency.

E. Summary of Roadway Impact Fee CIP Costs

Tables 5.A – 5.E are the 10-Year Roadway Impact Fee CIP project lists for each service area with planning level project costs. Overall project costs can be seen in the summary tables in **Appendix A**, Conceptual Level Project Cost Projections. These costs are based on the example project costing sheets, also provided in **Appendix A**. It should be noted that these tables reflect only conceptual-level opinions or assumptions regarding the portions of future project costs that are recoverable through impact fees. Actual project costs are likely to change with time and are dependent on market and economic conditions that cannot be predicted.

The Roadway Impact Fee CIP establishes the list of projects for which Impact Fees may be utilized. Projects not included in the Roadway Impact Fee CIP are not eligible to receive impact fee funding. The cost projections utilized in this study should not be utilized for the City's construction CIP.

Table 5.A – 10-Year Roadway Impact Fee CIP with Conceptual Level Cost Projections – Service Area A

Service Area	Proj. #	Class	Roadway	Limits	Length (mi)	% In Service Area	Total Project Cost	Cost in Service Area
SA A	A-1	SA	CORBIN	IH-35W TO CORBIN	0.58	100%	$ 10,164,000	$ 10,164,000
	A-2	SA	CORBIN	500' S OF SPRINGSIDE TO CORBIN	0.27	100%	$ 3,378,000	$ 3,378,000
	A-3	PA	FM 1515	IH 35W TO CORBIN	1.13	100%	$ 23,533,000	$ 23,533,000
	A-4	PA	FM 1515	CORBIN TO WESTERN	0.22	100%	$ 3,959,000	$ 3,959,000
	A-5	PA	FM 1515	WESTERN TO WESTCOURT	0.29	100%	$ 7,495,000	$ 7,495,000
	A-6	PA	FM 1515	WESTCOURT TO MASCH BRANCH	0.12	100%	$ 2,089,000	$ 2,089,000
	A-7	PA	FM 1515	TOM COLE TO 3435' W OF TOM COLE	0.65	100%	$ 13,827,000	$ 13,827,000
	A-8	PA	FM 1515	3435' W OF TOM COLE TO 530' E OF C WOLFE	0.71	100%	$ 13,132,000	$ 13,132,000
	A-9	PA	H LIVELY	C WOLFE TO 2145' W OF H LIVELY	0.41	50%	$ 7,226,000	$ 3,613,000
	A-10	PA	H LIVELY	2145' W OF H LIVELY TO 2150' W OF ED ROBSON	0.74	100%	$ 13,188,000	$ 13,188,000
	A-11	C	IH-35-CORBIN	IH-35 TO CORBIN	0.84	100%	$ 7,040,000	$ 7,040,000
	A-12	SA	JIM CHRISTAL	IH 35 TO OLD SH 24	0.59	100%	$ 10,332,000	$ 10,332,000
	A-13,C-10	SA	JIM CHRISTAL	OLD SH 24 TO WESTERN	0.55	50%	$ 9,746,000	$ 4,873,000
	A-14,C-11	SA	JIM CHRISTAL	WESTERN TO MASCH BRANCH	0.66	50%	$ 11,964,000	$ 5,982,000
	A-15,C-12	SA	JIM CHRISTAL	MASCH BRANCH TO THOMAS J EGAN	1.13	50%	$ 18,502,000	$ 9,251,000
	A-16,C-13	SA	JIM CHRISTAL	THOMAS J EGAN TO 515' E OF C WOLFE	0.75	50%	$ 12,707,000	$ 6,353,500
	A-17	C	PRECISION-WESTERN	PRECISION TO WESTERN	0.65	100%	$ 6,566,000	$ 6,566,000
	A-18	PA	ROBSON RANCH	IH 35W TO ED ROBSON	1.65	50%	$ 30,974,000	$ 15,487,000
	A-19	PA	ROBSON RANCH	ED ROBSON TO YARBROUGH	1.35	50%	$ 25,335,000	$ 12,667,500
	A-20	SA	SPRINGSIDE	CORBIN TO UNDERWOOD	0.35	100%	$ 6,141,000	$ 6,141,000
	A-21	SA	SPRINGSIDE	UNDERWOOD TO WESTCOURT	0.16	100%	$ 2,971,000	$ 2,971,000
	A-22	C	TJ EGAN-LOOP 288	LOOP 288 TO 2440' W OF LOOP 288	0.46	100%	$ 3,722,000	$ 3,722,000
	A-23	PA	C WOLFE	1140' S OF TOM COLE TO FM 2449	1.38	50%	$ 26,240,000	$ 13,120,000
	A-24	PA	C WOLFE	FM 2449 TO H LIVELY	0.63	50%	$ 12,018,000	$ 6,009,000
	A-25	C	CORBIN	IH-35-CORBIN TO SPRINGSIDE	0.39	100%	$ 3,667,000	$ 3,667,000
	A-26	C	J CHRISTAL-H LIVELY	FM 2449 TO H LIVELY	0.63	100%	$ 5,353,000	$ 5,353,000
	A-27	C	PRECISION	JIM CHRISTAL TO 1635' N OF FM 1515	0.45	100%	$ 3,694,000	$ 3,694,000
	A-28	SA	THOMAS J EGAN	JIM CHRISTAL TO 2915' S OF JIM CRISTAL	0.55	100%	$ 6,984,000	$ 6,984,000
	A-29	SA	THOMAS J EGAN	1830' N OF FM 1515 TO FM 1515	0.35	50%	$ 4,635,000	$ 2,317,500
	A-30	PA	UNDERWOOD	SPRINGSIDE TO UNDERWOOD CONNECTOR	0.76	100%	$ 15,229,000	$ 15,229,000
	A-31	SA (1/2)	WESTCOURT	FM 1515 TO SPRINGSIDE	0.79	100%	$ 5,343,000	$ 5,343,000
	A-32	PA (1/3)	WESTERN	JIM CHRISTAL TO AIRPORT	1.23	100%	$ 6,619,000	$ 6,619,000
	A-33	PA	WESTERN	FM 1515 TO SPRINGSIDE	0.79	100%	$ 14,102,000	$ 14,102,000
	Service Area Project Cost Subtotal							**$ 268,201,500**
	2022 Roadway Impact Fee Study Cost Per Service Area							**$ 37,660**
Total Cost in SERVICE AREA A								**$ 268,239,160**

a. These planning level cost projections have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Projects within the City of Denton.

b. These planning level cost projections shall not supersede the City's design standards or the determination of the City Engineer for a specific project.

Table 5.B – 10-Year 10-Year Roadway Impact Fee CIP with Conceptual Level Cost Projections – Service Area B

Service Area	Proj. #	Class	Roadway	Limits	Length (mi)	% In Service Area	Total Project Cost	Cost in Service Area
SA B	B-1	C	ALLRED	BONNIE BRAE TO BRUSH CREEK	0.81	50%	$ 6,097,000	$ 3,048,500
	B-2	PA	ALLRED	BRUSH CREEK TO JOHN PAINE	0.30	50%	$ 5,424,000	$ 2,712,000
	B-3	PA	BRUSH CREEK	815' E OF COUNTRY CLUB TO COUNTRY CLUB	0.15	100%	$ 2,747,000	$ 2,747,000
	B-4	PA	BRUSH CREEK	COUNTRY CLUB TO 1935' W OF COUNTRY CLUB	0.37	100%	$ 6,769,000	$ 6,769,000
	B-5	PA	BRUSH CREEK	2180' E OF FORT WORTH TO FORT WORTH	0.41	100%	$ 7,344,000	$ 7,344,000
	B-6	PA	BRUSH CREEK	FORT WORTH TO 590' E OF ALLRED	0.68	100%	$ 10,698,000	$ 10,698,000
	B-7	SA	CORBIN	BONNIE BRAE TO IH-35W	0.66	100%	$ 10,760,000	$ 10,760,000
	B-8	C	CREEKDALE	PIMLICO TO RIVERCHASE	0.61	100%	$ 5,346,000	$ 5,346,000
	B-9	C	CREEKDALE	THISTLE WAY TO OAKBLUFF	0.39	100%	$ 3,461,000	$ 3,461,000
	B-10	C	EL PASEO	BELMONT TO COUNTRY CLUB	0.36	100%	$ 3,369,000	$ 3,369,000
	B-11	PA	FM 1515	BONNIE BRAE TO IH 35W	0.15	100%	$ 2,595,000	$ 2,595,000
	B-12	PA (1/3)	HICKORY CREEK	FM 2499 TO NAUTICA	0.22	100%	$ 1,605,000	$ 1,605,000
	B-13	PA (1/3)	HICKORY CREEK	NAUTICA TO TEASLEY	0.25	100%	$ 1,789,000	$ 1,789,000
	B-14	PA (1/3)	HICKORY CREEK	TEASLEY TO MONTECITO	0.85	100%	$ 8,638,000	$ 8,638,000
	B-15	PA (1/3)	HICKORY CREEK	MONTECITO TO 1435' W OF BIDDY BYE	0.42	50%	$ 4,006,000	$ 2,003,000
	B-16	PA	HICKORY CREEK	1435' W OF BIDDY BYE TO 815' E OF COUNTRY CLUB	0.38	100%	$ 7,612,000	$ 7,612,000
	B-17	SA	HOBSON LANE	TEASLEY TO MONTECITO	0.13	100%	$ 1,914,000	$ 1,914,000
	B-18	SA	HOBSON LANE	MONTECITO TO FORRESTRIDGE	0.28	100%	$ 5,710,000	$ 5,710,000
	B-19	SA	HOBSON LANE	FORRESTRIDGE TO COUNTRY CLUB	0.72	100%	$ 11,559,000	$ 11,559,000
	B-20	C	PARVIN	MCCORMICK TO HIGHLAND PARK	0.50	100%	$ 2,150,000	$ 2,150,000
	B-21	SA	ROBINSON	230' E OF WHEELER RIDGE TO TEASLEY	0.52	100%	$ 8,061,000	$ 8,061,000
	B-22	SA	RYAN	TEASLEY TO MONTECITO	0.76	100%	$ 11,980,000	$ 11,980,000
	B-23	SA	RYAN	MONTECITO TO FORRESTRIDGE	0.63	100%	$ 10,878,000	$ 10,878,000
	B-24	SA	RYAN	FORRESTRIDGE TO COUNTRY CLUB	0.66	100%	$ 10,824,000	$ 10,824,000
	B-25	PA (1/3)	VINTAGE	FORT WORTH TO BONNIE BRAE	0.87	100%	$ 11,721,000	$ 11,721,000
	B-26	PA (1/3)	VINTAGE	BONNIE BRAE TO NAPA VALLEY	0.14	100%	$ 1,665,000	$ 1,665,000
	B-27	PA (1/3)	VINTAGE	NAPA VALLEY TO IH 35W	0.65	100%	$ 7,975,000	$ 7,975,000
	B-28	C	WILLOWWOOD	1250' W OF HIGHLAND PARK TO BONNIE BRAE	0.24	100%	$ 2,079,000	$ 2,079,000
	B-29	SA	BONNIE BRAE	IH 35E TO FM 1515	0.14	100%	$ 1,285,000	$ 1,285,000
	B-30	SA	BONNIE BRAE	FM 1515 TO WILLOWWOOD	1.09	100%	$ 11,351,000	$ 11,351,000
	B-31	SA	BONNIE BRAE	HIGHLAND PARK TO ROSELAWN	0.48	50%	$ 4,521,000	$ 2,260,500
	B-32	SA	COUNTRY CLUB	FORT WORTH TO HOBSON	0.08	100%	$ 1,229,000	$ 1,229,000
	B-33	SA	COUNTRY CLUB	HOBSON TO RYAN	1.00	100%	$ 15,093,000	$ 15,093,000
	B-34	SA	COUNTRY CLUB	RYAN TO HICKORY CREEK	0.66	50%	$ 11,902,000	$ 5,951,000
	B-35	PA	FORT WORTH	COUNTRY CLUB TO VINTAGE	1.32	100%	$ 26,417,000	$ 26,417,000
	B-36	PA	FORT WORTH	VINTAGE TO BONNIE BRAE	1.07	100%	$ 19,299,000	$ 19,299,000
	B-37	PA	FORT WORTH	BONNIE BRAE TO BRUSH CREEK	0.24	100%	$ 4,811,000	$ 4,811,000
	B-38	PA	FORT WORTH	BRUSH CREEK TO CRAWFORD	1.11	100%	$ 20,190,000	$ 20,190,000
	B-39	Completed	JOHN PAINE	JOHNSON TO ATHENS	0.42	100%	$ 238,000	$ 238,000
	B-40	SA	JOHN PAINE	VINTAGE TO 1045' S OF VINTAGE	0.20	100%	$ 3,254,000	$ 3,254,000
	B-41	C	PARVIN-ROSELAWN	PARVIN TO ROSELAWN	0.52	100%	$ 3,878,000	$ 3,878,000
	B-42	PA (1/3)	TEASLEY	IH 35E TO LONDONDERRY	0.25	100%	$ 1,039,000	$ 1,039,000
	B-43	PA (1/3)	TEASLEY	LONDONDERRY TO HOBSON	0.97	100%	$ 4,558,000	$ 4,558,000
	B-44	PA (1/3)	TEASLEY	LILLIAN B MILLER TO PENNSYLVANIA	0.36	100%	$ 1,493,000	$ 1,493,000
	B-45	PA (1/3)	TEASLEY	PENNSYLVANIA TO HOBSON	0.21	100%	$ 857,000	$ 857,000
							Service Area Project Cost Subtotal	**$ 290,216,000**
							2022 Roadway Impact Fee Study Cost Per Service Area	**$ 37,660**
							Total Cost in SERVICE AREA B	**$ 290,253,660**

a. These planning level cost projections have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Projects within the City of Denton.

b. These planning level cost projections shall not supersede the City's design standards or the determination of the City Engineer for a specific project.

Table 5.C – 10-Year Roadway Impact Fee CIP with Conceptual Level Cost Projections – Service Area C

Service Area	Proj. #	Class	Roadway	Limits	Length (mi)	% In Service Area	Total Project Cost	Cost in Service Area
SA C	C-1	PA	BARTHOLD	MASCH BRANCH TO 5200' W OF IIH 35	0.98	50%	$ 17,750,000	$ 8,875,000
	C-2	SA	BOBCAT	FM 2164 TO IH-35	2.75	100%	$ 37,762,000	$ 37,762,000
	C-3	SA	FM 1173	IH 35 TO 4605' W OF IH 35	0.87	100%	$ 13,401,000	$ 13,401,000
	C-4	SA	FM 1173	4605' W OF IH 35 TO LOVERS	0.41	50%	$ 7,704,000	$ 3,852,000
	C-5	SA	FM 2164-IH 35	FM 2164 TO IH 35	2.73	100%	$ 37,057,000	$ 37,057,000
	C-6	PA	GANZER	FM 2164 TO GANZER	2.40	100%	$ 39,748,000	$ 39,748,000
	C-7	PA	GANZER	2900' E OF IH 35 TO IH 35	0.55	100%	$ 11,525,000	$ 11,525,000
	C-8	PA	GANZER	1620' E OF BARTHOLD TO BARTHOLD	0.31	50%	$ 5,708,000	$ 2,854,000
	C-9	PA	GANZER	BARTHOLD TO RECTOR	0.49	50%	$ 9,208,000	$ 4,604,000
	A-13,C-10	SA	JIM CHRISTAL	OLD SH 24 TO WESTERN	0.55	50%	$ 9,746,000	$ 4,873,000
	A-14,C-11	SA	JIM CHRISTAL	WESTERN TO MASCH BRANCH	0.66	50%	$ 11,964,000	$ 5,982,000
	A-15,C-12	SA	JIM CHRISTAL	MASCH BRANCH TO THOMAS J EGAN	1.13	50%	$ 18,502,000	$ 9,251,000
	A-16,C-13	SA	JIM CHRISTAL	THOMAS J EGAN TO 515' E OF C WOLFE	0.75	50%	$ 12,707,000	$ 6,353,500
	C-14	SA	JIM CHRISTAL	945' W OF C WOLFE TO NAIL	0.59	50%	$ 9,547,000	$ 4,773,500
	C-15	SA	JIM CHRISTAL	NAIL TO 2045' W of Nail	0.39	50%	$ 5,841,000	$ 2,920,500
	C-16	C	MARSHALL	2845' N OF HAMPTON TO HAMPTON	0.54	100%	$ 5,249,000	$ 5,249,000
	C-17	C	MARSHALL	HAMPTON TO US 380	0.59	100%	$ 4,397,000	$ 4,397,000
	C-18	SA	MASCH BRANCH	MASCH BRANCH TO DARBY SMITH	0.65	100%	$ 10,602,000	$ 10,602,000
	C-19	C	WESTWARD	NORTHWAY TO BONNIE BRAE	0.22	100%	$ 1,672,000	$ 1,672,000
	C-20	SA (1/2)	RINEY	US 77 TO 2460' W OF US 77	0.47	100%	$ 3,156,000	$ 3,156,000
	C-21	SA (1/2)	RINEY	2460' W OF US 77 TO BONNIE BRAE	0.19	100%	$ 1,258,000	$ 1,258,000
	C-22	PA (1/3)	US 77	WINDSOR TO FM 2164	0.22	100%	$ 1,432,000	$ 1,432,000
	C-23	PA (1/3)	US 77	RINEY TO WINDSOR	0.46	100%	$ 2,819,000	$ 2,819,000
	C-24	PA (1/3)	US 77	RINEY TO RINEY	0.40	100%	$ 2,075,000	$ 2,075,000
	C-25	PA (1/3)	US 77	BONNIE BRAE TO RINEY	0.75	100%	$ 3,126,000	$ 3,126,000
	C-26	PA (1/3)	US 77	LOOP 288 TO BONNIE BRAE	0.33	100%	$ 1,859,000	$ 1,859,000
	C-27	PA (1/3)	US 77	IH 35 TO LOOP 288	0.87	100%	$ 4,739,000	$ 4,739,000
	C-28	C	MASCH BRANCH-NAIL	MASCH BRANCH TO 1295' W OF MASCH BRANCH	0.25	100%	$ 2,094,000	$ 2,094,000
	C-29	C	MASCH BRANCH-NAIL	1050' E OF LOOP 288 TO 1550' W OF LOOP 288	0.49	100%	$ 4,450,000	$ 4,450,000
	C-30	C	MASCH BRANCH-NAIL	1335' W OF THOMAS J EGAN TO 775' E OF C WOLFE	0.48	100%	$ 4,379,000	$ 4,379,000
	C-31	C	MASCH BRANCH-NAIL	775' E OF C WOLFE TO 690' W OF C WOLFE	0.28	50%	$ 2,092,000	$ 1,046,000
	C-32	C	MASCH BRANCH-NAIL	690' W OF C WOLFE TO NAIL	0.58	100%	$ 4,376,000	$ 4,376,000
	C-33	SA	WESTGATE	WESTGATE TO 1460' E OF IH-35	0.18	100%	$ 2,336,000	$ 2,336,000
	C-34	SA	WINDSOR	US 77 TO HINKLE	0.46	100%	$ 6,912,000	$ 6,912,000
	C-35	SA (1/2)	WINDSOR	HINKLE TO BONNIE BRAE	0.99	100%	$ 6,972,000	$ 6,972,000
	C-36	SA (1/2)	WINDSOR	WESTGATE TO 145' W OF CLARENDON	0.10	100%	$ 649,000	$ 649,000
	C-37	SA (1/2)	WINDSOR	220' W OF WINDSOR FARMS TO IH 35	0.17	100%	$ 1,162,000	$ 1,162,000
	C-38	SA	WINDSOR	IH 35 TO MASCH BRANCH	1.24	100%	$ 17,606,000	$ 17,606,000
	C-39	SA	BARTHOLD	GANZER TO 2600' S OF GANZER	0.49	100%	$ 7,425,000	$ 7,425,000
	C-40	PA	BONNIE BRAE	MILAM TO LOOP 288	3.13	100%	$ 52,065,000	$ 52,065,000
	C-41	SA	BONNIE BRAE	LOOP 288 TO US 77	0.24	100%	$ 3,008,000	$ 3,008,000
	C-42	SA	BONNIE BRAE	US 77 TO RINEY	0.38	100%	$ 6,587,000	$ 6,587,000
	C-43	SA	BONNIE BRAE	RINEY TO WINDSOR	0.66	100%	$ 10,320,000	$ 10,320,000
	C-44	SA	BONNIE BRAE	WINDSOR TO US 380	0.68	100%	$ 11,981,000	$ 11,981,000
	C-45,E-29	SA	BONNIE BRAE	US 380 TO PANHANDLE	0.55	50%	$ 8,310,000	$ 4,155,000
	C-46,E-30	SA	BONNIE BRAE	PANHANDLE TO SCRIPTURE	0.20	50%	$ 3,056,000	$ 1,528,000
	C-47,E-31	SA	BONNIE BRAE	SCRIPTURE TO OAK	0.22	50%	$ 3,370,000	$ 1,685,000
	C-48,E-32	SA	BONNIE BRAE	OAK TO HICKORY	0.07	50%	$ 1,087,000	$ 543,500
	C-49,E-33	SA	BONNIE BRAE	HICKORY TO PRAIRIE	0.27	50%	$ 4,070,000	$ 2,035,000
	C-50,E-34	SA	BONNIE BRAE	PRAIRIE TO IH 35E	0.16	50%	$ 2,457,000	$ 1,228,500
	C-51	PA	C WOLFE	US 380 TO WESTERN-NAIL	0.51	100%	$ 8,901,000	$ 8,901,000
	C-52	C	FALLMEADOW	MEADOWLEDGE TO GARDENVIEW	0.17	100%	$ 1,303,000	$ 1,303,000
	C-53,D-22	PA	FM 2164	MILAM TO LOOP 288	2.62	50%	$ 49,925,000	$ 24,962,500
	C-54,D-28	SA	LOCUST	LOOP 288 TO HERCULES	0.43	50%	$ 6,954,000	$ 3,477,000
	C-55,D-29	SA	LOCUST	HERCULES TO BELL	0.45	50%	$ 7,433,000	$ 3,716,500
	C-56,D-30	SA	LOCUST	BELL TO WINDSOR	0.24	50%	$ 3,628,000	$ 1,814,000
	C-57,D-31	SA	LOCUST	WINDSOR TO FM 2164	0.25	50%	$ 3,841,000	$ 1,920,500
	C-58	SA	LOVERS	FM 1173 TO MASCH BRANCH	0.78	100%	$ 12,266,000	$ 12,266,000
	C-59	SA	LOVERS	1085' N OF MASCH BRANCH TO MASCH BRANCH	0.21	100%	$ 3,349,000	$ 3,349,000
	C-60	SA	LOVERS LN CONNECTOR	LOVERS TO LOOP 288	0.06	100%	$ 756,000	$ 756,000
	C-61	SA	LOVERS LN CONNECTOR	LOOP 288 TO 1085' N OF MASCH BRANCH	0.08	100%	$ 972,000	$ 972,000
	C-62	SA	MASCH BRANCH	1295' S OF FM 1173 TO JACKSON	0.79	50%	$ 11,908,000	$ 5,954,000
	C-63	SA	MASCH BRANCH	LOVERS TO US 380	0.72	100%	$ 11,352,000	$ 11,352,000
	C-64	SA	MASCH BRANCH	US 380 TO JIM CHRISTAL	0.78	100%	$ 12,137,000	$ 12,137,000
	C-65	SA	MILAM-LOOP 288	MILAM TO LOOP 288	2.71	100%	$ 36,182,000	$ 36,182,000
	C-66	SA	MILAM-US 77	MILAM TO GANZER	1.51	100%	$ 20,546,000	$ 20,546,000
	C-67	SA	MILAM-US 77	GANZER TO LONG	0.73	100%	$ 11,567,000	$ 11,567,000
	C-68	SA	MILAM-US 77	LONG TO US 77	0.53	100%	$ 7,359,000	$ 7,359,000
	C-69	C	NICOSIA	LOOP 288 TO BEALL	0.12	100%	$ 1,169,000	$ 1,169,000
	C-70	SA	THOMAS J EGAN	US 380 TO JIM CHRISTAL	0.76	100%	$ 12,353,000	$ 12,353,000
	C-71	PA	WESTERN	US 380 TO JIM CHRISTAL	0.80	100%	$ 14,699,000	$ 14,699,000
							Service Area Project Cost Subtotal	**$ 587,514,000**
							2022 Roadway Impact Fee Study Cost Per Service Area	**$ 37,660**
							Total Cost in SERVICE AREA C	**$ 587,551,660**

a. These planning level cost projections have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Projects within the City of Denton.

b. These planning level cost projections shall not supersede the City's design standards or the determination of the City Engineer for a specific project.

Table 5.D – 10-Year Roadway Impact Fee CIP with Conceptual Level Cost Projections – Service Area D

Service Area	Proj. #	Class	Roadway	Limits	Length (mi)	% In Service Area	Total Project Cost	Cost in Service Area
SA D	D-1	SA	BOBCAT	560' W OF FM 2164 TO FM 2164	0.11	50%	$ 1,601,000	$ 800,500
	D-2	C	FISHTRAP	MINGO TO GEESLING	0.36	50%	$ 2,939,000	$ 1,469,500
	D-3	PA	GANZER	15,500' E OF SHERMAN TO 4600' W OF SHERMAN	3.41	100%	$ 53,936,000	$ 53,936,000
	D-4	SA	GRIBBLE SPRINGS	INDIAN WELLS TO 3015' W OF INDIAN WELLS	0.57	50%	$ 8,861,000	$ 4,430,500
	D-5	SA	HARTLEE FIELD	4220' E OF COOPER CREEK TO COOPER CREEK	0.80	50%	$ 12,051,000	$ 6,025,500
	D-6	SA	HARTLEE FIELD	COOPER CREEK TO 5170' W OF COOPER CREEK	0.98	50%	$ 14,764,000	$ 7,382,000
	D-7	C	HARTLEE FIELD	600' E OF SHERMAN TO SHERMAN	0.11	50%	$ 855,000	$ 427,500
	D-8	SA	HARTLEE FLD-FM 2164	HARTLEE FIELD TO SHERMAN	0.43	100%	$ 5,392,000	$ 5,392,000
	D-9	SA	HARTLEE FLD-FM 2164	SHERMAN TO 3500' W OF SHERMAN	0.66	100%	$ 8,386,000	$ 8,386,000
	D-10	SA	HARTLEE FLD-FM 2164	STUART TO 1485' W OF STUART	0.28	50%	$ 3,809,000	$ 1,904,500
	D-11	SA	HARTLEE FLD-FM 2164	475' W OF FM 2164 TO FM 2164	0.09	100%	$ 1,139,000	$ 1,139,000
	D-12	C	LONG	510' W OF FM 2164 TO FM 2164	0.10	100%	$ 726,000	$ 726,000
	D-13	SA	MINGO	E CITY LIMITS TO COOPER CREEK	0.09	100%	$ 1,315,000	$ 1,315,000
	D-14	SA	MINGO	COOPER CREEK TO LOOP 288	0.44	100%	$ 6,583,000	$ 6,583,000
	D-15	SA	MINGO	LOOP 288 TO US 380	0.43	100%	$ 7,937,000	$ 7,937,000
	D-16	C	KINGS ROW	SILVER DOME TO LOOP 288	0.50	100%	$ 3,779,000	$ 3,779,000
	D-17	C	SILVER DOME	COOPER CREEK TO FARRIS RD	0.41	50%	$ 3,117,000	$ 1,558,500
	D-18	C	COLLINS	HARTLEE FIELD TO 2730' S OF HARTLEE FIELD	0.84	50%	$ 6,818,000	$ 3,409,000
	D-19	SA	COOPER CREEK	SHERMAN TO HARTLEE FIELD	1.91	100%	$ 25,554,000	$ 25,554,000
	D-20	SA	COOPER CREEK	SILVER DOME TO MINGO	0.83	50%	$ 12,452,000	$ 6,226,000
	D-21	PA	COOPER CREEK	MINGO TO US 380	0.32	100%	$ 7,361,000	$ 7,361,000
	C-53,D-22	PA	FM 2164	MILAM TO LOOP 288	2.62	50%	$ 49,925,000	$ 24,962,500
	D-23	PA	GREEN VALLEY	2395' S OF FM 2153 TO 2935' N OF SHEPARD	1.47	100%	$ 24,463,000	$ 24,463,000
	D-24	SA	GREEN VALLEY	WARSCHUN TO SHERMAN	0.40	100%	$ 6,234,000	$ 6,234,000
	D-25	SA	INDIAN WELLS	1615' S OF FM 2153 TO 4930' N OF GRIBBLE SPRINGS	0.73	100%	$ 10,021,000	$ 10,021,000
	D-26	SA	INDIAN WELLS	4930' N OF GRIBBLE SPRINGS TO 2905' N OF GRIBBLE SPRINGS	0.38	50%	$ 4,853,000	$ 2,426,500
	D-27	SA	INDIAN WELLS	2905' N OF GRIBBLE SPRINGS TO GRIBBLE SPRINGS	0.55	50%	$ 8,296,000	$ 4,148,000
	C-54,D-28	SA	LOCUST	LOOP 288 TO HERCULES	0.43	50%	$ 6,954,000	$ 3,477,000
	C-55,D-29	SA	LOCUST	HERCULES TO BELL	0.45	50%	$ 7,433,000	$ 3,716,500
	C-56,D-30	SA	LOCUST	BELL TO WINDSOR	0.24	50%	$ 3,628,000	$ 1,814,000
	C-57,D-31	SA	LOCUST	WINDSOR TO FM 2164	0.25	50%	$ 3,841,000	$ 1,920,500
	D-32	SA	SHERMAN	LOOP 288 TO HERCULES	0.31	100%	$ 4,713,000	$ 4,713,000
	D-33	SA	SHERMAN	HERCULES TO KINGS	0.36	100%	$ 5,455,000	$ 5,455,000
	D-34	SA	SHERMAN	KINGS TO WINDSOR	0.38	100%	$ 7,223,000	$ 7,223,000
	D-35	SA	SHERMAN	WINDSOR TO WILSONWOOD	0.19	100%	$ 2,856,000	$ 2,856,000
	D-36	SA	SHERMAN	WILSONWOOD TO CORONADO	0.22	100%	$ 3,328,000	$ 3,328,000
	D-37	SA	SHERMAN	CORONADO TO GREENWOOD	0.31	100%	$ 4,685,000	$ 4,685,000
	D-38	SA	SHERMAN	GREENWOOD TO BELL	0.16	100%	$ 2,357,000	$ 2,357,000
	D-39	SA	SHERMAN	BELL TO LOCUST	0.32	100%	$ 4,899,000	$ 4,899,000
	D-40	C	WINDSOR	LOOP 288 TO DOMINION	0.16	100%	$ 1,225,000	$ 1,225,000
							Service Area Project Cost Subtotal	**$ 275,665,500**
							2022 Roadway Impact Fee Study Cost Per Service Area	**$ 37,660**
							Total Cost in SERVICE AREA D	**$ 275,703,160**

a. These planning level cost projections have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Projects within the City of Denton.

b. These planning level cost projections shall not supersede the City's design standards or the determination of the City Engineer for a specific project.

Table 5.E – 10-Year Roadway Impact Fee CIP with Conceptual Level Cost Projections – Service Area E

Service Area	Proj. #	Class	Roadway	Limits	Length (mi)	% In Service Area	Total Project Cost	Cost in Service Area
SA E	E-1	C	AUDRA	LOOP 288 TO 1185' W OF LOOP 288	0.22	100%	$ 1,687,000	$ 1,687,000
	E-2	SA	BLAGG	LAKEVIEW TO GEESLING	0.71	100%	$ 11,181,000	$ 11,181,000
	E-3	SA	BLAGG	GEESLING TO 2175' W OF GEESLING	0.41	100%	$ 7,651,000	$ 7,651,000
	E-4	SA	BLAGG	235' E OF MAYHILL TO MAYHILL	0.04	50%	$ 563,000	$ 281,500
	E-5	PA (1/3)	DALLAS	TEASLEY TO IH 35E	0.87	100%	$ 3,624,000	$ 3,624,000
	E-6	C	DUCHESS	TRAILHEAD TO WOODROW	0.76	100%	$ 5,949,000	$ 5,949,000
	E-7	SA	FM 426	LANEY TO GRISSOM	0.57	100%	$ 9,953,000	$ 9,953,000
	E-8	Completed	MCKINNEY	GRISSOM TO LOOP 288	1.65	100%	$ 1,551,000	$ 1,551,000
	E-9	SA	MCKINNEY	LOOP 288 TO CARDINAL	0.13	100%	$ 1,914,000	$ 1,914,000
	E-10	SA	MCKINNEY	CARDINAL TO MOCKINGBIRD	0.22	100%	$ 3,270,000	$ 3,270,000
	E-11	SA	MCKINNEY	MOCKINGBIRD TO MACK	0.61	100%	$ 9,268,000	$ 9,268,000
	E-12	SA	MCKINNEY	MACK TO AUDRA	0.29	100%	$ 4,399,000	$ 4,399,000
	E-13	SA	MILLS	TRINITY TO MAYHILL	1.40	100%	$ 23,115,000	$ 23,115,000
	E-14	SA	MILLS	LAKEVIEW TO MAYHILL	0.41	100%	$ 5,235,000	$ 5,235,000
	E-15	SA	MINGO	US 380 TO OLD NORTH	0.14	100%	$ 2,172,000	$ 2,172,000
	E-16	SA	MINGO	OLD NORTH TO NOTTINGHAM	0.48	100%	$ 7,268,000	$ 7,268,000
	E-17	SA	MINGO	NOTTINGHAM TO PERTAIN	0.56	100%	$ 8,381,000	$ 8,381,000
	E-18	SA	MINGO	PERTAIN TO RUDDELL	0.18	100%	$ 2,700,000	$ 2,700,000
	E-19	SA	MINGO	RUDDELL TO WILLIS	0.11	100%	$ 1,714,000	$ 1,714,000
	E-20	SA	MINGO	WILLIS TO WITHERS	0.44	100%	$ 6,583,000	$ 6,583,000
	E-21	SA	MINGO	WITHERS TO PAISLEY	0.04	100%	$ 671,000	$ 671,000
	E-22	SA	MINGO	PAISLEY TO BELL	0.19	100%	$ 2,813,000	$ 2,813,000
	E-23	SA (1/2)	MORSE	MAYHILL TO KIMBERLY	0.22	100%	$ 1,969,000	$ 1,969,000
	E-24	SA	SHADY OAKS	WOODROW TO TEASLEY	0.58	100%	$ 9,967,000	$ 9,967,000
	E-25	SA	SPENCER	MAYHILL TO LOOP 288	0.44	100%	$ 6,862,000	$ 6,862,000
	E-26	C	TREATMENT PLANT	MCKINNEY TO POST OAK	0.63	100%	$ 4,731,000	$ 4,731,000
	E-27	SA	TREATMENT PLANT	POST OAK TO 1325' W OF POST OAK	0.25	100%	$ 5,015,000	$ 5,015,000
	E-28	SA	TREATMENT PLANT	1325' W OF POST OAK TO MAYHILL	0.75	100%	$ 11,310,000	$ 11,310,000
	C-45,E-29	SA	BONNIE BRAE	US 380 TO PANHANDLE	0.55	50%	$ 8,310,000	$ 4,155,000
	C-46,E-30	SA	BONNIE BRAE	PANHANDLE TO SCRIPTURE	0.20	50%	$ 3,056,000	$ 1,528,000
	C-47,E-31	SA	BONNIE BRAE	SCRIPTURE TO OAK	0.22	50%	$ 3,370,000	$ 1,685,000
	C-48,E-32	SA	BONNIE BRAE	OAK TO HICKORY	0.07	50%	$ 1,087,000	$ 543,500
	C-49,E-33	SA	BONNIE BRAE	HICKORY TO PRAIRIE	0.27	50%	$ 4,070,000	$ 2,035,000
	C-50,E-34	SA	BONNIE BRAE	PRAIRIE TO IH 35E	0.16	50%	$ 2,457,000	$ 1,228,500
	E-35	C	CARDINAL	ORIOLE TO MCKINNEY	0.42	100%	$ 3,167,000	$ 3,167,000
	E-36	PA	GEESLING	US 380 TO BLAGG	0.46	100%	$ 8,237,000	$ 8,237,000
	E-37	PA	GEESLING	US 380 TO BLAGG	1.02	100%	$ 18,210,000	$ 18,210,000
	E-38	PA (1/3)	LAKEVIEW	POST OAK TO SHADY SHORES	0.26	100%	$ 2,294,000	$ 2,294,000
	E-39	PA (1/3)	MAYHILL	US 380 TO PROMINENCE	0.44	100%	$ 2,467,000	$ 2,467,000
	E-40	PA (1/3)	MAYHILL	PROMINENCE TO 770' N OF RUSSELL NEWMAN	0.39	100%	$ 2,155,000	$ 2,155,000
	E-41	PA (1/3)	MAYHILL	770' N OF RUSSELL NEWMAN TO RUSSELL NEWMAN	0.15	50%	$ 819,000	$ 409,500
	E-42	PA (1/3)	MAYHILL	RUSSELL NEWMAN TO 460' S OF RUSSELL NEWMAN	0.09	50%	$ 487,000	$ 243,500
	E-43	PA (1/3)	MAYHILL	460' S OF RUSSELL NEWMAN TO MILLS	0.20	100%	$ 1,142,000	$ 1,142,000
	E-44	PA (1/3)	MAYHILL	MILLS TO MCKINNEY	0.37	100%	$ 2,066,000	$ 2,066,000
	E-45	PA (1/3)	MAYHILL	MCKINNEY TO MORSE	0.39	100%	$ 2,161,000	$ 2,161,000
	E-46	PA (1/3)	MAYHILL	MORSE TO SPENCER	0.67	100%	$ 3,717,000	$ 3,717,000
	E-47	PA (1/3)	MAYHILL	SPENCER TO EDWARDS	0.60	100%	$ 3,864,000	$ 3,864,000
	E-48	PA (1/3)	MAYHILL	2725' N OF COLORADO TO COLORADO	0.52	100%	$ 4,477,000	$ 4,477,000
	E-49	PA (1/3)	MAYHILL	COLORADO TO IH 35E	0.44	100%	$ 1,840,000	$ 1,840,000
	E-50	PA	MAYHILL CONNECTOR	MAYHILL TO QUAILCREEK	0.13	100%	$ 2,071,000	$ 2,071,000
	E-51	C	MOCKINGBIRD	MCKINNEY TO 625' N OF DUCHESS	0.16	100%	$ 1,217,000	$ 1,217,000
	E-52	SA	MOCKINGBIRD	DUCHESS TO SHADY OAKS	0.41	100%	$ 7,039,000	$ 7,039,000
	E-53	SA	MOCKINGBIRD	SHADY OAKS TO SPENCER	0.53	100%	$ 6,721,000	$ 6,721,000
	E-54	PA	POST OAK	MILLS TO SPENCER	1.30	100%	$ 20,228,000	$ 20,228,000
	E-55	PA	POST OAK	TREATMENT PLANT TO EDWARDS	1.27	100%	$ 21,525,000	$ 21,525,000
	E-56	PA	POST OAK	EDWARDS TO POCKRUS PAGE	0.51	100%	$ 8,015,000	$ 8,015,000
	E-57	C	SWISHER	EDWARDS TO POCKRUS PAGE	0.50	100%	$ 3,750,000	$ 3,750,000
	E-58	PA (1/3)	TEASLEY	DALLAS TO IH 35E	0.35	100%	$ 2,077,000	$ 2,077,000
	E-59	C	N STAR	SPENCER TO ROY	0.32	100%	$ 2,427,000	$ 2,427,000
	E-60	C	ROY	MAYHILL TO N STAR	0.21	100%	$ 1,594,000	$ 1,594,000
							Service Area Project Cost Subtotal	**$ 305,523,500**
							2022 Roadway Impact Fee Study Cost Per Service Area	**$ 37,660**
							Total Cost in SERVICE AREA E	**$ 305,561,160**

a. These planning level cost projections have been developed for Impact Fee calculations only and should not be used for any future Capital Improvement Projects within the City of Denton.

b. These planning level cost projections shall not supersede the City's design standards or the determination of the City Engineer for a specific project.

F. Service Unit Calculation

The basic service unit for the computation of Denton's Roadway Impact Fees is the vehicle-mile of travel during the afternoon peak-hour (as explained on Pg. 20). To determine the cost per service unit, it is necessary to project the growth in vehicle-miles of travel for the service area for the ten-year period.

The growth in vehicle-miles from 2022 to 2032 is based upon projected changes in residential units and employment for the period. In order to determine this growth, estimates of residential units, basic employment, service employment, and retail employment for 2022 were made, along with growth projections for each of these demographic statistics through 2032. The Land Use Assumptions section of this report details the growth estimates used for impact fee determination.

For the purposes of impact fees, all developed and developable land is categorized as either residential or employment. For residential land uses, the existing and projected number of dwelling units are estimated. The number of dwelling units in each service area is multiplied by a *transportation demand factor* (discussed in more detail below) to compute the vehicle-miles of travel that occur during the afternoon peak hour. This factor indicates the average amount of demand created by the residential land uses in the service area.

For employment land uses, the process is similar. The Land Use Assumptions section of this report provides existing and projected number of building square footages for three (3) categories of employment – basic, service, and retail. These categories correspond to an aggregation of other specific land use categories based on the North American Industrial Classification System (NAICS).

Building square footage is the most common independent variable for the estimation of non-residential trips in the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition*. This characteristic is more appropriate than the number of employees, because building square footage is tied more closely to trip generation and is known at the time of application for any development that would require the assessment of an impact fee.

The existing and projected land use assumptions for the dwelling units and the square footage of basic, service, and retail land uses provide the basis for the projected increase in vehicle-miles of travel. As noted earlier, a *transportation demand factor* is applied to these values and then summed to calculate the total peak hour vehicle-miles of demand for each service area.

The *transportation demand factors* are aggregate rates derived from two sources – the *ITE Trip Generation Manual, 11th Edition* and the National Household Travel Survey performed by the FHWA. The *ITE Trip Generation Manual, 11th Edition* provides the number of trips that are produced or attracted to the land use for each dwelling unit, square foot of building, or other corresponding unit. For the retail category of land uses, the rate is adjusted to account for the fact that a percentage of retail trips are made by people who would otherwise be traveling past that particular establishment anyway, such as a trip between work and home. For example, a stop at a nearby supermarket on the way home from work does not create a new trip onto the roadway network. These trips are called pass-by trips, and since the travel demand is accounted for in the land use calculations relative to the primary trip, it is necessary to discount the retail trip generation rates to avoid double counting trips.

The next component of the *transportation demand factor* accounts for the length of each trip. The average trip length for each category is based on the National Household Travel Survey conducted by the Federal Highway Administration (FHWA).

The computation of the *transportation demand factor* is based on the following equation:

$$TDF = T * (1 - P_b) * L_{\max}$$

$$\text{where...}\ L_{\max} = \min(L * OD \text{ or } 6)$$

Variables:

TDF = Transportation Demand Factor,
T = Trip Rate (peak hour trips / unit),
P_b = Pass-By Discount (% of trips),
L_{max} = Maximum Trip Length (miles),
L = Average Trip Length (miles), and
OD = Origin-Destination Reduction (50%)

The maximum trip length was limited to six (6) miles based on the maximum trip length within each service area. Chapter 395 of the Texas Local Government Code allows for a service area of six (6) miles, and the service areas within Denton are closely approximated with a six (6) mile distance.

The adjustment made to the average trip length statistic in the computation of the maximum trip length is the origin-destination reduction. This adjustment is made because the Roadway Impact Fee is charged to both the origin and destination end of the trip. For example, impact fee methodology will account for a trip from home to work within Denton to both residential and non-residential land uses. To avoid counting these trips twice as both residential and non-residential trips, a 50% origin-destination (OD) reduction factor is applied. Therefore, only half of the trip length is assessed to each land use, and the total trip is only counted once. This methodology is consistent with that used in the National Household Travel Survey.

Table 6 shows the derivation of the *Transportation Demand Factor* for the residential land uses and the three (3) non-residential land use categories. The values utilized for all variables shown in the *transportation demand factor* equation are also shown in the table.

Table 6. Transportation Demand Factor Calculations

Variable	Single Family	Multi-Family	Basic	Service	Retail
T	0.94	0.51	0.65	1.44	5.19
P_b	0%	0%	0%	0%	34%
L	9.79	9.79	10.02	14.65	5.60
L_{max} *	4.90	4.90	5.01	6.00	2.80
TDF	**4.61**	**2.50**	**3.26**	**8.64**	**9.60**

* L_{max} is less than 6 miles for residential and retail land uses; therefore this lower trip length is used for calculating the TDF for these land uses.

Variables:

TDF = Transportation Demand Factor,
T = Trip Rate (peak hour trips / unit),
P_b = Pass-By Discount (% of trips),
L_{max} = Maximum Trip Length (miles),
L = Average Trip Length (miles), and
OD = Origin-Destination Reduction (50%)

The application of the demographic projections and the *transportation demand factors* are presented in the 10-Year Growth Projections in **Table 7**. This table shows the total vehicle-miles by service area for the years 2022 and 2032. These estimates and projections lead to the Vehicle-Miles of Travel for both 2022 and 2032.

Table 7. 10-Year Growth Projections

2022 - 2032 Growth Projections[1]

SERVICE AREA	RESIDENTIAL VEHICLE-MILES						EMPLOYMENT SQUARE FEET[4]			TRANS. DEMAND FACTOR[5]			EMPLOYMENT VEHICLE-MILES[9]				TOTAL VEHICLE MILES[10]
	Single Family Units	Trip Rate TDF[2]	VEHICLE MILES[3]	Multi-Family Units	Trip Rate TDF[2]	VEHICLE MILES[3]	BASIC	SERVICE	RETAIL	BASIC[6]	SERVICE[7]	RETAIL[8]	BASIC	SERVICE	RETAIL	TOTAL	
		0.94			*0.51*					*0.65*	*1.44*	*5.19*					
A	3,212		14,807	970		2,425	2,843,000	591,000	871,000				9,268	5,106	8,362	22,736	39,968
B	2,009		9,261	387		968	415,000	238,000	285,000				1,353	2,056	2,736	6,145	16,374
C	1,538	4.61	7,090	1,015	2.50	2,538	3,518,000	689,000	446,000	3.26	8.64	9.60	11,469	5,953	4,282	21,704	31,332
D	847		3,905	215		538	815,000	206,000	287,000				2,657	1,780	2,755	7,192	11,634
E	1,219		5,620	1,291		3,228	1,831,000	519,000	505,000				5,969	4,484	4,848	15,301	24,148
Totals	**8,825**		**40,683**	**3,878**		**9,695**	**9,422,000**	**2,243,000**	**2,394,000**				**30,716**	**19,379**	**22,983**	**73,078**	**123,456**

VEHICLE-MILES OF INCREASE (2022 - 2032)

SERVICE AREA	VEH-MILES
A	39,968
B	16,374
C	31,332
D	11,634
E	24,148

Notes:

[1] From *City of Denton 2022 Land Use Assumptions for Roadway Impact Fees*

[2] Transportation Demand Factor for each Service Area (from LUVMET) using Single Family Detached Housing land use and *trip generation rate*

[3] Calculated by multiplying TDF by the number of dwelling units

[4] From *City of Denton 2022 Land Use Assumptions for Roadway Impact Fees*

[5] *Trip generation rate* and Transportation Demand Factors from LUVMET for each land use

[6] 'Basic' corresponds to General Light Industrial land use and *trip generation rate*

[7] 'Service' corresponds to General Office land use and *trip generation rate*

[8] 'Retail' corresponds to Shopping Plaza (40-150k) land use and *trip generation rate*

[9] Calculated by multiplying Transportation Demand Factor by the number of thousand square feet for each land use

[10] Residential plus Employment vehicle-mile totals for each Service Area

V. ROADWAY IMPACT FEE CALCULATION

A. Maximum Assessable Impact Fee Per Service Unit

This section presents the maximum assessable impact fee rate calculated for each service area. The maximum assessable impact fee is the sum of the eligible Roadway Impact Fee CIP costs for the service area divided by the growth in travel attributable to new development projected to occur within the 10-year period. A majority of the components of this calculation have been described and presented in previous sections of this report. The purpose of this section is to document the computation for each service area and to demonstrate that the guidelines provided by Chapter 395 of the Texas Local Government Code have been addressed. **Table 8** illustrates the computation of the maximum assessable impact fee computed for each service area. Each row in the table is numbered to simplify explanation of the calculation. The calculation of the maximum assessable impact fee is shown in **Table 9**. Each row in the table is numbered to simplify explanation of the calculation.

Table 8. Maximum Assessable Roadway Impact Fee Computation

Line	Title	Description
1	*Total Vehicle-Miles of Capacity Added by the Roadway Impact Fee CIP*	The total number of vehicle-miles added to the service area based on the capacity, length, and number of lanes in each project (from **Appendix B** – CIP Units of Supply)

Each project identified in the CIP will add a certain amount of capacity to the City's roadway network based on its length and classification. This line displays the total amount added within each service area.

2	*Total Vehicle-Miles of Existing Demand*	A measure of the amount of traffic currently using the roadway facilities upon which capacity is being added. (from **Appendix B** – CIP Units of Supply)

A number of facilities identified in the CIP have traffic currently utilizing a portion of their existing capacity. This line displays the total amount of capacity along these facilities currently being used by existing traffic.

3	*Total Vehicle-Miles of Existing Deficiencies*	Number of vehicle-miles of travel that are not accommodated by the existing roadway system (from **Appendix C** – Existing Roadway Facilities Inventory)

In order to ensure that existing deficiencies on the City's roadway network are not recoverable through impact fees, this line is based on the entire roadway network within the service area. Any roadway within the service area that is deficient – even those not identified on the Roadway Impact Fee CIP – will have these additional trips removed from the calculation.

4	*Net Amount of Vehicle-Miles of Capacity Added*	A measurement of the amount of vehicle-miles added by the Roadway Impact Fee CIP that will not be utilized by existing demand **(Line 1 – Line 2 – Line 3)**

This calculation identifies the portion of the Roadway Impact Fee CIP (in vehicle-miles) that may be recoverable through the collection of impact fees.

5	*Total Cost of the Roadway Impact Fee CIP within the Service Area*	The total cost of the projects within each service area (from **Table 5**: 10-Year Roadway Impact Fee Capital Improvements Plan with Conceptual Level Cost Opinions)

This line simply identifies the total cost of all of the projects identified in each service area.

6	*Cost of Net Capacity Supplied*	The total Roadway Impact Fee CIP cost (**Line 5**) prorated by the ratio of Net Capacity Added (**Line 4**) to Total Capacity Added (**Line 1**). **[(Line 4 / Line 1) * (Line 5)]**

Using the ratio of vehicle-miles added by the Roadway Impact Fee CIP available to serve future growth to the total vehicle-miles added, the total cost of the CIP is reduced to the amount available for future growth (i.e. excluding existing usage and deficiencies).

7	*Cost to Meet Existing Needs and Usage*	The difference between the Total Cost of the Roadway Impact Fee CIP (**Line 5**) and the Cost of the Net Capacity supplied (**Line 6**). **(Line 5 – Line 6)**

This line is provided for information purposes only – it is to present the portion of the total cost of the Roadway Impact Fee CIP that is required to meet existing demand.

8	*Total Vehicle-Miles of New Demand over Ten Years*	Based upon the growth projection provided in the **Land Use Assumptions**, an estimate of the number of new vehicle-miles within the service area over the next ten years. (from **Table 7**)

This line presents the amount of growth (in vehicle-miles) projected to occur within each service area over the next ten years.

9	*Percent of Capacity Added Attributable to New Growth*	The result of dividing Total Vehicle-Miles of New Demand (**Line 8**) by the Net Amount of Capacity Added (**Line 4**), limited to 100% (**Line 10**). This calculation is required by Chapter 395 to ensure capacity added is attributable to new growth.
10	*Chapter 395 Check*	

In order to ensure that the vehicle-miles added by the Roadway Impact Fee CIP do not exceed the amount needed to accommodate growth beyond the ten-year window, a comparison of the two values is performed. If the amount of vehicle-miles added by the Roadway Impact Fee CIP exceeds the growth projected to occur in the next ten years, the Roadway Impact Fee CIP cost is reduced accordingly.

11	*Cost of Roadway Impact Fee CIP Attributable to New Growth*	The result of multiplying the Cost of Net Capacity Added (**Line 6**) by the Percent of Capacity Added Attributable to New Growth, limited to 100% (**Line 9**).

This value is the total Roadway Impact Fee CIP project costs (excluding financial costs) that may be recovered through impact fees. This line is determined considering the limitations to impact fees required by the Texas legislature.

B. Plan for Financing and the Ad Valorem Tax Credit

Chapter 395 of the Texas Local Government Code requires the Roadway Impact Fee Capital Improvements Plan for Roadway Impact Fees to contain specific enumeration of a plan for awarding the impact fee credit. Section 395.014 of the Code requires:

(A) a credit for the portion of ad valorem tax and utility service revenues generated by new service units during the program period that is used for the payment of improvements, including the payment of debt, that are included in the capital improvements plan; or

(B) In the alternative, a credit equal to 50 percent of the total projected cost of implementing the capital improvements plan…"

The plan is summarized, as prepared by NewGen Strategies in **Appendix D** and **Appendix E**, Plan for Awarding the Transportation Impact Fee Credit. The following table summarizes the portions of **Table 8** that utilize this credit calculation.

Line	Title	Description
12	*Financing Costs*	(from **Appendix D** – Plan for Awarding the Transportation Impact Fee Credit)
13	*Interest Earnings*	(from **Appendix D** – Plan for Awarding the Transportation Impact Fee Credit)
14	*Existing Impact Fee Fund Balance*	(from **Appendix D** – Plan for Awarding the Transportation Impact Fee Credit)
15	*Cost of the Roadway Impact Fee CIP and Financing Attributable to New Growth*	The sum of the Cost of Capacity Added Attributable to New Growth, Financing Costs, and Interest Earnings. (**Line 11 + Line 12 + Line 13 – Line 14**)
16	*Pre-Credit Maximum Fee Per Service Unit*	Found by dividing the Cost of the TIP and Financing Attributable to New Growth (**Line 15**) by the Total Vehicle-Miles of New Demand Over Ten Years (**Line 8**). (**Line 15** / **Line 8**)
17	*Credit for Ad Valorem Taxes*	A credit for the portion of ad valorem taxes projected to be generated by the new service units, as per Section 395.014 of the Local Government Code. (from **Appendix D** – Plan for Awarding the Transportation Impact Fee Credit)
18	*Recoverable Cost of the Roadway Impact Fee CIP and Financing*	The difference between the Cost of the TIP and Financing Attributable to New Growth (**Line 15**) and the Credit for Ad Valorem Taxes (**Line 17**). (**Line 15 + Line 17**)
19	*Maximum Assessable Fee Per Service Unit*	Found by dividing the Recoverable Cost of the TIP and Financing (**Line 18**) by the Total Vehicle-Miles of New Demand Over Ten Years (**Line 8**). (**Line 18** / **Line 8**)

C. Maximum Assessable Impact Fee Determination

The impact fee determination method employed by NewGen Strategies and Solutions, LLC is developed through a financial based model, which fully recognizes the requirements of Chapter 395, including the recognition of cash and/or debt financing, interest earnings, fund balances, and applicable credits associated with the use of ad valorem taxes. In developing the components of the financial model several assumptions must be made, including the following:

- Financing
  - Method of financing (i.e. cash or debt financing)
  - The level of financing (e.g. 80% debt / 20% cash)
  - Cost of financing
  - Debt repayment structure
- Timing and Level of Expenditures and Revenues
- Interest Earnings
- Annual Service Unit Growth
- Portion of Ad Valorem Tax Revenue Used to Fund Impact Fee Transportation Improvements

The assumptions employed in the maximum assessable impact fee determination provide a reasonable basis for forecasting, however, it must be emphasized that these assumptions may not necessarily reflect actual future conditions. To address this, Chapter 395 requires the monitoring of impact fees through the Capital Improvements Advisory Committee (CIAC) and allows for the option to update or revise impact fees to reflect the actual implementation of the impact fee program.

Once the cost of capacity added that is attributable to growth (**Table 8 -** line 11) is determined, it must then be decided how the cost will be financed: cash and/or debt. For any previously funded projects, whether partially funded or in full, actual costs of capital have been included. Based on discussions with City staff, it is assumed that the City will debt finance 80% of the future project costs and cash finance 20%. For debt financing, the cost of financing is based on the City staff's estimates of future debt costs for bonds issued with 20-

year terms, as shown in **Appendix D**. Debt service payments for each future debt issue are assumed to remain constant over the issue's term.

Currently, the exact timing and annual level of capital expenditures over the 10-year forecast is indeterminate; therefore, it is assumed that capital expenditures will occur in equal amounts over the 10-year program period. It is also assumed that for debt financed capital projects, the City will expend debt proceeds over a 3-year timeframe. For the calculation of the maximum assessable impact fee, debt is assumed to be issued in equal amounts for each year. Because of the 10-year forecast limitation, and in order to recognize the full amount of debt to be issued for the cost of capacity added that is attributable to growth during the 10-year period, a portion of years 8, 9, and 10 are assumed to be spent in the final 3 years.

Because debt is issued over 20-year terms and impact fees developed herein are to be charged over a10-year period, sufficient fund balance must be generated to meet the future debt service obligations. Because of the generation of the fund balance, excess monies will be available for interest earnings. Chapter 395 states that interest earnings are funds of the impact fee account and are to be held to the same restrictions as impact fee revenues. Therefore, in order to recognize that interest earnings are used to fund transportation improvements, interest earnings are credited against the costs recoverable through impact fees. It should be noted that Chapter 395 does not require the upfront recognition of interest earnings in the impact fee determination; however, in an effort to acknowledge the time value of the impact fee payers' monies, interest earnings have been credited. Interest is assumed to be earned at an annual rate of 2.00% based on discussions with City staff.

As with the timing and level of the capital expenditures over the 10-year forecast, the timing and annual level of service unit growth over the 10-year program period is indeterminate at the present time. As such, it is assumed that service unit growth will be consistent over the 10-year forecast.

Chapter 395 requires a plan for awarding either a credit for the portion of ad valorem tax and/or utility service revenues generated by new service units during the program period that are used for payment of improvements that are included in the Roadway Impact Fee CIP. As an alternative, a credit equal to 50% of the total cost of implementing the Roadway Impact Fee CIP may be used. The City has elected to pursue the determination of a credit for the portion of ad valorem tax revenues generated by new service units during the program

period that are used for payment of improvements that are included in the Roadway Impact Fee CIP. It should be noted that the credit is not a determination to recognize the total ad valorem tax revenue generated by new service units, but is only a credit for the portion of ad valorem tax revenue that is used for payment of improvements that are included in the Roadway Impact Fee CIP. Theoretically, the credit determination could be zero (0) if the City does not utilize any of the new service unit ad valorem tax revenue to fund improvements that are included in the Roadway Impact Fee CIP. However, to be conservative and recognize potential cash flow issues that can occur with the funding of major capital improvement projects, it is assumed that the cash funded projects (50% of the improvement costs included in the Roadway Impact Fee CIP) could potentially be funded by ad valorem tax revenue.

Since payments made through ad valorem tax revenue will consist of not only the revenue generated by new service units in the defined service area, but also existing property owners throughout the City, the portion attributable to the new service units in the defined service area must be isolated, as illustrated in the credit calculation in **Appendix D**.

The following summarizes the financial model's determination of the maximum assessable impact fee:

- Recoverable Impact Fee Transportation Improvements Costs (**Table 8,** line 11)
- Plus: Financing Costs (**Table 8,** line 12)
- Less: Interest Earnings (**Table 8,** line 13)
- Pre-Credit Recoverable Costs for Impact Fee (**Table 8,** line 15)
- Less: Credit for Ad Valorem Revenues (**Table 8,** line 17)
- Maximum Recoverable Costs for Impact Fee (**Table 8,** line 18)

Table 9. Maximum Assessable Roadway Impact Fee

	SERVICE AREA:	A	B	C	D	E
1	TOTAL VEH-MI OF CAPACITY ADDED BY THE ROADWAY IMPACT FEE CIP (FROM ROADWAY IMPACT FEE CIP SERVICE UNITS OF SUPPLY, **APPENDIX B**)[a]	120,658	89,974	145,092	61,918	92,971
2	TOTAL VEH-MI OF EXISTING DEMAND (FROM ROADWAY IMPACT FEE CIP SERVICE UNITS OF SUPPLY, **APPENDIX B**)	8,471	29,557	11,526	11,586	23,997
3	TOTAL VEH-MI OF EXISTING DEFICIENCIES (FROM EXISTING ROADWAY FACILITIES INVENTORY, **APPENDIX C**)	1,348	22,182	2,406	8,418	7,367
4	NET AMOUNT OF VEH-MI OF CAPACITY ADDED (LINE 1 - LINE 2 - LINE 3)	110,839	38,235	131,160	41,914	61,607
5	TOTAL COST OF THE ROADWAY IMPACT FEE CIP AND STUDY WITHIN SERVICE AREA (FROM **TABLES 5A TO 5E**)	$ 268,239,160	$ 290,253,660	$ 587,551,660	$ 275,703,160	$ 305,561,160
6	COST OF NET CAPACITY SUPPLIED (LINE 4 / LINE 1) * (LINE 5)	$ 246,410,186	$ 123,345,063	$ 531,133,872	$ 186,631,064	$ 202,479,336
7	COST TO MEET EXISTING NEEDS AND USAGE (LINE 5 - LINE 6)	$ 21,828,974	$ 166,908,597	$ 56,417,788	$ 89,072,096	$ 103,081,824
8	TOTAL VEH-MI OF NEW DEMAND OVER TEN YEARS (FROM **TABLE 7** AND **LAND USE ASSUMPTIONS**)	39,968	16,374	31,332	11,634	24,148
9	PERCENT OF CAPACITY ADDED ATTRIBUTABLE TO GROWTH (LINE 8 / LINE 4)	36.0%	42.8%	23.8%	27.7%	39.1%
10	IF LINE 8 > LINE 4, REDUCE LINE 9 TO 100%, OTHERWISE NO CHANGE	36.0%	42.8%	23.8%	27.7%	39.1%
11	COST OF ROADWAY IMPACT FEE CIP ATTRIBUTABLE TO GROWTH (LINE 6 * LINE 10)	$ 88,707,667	$ 52,791,687	$ 126,409,862	$ 51,696,805	$79,169,420
12	FINANCING COSTS (FROM **APPENDIX D)**	$ 43,092,001	$ 24,683,794	$ 61,414,578	$ 25,105,399	$ 38,714,769
13	INTEREST EARNINGS (FROM **APPENDIX D**)	$ (21,126,791)	$ (12,622,463)	$ (30,142,851)	$ (12,702,369)	$ (19,534,195)
14	EXISTING IMPACT FEE FUND BALANCE	$ 4,394,807	$ 2,004,188	$ 3,170,473	$ 1,685,562	$ 4,840,794
15	COST OF THE ROADWAY IMPACT FEE CIP AND FINANCING ATTRIBUTABLE TO NEW GROWTH (LINE 11 + LINE 12 + LINE 13 - LINE 14)	$ 106,278,070	$ 62,848,830	$ 154,511,115	$ 62,414,273	$ 93,509,199
16	PRE-CREDIT MAXIMUM FEE PER SERVICE UNIT (LINE 15 / LINE 8)	$ 2,659	$ 3,838	$ 4,931	$ 5,365	$ 3,872
17	CREDIT FOR AD VALOREM TAXES (FROM **APPENDIX D**)	$ (6,535,564)	$ (1,580,744)	$ (7,396,751)	$ (1,157,132)	$ (3,628,065)
18	RECOVERABLE COST OF ROADWAY IMPACT FEE CIP AND FINANCING (LINE 15 + LINE 17)	$ 99,742,506	$ 61,268,086	$ 147,114,364	$ 61,257,141	$ 89,881,134
19	MAXIMUM ASSESSABLE FEE PER SERVICE UNIT (LINE 18 / LINE 8)	$ 2,496	$ 3,742	$ 4,695	$ 5,265	$ 3,722

a. For Service Areas A and B, the Total Vehicle-Miles of Capacity Added by the Roadway Impact Fee CIP includes capacity added by select thoroughfares that will be built by developments without City cost participation, in addition to capacity added by the Roadway Impact Fee CIP. Detailed information for these additional facilities is provided in **Appendix B**.

D. Service Unit Demand Per Unit of Development

The Roadway Impact Fee is determined by multiplying the impact fee rate by the number of service units projected for the proposed development. For this purpose, the City will utilize the Land Use/Vehicle-Mile Equivalency Table (LUVMET), presented in **Table 10**. This table lists the predominant land uses that may occur within the City of Denton. For each land use, the development unit that defines the development's magnitude with respect to transportation demand is shown. Although every possible use cannot be anticipated, the majority of local uses are found in this table. The descriptions for each land use are presented in **Table 11**. If the exact use is not listed, one similar in trip-making characteristics can serve as a reasonable proxy. The individual land uses are grouped into categories, such as residential, office, commercial, industrial, and institutional.

The trip rates presented for each land use is a fundamental component of the LUVMET. The trip rate is the average number of trips generated during the afternoon peak hour by each land use per development unit. The next column in **Table 10**, if applicable to the land use, presents the number of trips to and from certain land uses reduced by pass-by trips, as previously discussed.

The definitive source of the trip generation and pass-by statistics is the *ITE Trip Generation Manual, 11th Edition*, the latest edition. This manual utilizes trip generation studies for a variety of land uses throughout the United States, and is the standard used by traffic engineers and transportation planners for traffic impact analysis, site design, and transportation planning. However, for land uses not contained within the 11th Edition of the *ITE Trip Generation Manual,* an alternative service unit demand could be calculated by completing a trip generation study based on the procedure identified in the *ITE Trip Generation Handbook*.

To convert vehicle trips to vehicle-miles, it is necessary to multiply trips by trip length. The trip length values are based on the *National Household Travel Survey* performed by the FHWA. The other adjustment to trip length is the 50% origin-destination reduction to avoid double counting of trips. At this stage, another important aspect of the state law is applied – the limit on transportation service unit demand. If the adjusted trip length is above six (6) miles, the maximum trip length used for calculation is reduced to six (6) miles. This reduction, as

discussed previously, limits the maximum trip length to the approximate size of the service areas.

The remaining column in the LUVMET shows the vehicle-miles per development unit. This number is the product of the trip rate and the maximum trip length. This number, previously referred to as the *Transportation Demand Factor*, is used in the impact fee to compute the number of service units attributed to each land use category. The number of service units is multiplied by the impact fee rate (established by City ordinance) in order to determine the impact fee for a development.

Table 10 - Land Use / Vehicle-Mile Equivalency Table (LUVMET)

Land Use Category	ITE Land Use Code	Development Unit	Trip Gen Rate (PM)	Pass-by Rate	Pass-by Source	Trip Rate	Trip Length (mi)	Adj. For O-D	Adj. Trip Length (mi)	Max Trip Length (mi)	Veh-Mi Per Dev-Unit
PORT AND TERMINAL											
Intermodal Truck Terminal	030	1,000 SF GFA	1.87			1.87	10.02	50%	5.01	5.01	9.37
INDUSTRIAL											
General Light Industrial	110	1,000 SF GFA	0.65			0.65	10.02	50%	5.01	5.01	3.26
Industrial Park	130	1,000 SF GFA	0.34			0.34	10.02	50%	5.01	5.01	1.70
Warehousing	150	1,000 SF GFA	0.18			0.18	10.02	50%	5.01	5.01	0.90
Mini-Warehouse	151	1,000 SF GFA	0.15			0.15	10.02	50%	5.01	5.01	0.75
RESIDENTIAL											
Single-Family Detached Housing	210	Dwelling Unit	0.94			0.94	9.79	50%	4.90	4.90	4.61
Multifamily Housing (Low-Rise)	220	Dwelling Unit	0.51			0.51	9.79	50%	4.90	4.90	2.50
Multifamily Housing (Mid-Rise)	221	Dwelling Unit	0.39			0.39	9.79	50%	4.90	4.90	1.91
Multifamily Housing (High-Rise)	222	Dwelling Unit	0.32			0.32	9.79	50%	4.90	4.90	1.57
Residential Condominium/Townhome	230	Dwelling Unit	0.36			0.36	9.79	50%	4.90	4.90	1.76
Senior Adult Housing-Single-Family	251	Dwelling Unit	0.30			0.30	9.79	50%	4.90	4.90	1.47
Senior Adult Housing-Multifamily	252	Dwelling Unit	0.25			0.25	9.79	50%	4.90	4.90	1.23
Assisted Living	254	Beds	0.24			0.24	9.79	50%	4.90	4.90	1.18
LODGING											
Hotel	310	Room	0.59			0.59	6.43	50%	3.21	3.21	1.89
Motel	320	Room	0.36			0.36	6.43	50%	3.21	3.21	1.16
RECREATIONAL											
Golf Driving Range	432	Tees/Driving Positions	1.25			1.25	7.86	50%	3.93	3.93	4.91
Golf Course	430	Acre	0.28			0.28	7.86	50%	3.93	3.93	1.10
Recreational Community Center	495	1,000 SF GFA	2.50			2.50	7.86	50%	3.93	3.93	9.83
Ice Skating Rink	465	1,000 SF GFA	1.33			1.33	7.86	50%	3.93	3.93	5.23
Miniature Golf Course	431	Holes	0.33			0.33	7.86	50%	3.93	3.93	1.30
Multiplex Movie Theater	445	Movie Screens	13.96			13.96	15.77	50%	7.88	6.00	83.76
Racquet / Tennis Club	491	Tennis Court	3.82			3.82	7.86	50%	3.93	3.93	15.01
INSTITUTIONAL											
Church	560	1,000 SF GFA	0.49			0.49	8.31	50%	4.15	4.15	2.03
Day Care Center	565	1,000 SF GFA	11.12	44%	B	6.23	3.49	50%	1.74	1.74	10.84
Elementary School	520	Students	0.16			0.16	3.49	50%	1.74	1.74	0.28
Middle School/Junior High School	522	Students	0.15			0.15	3.49	50%	1.74	1.74	0.26
High School	530	Students	0.14			0.14	3.49	50%	1.74	1.74	0.24
Junior / Community College	540	Students	0.11			0.11	10.44	50%	5.22	5.22	0.57
University / College	550	Students	0.15			0.15	10.44	50%	5.22	5.22	0.78
MEDICAL											
Clinic	630	1,000 SF GFA	3.69			3.69	9.85	50%	4.92	4.92	18.15
Hospital	610	1,000 SF GFA	0.86			0.86	9.85	50%	4.92	4.92	4.23
Nursing Home	620	Beds	0.14			0.14	9.85	50%	4.92	4.92	0.69
Animal Hospital/Veterinary Clinic	640	1,000 SF GFA	3.53	30%	B	2.47	9.85	50%	4.92	4.92	12.15
OFFICE											
Corporate Headquarters Building	714	1,000 SF GFA	1.30			1.30	14.65	50%	7.32	6.00	7.80
General Office Building	710	1,000 SF GFA	1.44			1.44	14.65	50%	7.32	6.00	8.64
Medical-Dental Office Building	720	1,000 SF GFA	3.93			3.93	9.85	50%	4.92	4.92	19.34
Single Tenant Office Building	715	1,000 SF GFA	1.76			1.76	14.65	50%	7.32	6.00	10.56
Office Park	750	1,000 SF GFA	1.30			1.30	14.65	50%	7.32	6.00	7.80

Key to Sources of Pass-by Rates:

A: ITE Trip Generation Handbook 3rd Edition (September 2017)

B: Estimated by Kimley-Horn based on ITE rates for similar categories

C: ITE rate adjusted upward by KHA based on logical relationship to other categories

Table 10 (Cont'd). Land Use / Vehicle-Mile Equivalency Table (LUVMET)

Land Use Category	ITE Land Use Code	Development Unit	Trip Gen Rate (PM)	Pass-by Rate	Pass-by Source	Trip Rate	Trip Length (mi)	Adj. For O-D	Adj. Trip Length (mi)	Max Trip Length (mi)	Veh-Mi Per Dev-Unit
COMMERCIAL											
Automobile Related											
Automobile Care Center	942	1,000 SF GFA	3.11	40%	B	1.87	4.45	50%	2.22	2.22	4.15
Automobile Parts Sales	843	1,000 SF GFA	4.90	43%	A	2.79	4.45	50%	2.22	2.22	6.19
Gasoline/Service Station	944	Vehicle Fueling Position	13.91	42%	A	8.07	1.20	50%	0.60	0.60	4.84
Gasoline/Service Station w/ Conv Market	945	Vehicle Fueling Position	18.42	56%	B	8.10	1.20	50%	0.60	0.60	4.86
New Car Sales	841	1,000 SF GFA	2.42	20%	B	1.94	5.60	50%	2.80	2.80	5.43
Quick Lubrication Vehicle Shop	941	Servicing Positions	4.85	40%	B	2.91	4.45	50%	2.22	2.22	6.46
Self-Service Car Wash	947	Wash Stalls	5.54	40%	B	3.32	1.20	50%	0.60	0.60	1.99
Tire Store	848	1,000 SF GFA	3.75	28%	A	2.70	4.45	50%	2.22	2.22	5.99
Dining											
Fast Food Restaurant with Drive-Thru Window	934	1,000 SF GFA	33.03	50%	A	16.52	5.64	50%	2.82	2.82	46.59
Fast Food Restaurant without Drive-Thru Window	933	1,000 SF GFA	33.21	50%	B	16.61	5.64	50%	2.82	2.82	46.84
High Turnover (Sit-Down) Restaurant	932	1,000 SF GFA	9.05	43%	A	5.16	5.64	50%	2.82	2.82	14.55
Quality Restaurant	931	1,000 SF GFA	7.80	44%	A	4.37	5.64	50%	2.82	2.82	12.32
Coffee/Donut Shop with Drive-Thru Window	937	1,000 SF GFA	38.99	70%	A	11.70	5.64	50%	2.82	2.82	32.99
Other Retail											
Free-Standing Discount Store	815	1,000 SF GFA	4.83	30%	C	3.38	5.60	50%	2.80	2.80	9.46
Nursery (Garden Center)	817	1,000 SF GFA	6.94	30%	B	4.86	5.60	50%	2.80	2.80	13.61
Home Improvement Superstore	862	1,000 SF GFA	2.33	48%	A	1.21	5.60	50%	2.80	2.80	3.39
Pharmacy/Drugstore w/o Drive-Thru Window	880	1,000 SF GFA	8.51	53%	A	4.00	5.60	50%	2.80	2.80	11.20
Pharmacy/Drugstore w/ Drive-Thru Window	881	1,000 SF GFA	10.29	49%	A	5.25	5.60	50%	2.80	2.80	14.70
Shopping Center (>150k)	820	1,000 SF GLA	3.40	34%	A	2.24	5.60	50%	2.80	2.80	6.27
Shopping Plaza (40-150k)	821	1,000 SF GLA	5.19	34%	A	3.43	5.60	50%	2.80	2.80	9.60
Strip Retail Plaza (<40k)	822	1,000 SF GLA	6.59	34%	A	4.35	5.60	50%	2.80	2.80	12.18
Supermarket	850	1,000 SF GFA	9.24	36%	A	5.91	5.60	50%	2.80	2.80	16.55
Toy/Children's Superstore	864	1,000 SF GFA	5.00	30%	B	3.50	5.60	50%	2.80	2.80	9.80
Department Store	875	1,000 SF GFA	1.95	30%	B	1.37	5.60	50%	2.80	2.80	3.84
SERVICES											
Walk-In Bank	911	1,000 SF GFA	12.13	40%	B	7.28	4.45	50%	2.22	2.22	16.16
Drive-In Bank	912	Drive-in Lanes	27.07	47%	A	14.35	4.45	50%	2.22	2.22	31.86
Hair Salon	918	1,000 SF GLA	1.45	30%	B	1.02	6.41	50%	3.20	3.20	3.26

Key to Sources of Pass-by Rates:

A: ITE Trip Generation Handbook 3rd Edition (September 2017)

B: Estimated by Kimley-Horn based on ITE rates for similar categories

C: ITE rate adjusted upward by KHA based on logical relationship to other categories

Table 11 - Land Use Descriptions

Land Use Category	ITE Land Use Code	Land Use Description
PORT AND TERMINAL		
Intermodal Truck Terminal	030	Point of good transfer between trucks or between trucks and rail
INDUSTRIAL		
General Light Industrial	110	Emphasis on activities other than manufacturing; typically employing fewer than 500 workers
Industrial Park	130	Area containing a number of industries or related facilities
Warehousing	150	Devoted to storage of materials but may have included office and maintenance areas
Mini-Warehouse	151	Facilities with a number of units rented to others for the storage of goods
RESIDENTIAL		
Single-Family Detached Housing	210	Single-family detached homes on individual lots
Multifamily Housing (Low-Rise)	220	At least 3 rental dwelling units and one or two levels (floors) per building
Multifamily Housing (Mid-Rise)	221	At least 3 rental dwelling units and between three and ten levels (floors) per building
Multifamily Housing (High-Rise)	222	At least 3 rental dwelling units and more than ten levels (floors) per building
Residential Condominium/Townhome	230	Single-family ownership units that have at least one other single-family owned unit within the same building
Senior Adult Housing-Single-Family	251	Consists of detached independent living developments that include amenities such as golf courses and swimming pools
Senior Adult Housing-Multifamily	252	Consists of attached independent living developments that include limited social or recreation services
Assisted Living	254	Residential settings that provide either routine general protective oversight or assistance with activities.
LODGING		
Hotel	310	Lodging facilities that typically have on-site restaurants, lounges, meeting and/or banquet rooms, or other retail shops and services
Motel	320	Lodging facilities that may have small on-site restaurant or buffet area but little or no meeting space
RECREATIONAL		
Golf Driving Range	432	Facilities with driving tees for practice; may provide individual or group lessons; may have prop shop and/or refreshment facilities
Golf Course	430	May include municipal courses and private country clubs; may have driving ranges, pro shops, and restaurant/banquet facilities
Recreational Community Center	495	Category includes racquet clubs, health/fitness clubs, can include facilities such as YMCA's
Ice Skating Rink	465	Rinks for ice skating and related sports; may contain spectator areas and refreshment facilities
Miniature Golf Course	431	One or more individual putting courses; category should not be used when part of a larger entertainment center(with batting cages, video game centers, etc)
Multiplex Movie Theater	445	Movie theater with audience seating, minimum of ten screens, lobby, and refreshment area.
Racquet / Tennis Club	491	Indoor or outdoor facilities specifically designed for playing tennis
INSTITUTIONAL		
Church	560	Churches and houses of worship
Day Care Center	565	Generally includes facilities for care of pre-school aged children, generally includes classrooms, offices, eating areas, and playgrounds
Elementary School	520	Serves students who have not yet entered middle or junior high school
Middle School/Junior High School	522	Serves students who have completed elementary school but have not yet entered high school
High School	530	Serves students who have completed middle or junior high school
Junior / Community College	540	Higher education campus providing undergraduate degrees, often focused on local students
University / College	550	Higher education campus providing undergraduate and graduate degrees
MEDICAL		
Clinic	630	Facilities with limited diagnostic and outpatient care
Hospital	610	Medical and surgical facilities with overnight accommodations
Nursing Home	620	Rest and convalescent homes with residents who do little or no driving
Animal Hospital/Veterinary Clinic	640	Rest and convalescent homes with residents who do little or no driving
OFFICE		
Corporate Headquarters Building	714	Office building housing corporate headquarters of a single company or organization
General Office Building	710	Office buildings which house multiple tenants
Medical-Dental Office Building	720	Multi-tenant building with offices for physicians and/or dentists
Single Tenant Office Building	715	Single tenant office buildings other than corporate headquarters
Office Park	750	Office buildings (typically low-rise) in a campus setting and served by a common roadway system

Table 1 (Cont'd). Land Use Descriptions

Land Use Category	ITE Land Use Code	Land Use Description
COMMERCIAL		
Automobile Related		
Automobile Care Center	942	Automobile repair and servicing including stereo installations and upholstering
Automobile Parts Sales	843	Retail sale of auto parts but no on-site vehicle repair
Gasoline/Service Station	944	Gasoline sales without convenience store or car wash; may include repair
Gasoline/Service Station w/ Conv Market	945	Gasoline sales with convenience store where the primary business is gasoline sales
New Car Sales	841	New car dealerships, typically with automobile servicing, part sales, and used car sales
Quick Lubrication Vehicle Shop	941	Primary business is to perform oil changes and fluid/filter changes with other repair services not provided
Self-Service Car Wash	947	Has stalls for driver to park and wash the vehicle
Tire Store	848	Primary business is sales and installation of tires; usually do not have large storage or warehouse area
Dining		
Fast Food Restaurant with Drive-Thru Window	934	High-turnover fast food restaurant for carry-out and eat-in customers with a drive-thru window
Fast Food Restaurant without Drive-Thru Window	933	High-turnover fast food restaurant for carry-out and eat-in customers without a drive-thru window
High Turnover (Sit-Down) Restaurant	932	High-turnover fast food restaurant for carry-out and eat-in customers, but without a drive-thru window
Quality Restaurant	931	Restaurants with turnover rates less than one hour; typically includes moderately-priced chain restaurants
Coffee/Donut Shop with Drive-Thru Window	937	Restaurants that specialize in Coffee and/or Donuts with a drive-thru window
Other Retail		
Free-Standing Discount Store	815	Category includes free-standing stores with off-street parking; typically offer a variety of products and services with long store hours
Nursery (Garden Center)	817	Building with a yard of planting or landscape stock; may have office, storage, shipping or greenhouse facilities
Home Improvement Superstore	862	Warehouse-type facilities offering a large variety of products and services including lumber, tool, paint, lighting, and fixtures, among other items.
Pharmacy/Drugstore w/o Drive-Thru Window	880	Facilities that primarily sell prescription and non-prescription drugs without a drive-through window
Pharmacy/Drugstore w/ Drive-Thru Window	881	Facilities that primarily sell prescription and non-prescription drugs with a drive-through window
Shopping Center (>150k)	820	Integrated group of commercial establishments; planning, owned, and managed as a unit. >150k sq. ft.
Shopping Plaza (40-150k)	821	Integrated group of commercial establishments; planning, owned, and managed as a unit. 40-150k sq. ft.
Strip Retail Plaza (<40k)	822	Integrated group of commercial establishments; planning, owned, and managed as a unit. <40k sq. ft.
Supermarket	850	Primary business is sale of groceries, food, and household cleaning items; may include photo, pharmacy, video rental, and/or ATM
Toy/Children's Superstore	864	Businesses specializing in child-oriented merchandise
Department Store	875	Free-standing stores that specialize in the sale of apparel, footwear, bedding, home products, jewelry, etc.
SERVICES		
Walk-In Bank	911	Banks with their own parking lots, no drive-in lanes but contain non-drive-through ATMs
Drive-In Bank	912	Banking facilities to conduct financial transactions from the vehicle; also usually a part of a walk-in bank
Hair Salon	918	Facilities that specialize in cosmetic and beauty services including hair cutting and styling

VI. SAMPLE CALCULATIONS

The following section details two (2) examples of maximum assessable Roadway Impact Fee calculations.

Example 1:
Development Type - One (1) Unit of Single-Family Housing in Service Area A

Roadway Impact Fee Calculation Steps – Example 1	
Step 1	**Determine Development Unit and Vehicle-Miles Per Development Unit**
	From Table 10 [Land Use – Vehicle-Mile Equivalency Table] Development Type: 1 Dwelling Unit of Single-Family Detached Housing Number of Development Units: 1 Dwelling Unit Veh-Mi Per Development Unit: 4.61
Step 2	**Determine Maximum Assessable Impact Fee Per Service Unit (Vehicle-Mile)**
	From Table 9, Line 14 [Maximum Assessable Fee Per Service Unit] Service Area A: $2,496
Step 3	**Determine Maximum Assessable Impact Fee**
	Impact Fee = # of Development Units * Veh-Mi Per Dev Unit * Max. Fee Per Service Unit Impact Fee = 1 * 4.61 * $2,496 Maximum Assessable Impact Fee = $11,507

Example 2:
Development Type – 125,000 square foot Home Improvement Superstore in Service Area D

Roadway Impact Fee Calculation Steps – Example 2	
Step 1	**Determine Development Unit and Vehicle-Miles Per Development Unit**
	From Table 10 [Land Use – Vehicle-Mile Equivalency Table] Development Type: 125,000 square feet of Home Improvement Superstore Development Unit: 1,000 square feet of Gross Floor Area Veh-Mi Per Development Unit: 3.39
Step 2	**Determine Maximum Assessable Impact Fee Per Service Unit (Vehicle-Mile)**
	From Table 9, Line 14 [Maximum Assessable Fee Per Service Unit] Service Area D: $5,265
Step 3	**Determine Maximum Assessable Impact Fee**
	Impact Fee = # of Development Units * Veh-Mi Per Dev Unit * Max. Fee Per Service Unit Impact Fee = 125 * 3.39 * $5,265 Maximum Assessable Impact Fee = $2,231,044

VII. ADOPTION AND ADMINISTRATION OF ROADWAY IMPACT FEES

A. Adoption Process

Chapter 395 of the Texas Local Government Code stipulates a specific process for the adoption of Roadway Impact Fees. A Capital Improvement Advisory Committee (CIAC) is required to review the Land Use Assumptions and Roadway Impact Fees CIP used in calculating the maximum fee, and to provide the Committee's findings for consideration by the City Council. This CIAC also reviews the Roadway Impact Fee ordinance and provides its findings to the City Council. The composition of the CIAC is required to adequately represent the building and development communities. The City Council then conducts a first public hearing on the Land Use Assumptions and Roadway Impact Fee CIP and a second public hearing on the Roadway Impact Fee Ordinance.

Following policy adoption, the CIAC is tasked with advising the City Council of the need to update the Land Use Assumptions or the Roadway Impact Fees CIP at any time within five years of adoption. Finally, the CIAC oversees the proper administration of the Impact Fee, once in place, and advises the Council as necessary.

B. Collection and Use of Transportation Impact Fees

Roadway Impact fees are assessed when a final plat is recorded. The assessment defines the impact of each unit at the time of platting, according to land use, and may not exceed the maximum impact fee allowed by law. Roadway Impact Fees are collected when a building permit is issued. Therefore, funds are not collected until development-impacts are introduced to the transportation system. Funds collected within a service area can be used only within the same service area. Finally, fees must be utilized within 10 years of collection, or must be refunded with interest.

VIII. CONCLUSIONS

The City of Denton has established a process to implement the assessment and collection of Roadway Impact Fees through the adoption of an impact fee ordinance that is consistent with Chapter 395 of the Texas Local Government Code.

This report establishes the maximum allowable Roadway Impact Fee that could be assessed by the City of Denton, as shown in the previously referenced **Table 9**.

This document serves as a guide to the assessment of Roadway Impact Fees pertaining to future development, and the City's need for transportation improvements to accommodate that growth. Following the public hearing process, the City Council may establish an impact fee amount to be collected, up to the calculated maximum and establish the Roadway Impact Fee Ordinance accordingly.

In conclusion, it is our opinion that the data and methodology used in this analysis are appropriate and consistent with Chapter 395 of the Texas Local Government Code. Furthermore, the Land Use Assumptions and the proposed Roadway Impact Fee Capital Improvements Plan are appropriately incorporated into the development of the maximum assessable Roadway Impact Fee.

Below is the listing of the 2022 Roadway Impact Fee Study's Maximum Assessable Impact Fee Per Service Unit (Vehicle-Mile):

SERVICE AREA:	A	B	C	D	E
2022 Roadway Impact Fee Study Maximum Assessable Fee Per Vehicle-Mile	$2,496	$3,742	$4,695	$5,265	$3,722

APPENDICES

A. Conceptual Level Project Cost Projections

SERVICE AREA A
SERVICE AREA B
SERVICE AREA C
SERVICE AREA D
SERVICE AREA E
FUNCTIONAL CLASSIFICATION EXAMPLE COSTING SHEETS

B. Roadway Impact Fee CIP Service Units of Supply

C. Existing Roadway Facilities Inventory

D. Plan for Awarding the Transportation Impact Fee Credit Summary

E. Plan for Awarding the Transportation Impact Fee Credit Supporting Exhibits

F. Consideration for the Hunter Ranch and Cole Ranch Operating Agreements

Appendix A – Conceptual Level Project Cost Projections

City of Denton - 2022 Roadway Impact Fee Study
Service Area A Impact Fee CIP

#	Roadway Name	Limits		Length (FT)	Costing Classification	Roadway Classification	Roadway Status	Construction Cost	Contingency/ ROW	Engineering/ Survey/SUE	Railroad Crossings	Intersections	Streams/Channel Crossings	Inspection/ Materials Testing	Percent in Service Area	Total Cost	Cost in Service Area
		From	To					Pavement and Allowances	15%	16%	Cost	Cost	Total Drainage Cost	3.5%			
A-1	CORBIN	IH-35W	CORBIN	3,055	SA Recon	SA	Widening	$ 6,485,996	$ 973,000	$ 1,038,000	$ -	$ -	$ 1,440,000	$ 227,010	100%	$ 10,164,000	$ 10,164,000
A-2	CORBIN	500' S OF SPRINGSIDE	CORBIN	1,410	SA New	SA	New	$ 2,511,393	$ 377,000	$ 402,000	$ -	$ -	$ -	$ 87,899	100%	$ 3,378,000	$ 3,378,000
A-3	FM 1515	IH 35W	CORBIN	5,990	PA Recon	PA	Widening	$ 15,001,383	$ 2,251,000	$ 2,401,000	$ 1,200,000	$ 400,000	$ 1,755,000	$ 525,048	100%	$ 23,533,000	$ 23,533,000
A-4	FM 1515	CORBIN	WESTERN	1,175	PA Recon	PA	Widening	$ 2,942,675	$ 442,000	$ 471,000	$ -	$ -	$ -	$ 102,994	100%	$ 3,959,000	$ 3,959,000
A-5	FM 1515	WESTERN	WESTCOURT	1,555	PA Recon	PA	Widening	$ 3,894,349	$ 585,000	$ 624,000	$ -	$ 500,000	$ 1,755,000	$ 136,302	100%	$ 7,495,000	$ 7,495,000
A-6	FM 1515	WESTCOURT	MASCH BRANCH	620	PA Recon	PA	Widening	$ 1,552,731	$ 233,000	$ 249,000	$ -	$ -	$ -	$ 54,346	100%	$ 2,089,000	$ 2,089,000
A-7	FM 1515	TOM COLE	3435' W OF TOM COLE	3,435	PA Recon	PA	Widening	$ 8,602,629	$ 1,291,000	$ 1,377,000	$ -	$ 500,000	$ 1,755,000	$ 301,092	100%	$ 13,827,000	$ 13,827,000
A-8	FM 1515	3435' W OF TOM COLE	530' E OF C WOLFE	3,750	PA Recon	PA	Widening	$ 9,391,517	$ 1,409,000	$ 1,503,000	$ -	$ 500,000	$ -	$ 328,703	100%	$ 13,132,000	$ 13,132,000
A-9	H LIVELY	C WOLFE	2145' W OF H LIVELY	2,145	PA Recon	PA	Widening	$ 5,371,948	$ 806,000	$ 860,000	$ -	$ -	$ -	$ 188,018	50%	$ 7,226,000	$ 3,613,000
A-10	H LIVELY	2145' W OF H LIVELY	2150' W OF ED ROBSON	3,915	PA Recon	PA	Widening	$ 9,804,743	$ 1,471,000	$ 1,569,000	$ -	$ -	$ -	$ 343,166	100%	$ 13,188,000	$ 13,188,000
A-11	IH-35-CORBIN	IH-35	CORBIN	4,420	C New	C	New	$ 4,675,377	$ 702,000	$ 749,000	$ -	$ -	$ 750,000	$ 163,638	100%	$ 7,040,000	$ 7,040,000
A-16,C-13	JIM CHRISTAL	THOMAS J EGAN	515' E OF C WOLFE	3,945	SA Recon	SA	Widening	$ 8,375,533	$ 1,257,000	$ 1,341,000	$ -	$ -	$ 1,440,000	$ 293,144	50%	$ 12,707,000	$ 6,353,500
A-17	PRECISION-WESTERN	PRECISION	WESTERN	3,420	C New	C	New	$ 3,617,599	$ 543,000	$ 579,000	$ 1,200,000	$ -	$ 500,000	$ 126,616	100%	$ 6,566,000	$ 6,566,000
A-19	ROBSON RANCH	ED ROBSON	YARBROUGH	7,150	PA Recon	PA	Widening	$ 17,906,492	$ 2,686,000	$ 2,866,000	$ -	$ -	$ 1,250,000	$ 626,727	50%	$ 25,335,000	$ 12,667,500
A-20	SPRINGSIDE	CORBIN	UNDERWOOD	1,835	SA Recon	SA	Widening	$ 3,895,844	$ 585,000	$ 624,000	$ -	$ 900,000	$ -	$ 136,355	100%	$ 6,141,000	$ 6,141,000
A-21	SPRINGSIDE	UNDERWOOD	WESTCOURT	865	SA Recon	SA	Widening	$ 1,836,460	$ 276,000	$ 294,000	$ -	$ 500,000	$ -	$ 64,276	100%	$ 2,971,000	$ 2,971,000
A-22	TJ EGAN-LOOP 288	LOOP 288	2440' W OF LOOP 288	2,440	C New	C	New	$ 2,580,977	$ 388,000	$ 413,000	$ -	$ -	$ 250,000	$ 90,334	100%	$ 3,722,000	$ 3,722,000
A-23	C WOLFE	1140' S OF TOM COLE	FM 2449	7,270	PA Recon	PA	Widening	$ 18,207,020	$ 2,732,000	$ 2,914,000	$ -	$ 1,000,000	$ 750,000	$ 637,246	50%	$ 26,240,000	$ 13,120,000
A-24	C WOLFE	FM 2449	H LIVELY	3,315	PA Recon	PA	Widening	$ 8,302,101	$ 1,246,000	$ 1,329,000	$ -	$ 600,000	$ 250,000	$ 290,574	50%	$ 12,018,000	$ 6,009,000
A-25	CORBIN	IH-35-CORBIN	SPRINGSIDE	2,050	C New	C	Widening	$ 2,168,444	$ 326,000	$ 347,000	$ -	$ -	$ 750,000	$ 75,896	100%	$ 3,667,000	$ 3,667,000
A-26	J CHRISTAL-H LIVELY	FM 2449	H LIVELY	3,305	C New	C	New	$ 3,495,955	$ 525,000	$ 560,000	$ -	$ 400,000	$ 250,000	$ 122,358	100%	$ 5,353,000	$ 5,353,000
A-27	PRECISION	JIM CHRISTAL	1635' N OF FM 1515	2,385	C New	C	New	$ 2,522,799	$ 379,000	$ 404,000	$ -	$ 300,000	$ -	$ 88,298	100%	$ 3,694,000	$ 3,694,000
A-31	WESTCOURT	FM 1515	SPRINGSIDE	4,165	SA (1/2)	SA (1/2)	Widening	$ 3,971,565	$ 596,000	$ 636,000	$ -	$ -	$ -	$ 139,005	100%	$ 5,343,000	$ 5,343,000
A-32	WESTERN	JIM CHRISTAL	AIRPORT	6,485	PA (1/3)	PA (1/3)	Widening	$ 3,805,620	$ 571,000	$ 609,000	$ -	$ 1,500,000	$ -	$ 133,197	100%	$ 6,619,000	$ 6,619,000
A-33	WESTERN	FM 1515	SPRINGSIDE	4,175	PA New	PA	New	$ 9,179,489	$ 1,377,000	$ 1,469,000	$ -	$ -	$ 1,755,000	$ 321,282	100%	$ 14,102,000	$ 14,102,000
							TOTAL									**$ 347,875,000**	**$ 268,201,500**

City of Denton - 2022 Roadway Impact Fee Study
Service Area B Impact Fee CIP

#	Roadway Name	Limits		Length (FT)	Roadway Classification	Roadway Status	Construction Cost	Contingency/ ROW	Engineering/ Survey/SUE	Railroad Crossings	Intersections	Streams/Channel Crossings	Inspection/ Materials Testing	Previous City Contribution	Percent in Service Area	Total Cost	Cost in Service Area
		From	To				Pavement and Allowances	15%	16%	Cost	Cost	Total Drainage Cost	3.5%				
B-1	ALLRED	BONNIE BRAE	BRUSH CREEK	4,285	C	Widening	$ 4,532,577	$ 680,000	$ 726,000	$ -	$ -	$ -	$ 158,640	$ -	50%	$ 6,097,000	$ 3,048,500
B-2	ALLRED	BRUSH CREEK	JOHN PAINE	1,610	PA	Widening	$ 4,032,091	$ 605,000	$ 646,000	$ -	$ -	$ -	$ 141,123	$ -	50%	$ 5,424,000	$ 2,712,000
B-3	BRUSH CREEK	815' E OF COUNTRY CLUB	COUNTRY CLUB	815	PA	Widening	$ 2,041,090	$ 307,000	$ 327,000	$ -	$ -	$ -	$ 71,438	$ -	100%	$ 2,747,000	$ 2,747,000
B-4	BRUSH CREEK	COUNTRY CLUB	1935' W OF COUNTRY CLUB	1,935	PA	Widening	$ 4,846,023	$ 727,000	$ 776,000	$ -	$ -	$ 250,000	$ 169,611	$ -	100%	$ 6,769,000	$ 6,769,000
B-5	BRUSH CREEK	2180' E OF FORT WORTH	FORT WORTH	2,180	PA	Widening	$ 5,459,602	$ 819,000	$ 874,000	$ -	$ -	$ -	$ 191,086	$ -	100%	$ 7,344,000	$ 7,344,000
B-6	BRUSH CREEK	FORT WORTH	590' E OF ALLRED	3,615	PA	New	$ 7,948,228	$ -	$ 1,272,000	$ 1,200,000	$ -	$ -	$ 278,188	$ -	100%	$ 10,698,000	$ 10,698,000
B-7	CORBIN	BONNIE BRAE	IH-35W	3,505	SA	Widening	$ 7,441,380	$ 1,117,000	$ 1,191,000	$ -	$ 500,000.00	$ 250,000	$ 260,448	$ -	100%	$ 10,760,000	$ 10,760,000
B-8	CREEKDALE	PIMLICO	RIVERCHASE	3,230	C	New	$ 3,416,621	$ 513,000	$ 547,000	$ -	$ -	$ 750,000	$ 119,582	$ -	100%	$ 5,346,000	$ 5,346,000
B-9	CREEKDALE	THISTLE WAY	OAKBLUFF	2,080	C	New	$ 2,200,177	$ 331,000	$ 353,000	$ -	$ -	$ 500,000	$ 77,006	$ -	100%	$ 3,461,000	$ 3,461,000
B-10	EL PASEO	BELMONT	COUNTRY CLUB	1,910	C	New	$ 2,020,355	$ 304,000	$ 324,000	$ -	$ 400,000.00	$ 250,000	$ 70,712	$ -	100%	$ 3,369,000	$ 3,369,000
B-11	FM 1515	BONNIE BRAE	IH 35W	770	PA	Widening	$ 1,928,391	$ 290,000	$ 309,000	$ -	$ -	$ -	$ 67,494	$ -	100%	$ 2,595,000	$ 2,595,000
B-12	HICKORY CREEK	FM 2499	NAUTICA	1,175	PA (1/3)	Widening	$ 689,530	$ 104,000	$ 111,000	$ -	$ -	$ -	$ 24,134	$ 676,116.28	100%	$ 1,605,000	$ 1,605,000
B-13	HICKORY CREEK	NAUTICA	TEASLEY	1,310	PA (1/3)	Widening	$ 768,753	$ 116,000	$ 124,000	$ -	$ -	$ -	$ 26,906	$ 753,797.72	100%	$ 1,789,000	$ 1,789,000
B-14	HICKORY CREEK	TEASLEY	MONTECITO	4,475	PA (1/3)	Widening	$ 2,626,083	$ 394,000	$ 421,000	$ -	$ 600,000.00	$ -	$ 91,913	$ 4,505,033.56	100%	$ 8,638,000	$ 8,638,000
B-15	HICKORY CREEK	MONTECITO	1435' W OF BIDDY BYE	2,230	PA (1/3)	Widening	$ 1,308,640	$ 197,000	$ 210,000	$ -	$ -	$ -	$ 45,802	$ 2,244,966.44	50%	$ 4,006,000	$ 2,003,000
B-16	HICKORY CREEK	1435' W OF BIDDY BYE	815' E OF COUNTRY CLUB	1,980	PA	New	$ 4,353,386	$ 654,000	$ 697,000	$ -	$ -	$ 1,755,000	$ 152,369	$ -	100%	$ 7,612,000	$ 7,612,000
B-17	HOBSON LANE	TEASLEY	MONTECITO	670	SA	Widening	$ 1,422,461	$ 214,000	$ 228,000	$ -	$ -	$ -	$ 49,786	$ -	100%	$ 1,914,000	$ 1,914,000
B-18	HOBSON LANE	MONTECITO	FORRESTRIDGE	1,495	SA	Widening	$ 3,173,998	$ 477,000	$ 508,000	$ -	$ -	$ 1,440,000	$ 111,090	$ -	100%	$ 5,710,000	$ 5,710,000
B-19	HOBSON LANE	FORRESTRIDGE	COUNTRY CLUB	3,785	SA	Widening	$ 8,035,841	$ 1,206,000	$ 1,286,000	$ -	$ 500,000.00	$ 250,000	$ 281,254	$ -	100%	$ 11,559,000	$ 11,559,000
B-20	PARVIN	MCCORMICK	HIGHLAND PARK	2,665	C	New	$ 1,374,924	$ 207,000	$ 220,000	$ -	$ 300,000.00	$ -	$ 48,122	$ -	100%	$ 2,150,000	$ 2,150,000
B-21	ROBINSON	230' E OF WHEELER RIDGE	TEASLEY	2,735	SA	Widening	$ 5,806,612	$ 871,000	$ 930,000	$ -	$ -	$ 250,000	$ 203,231	$ -	100%	$ 8,061,000	$ 8,061,000
B-22	RYAN	TEASLEY	MONTECITO	4,020	SA	Widening	$ 8,534,764	$ 1,281,000	$ 1,366,000	$ -	$ -	$ 500,000	$ 298,717	$ -	100%	$ 11,980,000	$ 11,980,000
B-23	RYAN	MONTECITO	FORRESTRIDGE	3,305	SA	Widening	$ 7,016,765	$ 1,053,000	$ 1,123,000	$ -	$ -	$ 1,440,000	$ 245,587	$ -	100%	$ 10,878,000	$ 10,878,000
B-24	RYAN	FORRESTRIDGE	COUNTRY CLUB	3,475	SA	Widening	$ 7,377,688	$ 1,107,000	$ 1,181,000	$ -	$ 400,000.00	$ 500,000	$ 258,219	$ -	100%	$ 10,824,000	$ 10,824,000
B-25	VINTAGE	FORT WORTH	BONNIE BRAE	4,605	PA (1/3)	Widening	$ 2,702,371	$ 406,000	$ 433,000	$ 1,200,000	$ 500,000.00	$ -	$ 94,583	$ 6,385,003.13	100%	$ 11,721,000	$ 11,721,000
B-26	VINTAGE	BONNIE BRAE	NAPA VALLEY	765	PA (1/3)	Widening	$ 448,928	$ 68,000	$ 72,000	$ -	$ -	$ -	$ 15,712	$ 1,060,700.85	100%	$ 1,665,000	$ 1,665,000
B-27	VINTAGE	NAPA VALLEY	IH 35W	3,435	PA (1/3)	Widening	$ 2,015,775	$ 303,000	$ 323,000	$ -	$ 500,000.00	$ -	$ 70,552	$ 4,762,754.78	100%	$ 7,975,000	$ 7,975,000
B-28	WILLOWWOOD	1250' W OF HIGHLAND PARK	BONNIE BRAE	1,285	C	Widening	$ 1,359,244	$ 204,000	$ 218,000	$ -	$ -	$ 250,000	$ 47,574	$ -	100%	$ 2,079,000	$ 2,079,000
B-29	BONNIE BRAE	IH 35E	FM 1515	725	SA	Widening	$ 1,285,335	$ -	$ -	$ -	$ -	$ -	$ -	$ -	100%	$ 1,285,000	$ 1,285,000
B-30	BONNIE BRAE	FM 1515	WILLOWWOOD	5,740	SA	Widening	$ 10,176,311	$ -	$ -	$ 1,175,000	$ -	$ -	$ -	$ -	100%	$ 11,351,000	$ 11,351,000
B-31	BONNIE BRAE	HIGHLAND PARK	ROSELAWN	2,550	SA	New	$ 4,520,835	$ -	$ -	$ -	$ -	$ -	$ -	$ -	50%	$ 4,521,000	$ 2,260,500
B-32	COUNTRY CLUB	FORT WORTH	HOBSON	430	SA	Widening	$ 912,922	$ 137,000	$ 147,000	$ -	$ -	$ -	$ 31,952	$ -	100%	$ 1,229,000	$ 1,229,000
B-33	COUNTRY CLUB	HOBSON	RYAN	5,285	SA	Widening	$ 11,220,454	$ 1,684,000	$ 1,796,000	$ -	$ -	$ -	$ 392,716	$ -	100%	$ 15,093,000	$ 15,093,000
B-34	COUNTRY CLUB	RYAN	HICKORY CREEK	3,485	SA	Widening	$ 7,398,918	$ 1,110,000	$ 1,184,000	$ 1,200,000	$ 500,000.00	$ 250,000	$ 258,962	$ -	50%	$ 11,902,000	$ 5,951,000
B-35	FORT WORTH	COUNTRY CLUB	VINTAGE	6,965	PA	Widening	$ 17,443,177	$ 2,617,000	$ 2,791,000	$ 1,200,000	$ -	$ 1,755,000	$ 610,511	$ -	100%	$ 26,417,000	$ 26,417,000
B-36	FORT WORTH	VINTAGE	BONNIE BRAE	5,655	PA	Widening	$ 14,162,407	$ 2,125,000	$ 2,266,000	$ -	$ -	$ 250,000	$ 495,684	$ -	100%	$ 19,299,000	$ 19,299,000
B-37	FORT WORTH	BONNIE BRAE	BRUSH CREEK	1,250	PA	Widening	$ 3,130,506	$ 470,000	$ 501,000	$ -	$ 600,000.00	$ -	$ 109,568	$ -	100%	$ 4,811,000	$ 4,811,000
B-38	FORT WORTH	BRUSH CREEK	CRAWFORD	5,845	PA	Widening	$ 14,638,244	$ 2,196,000	$ 2,343,000	$ -	$ -	$ 500,000	$ 512,339	$ -	100%	$ 20,190,000	$ 20,190,000
B-39	JOHN PAINE	JOHNSON	ATHENS	2,210	Completed	Widening	$ 176,276	$ 27,000	$ 29,000	$ -	$ -	$ -	$ 6,170	$ -	100%	$ 238,000	$ 238,000
B-40	JOHN PAINE	VINTAGE	1045' S OF VINTAGE	1,045	SA	New	$ 1,861,281	$ 280,000	$ 298,000	$ -	$ 500,000.00	$ 250,000	$ 65,145	$ -	100%	$ 3,254,000	$ 3,254,000
B-41	PARVIN-ROSELAWN	PARVIN	ROSELAWN	2,725	C	New	$ 2,882,444	$ 433,000	$ 462,000	$ -	$ -	$ -	$ 100,886	$ -	100%	$ 3,878,000	$ 3,878,000
B-42	TEASLEY	IH 35E	LONDONDERRY	1,315	PA (1/3)	Widening	$ 771,687	$ 116,000	$ 124,000	$ -	$ -	$ -	$ 27,009	$ -	100%	$ 1,039,000	$ 1,039,000
B-43	TEASLEY	LONDONDERRY	HOBSON	5,140	PA (1/3)	Widening	$ 3,016,328	$ 453,000	$ 483,000	$ -	$ 500,000.00	$ -	$ 105,571	$ -	100%	$ 4,558,000	$ 4,558,000
B-44	TEASLEY	LILLIAN B MILLER	PENNSYLVANIA	1,890	PA (1/3)	Widening	$ 1,109,117	$ 167,000	$ 178,000	$ -	$ -	$ -	$ 38,819	$ -	100%	$ 1,493,000	$ 1,493,000
B-45	TEASLEY	PENNSYLVANIA	HOBSON	1,085	PA (1/3)	Widening	$ 636,715	$ 96,000	$ 102,000	$ -	$ -	$ -	$ 22,285	$ -	100%	$ 857,000	$ 857,000
							TOTAL									**$ 306,191,000**	**$ 290,216,000**

City of Denton - 2022 Roadway Impact Fee Study
Service Area C Impact Fee CIP

#	Roadway Name	Limits		Length (FT)	Roadway Classification	Roadway Status	Construction Cost	Contingency/ ROW	Engineering/ Survey/SUE	Railroad Crossings	Intersections	Streams/Channel Crossings	Inspection/ Materials Testing	Percent in Service Area	Total Cost	Cost in Service Area
		From	To				Pavement and Allowances	15%	16%	Cost	Cost	Total Drainage Cost	3.5%			
C-1	BARTHOLD	MASCH BRANCH	5200' W OF IIH 35	5,195	PA	Widening	$ 13,010,381	$ 1,952,000	$ 2,082,000	$ -	$ -	$ 250,000.00	$ 455,363	50%	$ 17,750,000	$ 8,875,000
C-2	BOBCAT	FM 2164	IH-35	14,535	SA	New	$ 25,888,720	$ 3,884,000	$ 4,143,000	$ -	$1,500,000.00	$ 1,440,000.00	$ 906,105	100%	$ 37,762,000	$ 37,762,000
C-3	FM 1173	IH 35	4605' W OF IH 35	4,605	SA	Widening	$ 9,776,763	$ 1,467,000	$ 1,565,000	$ -	$ -	$ 250,000.00	$ 342,187	100%	$ 13,401,000	$ 13,401,000
C-4	FM 1173	4605' W OF IH 35	LOVERS	2,190	SA	Widening	$ 4,649,535	$ 698,000	$ 744,000	$ 1,200,000	$ -	$ 250,000.00	$ 162,734	50%	$ 7,704,000	$ 3,852,000
C-5	FM 2164-IH 35	FM 2164	IH 35	14,425	SA	New	$ 25,692,796	$ 3,854,000	$ 4,111,000	$ -	$1,000,000.00	$ 1,500,000.00	$ 899,248	100%	$ 37,057,000	$ 37,057,000
C-6	GANZER	FM 2164	GANZER	12,680	PA	New	$ 27,879,262	$ 4,182,000	$ 4,461,000	$ -	$1,000,000.00	$ 1,250,000.00	$ 975,774	100%	$ 39,748,000	$ 39,748,000
C-7	GANZER	2900' E OF IH 35	IH 35	2,900	PA	Widening	$ 7,262,773	$ 1,090,000	$ 1,163,000	$ -	$ -	$ 1,755,000.00	$ 254,197	100%	$ 11,525,000	$ 11,525,000
C-8	GANZER	1620' E OF BARTHOLD	BARTHOLD	1,620	PA	Widening	$ 4,057,135	$ 609,000	$ 650,000	$ -	$ -	$ 250,000.00	$ 142,000	50%	$ 5,708,000	$ 2,854,000
C-9	GANZER	BARTHOLD	RECTOR	2,585	PA	Widening	$ 6,473,885	$ 972,000	$ 1,036,000	$ -	$ 500,000.00	$ -	$ 226,586	50%	$ 9,208,000	$ 4,604,000
A-13,C-10	JIM CHRISTAL	OLD SH 24	WESTERN	2,905	SA	Widening	$ 6,167,534	$ 926,000	$ 987,000	$ 1,200,000	$ -	$ 250,000.00	$ 215,864	50%	$ 9,746,000	$ 4,873,000
A-14,C-11	JIM CHRISTAL	WESTERN	MASCH BRANCH	3,510	SA	Widening	$ 7,451,995	$ 1,118,000	$ 1,193,000	$ -	$ 500,000.00	$ 1,440,000.00	$ 260,820	50%	$ 11,964,000	$ 5,982,000
A-15,C-12	JIM CHRISTAL	MASCH BRANCH	THOMAS J EGAN	5,975	SA	Widening	$ 12,685,376	$ 1,903,000	$ 2,030,000	$ -	$ -	$ 1,440,000.00	$ 443,988	50%	$ 18,502,000	$ 9,251,000
A-16,C-13	JIM CHRISTAL	THOMAS J EGAN	515' E OF C WOLFE	3,945	SA	Widening	$ 8,375,533	$ 1,257,000	$ 1,341,000	$ -	$ -	$ 1,440,000.00	$ 293,144	50%	$ 12,707,000	$ 6,353,500
C-14	JIM CHRISTAL	945' W OF C WOLFE	NAIL	3,115	SA	Widening	$ 6,613,380	$ 993,000	$ 1,059,000	$ -	$ 400,000.00	$ 250,000.00	$ 231,468	50%	$ 9,547,000	$ 4,773,500
C-15	JIM CHRISTAL	NAIL	2045' W of Nail	2,045	SA	Widening	$ 4,341,690	$ 652,000	$ 695,000	$ -	$ -	$ -	$ 151,959	50%	$ 5,841,000	$ 2,920,500
C-16	MARSHALL	2845' N OF HAMPTON	HAMPTON	2,845	C	New	$ 3,009,377	$ 452,000	$ 482,000	$ 1,200,000	$ -	$ -	$ 105,328	100%	$ 5,249,000	$ 5,249,000
C-17	MARSHALL	HAMPTON	US 380	3,090	C	Widening	$ 3,268,532	$ 491,000	$ 523,000	$ -	$ -	$ -	$ 114,399	100%	$ 4,397,000	$ 4,397,000
C-18	MASCH BRANCH	MASCH BRANCH	DARBY SMITH	3,450	SA	Widening	$ 7,324,611	$ 1,099,000	$ 1,172,000	$ -	$ 500,000.00	$ 250,000.00	$ 256,361	100%	$ 10,602,000	$ 10,602,000
C-19	WESTWARD	NORTHWAY	BONNIE BRAE	1,175	C	New	$ 1,242,889	$ 187,000	$ 199,000	$ -	$ -	$ -	$ 43,501	100%	$ 1,672,000	$ 1,672,000
C-20	RINEY	US 77	2460' W OF US 77	2,460	SA (1/2)	Widening	$ 2,345,750	$ 352,000	$ 376,000	$ -	$ -	$ -	$ 82,101	100%	$ 3,156,000	$ 3,156,000
C-21	RINEY	2460' W OF US 77	BONNIE BRAE	980	SA (1/2)	Widening	$ 934,486	$ 141,000	$ 150,000	$ -	$ -	$ -	$ 32,707	100%	$ 1,258,000	$ 1,258,000
C-22	US 77	WINDSOR	FM 2164	1,180	PA (1/3)	Widening	$ 692,464	$ 104,000	$ 111,000	$ -	$ 500,000.00	$ -	$ 24,236	100%	$ 1,432,000	$ 1,432,000
C-23	US 77	RINEY	WINDSOR	2,430	PA (1/3)	Widening	$ 1,426,007	$ 214,000	$ 229,000	$ -	$ 900,000.00	$ -	$ 49,910	100%	$ 2,819,000	$ 2,819,000
C-24	US 77	RINEY	RINEY	2,120	PA (1/3)	Widening	$ 1,244,088	$ 187,000	$ 200,000	$ -	$ 400,000.00	$ -	$ 43,543	100%	$ 2,075,000	$ 2,075,000
C-25	US 77	BONNIE BRAE	RINEY	3,960	PA (1/3)	Widening	$ 2,323,863	$ 349,000	$ 372,000	$ -	$ -	$ -	$ 81,335	100%	$ 3,126,000	$ 3,126,000
C-26	US 77	LOOP 288	BONNIE BRAE	1,720	PA (1/3)	Widening	$ 1,009,355	$ 152,000	$ 162,000	$ -	$ 500,000.00	$ -	$ 35,327	100%	$ 1,859,000	$ 1,859,000
C-27	US 77	IH 35	LOOP 288	4,610	PA (1/3)	Widening	$ 2,705,306	$ 406,000	$ 433,000	$ -	$1,100,000.00	$ -	$ 94,686	100%	$ 4,739,000	$ 4,739,000
C-28	MASCH BRANCH-NAIL	MASCH BRANCH	1295' W OF MASCH BRANCH	1,295	C	New	$ 1,369,822	$ 206,000	$ 220,000	$ -	$ -	$ 250,000.00	$ 47,944	100%	$ 2,094,000	$ 2,094,000
C-29	MASCH BRANCH-NAIL	1050' E OF LOOP 288	1550' W OF LOOP 288	2,600	C	New	$ 2,750,222	$ 413,000	$ 441,000	$ -	$ -	$ 750,000.00	$ 96,258	100%	$ 4,450,000	$ 4,450,000
C-30	MASCH BRANCH-NAIL	1335' W OF THOMAS J EGAN	775' E OF C WOLFE	2,550	C	New	$ 2,697,333	$ 405,000	$ 432,000	$ -	$ -	$ 750,000.00	$ 94,407	100%	$ 4,379,000	$ 4,379,000
C-31	MASCH BRANCH-NAIL	775' E OF C WOLFE	690' W OF C WOLFE	1,470	C	New	$ 1,554,933	$ 234,000	$ 249,000	$ -	$ -	$ -	$ 54,423	50%	$ 2,092,000	$ 1,046,000
C-32	MASCH BRANCH-NAIL	690' W OF C WOLFE	NAIL	3,075	C	New	$ 3,252,666	$ 488,000	$ 521,000	$ -	$ -	$ -	$ 113,843	100%	$ 4,376,000	$ 4,376,000
C-33	WESTGATE	WESTGATE	1460' E OF IH-35	975	SA	New	$ 1,736,601	$ 261,000	$ 278,000	$ -	$ -	$ -	$ 60,781	100%	$ 2,336,000	$ 2,336,000
C-34	WINDSOR	US 77	HINKLE	2,420	SA	Widening	$ 5,137,843	$ 771,000	$ 823,000	$ -	$ -	$ -	$ 179,824	100%	$ 6,912,000	$ 6,912,000
C-35	WINDSOR	HINKLE	BONNIE BRAE	5,240	SA (1/2)	Widening	$ 4,996,639	$ 750,000	$ 800,000	$ -	$ -	$ 250,000.00	$ 174,882	100%	$ 6,972,000	$ 6,972,000
C-36	WINDSOR	WESTGATE	145' W OF CLARENDON	505	SA (1/2)	Widening	$ 481,546	$ 73,000	$ 78,000	$ -	$ -	$ -	$ 16,854	100%	$ 649,000	$ 649,000
C-37	WINDSOR	220' W OF WINDSOR FARMS	IH 35	905	SA (1/2)	Widening	$ 862,969	$ 130,000	$ 139,000	$ -	$ -	$ -	$ 30,204	100%	$ 1,162,000	$ 1,162,000
C-38	WINDSOR	IH 35	MASCH BRANCH	6,535	SA	New	$ 11,639,683	$ 1,746,000	$ 1,863,000	$ 1,200,000	$ -	$ 750,000.00	$ 407,389	100%	$ 17,606,000	$ 17,606,000
C-39	BARTHOLD	GANZER	2600' S OF GANZER	2,600	SA	Widening	$ 5,519,996	$ 828,000	$ 884,000	$ -	$ -	$ -	$ 193,200	100%	$ 7,425,000	$ 7,425,000
C-40	BONNIE BRAE	MILAM	LOOP 288	16,505	PA	New	$ 36,289,213	$ 5,444,000	$ 5,807,000	$ -	$1,500,000.00	$ 1,755,000.00	$ 1,270,122	100%	$ 52,065,000	$ 52,065,000
C-41	BONNIE BRAE	LOOP 288	US 77	1,255	SA	New	$ 2,235,318	$ 336,000	$ 358,000	$ -	$ -	$ -	$ 78,236	100%	$ 3,008,000	$ 3,008,000
C-42	BONNIE BRAE	US 77	RINEY	1,985	SA	Widening	$ 4,339,124	$ 651,000	$ 695,000	$ -	$ 500,000.00	$ 250,000.00	$ 151,869	100%	$ 6,587,000	$ 6,587,000
C-43	BONNIE BRAE	RINEY	WINDSOR	3,510	SA	Widening	$ 7,672,708	$ 1,151,000	$ 1,228,000	$ -	$ -	$ -	$ 268,545	100%	$ 10,320,000	$ 10,320,000
C-44	BONNIE BRAE	WINDSOR	US 380	3,585	SA	Widening	$ 7,836,655	$ 1,176,000	$ 1,254,000	$ -	$ -	$ 1,440,000.00	$ 274,283	100%	$ 11,981,000	$ 11,981,000
C-45,E-29	BONNIE BRAE	US 380	PANHANDLE	2,910	SA	Widening	$ 6,178,150	$ 927,000	$ 989,000	$ -	$ -	$ -	$ 216,235	50%	$ 8,310,000	$ 4,155,000
C-46,E-30	BONNIE BRAE	PANHANDLE	SCRIPTURE	1,070	SA	Widening	$ 2,271,691	$ 341,000	$ 364,000	$ -	$ -	$ -	$ 79,509	50%	$ 3,056,000	$ 1,528,000
C-47,E-31	BONNIE BRAE	SCRIPTURE	OAK	1,180	SA	Widening	$ 2,505,229	$ 376,000	$ 401,000	$ -	$ -	$ -	$ 87,683	50%	$ 3,370,000	$ 1,685,000
C-48,E-32	BONNIE BRAE	OAK	HICKORY	380	SA	Widening	$ 806,769	$ 122,000	$ 130,000	$ -	$ -	$ -	$ 28,237	50%	$ 1,087,000	$ 543,500
C-49,E-33	BONNIE BRAE	HICKORY	PRAIRIE	1,425	SA	Widening	$ 3,025,383	$ 454,000	$ 485,000	$ -	$ -	$ -	$ 105,888	50%	$ 4,070,000	$ 2,035,000
C-50,E-34	BONNIE BRAE	PRAIRIE	IH 35E	860	SA	Widening	$ 1,825,845	$ 274,000	$ 293,000	$ -	$ -	$ -	$ 63,905	50%	$ 2,457,000	$ 1,228,500
C-51	C WOLFE	US 380	WESTERN-NAIL	2,705	PA	New	$ 5,947,429	$ 893,000	$ 952,000	$ -	$ 400,000.00	$ 500,000.00	$ 208,160	100%	$ 8,901,000	$ 8,901,000
C-52	FALLMEADOW	MEADOWLEDGE	GARDENVIEW	915	C	New	$ 967,866	$ 146,000	$ 155,000	$ -	$ -	$ -	$ 33,875	100%	$ 1,303,000	$ 1,303,000
C-53,D-22	FM 2164	MILAM	LOOP 288	13,855	PA	Widening	$ 34,698,524	$ 5,205,000	$ 5,552,000	$ -	$1,500,000.00	$ 1,755,000.00	$ 1,214,448	50%	$ 49,925,000	$ 24,962,500
C-54,D-28	LOCUST	LOOP 288	HERCULES	2,260	SA	Widening	$ 4,798,151	$ 720,000	$ 768,000	$ -	$ -	$ 500,000.00	$ 167,935	50%	$ 6,954,000	$ 3,477,000
C-55,D-29	LOCUST	HERCULES	BELL	2,375	SA	Widening	$ 5,042,304	$ 757,000	$ 807,000	$ -	$ 400,000.00	$ 250,000.00	$ 176,481	50%	$ 7,433,000	$ 3,716,500
C-56,D-30	LOCUST	BELL	WINDSOR	1,270	SA	Widening	$ 2,696,306	$ 405,000	$ 432,000	$ -	$ -	$ -	$ 94,371	50%	$ 3,628,000	$ 1,814,000
C-57,D-31	LOCUST	WINDSOR	FM 2164	1,345	SA	Widening	$ 2,855,537	$ 429,000	$ 457,000	$ -	$ -	$ -	$ 99,944	50%	$ 3,841,000	$ 1,920,500
C-58	LOVERS	FM 1173	MASCH BRANCH	4,120	SA	Widening	$ 8,747,071	$ 1,313,000	$ 1,400,000	$ -	$ 500,000.00	$ -	$ 306,147	100%	$ 12,266,000	$ 12,266,000
C-59	LOVERS	1085' N OF MASCH BRANCH	MASCH BRANCH	1,085	SA	Widening	$ 2,303,537	$ 346,000	$ 369,000	$ -	$ -	$ 250,000.00	$ 80,624	100%	$ 3,349,000	$ 3,349,000
C-60	LOVERS LN CONNECTOR	LOVERS	LOOP 288	315	SA	New	$ 561,056	$ 85,000	$ 90,000	$ -	$ -	$ -	$ 19,637	100%	$ 756,000	$ 756,000
C-61	LOVERS LN CONNECTOR	LOOP 288	1085' N OF MASCH BRANCH	405	SA	New	$ 721,358	$ 109,000	$ 116,000	$ -	$ -	$ -	$ 25,248	100%	$ 972,000	$ 972,000
C-62	MASCH BRANCH	1295' S OF FM 1173	JACKSON	4,170	SA	Widening	$ 8,853,225	$ 1,328,000	$ 1,417,000	$ -	$ -	$ -	$ 309,863	50%	$ 11,908,000	$ 5,954,000
C-63	MASCH BRANCH	LOVERS	US 380	3,800	SA	Widening	$ 8,067,687	$ 1,211,000	$ 1,291,000	$ -	$ 500,000.00	$ -	$ 282,369	100%	$ 11,352,000	$ 11,352,000
C-64	MASCH BRANCH	US 380	JIM CHRISTAL	4,110	SA	Widening	$ 8,725,841	$ 1,309,000	$ 1,397,000	$ -	$ 400,000.00	$ -	$ 305,404	100%	$ 12,137,000	$ 12,137,000
C-65	MILAM-LOOP 288	MILAM	LOOP 288	14,335	SA	New	$ 25,532,494	$ 3,830,000	$ 4,086,000	$ -	$ 400,000.00	$ 1,440,000.00	$ 893,637	100%	$ 36,182,000	$ 36,182,000

City of Denton - 2022 Roadway Impact Fee Study
Service Area C Impact Fee CIP

#	Roadway Name	Limits		Length (FT)	Roadway Classification	Roadway Status	Construction Cost	Contingency/ ROW	Engineering/ Survey/SUE	Railroad Crossings	Intersections	Streams/Channel Crossings	Inspection/ Materials Testing	Percent in Service Area	Total Cost	Cost in Service Area
		From	To				Pavement and Allowances	15%	16%	Cost	Cost	Total Drainage Cost	3.5%			
C-66	MILAM-US 77	MILAM	GANZER	7,975	SA	New	$ 14,204,509	$ 2,131,000	$ 2,273,000	$ -	$ -	$ 1,440,000.00	$ 497,158	100%	$ 20,546,000	$ 20,546,000
C-67	MILAM-US 77	GANZER	LONG	3,875	SA	Widening	$ 8,226,918	$ 1,235,000	$ 1,317,000	$ -	$ 500,000.00	$ -	$ 287,942	100%	$ 11,567,000	$ 11,567,000
C-68	MILAM-US 77	LONG	US 77	2,800	SA	New	$ 4,987,163	$ 749,000	$ 798,000	$ -	$ 400,000.00	$ 250,000.00	$ 174,551	100%	$ 7,359,000	$ 7,359,000
C-69	NICOSIA	LOOP 288	BEALL	645	C	New	$ 682,266	$ 103,000	$ 110,000	$ -	$ -	$ 250,000.00	$ 23,879	100%	$ 1,169,000	$ 1,169,000
C-70	THOMAS J EGAN	US 380	JIM CHRISTAL	4,010	SA	Widening	$ 8,513,533	$ 1,278,000	$ 1,363,000	$ -	$ 900,000.00	$ -	$ 297,974	100%	$ 12,353,000	$ 12,353,000
C-71	WESTERN	US 380	JIM CHRISTAL	4,245	PA	Widening	$ 10,631,197	$ 1,595,000	$ 1,701,000	$ -	$ 400,000.00	$ -	$ 372,092	100%	$ 14,699,000	$ 14,699,000
						TOTAL									**$ 695,918,000**	**$ 587,514,000**

City of Denton - 2022 Roadway Impact Fee Study
Service Area D Impact Fee CIP

#	Roadway Name	Limits		Length (FT)	Roadway Classification	Roadway Status	Construction Cost	Contingency/ ROW	Engineering/ Survey/SUE	Railroad Crossings	Intersections	Streams/Channel Crossings	Inspection/ Materials Testing	Percent in Service Area	Total Cost	Cost in Service Area
		From	To				Pavement and Allowances	15%	16%	Cost	Cost	Total Drainage Cost	3.5%			
D-1	BOBCAT	560' W OF FM 2164	FM 2164	560	SA	Widening	$ 1,188,922	$ 179,000	$ 191,000	$ -	$ -	$ -	$ 41,612	50%	$ 1,601,000	$ 800,500
D-2	FISHTRAP	MINGO	GEESLING	1,890	C	New	$ 1,999,199	$ 300,000	$ 320,000	$ -	$ -	$ 250,000.00	$ 69,972	50%	$ 2,939,000	$ 1,469,500
D-3	GANZER	15,500' E OF SHERMAN	4600' W OF SHERMAN	17,985	PA	New	$ 39,543,260	$ 5,932,000	$ 6,327,000	$ -	$ -	$ 750,000.00	$ 1,384,014	100%	$ 53,936,000	$ 53,936,000
D-4	GRIBBLE SPRINGS	INDIAN WELLS	3015' W OF INDIAN WELLS	3,015	SA	Widening	$ 6,401,073	$ 961,000	$ 1,025,000	$ -	$ -	$ 250,000.00	$ 224,038	50%	$ 8,861,000	$ 4,430,500
D-5	HARTLEE FIELD	4220' E OF COOPER CREEK	COOPER CREEK	4,220	SA	Widening	$ 8,959,379	$ 1,344,000	$ 1,434,000	$ -	$ -	$ -	$ 313,578	50%	$ 12,051,000	$ 6,025,500
D-6	HARTLEE FIELD	COOPER CREEK	5170' W OF COOPER CREEK	5,170	SA	Widening	$ 10,976,301	$ 1,647,000	$ 1,757,000	$ -	$ -	$ -	$ 384,171	50%	$ 14,764,000	$ 7,382,000
D-7	HARTLEE FIELD	600' E OF SHERMAN	SHERMAN	600	C	Widening	$ 634,667	$ 96,000	$ 102,000	$ -	$ -	$ -	$ 22,213	50%	$ 855,000	$ 427,500
D-8	HARTLEE FLD-FM 2164	HARTLEE FIELD	SHERMAN	2,250	SA	New	$ 4,007,542	$ 602,000	$ 642,000	$ -	$ -	$ -	$ 140,264	100%	$ 5,392,000	$ 5,392,000
D-9	HARTLEE FLD-FM 2164	SHERMAN	3500' W OF SHERMAN	3,500	SA	New	$ 6,233,954	$ 936,000	$ 998,000	$ -	$ -	$ -	$ 218,188	100%	$ 8,386,000	$ 8,386,000
D-10	HARTLEE FLD-FM 2164	STUART	1485' W OF STUART	1,485	SA	New	$ 2,644,978	$ 397,000	$ 424,000	$ -	$ -	$ 250,000.00	$ 92,574	50%	$ 3,809,000	$ 1,904,500
D-11	HARTLEE FLD-FM 2164	475' W OF FM 2164	FM 2164	475	SA	New	$ 846,037	$ 127,000	$ 136,000	$ -	$ -	$ -	$ 29,611	100%	$ 1,139,000	$ 1,139,000
D-12	LONG	510' W OF FM 2164	FM 2164	510	C	New	$ 539,467	$ 81,000	$ 87,000	$ -	$ -	$ -	$ 18,881	100%	$ 726,000	$ 726,000
D-13	MINGO	E CITY LIMITS	COOPER CREEK	460	SA	Widening	$ 976,615	$ 147,000	$ 157,000	$ -	$ -	$ -	$ 34,182	100%	$ 1,315,000	$ 1,315,000
D-14	MINGO	COOPER CREEK	LOOP 288	2,305	SA	Widening	$ 4,893,689	$ 735,000	$ 783,000	$ -	$ -	$ -	$ 171,279	100%	$ 6,583,000	$ 6,583,000
D-15	MINGO	LOOP 288	US 380	2,275	SA	Widening	$ 4,829,997	$ 725,000	$ 773,000	$ -	$ -	$ 1,440,000.00	$ 169,050	100%	$ 7,937,000	$ 7,937,000
D-16	KINGS ROW	SILVER DOME	LOOP 288	2,655	C	Widening	$ 2,808,399	$ 422,000	$ 450,000	$ -	$ -	$ -	$ 98,294	100%	$ 3,779,000	$ 3,779,000
D-17	SILVER DOME	COOPER CREEK	FARRIS RD	2,190	C	Widening	$ 2,316,533	$ 348,000	$ 371,000	$ -	$ -	$ -	$ 81,079	50%	$ 3,117,000	$ 1,558,500
D-18	COLLINS	HARTLEE FIELD	2730' S OF HARTLEE FIELD	4,440	C	Widening	$ 4,696,532	$ 705,000	$ 752,000	$ -	$ -	$ 500,000.00	$ 164,379	50%	$ 6,818,000	$ 3,409,000
D-19	COOPER CREEK	SHERMAN	HARTLEE FIELD	10,065	SA	New	$ 17,927,070	$ 2,690,000	$ 2,869,000	$ -	$ -	$ 1,440,000.00	$ 627,447	100%	$ 25,554,000	$ 25,554,000
D-20	COOPER CREEK	SILVER DOME	MINGO	4,360	SA	Widening	$ 9,256,609	$ 1,389,000	$ 1,482,000	$ -	$ -	$ -	$ 323,981	50%	$ 12,452,000	$ 6,226,000
D-21	COOPER CREEK	MINGO	US 380	1,680	PA	Widening	$ 4,207,399	$ 632,000	$ 674,000	$ 1,200,000	$ 500,000.00	$ -	$ 147,259	100%	$ 7,361,000	$ 7,361,000
C-53,D-22	FM 2164	MILAM	LOOP 288	13,855	PA	Widening	$ 34,698,524	$ 5,205,000	$ 5,552,000	$ -	$1,500,000.00	$ 1,755,000.00	$ 1,214,448	50%	$ 49,925,000	$ 24,962,500
D-23	GREEN VALLEY	2395' S OF FM 2153	2935' N OF SHEPARD	7,765	PA	New	$ 17,072,750	$ 2,561,000	$ 2,732,000	$ -	$ 500,000.00	$ 1,000,000.00	$ 597,546	100%	$ 24,463,000	$ 24,463,000
D-24	GREEN VALLEY	WARSCHUN	SHERMAN	2,095	SA	Widening	$ 4,447,843	$ 668,000	$ 712,000	$ -	$ -	$ 250,000.00	$ 155,675	100%	$ 6,234,000	$ 6,234,000
D-25	INDIAN WELLS	1615' S OF FM 2153	4930' N OF GRIBBLE SPRINGS	3,870	SA	New	$ 6,892,972	$ 1,034,000	$ 1,103,000	$ -	$ 500,000.00	$ 250,000.00	$ 241,254	100%	$ 10,021,000	$ 10,021,000
D-26	INDIAN WELLS	4930' N OF GRIBBLE SPRINGS	2905' N OF GRIBBLE SPRINGS	2,025	SA	New	$ 3,606,788	$ 542,000	$ 578,000	$ -	$ -	$ -	$ 126,238	50%	$ 4,853,000	$ 2,426,500
D-27	INDIAN WELLS	2905' N OF GRIBBLE SPRINGS	GRIBBLE SPRINGS	2,905	SA	Widening	$ 6,167,534	$ 926,000	$ 987,000	$ -	$ -	$ -	$ 215,864	50%	$ 8,296,000	$ 4,148,000
C-54,D-28	LOCUST	LOOP 288	HERCULES	2,260	SA	Widening	$ 4,798,151	$ 720,000	$ 768,000	$ -	$ -	$ 500,000.00	$ 167,935	50%	$ 6,954,000	$ 3,477,000
C-55,D-29	LOCUST	HERCULES	BELL	2,375	SA	Widening	$ 5,042,304	$ 757,000	$ 807,000	$ -	$ 400,000.00	$ 250,000.00	$ 176,481	50%	$ 7,433,000	$ 3,716,500
C-56,D-30	LOCUST	BELL	WINDSOR	1,270	SA	Widening	$ 2,696,306	$ 405,000	$ 432,000	$ -	$ -	$ -	$ 94,371	50%	$ 3,628,000	$ 1,814,000
C-57,D-31	LOCUST	WINDSOR	FM 2164	1,345	SA	Widening	$ 2,855,537	$ 429,000	$ 457,000	$ -	$ -	$ -	$ 99,944	50%	$ 3,841,000	$ 1,920,500
D-32	SHERMAN	LOOP 288	HERCULES	1,650	SA	Widening	$ 3,503,075	$ 526,000	$ 561,000	$ -	$ -	$ -	$ 122,608	100%	$ 4,713,000	$ 4,713,000
D-33	SHERMAN	HERCULES	KINGS	1,910	SA	Widening	$ 4,055,074	$ 609,000	$ 649,000	$ -	$ -	$ -	$ 141,928	100%	$ 5,455,000	$ 5,455,000
D-34	SHERMAN	KINGS	WINDSOR	2,025	SA	Widening	$ 4,299,228	$ 645,000	$ 688,000	$ -	$ -	$ 1,440,000.00	$ 150,473	100%	$ 7,223,000	$ 7,223,000
D-35	SHERMAN	WINDSOR	WILSONWOOD	1,000	SA	Widening	$ 2,123,076	$ 319,000	$ 340,000	$ -	$ -	$ -	$ 74,308	100%	$ 2,856,000	$ 2,856,000
D-36	SHERMAN	WILSONWOOD	CORONADO	1,165	SA	Widening	$ 2,473,383	$ 372,000	$ 396,000	$ -	$ -	$ -	$ 86,568	100%	$ 3,328,000	$ 3,328,000
D-37	SHERMAN	CORONADO	GREENWOOD	1,640	SA	Widening	$ 3,481,844	$ 523,000	$ 558,000	$ -	$ -	$ -	$ 121,865	100%	$ 4,685,000	$ 4,685,000
D-38	SHERMAN	GREENWOOD	BELL	825	SA	Widening	$ 1,751,537	$ 263,000	$ 281,000	$ -	$ -	$ -	$ 61,304	100%	$ 2,357,000	$ 2,357,000
D-39	SHERMAN	BELL	LOCUST	1,715	SA	Widening	$ 3,641,075	$ 547,000	$ 583,000	$ -	$ -	$ -	$ 127,438	100%	$ 4,899,000	$ 4,899,000
D-40	WINDSOR	LOOP 288	DOMINION	860	C	New	$ 909,689	$ 137,000	$ 146,000	$ -	$ -	$ -	$ 31,839	100%	$ 1,225,000	$ 1,225,000
							TOTAL								**$ 351,764,000**	**$ 275,665,500**

City of Denton - 2022 Roadway Impact Fee Study
Service Area E Impact Fee CIP

#	Roadway Name	Limits		Length (FT)	Roadway Classification	Roadway Status	Construction Cost	Contingency/ ROW	Engineering/ Survey/SUE	Railroad Crossings	Intersections	Streams/Channel Crossings	Inspection/ Materials Testing	Previous City Contribution	Percent in Service Area	Total Cost	Cost in Service Area
		From	To				Pavement and Allowances	15%	16%	Cost	Cost	Total Drainage Cost	3.5%				
E-1	AUDRA	LOOP 288	1185' W OF LOOP 288	1,185	C	New	$ 1,253,466	$ 189,000	$ 201,000	$ -	$ -	$ -	$ 43,871	$ -	100%	$ 1,687,000	$ 1,687,000
E-2	BLAGG	LAKEVIEW	GEESLING	3,740	SA	Widening	$ 7,940,303	$ 1,192,000	$ 1,271,000	$ -	$ 500,000.00	$ -	$ 277,911	$ -	100%	$ 11,181,000	$ 11,181,000
E-3	BLAGG	GEESLING	2175' W OF GEESLING	2,175	SA	Widening	$ 4,617,689	$ 693,000	$ 739,000	$ -	$ -	$ 1,440,000.00	$ 161,619	$ -	100%	$ 7,651,000	$ 7,651,000
E-4	BLAGG	235' E OF MAYHILL	MAYHILL	235	SA	New	$ 418,565	$ 63,000	$ 67,000	$ -	$ -	$ -	$ 14,650	$ -	50%	$ 563,000	$ 281,500
E-5	DALLAS	TEASLEY	IH 35E	4,590	PA (1/3)	Widening	$ 2,693,569	$ 405,000	$ 431,000	$ -	$ -	$ -	$ 94,275	$ -	100%	$ 3,624,000	$ 3,624,000
E-6	DUCHESS	TRAILHEAD	WOODROW	4,005	C	New	$ 4,236,399	$ 636,000	$ 678,000	$ -	$ -	$ 250,000.00	$ 148,274	$ -	100%	$ 5,949,000	$ 5,949,000
E-7	FM 426	LANEY	GRISSOM	2,995	SA	Widening	$ 6,358,611	$ 954,000	$ 1,018,000	$ -	$ 1,400,000.00	$ -	$ 222,551	$ -	100%	$ 9,953,000	$ 9,953,000
E-8	MCKINNEY	GRISSOM	LOOP 288	8,735	Completed	Widening	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,550,811.44	100%	$ 1,551,000	$ 1,551,000
E-9	MCKINNEY	LOOP 288	CARDINAL	670	SA	Widening	$ 1,422,461	$ 214,000	$ 228,000	$ -	$ -	$ -	$ 49,786	$ -	100%	$ 1,914,000	$ 1,914,000
E-10	MCKINNEY	CARDINAL	MOCKINGBIRD	1,145	SA	Widening	$ 2,430,922	$ 365,000	$ 389,000	$ -	$ -	$ -	$ 85,082	$ -	100%	$ 3,270,000	$ 3,270,000
E-11	MCKINNEY	MOCKINGBIRD	MACK	3,245	SA	Widening	$ 6,889,380	$ 1,034,000	$ 1,103,000	$ -	$ -	$ -	$ 241,128	$ -	100%	$ 9,268,000	$ 9,268,000
E-12	MCKINNEY	MACK	AUDRA	1,540	SA	Widening	$ 3,269,536	$ 491,000	$ 524,000	$ -	$ -	$ -	$ 114,434	$ -	100%	$ 4,399,000	$ 4,399,000
E-13	MILLS	TRINITY	MAYHILL	7,415	SA	Widening	$ 15,742,605	$ 2,362,000	$ 2,519,000	$ -	$ 500,000.00	$ 1,440,000.00	$ 550,991	$ -	100%	$ 23,115,000	$ 23,115,000
E-14	MILLS	LAKEVIEW	MAYHILL	2,185	SA	New	$ 3,891,768	$ 584,000	$ 623,000	$ -	$ -	$ -	$ 136,212	$ -	100%	$ 5,235,000	$ 5,235,000
E-15	MINGO	US 380	OLD NORTH	760	SA	Widening	$ 1,613,537	$ 243,000	$ 259,000	$ -	$ -	$ -	$ 56,474	$ -	100%	$ 2,172,000	$ 2,172,000
E-16	MINGO	OLD NORTH	NOTTINGHAM	2,545	SA	Widening	$ 5,403,227	$ 811,000	$ 865,000	$ -	$ -	$ -	$ 189,113	$ -	100%	$ 7,268,000	$ 7,268,000
E-17	MINGO	NOTTINGHAM	PERTAIN	2,935	SA	Widening	$ 6,231,227	$ 935,000	$ 997,000	$ -	$ -	$ -	$ 218,093	$ -	100%	$ 8,381,000	$ 8,381,000
E-18	MINGO	PERTAIN	RUDDELL	945	SA	Widening	$ 2,006,306	$ 301,000	$ 322,000	$ -	$ -	$ -	$ 70,221	$ -	100%	$ 2,700,000	$ 2,700,000
E-19	MINGO	RUDDELL	WILLIS	600	SA	Widening	$ 1,273,845	$ 192,000	$ 204,000	$ -	$ -	$ -	$ 44,585	$ -	100%	$ 1,714,000	$ 1,714,000
E-20	MINGO	WILLIS	WITHERS	2,305	SA	Widening	$ 4,893,689	$ 735,000	$ 783,000	$ -	$ -	$ -	$ 171,279	$ -	100%	$ 6,583,000	$ 6,583,000
E-21	MINGO	WITHERS	PAISLEY	235	SA	Widening	$ 498,923	$ 75,000	$ 80,000	$ -	$ -	$ -	$ 17,462	$ -	100%	$ 671,000	$ 671,000
E-22	MINGO	PAISLEY	BELL	985	SA	Widening	$ 2,091,229	$ 314,000	$ 335,000	$ -	$ -	$ -	$ 73,193	$ -	100%	$ 2,813,000	$ 2,813,000
E-23	MORSE	MAYHILL	KIMBERLY	1,145	SA (1/2)	Widening	$ 1,091,823	$ 164,000	$ 175,000	$ -	$ 500,000.00	$ -	$ 38,214	$ -	100%	$ 1,969,000	$ 1,969,000
E-24	SHADY OAKS	WOODROW	TEASLEY	3,070	SA	Widening	$ 6,517,842	$ 978,000	$ 1,043,000	$ 1,200,000	$ -	$ -	$ 228,124	$ -	100%	$ 9,967,000	$ 9,967,000
E-25	SPENCER	MAYHILL	LOOP 288	2,315	SA	Widening	$ 4,914,920	$ 738,000	$ 787,000	$ -	$ -	$ 250,000.00	$ 172,022	$ -	100%	$ 6,862,000	$ 6,862,000
E-26	TREATMENT PLANT	MCKINNEY	POST OAK	3,325	C	New	$ 3,517,110	$ 528,000	$ 563,000	$ -	$ -	$ -	$ 123,099	$ -	100%	$ 4,731,000	$ 4,731,000
E-27	TREATMENT PLANT	POST OAK	1325' W OF POST OAK	1,325	SA	New	$ 2,359,997	$ 354,000	$ 378,000	$ -	$ 400,000.00	$ 1,440,000.00	$ 82,600	$ -	100%	$ 5,015,000	$ 5,015,000
E-28	TREATMENT PLANT	1325' W OF POST OAK	MAYHILL	3,960	SA	Widening	$ 8,407,379	$ 1,262,000	$ 1,346,000	$ -	$ -	$ -	$ 294,258	$ -	100%	$ 11,310,000	$ 11,310,000
C-45,E-29	BONNIE BRAE	US 380	PANHANDLE	2,910	SA	Widening	$ 6,178,150	$ 927,000	$ 989,000	$ -	$ -	$ -	$ 216,235	$ -	50%	$ 8,310,000	$ 4,155,000
C-46,E-30	BONNIE BRAE	PANHANDLE	SCRIPTURE	1,070	SA	Widening	$ 2,271,691	$ 341,000	$ 364,000	$ -	$ -	$ -	$ 79,509	$ -	50%	$ 3,056,000	$ 1,528,000
C-47,E-31	BONNIE BRAE	SCRIPTURE	OAK	1,180	SA	Widening	$ 2,505,229	$ 376,000	$ 401,000	$ -	$ -	$ -	$ 87,683	$ -	50%	$ 3,370,000	$ 1,685,000
C-48,E-32	BONNIE BRAE	OAK	HICKORY	380	SA	Widening	$ 806,769	$ 122,000	$ 130,000	$ -	$ -	$ -	$ 28,237	$ -	50%	$ 1,087,000	$ 543,500
C-49,E-33	BONNIE BRAE	HICKORY	PRAIRIE	1,425	SA	Widening	$ 3,025,383	$ 454,000	$ 485,000	$ -	$ -	$ -	$ 105,888	$ -	50%	$ 4,070,000	$ 2,035,000
C-50,E-34	BONNIE BRAE	PRAIRIE	IH 35E	860	SA	Widening	$ 1,825,845	$ 274,000	$ 293,000	$ -	$ -	$ -	$ 63,905	$ -	50%	$ 2,457,000	$ 1,228,500
E-35	CARDINAL	ORIOLE	MCKINNEY	2,225	C	New	$ 2,353,555	$ 354,000	$ 377,000	$ -	$ -	$ -	$ 82,374	$ -	100%	$ 3,167,000	$ 3,167,000
E-36	GEESLING	US 380	BLAGG	2,445	PA	Widening	$ 6,123,269	$ 919,000	$ 980,000	$ -	$ -	$ -	$ 214,314	$ -	100%	$ 8,237,000	$ 8,237,000
E-37	GEESLING	US 380	BLAGG	5,395	PA	New	$ 11,861,879	$ 1,780,000	$ 1,898,000	$ -	$ 500,000.00	$ 1,755,000.00	$ 415,166	$ -	100%	$ 18,210,000	$ 18,210,000
E-38	LAKEVIEW	POST OAK	SHADY SHORES	1,385	PA (1/3)	Widening	$ 812,765	$ 122,000	$ 131,000	$ 1,200,000	$ -	$ -	$ 28,447	$ -	100%	$ 2,294,000	$ 2,294,000
E-39	MAYHILL	US 380	PROMINENCE	2,335	PA (1/3)	Widening	$ 1,370,258	$ 206,000	$ 220,000	$ -	$ -	$ -	$ 47,959	$ 622,429.41	100%	$ 2,467,000	$ 2,467,000
E-40	MAYHILL	PROMINENCE	770' N OF RUSSELL NEWMAN	2,040	PA (1/3)	Widening	$ 1,197,142	$ 180,000	$ 192,000	$ -	$ -	$ -	$ 41,900	$ 543,792.72	100%	$ 2,155,000	$ 2,155,000
E-41	MAYHILL	770' N OF RUSSELL NEWMAN	RUSSELL NEWMAN	775	PA (1/3)	Widening	$ 454,796	$ 69,000	$ 73,000	$ -	$ -	$ -	$ 15,918	$ 206,587.92	50%	$ 819,000	$ 409,500
E-42	MAYHILL	RUSSELL NEWMAN	460' S OF RUSSELL NEWMAN	460	PA (1/3)	Widening	$ 269,944	$ 41,000	$ 44,000	$ -	$ -	$ -	$ 9,448	$ 122,619.93	50%	$ 487,000	$ 243,500
E-43	MAYHILL	460' S OF RUSSELL NEWMAN	MILLS	1,080	PA (1/3)	Widening	$ 633,781	$ 96,000	$ 102,000	$ -	$ -	$ -	$ 22,182	$ 287,890.26	100%	$ 1,142,000	$ 1,142,000
E-44	MAYHILL	MILLS	MCKINNEY	1,955	PA (1/3)	Widening	$ 1,147,261	$ 173,000	$ 184,000	$ -	$ -	$ -	$ 40,154	$ 521,134.69	100%	$ 2,066,000	$ 2,066,000
E-45	MAYHILL	MCKINNEY	MORSE	2,045	PA (1/3)	Widening	$ 1,200,076	$ 181,000	$ 193,000	$ -	$ -	$ -	$ 42,003	$ 545,125.55	100%	$ 2,161,000	$ 2,161,000
E-46	MAYHILL	MORSE	SPENCER	3,520	PA (1/3)	Widening	$ 2,065,656	$ 310,000	$ 331,000	$ -	$ -	$ -	$ 72,298	$ 938,309.01	100%	$ 3,717,000	$ 3,717,000
E-47	MAYHILL	SPENCER	EDWARDS	3,185	PA (1/3)	Widening	$ 1,869,067	$ 281,000	$ 300,000	$ -	$ 500,000.00	$ -	$ 65,417	$ 849,009.71	100%	$ 3,864,000	$ 3,864,000
E-48	MAYHILL	2725' N OF COLORADO	COLORADO	2,725	PA (1/3)	New	$ 1,599,123	$ 240,000	$ 256,000	$ 1,200,000	$ 400,000.00	$ -	$ 55,969	$ 726,389.79	100%	$ 4,477,000	$ 4,477,000
E-49	MAYHILL	COLORADO	IH 35E	2,330	PA (1/3)	Widening	$ 1,367,324	$ 206,000	$ 219,000	$ -	$ -	$ -	$ 47,856	$ -	100%	$ 1,840,000	$ 1,840,000
E-50	MAYHILL CONNECTOR	MAYHILL	QUAILCREEK	700	PA	New	$ 1,539,076	$ 231,000	$ 247,000	$ -	$ -	$ -	$ 53,868	$ -	100%	$ 2,071,000	$ 2,071,000
E-51	MOCKINGBIRD	MCKINNEY	625' N OF DUCHESS	855	C	New	$ 904,400	$ 136,000	$ 145,000	$ -	$ -	$ -	$ 31,654	$ -	100%	$ 1,217,000	$ 1,217,000
E-52	MOCKINGBIRD	DUCHESS	SHADY OAKS	2,170	SA	New	$ 3,865,051	$ 580,000	$ 619,000	$ -	$ 400,000.00	$ 1,440,000.00	$ 135,277	$ -	100%	$ 7,039,000	$ 7,039,000
E-53	MOCKINGBIRD	SHADY OAKS	SPENCER	2,805	SA	New	$ 4,996,069	$ 750,000	$ 800,000	$ -	$ -	$ -	$ 174,862	$ -	100%	$ 6,721,000	$ 6,721,000
E-54	POST OAK	MILLS	SPENCER	6,840	PA	New	$ 15,038,971	$ 2,256,000	$ 2,407,000	$ -	$ -	$ -	$ 526,364	$ -	100%	$ 20,228,000	$ 20,228,000
E-55	POST OAK	TREATMENT PLANT	EDWARDS	6,685	PA	New	$ 14,698,176	$ 2,205,000	$ 2,352,000	$ -	$ -	$ 1,755,000.00	$ 514,436	$ -	100%	$ 21,525,000	$ 21,525,000
E-56	POST OAK	EDWARDS	POCKRUS PAGE	2,710	PA	New	$ 5,958,423	$ 894,000	$ 954,000	$ -	$ -	$ -	$ 208,545	$ -	100%	$ 8,015,000	$ 8,015,000
E-57	SWISHER	EDWARDS	POCKRUS PAGE	2,635	C	New	$ 2,787,244	$ 419,000	$ 446,000	$ -	$ -	$ -	$ 97,554	$ -	100%	$ 3,750,000	$ 3,750,000
E-58	TEASLEY	DALLAS	IH 35E	1,870	PA (1/3)	Widening	$ 1,097,380	$ 165,000	$ 176,000	$ -	$ 600,000.00	$ -	$ 38,408	$ -	100%	$ 2,077,000	$ 2,077,000
E-59	N STAR	SPENCER	ROY	1,705	C	New	$ 1,803,511	$ 271,000	$ 289,000	$ -	$ -	$ -	$ 63,123	$ -	100%	$ 2,427,000	$ 2,427,000
E-60	ROY	MAYHILL	N STAR	1,120	C	New	$ 1,184,711	$ 178,000	$ 190,000	$ -	$ -	$ -	$ 41,465	$ -	100%	$ 1,594,000	$ 1,594,000
							TOTAL									**$ 317,633,000**	**$ 305,523,500**

City of Denton

Kimley-Horn

2022 Denton Mobility Plan - Roadway Costing

Planning Level Opinion of Probable Construction Cost

Project Information

Street Name:	**Primary Arterial (New)**
Limits:	
Classification:	**PA**
ROW Width (feet):	**135**
Length (feet):	**5,280**

Notes:

Roadway Construction Cost Projection

No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Unclassified Street Earthwork	24,700	CY	$ 18.00	$ 444,600
2	12" Lime Stabilization (with Lime @ 46#/sy)	47,000	SY	$ 20.75	$ 975,250
3	11" Concrete Pavement and Curb	44,600	SY	$ 80.00	$ 3,568,000
4	8' Concrete Sidewalk and 10' Concrete Trail (6" Depth)	95,100	SF	$ 7.50	$ 713,250
5	4" Topsoil	2,700	CY	$ 45.00	$ 121,500
6	Block Sodding	24,100	SY	$ 12.00	$ 289,200
7	12' Wide Turn Lane (300 LF Long)	8,600	SY	$ 80.00	$ 688,000
				Paving Subtotal:	$ 6,799,800

Major Construction Component Allowances:

Item Description	Notes:	Allowance	Item Cost
√ Mobilization		5%	$ 339,500.00
√ Removals/Prepare Right-of-Way	Only for Reconstruction	2%	$ 135,800.00
√ Traffic Control	Maintain Existing Traffic	2%	$ 135,800.00
√ Pavement Markings/Signs		2%	$ 135,800.00
√ Roadway Drainage	Standard Internal System	30%	$ 2,036,700.00
Concrete Driveways	Driveways (Every 100')	$ -	$ -
√ Irrigation	Basic	3%	$ 203,700.00
√ Illumination	Street Light Foundations and Conduit	7%	$ 475,300.00
√ Water	Minor Adjustments	10%	$ 678,900.00
√ Sewer	Minor Adjustments	10%	$ 678,900.00
√ SWPPP		2%	$ 135,800.00
Other:			$ -
		Allowance Subtotal:	**$ 4,956,200**
		Paving and Allowance SUBTOTAL:	**$ 11,756,000**
		Subtotal Price per Lane Mile	**$ 1,960,000**

Denton Mobility Plan - Roadway Costing

Item Description	Notes	Allowance	Item Cost
Construction			$ 11,756,000
Construction Contingency/Right-of-Way		15%	$ 1,764,000
Railroad Crossings	Priced Per Roadway Segment		
Intersections	Priced Per Roadway Segment		
Streams/Channel Crossings	Priced Per Roadway Segment		
Engineering/Survey/SUE		16%	$ 1,881,000
Inspections/Material Testing		3.5%	$ 412,000
		Roadway Cost TOTAL:	**$ 15,813,000**
		Price per Linear Foot (PA):	**$ 3,000**
		Price per Lane Mile	**$ 2,636,000**

NOTE: The planning level cost projections provided have been developed for the Denton Mobility Plan, and should not be used for any future Capital Improvement Planning within the City of Denton. No Engineering evaluation was used in the development of the costs. Generic costs and percentages were developed for paving unit prices, allowances, intersections, drainage crossings, and railroad crossings. Percentages have also been provided for contingencies/ROW, Engineering/Survey/SUE, Inspections/Material Testing, and Staff Time. The costs and percentages are based on the information known to the Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construciton costs will not vary from its opinions of probable costs.

City of Denton

Kimley-Horn

2022 Denton Mobility Plan - Roadway Costing

Planning Level Opinion of Probable Construction Cost

Project Information

Street Name:	**Primary Arterial (Widening)**	**Notes:**
Limits:		
Classification:	**PA**	
ROW Width (feet):	**135**	
Length (feet):	**5,280**	

Roadway Construction Cost Projection

No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Unclassified Street Earthwork	24,700	CY	$ 18.00	$ 444,600
2	12" Lime Stabilization (with Lime @ 46#/sy)	47,000	SY	$ 20.75	$ 975,250
3	11" Concrete Pavement and Curb	44,600	SY	$ 80.00	$ 3,568,000
4	8' Concrete Sidewalk and 10' Concrete Trail (6" Depth)	95,100	SF	$ 7.50	$ 713,250
5	4" Topsoil	2,700	CY	$ 45.00	$ 121,500
6	Block Sodding	24,100	SY	$ 12.00	$ 289,200
7	12' Wide Turn Lane (300 LF Long)	8,600	SY	$ 80.00	$ 688,000
				Paving Subtotal:	$ 6,799,800

Major Construction Component Allowances:

	Item Description	Notes:	Allowance	Item Cost
√	Mobilization		5%	$ 339,500.00
√	Removals/Prepare Right-of-Way	Only for Reconstruction	10%	$ 678,900.00
√	Traffic Control	Maintain Existing Traffic	10%	$ 678,900.00
√	Pavement Markings/Signs		2%	$ 135,800.00
√	Roadway Drainage	Standard Internal System	30%	$ 2,036,700.00
√	Concrete Driveways	Driveways (Every 100')	$ 5,000.00	$ 528,000.00
√	Irrigation	Basic	3%	$ 203,700.00
√	Illumination	Street Light Foundations and Conduit	7%	$ 475,300.00
√	Water	Minor Adjustments	10%	$ 678,900.00
√	Sewer	Minor Adjustments	10%	$ 678,900.00
√	SWPPP		4%	$ 271,600.00
	Other:			$ -
			Allowance Subtotal:	**$ 6,706,200**
			Paving and Allowance SUBTOTAL:	**$ 13,506,000**
			Subtotal Price per Lane Mile	**$ 2,251,000**

Denton Mobility Plan - Roadway Costing

Item Description	Notes	Allowance	Item Cost
Construction			$ 13,506,000
Construction Contingency/Right-of-Way		15%	$ 2,026,000
Railroad Crossings	Priced Per Roadway Segment		
Intersections	Priced Per Roadway Segment		
Streams/Channel Crossings	Priced Per Roadway Segment		
Engineering/Survey/SUE		16%	$ 2,161,000
Inspections/Material Testing		3.5%	$ 473,000
		Roadway Cost TOTAL:	**$ 18,166,000**
		Price per Linear Foot (PA):	**$ 3,500**
		Price per Lane Mile	**$ 3,028,000**

NOTE: The planning level cost projections provided have been developed for the Denton Mobility Plan, and should not be used for any future Capital Improvement Planning within the City of Denton. No Engineering evaluation was used in the development of the costs. Generic costs and percentages were developed for paving unit prices, allowances, intersections, drainage crossings, and railroad crossings. Percentages have also been provided for contingencies/ROW, Engineering/Survey/SUE, Inspections/Material Testing, and Staff Time. The costs and percentages are based on the information known to the Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construciton costs will not vary from its opinions of probable costs.

City of Denton

Kimley-Horn

2020 Denton Mobility Plan - Roadway Costing

Planning Level Opinion of Probable Construction Cost

Project Information

Street Name:	**Primary Arterial (Half Roadway)**	**Notes:**
Limits:		
Classification:	**PA (4/6)**	
ROW Width (feet):	**135**	
Length (feet):	**5,280**	

Roadway Construction Cost Projection

No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Unclassified Street Earthwork	16,600	CY	$ 18.00	$ 298,800
2	12" Lime Stabilization (with Lime @ 46#/sy)	31,400	SY	$ 20.75	$ 651,550
3	11" Concrete Pavement and Curb	29,700	SY	$ 80.00	$ 2,376,000
4	10' Concrete Trail (6" Depth)	52,800	SF	$ 7.50	$ 396,000
5	4" Topsoil	2,200	CY	$ 45.00	$ 99,000
6	Block Sodding	19,400	SY	$ 12.00	$ 232,800
7	12' Wide Turn Lane (300 LF Long)	8,600	SY	$ 80.00	$ 688,000
				Paving Subtotal:	$ 4,742,150

Major Construction Component Allowances:

	Item Description	Notes:	Allowance	Item Cost
√	Mobilization		5%	$ 236,400.00
√	Removals/Prepare Right-of-Way	Only for Reconstruction	5%	$ 236,400.00
√	Traffic Control	Maintain Existing Traffic	5%	$ 236,400.00
√	Pavement Markings/Signs		2%	$ 94,600.00
√	Roadway Drainage	Standard Internal System	20%	$ 945,600.00
√	Concrete Driveways	Driveways (Every 100')	$ 5,000.00	$ 264,000.00
√	Irrigation	Basic	3%	$ 141,900.00
√	Illumination	Street Light Foundations and Conduit	3%	$ 141,900.00
√	Water	Minor Adjustments	3%	$ 141,900.00
√	Sewer	Minor Adjustments	3%	$ 141,900.00
√	SWPPP		4%	$ 189,200.00
	Other:			$ -
			Allowance Subtotal:	**$ 2,770,200**

Paving and Allowance SUBTOTAL:	**$ 7,513,000**
Subtotal Price per Lane Mile	**$ 1,879,000**

Denton Mobility Plan - Roadway Costing

Item Description	Notes	Allowance	Item Cost
Construction			$ 7,513,000
Construction Contingency/Right-of-Way		15%	$ 1,127,000
Railroad Crossings	Priced Per Roadway Segment		
Intersections	Priced Per Roadway Segment		
Streams/Channel Crossings	Priced Per Roadway Segment		
Engineering/Survey/SUE		16%	$ 1,203,000
Inspections/Material Testing		3.5%	$ 263,000
		Roadway Cost TOTAL:	**$ 10,106,000**
		Price per Linear Foot (PA):	**$ 2,000**
		Price per Lane Mile	**$ 2,527,000**

NOTE: The planning level cost projections provided have been developed for the Denton Mobility Plan, and should not be used for any future Capital Improvement Planning within the City of Denton. No Engineering evaluation was used in the development of the costs. Generic costs and percentages were developed for paving unit prices, allowances, intersections, drainage crossings, and railroad crossings. Percentages have also been provided for contingencies/ROW, Engineering/Survey/SUE, Inspections/Material Testing, and Staff Time. The costs and percentages are based on the information known to the Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construciton costs will not vary from its opinions of probable costs.

City of Denton

Kimley-Horn

2020 Denton Mobility Plan - Roadway Costing

Planning Level Opinion of Probable Construction Cost

Project Information

Street Name:	**Primary Arterial (Median Lanes)**	**Notes:**
Limits:		
Classification:	**PA (1/3)**	
ROW Width (feet):	**135**	
Length (feet):	**5,280**	

Roadway Construction Cost Projection

No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Unclassified Street Earthwork	7,400	CY	$ 18.00	$ 133,200
2	12" Lime Stabilization (with Lime @ 46#/sy)	5,300	SY	$ 20.75	$ 109,975
3	11" Concrete Pavement and Curb	14,700	SY	$ 80.00	$ 1,176,000
4	No Sidewalk - Median Widening	0	SF	$ 7.50	$ -
5	4" Topsoil	700	CY	$ 45.00	$ 31,500
6	Block Sodding	5,900	SY	$ 12.00	$ 70,800
7	12' Wide Turn Lane (300 LF Long)	8,600	SY	$ 80.00	$ 688,000
				Paving Subtotal:	$ 2,209,475

Major Construction Component Allowances:

	Item Description	Notes:	Allowance	Item Cost
√	Mobilization		5%	$ 109,900.00
√	Removals/Prepare Right-of-Way	Only for Reconstruction	2%	$ 44,000.00
√	Traffic Control	Maintain Existing Traffic	10%	$ 219,800.00
√	Pavement Markings/Signs		2%	$ 44,000.00
√	Roadway Drainage	Standard Internal System	10%	$ 219,800.00
	Concrete Driveways	Driveways (Every 100')	$ -	$ -
√	Irrigation	Basic	3%	$ 66,000.00
√	Illumination	Street Light Foundations and Conduit	3%	$ 66,000.00
√	Water	Minor Adjustments	3%	$ 66,000.00
√	Sewer	Minor Adjustments	3%	$ 66,000.00
√	SWPPP		4%	$ 88,000.00
	Other:			$ -
			Allowance Subtotal:	**$ 989,500**

Paving and Allowance SUBTOTAL:	**$ 3,199,000**
Subtotal Price per Lane Mile	**$ 1,600,000**

Denton Mobility Plan - Roadway Costing

Item Description	Notes	Allowance	Item Cost
Construction			$ 3,199,000
Construction Contingency/Right-of-Way		15%	$ 480,000
Railroad Crossings	Priced Per Roadway Segment		
Intersections	Priced Per Roadway Segment		
Streams/Channel Crossings	Priced Per Roadway Segment		
Engineering/Survey/SUE		16%	$ 512,000
Inspections/Material Testing		3.5%	$ 112,000
		Roadway Cost TOTAL:	**$ 4,303,000**
		Price per Linear Foot (PA):	**$ 900**
		Price per Lane Mile	**$ 2,152,000**

NOTE: The planning level cost projections provided have been developed for the Denton Mobility Plan, and should not be used for any future Capital Improvement Planning within the City of Denton. No Engineering evaluation was used in the development of the costs. Generic costs and percentages were developed for paving unit prices, allowances, intersections, drainage crossings, and railroad crossings. Percentages have also been provided for contingencies/ROW, Engineering/Survey/SUE, Inspections/Material Testing, and Staff Time. The costs and percentages are based on the information known to the Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construciton costs will not vary from its opinions of probable costs.

City of Denton

Kimley-Horn

2022 Denton Mobility Plan - Roadway Costing

Planning Level Opinion of Probable Construction Cost

Project Information

Street Name:	**Secondary Arterial (New)**	**Notes:**
Limits:		
Classification:	**SA**	
ROW Width (feet):	**110**	
Length (feet):	**5,280**	

Roadway Construction Cost Projection

No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Unclassified Street Earthwork	22,300	CY	$ 18.00	$ 401,400
2	12" Lime Stabilization (with Lime @ 46#/sy)	42,300	SY	$ 20.75	$ 877,725
3	11" Concrete Pavement and Curb	39,900	SY	$ 80.00	$ 3,192,000
4	6' Concrete Sidewalk (4" Depth)	63,400	SF	$ 6.50	$ 412,100
5	4" Topsoil	2,100	CY	$ 45.00	$ 94,500
6	Block Sodding	18,800	SY	$ 12.00	$ 225,600
7	12' Wide Turn Lane (200 LF Long)	6,400	SY	$ 80.00	$ 512,000
				Paving Subtotal:	$ 5,715,325

Major Construction Component Allowances:

	Item Description	Notes:	Allowance	Item Cost
√	Mobilization		5%	$ 260,100.00
√	Removals/Prepare Right-of-Way	Only for Reconstruction	2%	$ 104,100.00
√	Traffic Control	Maintain Existing Traffic	2%	$ 104,100.00
√	Pavement Markings/Signs		2%	$ 104,100.00
√	Roadway Drainage	Standard Internal System	30%	$ 1,560,100.00
	Concrete Driveways	Driveways (Every 100')	$ -	$ -
√	Irrigation	Basic	3%	$ 156,100.00
√	Illumination	Street Light Foundations and Conduit	7%	$ 364,100.00
√	Water	Minor Adjustments	10%	$ 520,100.00
√	Sewer	Minor Adjustments	10%	$ 520,100.00
√	SWPPP		2%	$ 104,100.00
	Other:			$ -
			Allowance Subtotal:	**$ 3,797,000**

Paving and Allowance SUBTOTAL:	**$ 9,513,000**
Subtotal Price per Lane Mile	**$ 2,379,000**

Denton Mobility Plan - Roadway Costing

Item Description	Notes	Allowance	Item Cost
Construction			$ 9,513,000
Construction Contingency/Right-of-Way		15%	$ 1,427,000
Railroad Crossings	Priced Per Roadway Segment		
Intersections	Priced Per Roadway Segment		
Streams/Channel Crossings	Priced Per Roadway Segment		
Engineering/Survey/SUE		16%	$ 1,523,000
Inspections/Material Testing		3.5%	$ 333,000
		Roadway Cost TOTAL:	**$ 12,796,000**
		Price per Linear Foot (PA):	**$ 2,500**
		Price per Lane Mile	**$ 3,199,000**

NOTE: The planning level cost projections provided have been developed for the Denton Mobility Plan, and should not be used for any future Capital Improvement Planning within the City of Denton. No Engineering evaluation was used in the development of the costs. Generic costs and percentages were developed for paving unit prices, allowances, intersections, drainage crossings, and railroad crossings. Percentages have also been provided for contingencies/ROW, Engineering/Survey/SUE, Inspections/Material Testing, and Staff Time. The costs and percentages are based on the information known to the Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construciton costs will not vary from its opinions of probable costs.

City of Denton

Kimley-Horn

2022 Denton Mobility Plan - Roadway Costing

Planning Level Opinion of Probable Construction Cost

Project Information

Street Name:	**Secondary Arterial (Widening)**
Limits:	
Classification:	**SA**
ROW Width (feet):	**110**
Length (feet):	**5,280**

Notes:

Roadway Construction Cost Projection

No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Unclassified Street Earthwork	22,300	CY	$ 18.00	$ 401,400
2	12" Lime Stabilization (with Lime @ 46#/sy)	42,300	SY	$ 20.75	$ 877,725
3	11" Concrete Pavement and Curb	39,900	SY	$ 80.00	$ 3,192,000
4	6' Concrete Sidewalk (4" Depth)	63,400	SF	$ 6.50	$ 412,100
5	4" Topsoil	2,100	CY	$ 45.00	$ 94,500
6	Block Sodding	18,800	SY	$ 12.00	$ 225,600
7	12' Wide Turn Lane (200 LF Long)	6,400	SY	$ 80.00	$ 512,000
				Paving Subtotal:	$ 5,715,325

Major Construction Component Allowances:

Item Description	Notes:	Allowance	Item Cost
√ Mobilization		5%	$ 285,700.00
√ Removals/Prepare Right-of-Way	Only for Reconstruction	10%	$ 571,300.00
√ Traffic Control	Maintain Existing Traffic	10%	$ 571,300.00
√ Pavement Markings/Signs		2%	$ 114,300.00
√ Roadway Drainage	Standard Internal System	30%	$ 1,713,700.00
√ Concrete Driveways	Driveways (Every 100')	$ 5,000.00	$ 528,000.00
√ Irrigation	Basic	3%	$ 171,400.00
√ Illumination	Street Light Foundations and Conduit	7%	$ 399,900.00
√ Water	Minor Adjustments	10%	$ 571,300.00
√ Sewer	Minor Adjustments	10%	$ 571,300.00
√ SWPPP		4%	$ 228,500.00
Other:			$ -
		Allowance Subtotal:	**$ 5,726,700**
		Paving and Allowance SUBTOTAL:	**$ 11,443,000**
		Subtotal Price per Lane Mile	**$ 2,861,000**

Denton Mobility Plan - Roadway Costing

Item Description	Notes	Allowance	Item Cost
Construction			$ 11,443,000
Construction Contingency/Right-of-Way		15%	$ 1,717,000
Railroad Crossings	Priced Per Roadway Segment		
Intersections	Priced Per Roadway Segment		
Streams/Channel Crossings	Priced Per Roadway Segment		
Engineering/Survey/SUE		16%	$ 1,831,000
Inspections/Material Testing		3.5%	$ 401,000
		Roadway Cost TOTAL:	**$ 15,392,000**
		Price per Linear Foot (PA):	**$ 3,000**
		Price per Lane Mile	**$ 3,848,000**

NOTE: The planning level cost projections provided have been developed for the Denton Mobility Plan, and should not be used for any future Capital Improvement Planning within the City of Denton. No Engineering evaluation was used in the development of the costs. Generic costs and percentages were developed for paving unit prices, allowances, intersections, drainage crossings, and railroad crossings. Percentages have also been provided for contingencies/ROW, Engineering/Survey/SUE, Inspections/Material Testing, and Staff Time. The costs and percentages are based on the information known to the Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construciton costs will not vary from its opinions of probable costs.

City of Denton

Kimley-Horn

2020 Denton Mobility Plan - Roadway Costing

Planning Level Opinion of Probable Construction Cost

Project Information

Street Name:	**Secondary Arterial (Half Roadway)**	**Notes:**
Limits:		
Classification:	**SA (1/2)**	
ROW Width (feet):	**110**	
Length (feet):	**5,280**	

Roadway Construction Cost Projection

No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Unclassified Street Earthwork	11,200	CY	$ 18.00	$ 201,600
2	12" Lime Stabilization (with Lime @ 46#/sy)	21,200	SY	$ 20.75	$ 439,900
3	11" Concrete Pavement and Curb	20,000	SY	$ 80.00	$ 1,600,000
4	6' Concrete Sidewalk (4" Depth)	31,700	SF	$ 6.50	$ 206,050
5	4" Topsoil	1,700	CY	$ 45.00	$ 76,500
6	Block Sodding	14,700	SY	$ 12.00	$ 176,400
7	12' Wide Turn Lane (200 LF Long)	6,400	SY	$ 80.00	$ 512,000
				Paving Subtotal:	$ 3,212,450

Major Construction Component Allowances:

Item Description	Notes:	Allowance	Item Cost
√ Mobilization		5%	$ 160,100.00
√ Removals/Prepare Right-of-Way	Only for Reconstruction	5%	$ 160,100.00
√ Traffic Control	Maintain Existing Traffic	5%	$ 160,100.00
√ Pavement Markings/Signs		2%	$ 64,100.00
√ Roadway Drainage	Standard Internal System	20%	$ 640,400.00
√ Concrete Driveways	Driveways (Every 100')	$ 5,000.00	$ 264,000.00
√ Irrigation	Basic	3%	$ 96,100.00
√ Illumination	Street Light Foundations and Conduit	3%	$ 96,100.00
√ Water	Minor Adjustments	3%	$ 96,100.00
√ Sewer	Minor Adjustments	3%	$ 96,100.00
√ SWPPP		4%	$ 128,100.00
Other:			$ -
		Allowance Subtotal:	**$ 1,961,300**
		Paving and Allowance SUBTOTAL:	**$ 5,174,000**
		Subtotal Price per Lane Mile	**$ 2,587,000**

Denton Mobility Plan - Roadway Costing

Item Description	Notes	Allowance	Item Cost
Construction			$ 5,174,000
Construction Contingency/Right-of-Way		15%	$ 777,000
Railroad Crossings	Priced Per Roadway Segment		
Intersections	Priced Per Roadway Segment		
Streams/Channel Crossings	Priced Per Roadway Segment		
Engineering/Survey/SUE		16%	$ 828,000
Inspections/Material Testing		3.5%	$ 182,000
		Roadway Cost TOTAL:	**$ 6,961,000**
		Price per Linear Foot (PA):	**$ 1,400**
		Price per Lane Mile	**$ 3,481,000**

NOTE: The planning level cost projections provided have been developed for the Denton Mobility Plan, and should not be used for any future Capital Improvement Planning within the City of Denton. No Engineering evaluation was used in the development of the costs. Generic costs and percentages were developed for paving unit prices, allowances, intersections, drainage crossings, and railroad crossings. Percentages have also been provided for contingencies/ROW, Engineering/Survey/SUE, Inspections/Material Testing, and Staff Time. The costs and percentages are based on the information known to the Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construciton costs will not vary from its opinions of probable costs.

City of Denton

Kimley-Horn

2022 Denton Mobility Plan - Roadway Costing

Planning Level Opinion of Probable Construction Cost

Project Information

Street Name:	**Collector (New)**
Limits:	
Classification:	**C**
ROW Width (feet):	**65**
Length (feet):	**5,280**

Notes:

Roadway Construction Cost Projection

No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Unclassified Street Earthwork	13,200	CY	$ 18.00	$ 237,600
2	8" Lime Stabilization (with Lime @ 46#/sy)	25,300	SY	$ 20.75	$ 524,975
3	8" Concrete Pavement and Curb	24,100	SY	$ 70.00	$ 1,687,000
4	5' Concrete Sidewalk (4" Depth)	52,800	SF	$ 6.50	$ 343,200
5	4" Topsoil	1,000	CY	$ 45.00	$ 45,000
6	Block Sodding	8,800	SY	$ 12.00	$ 105,600
7	Parking Lane	4,700	SY	$ 70.00	$ 329,000
				Paving Subtotal:	$ 3,272,375

Major Construction Component Allowances:

Item Description	Notes:	Allowance	Item Cost
√ Mobilization		5%	$ 163,400.00
√ Removals/Prepare Right-of-Way	Only for Reconstruction	2%	$ 65,400.00
√ Traffic Control	Maintain Existing Traffic	2%	$ 65,400.00
√ Pavement Markings/Signs		2%	$ 65,400.00
√ Roadway Drainage	Standard Internal System	30%	$ 979,900.00
Concrete Driveways	Driveways (Every 100')	$ -	$ -
√ Irrigation	Basic	3%	$ 98,000.00
√ Illumination	Street Light Foundations and Conduit	7%	$ 228,700.00
√ Water	Minor Adjustments	10%	$ 326,700.00
√ Sewer	Minor Adjustments	10%	$ 326,700.00
√ SWPPP		2%	$ 65,400.00
Other:			$ -
		Allowance Subtotal:	**$ 2,385,000**
		Paving and Allowance SUBTOTAL:	**$ 5,658,000**
		Subtotal Price per Lane Mile	**$ 2,829,000**

Denton Mobility Plan - Roadway Costing

Item Description	Notes	Allowance	Item Cost
Construction			$ 5,658,000
Construction Contingency/Right-of-Way		15%	$ 849,000
Railroad Crossings	Priced Per Roadway Segment		
Intersections	Priced Per Roadway Segment		
Streams/Channel Crossings	Priced Per Roadway Segment		
Engineering/Survey/SUE		16%	$ 906,000
Inspections/Material Testing		3.5%	$ 199,000
		Roadway Cost TOTAL:	**$ 7,612,000**
		Price per Linear Foot (PA):	**$ 1,500**
		Price per Lane Mile	**$ 3,806,000**

NOTE: The planning level cost projections provided have been developed for the Denton Mobility Plan, and should not be used for any future Capital Improvement Planning within the City of Denton. No Engineering evaluation was used in the development of the costs. Generic costs and percentages were developed for paving unit prices, allowances, intersections, drainage crossings, and railroad crossings. Percentages have also been provided for contingencies/ROW, Engineering/Survey/SUE, Inspections/Material Testing, and Staff Time. The costs and percentages are based on the information known to the Engineer at this time and represent only the Engineer's judgement as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construciton costs will not vary from its opinions of probable costs.

Appendix B – Roadway Impact Fee CIP Service Units of Supply

City of Denton - 2022 Roadway Impact Fee Study

CIP Service Units of Supply

Service Area A

5/14/2024

Project ID #	ROADWAY	LIMITS FROM	LIMITS TO	LENGTH (FT)	LENGTH (MI)	LANES	MTP CLASSIFICATION	IMPACT FEE CLASSIFICATION	ROADWAY STATUS	PEAK HOUR VOLUME	% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN	VEH-MI SUPPLY PK-HR TOTAL[1]	VEH-MI TOTAL DEMAND PK-HR[2]	EXCESS CAPACITY PK-HR VEH-MI[3]	TOTAL PROJECT COST	TOTAL PROJECT COST IN SERVICE AREA
A-1	CORBIN	IH-35W	CORBIN	3,055	0.58	4	SECONDARY ARTERIAL	SA	Widening	9	100%	750	1740	5	1735	$ 10,164,000	$ 10,164,000.00
A-2	CORBIN	500' S OF SPRINGSIDE	CORBIN	1,410	0.27	4	SECONDARY ARTERIAL	SA	New	New	100%	750	810	0	810	$ 3,378,000	$ 3,378,000.00
A-3	FM 1515	IH 35W	CORBIN	5,990	1.13	6	PRIMARY ARTERIAL	PA	Widening	761	100%	850	5763	860	4,903	$ 23,533,000	$ 23,533,000
A-4	FM 1515	CORBIN	WESTERN	1,175	0.22	6	PRIMARY ARTERIAL	PA	Widening	460	100%	850	1122	101	1,021	$ 3,959,000	$ 3,959,000
A-5	FM 1515	WESTERN	WESTCOURT	1,555	0.29	6	PRIMARY ARTERIAL	PA	Widening	1,120	100%	850	1479	325	1,154	$ 7,495,000	$ 7,495,000
A-6	FM 1515	WESTCOURT	MASCH BRANCH	620	0.12	6	PRIMARY ARTERIAL	PA	Widening	552	100%	850	612	66	546	$ 2,089,000	$ 2,089,000
A-7	FM 1515	TOM COLE	3435' W OF TOM COLE	3,435	0.65	6	PRIMARY ARTERIAL	PA	Widening	663	100%	850	3315	431	2,884	$ 13,827,000	$ 13,827,000
A-8	FM 1515	3435' W OF TOM COLE	530' E OF C WOLFE	3,750	0.71	6	PRIMARY ARTERIAL	PA	Widening	619	100%	850	3621	439	3,182	$ 13,132,000	$ 13,132,000
A-9	H LIVELY	C WOLFE	2145' W OF H LIVELY	2,145	0.41	6	PRIMARY ARTERIAL	PA	Widening	48	50%	850	1046	10	1,036	$ 7,226,000	$ 3,613,000
A-10	H LIVELY	2145' W OF H LIVELY	2150' W OF ED ROBSON	3,915	0.74	2	PRIMARY ARTERIAL	PA	Widening	234	100%	850	1258	173	1,085	$ 13,188,000	$ 13,188,000
A-11	IH-35-CORBIN	IH-35	CORBIN	4,420	0.84	2	COLLECTOR	C	New	New	100%	550	924	0	924	$ 7,040,000	$ 7,040,000
A-12	JIM CHRISTAL	IH 35	OLD SH 24	3,110	0.59	4	SECONDARY ARTERIAL	SA	Widening	1,290	100%	750	1770	761	1,009	$ 10,332,000	$ 10,332,000
A-13,C-10	JIM CHRISTAL	OLD SH 24	WESTERN	2,905	0.55	4	SECONDARY ARTERIAL	SA	Widening	1,056	50%	750	825	290	535	$ 9,746,000	$ 4,873,000
A-14,C-11	JIM CHRISTAL	WESTERN	MASCH BRANCH	3,510	0.66	4	SECONDARY ARTERIAL	SA	Widening	910	50%	750	990	300	690	$ 11,964,000	$ 5,982,000
A-15,C-12	JIM CHRISTAL	MASCH BRANCH	THOMAS J EGAN	5,975	1.13	4	SECONDARY ARTERIAL	SA	Widening	239	50%	750	1695	135	1,560	$ 18,502,000	$ 9,251,000
A-16,C-13	JIM CHRISTAL	THOMAS J EGAN	515' E OF C WOLFE	3,945	0.75	4	SECONDARY ARTERIAL	SA	Widening	239	50%	750	1125	90	1,035	$ 12,707,000	$ 6,353,500
A-17	PRECISION-WESTERN	PRECISION	WESTERN	3,420	0.65	2	COLLECTOR	C	New	New	100%	550	715	0	715	$ 6,566,000	$ 6,566,000
A-18	ROBSON RANCH	IH 35W	ED ROBSON	8,720	1.65	6	PRIMARY ARTERIAL	PA	Widening	808	50%	850	4208	667	3,541	$ 30,974,000	$ 15,487,000
A-19	ROBSON RANCH	ED ROBSON	YARBROUGH	7,150	1.35	6	PRIMARY ARTERIAL	PA	Widening	627	50%	850	3443	423	3,020	$ 25,335,000	$ 12,667,500
A-20	SPRINGSIDE	CORBIN	UNDERWOOD	1,835	0.35	4	SECONDARY ARTERIAL	SA	Widening	620	100%	750	1050	217	833	$ 6,141,000	$ 6,141,000
A-21	SPRINGSIDE	UNDERWOOD	WESTCOURT	865	0.16	4	SECONDARY ARTERIAL	SA	Widening	31	100%	750	480	5	475	$ 2,971,000	$ 2,971,000
A-22	TJ EGAN-LOOP 288	LOOP 288	2440' W OF LOOP 288	2,440	0.46	2	COLLECTOR	C	New	New	100%	550	506	0	506	$ 3,722,000	$ 3,722,000
A-23	C WOLFE	1140' S OF TOM COLE	FM 2449	7,270	1.38	6	PRIMARY ARTERIAL	PA	Widening	225	50%	850	3519	155	3,364	$ 26,240,000	$ 13,120,000
A-24	C WOLFE	FM 2449	H LIVELY	3,315	0.63	6	PRIMARY ARTERIAL	PA	Widening	964	50%	850	1607	304	1,303	$ 12,018,000	$ 6,009,000
A-25	CORBIN	IH-35-CORBIN	SPRINGSIDE	2,050	0.39	2	COLLECTOR	C	Widening	620	100%	550	429	242	187	$ 3,667,000	$ 3,667,000
A-26	J CHRISTAL-H LIVELY	FM 2449	H LIVELY	3,305	0.63	2	COLLECTOR	C	New	New	100%	550	693	0	693	$ 5,353,000	$ 5,353,000
A-27	PRECISION	JIM CHRISTAL	1635' N OF FM 1515	2,385	0.45	2	COLLECTOR	C	New	New	100%	550	495	0	495	$ 3,694,000	$ 3,694,000
A-28	THOMAS J EGAN	JIM CHRISTAL	2915' S OF JIM CRISTAL	2,915	0.55	4	SECONDARY ARTERIAL	SA	New	New	100%	750	1650	0	1,650	$ 6,984,000	$ 6,984,000
A-29	THOMAS J EGAN	1830' N OF FM 1515	FM 1515	1,830	0.35	4	SECONDARY ARTERIAL	SA	New	New	50%	750	525	0	525	$ 4,635,000	$ 2,317,500
A-30	UNDERWOOD	SPRINGSIDE	UNDERWOOD CONNECTOR	4,000	0.76	6	PRIMARY ARTERIAL	PA	Widening	692	100%	850	3876	526	3,350	$ 15,229,000	$ 15,229,000
A-31	WESTCOURT	FM 1515	SPRINGSIDE	4,165	0.79	4	SECONDARY ARTERIAL	SA (1/2)	Widening	552	100%	750	2370	436	1,934	$ 5,343,000	$ 5,343,000
A-32	WESTERN	JIM CHRISTAL	AIRPORT	6,485	1.23	6	PRIMARY ARTERIAL	PA (1/3)	Widening	253	100%	850	6273	311	5,962	$ 6,619,000	$ 6,619,000
A-33	WESTERN	FM 1515	SPRINGSIDE	4,175	0.79	6	PRIMARY ARTERIAL	PA	New	New	100%	850	4029	0	4,029	$ 14,102,000	$ 14,102,000
ROADWAYS BEING PROVIDED BY HUNTER RANCH AND COLE RANCH WITHOUT CITY PARTICIPATION																	
	AMYX	LOOP 288	C WOLFE	6,855	1.30	2	SECONDARY ARTERIAL	SA	New	New	100%	750	1950	0	1,950	$ -	$ -
	FM 2449	LOOP 288	780' W OF LOOP 288	778	0.15	6	PRIMARY ARTERIAL	PA	New	New	100%	850	765	0	765	$ -	$ -
	FM 2449	780' W OF LOOP 288	4380' E OF C WOLFE	1,904	0.36	6	PRIMARY ARTERIAL	PA	New	New	100%	850	1836	0	1,836	$ -	$ -
	FM 2449	4380' E OF C WOLFE	C WOLFE	4,382	0.83	6	PRIMARY ARTERIAL	PA	Widening	1364	100%	850	4233	1132	3,101	$ -	$ -
	FM 2499	OUTER LOOP	UNDERWOOD	5,687	1.08	2	COLLECTOR	C	New	New	100%	550	1188	0	1,188	$ -	$ -
	H LIVELY	I-35W	C WOLFE	14,275	2.70	6	PRIMARY ARTERIAL	PA	New	New	30%	850	4131	0	4,131	$ -	$ -
	AMYX-H LIVELY	AMYX	H LIVELY	9,395	1.78	2	COLLECTOR	C	New	New	100%	550	1958	0	1,958	$ -	$ -
	FM 1515-H LIVELY	FM 1515	H LIVELY	12,255	2.32	4	SECONDARY ARTERIAL	SA	New	New	100%	750	6960	0	6,960	$ -	$ -
	HUNTER ARTERIAL	FM 2449	UNDERWOOD	10,451	1.98	4	SECONDARY ARTERIAL	SA	New	New	50%	750	2970	0	2,970	$ -	$ -
	HUNTER COLLECTOR	HUNTER ARTERIAL	UNDERWOOD	11,391	2.16	2	COLLECTOR	C	New	New	100%	550	2376	0	2,376	$ -	$ -
	HUNTER COLLECTOR A	HUNTER ARTERIAL	ROBSON RANCH	13,264	2.51	6	COLLECTOR	C	New	New	100%	550	8283	0	8,283	$ -	$ -
	HUNTER COLLECTOR C	HUNTER COLLECTOR A	HUNTER COLLECTOR B	2,886	0.55	2	COLLECTOR	C	New	New	100%	550	605	0	605	$ -	$ -
	UNDERWOOD	UNDERWOOD CONNECTOR	FM 2449	2,026	0.38	6	PRIMARY ARTERIAL	PA	New	New	100%	850	1938	0	1,938	$ -	$ -
	UNDERWOOD	LOOP 288	1610' N OF H LIVELY	5,909	1.12	6	PRIMARY ARTERIAL	PA	Widening	60	100%	850	5712	67	5,645	$ -	$ -
	UNDERWOOD	1610' N OF H LIVELY	H LIVELY	1,608	0.30	6	PRIMARY ARTERIAL	PA	New	New	100%	850	1530	0	1,530	$ -	$ -
	UNDERWOOD	H LIVELY	ROBSON RANCH	12,039	2.28	6	SECONDARY ARTERIAL	SA	New	New	100%	750	10260	0	10,260	$ -	$ -
SUBTOTAL													**120,658**	**8,471**	**112,187**	**$ 347,875,000**	**$ 268,201,500**

2022 Roadway Impact Impact Fee Cost per Service Area $ 37,660

TOTAL COST IN SERVICE AREA A $ 268,239,160

1. Veh-Mi Supply Pk-Hr Total = [Length (mi)] * [Exist Lanes] * [Veh-Mi Capacity Pk-Hr Per Ln] * [% in Service Area]
2. Veh-Mi Demand Pk-Hr Total = [Length (mi)] * [PM Peak Hour Vol] * [% In Service Area]
3. Excess Capacity Pk-Hr Veh-Mi = [Veh-Mi Supply Pk-Hr Total] - [Veh-Mi Demand Pk-Hr Total]

Note: Mileage lengths are shown as rounded to the nearest 0.01. Actual calculations were performed using exact mileage length [Length (ft) / 5,280].

City of Denton - 2022 Roadway Impact Fee Study

CIP Service Units of Supply

Service Area B

5/14/2024

Project ID #	ROADWAY	LIMITS		LENGTH (FT)	LENGTH (MI)	LANES	MTP CLASSIFICATION	IMPACT FEE CLASSIFICATION	ROADWAY STATUS	PEAK HOUR VOLUME	% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN	VEH-MI SUPPLY PK-HR TOTAL[1]	VEH-MI TOTAL DEMAND PK-HR[2]	EXCESS CAPACITY PK-HR VEH-MI[3]	TOTAL PROJECT COST	TOTAL PROJECT COST IN SERVICE AREA
		FROM	TO														
B-1	ALLRED	BONNIE BRAE	BRUSH CREEK	4,285	0.81	2	COLLECTOR	C	Widening	13	50%	550	446	5	441	$ 6,097,000	$ 3,048,500
B-2	ALLRED	BRUSH CREEK	JOHN PAINE	1,610	0.30	6	PRIMARY ARTERIAL	PA	Widening	1,171	50%	850	765	176	589	$ 5,424,000	$ 2,712,000.00
B-3	BRUSH CREEK	815' E OF COUNTRY CLUB	COUNTRY CLUB	815	0.15	6	PRIMARY ARTERIAL	PA	Widening	2,261	100%	850	765	339	426	$ 2,747,000	$ 2,747,000
B-4	BRUSH CREEK	COUNTRY CLUB	1935' W OF COUNTRY CLUB	1,935	0.37	6	PRIMARY ARTERIAL	PA	Widening	299	100%	850	1887	111	1,776	$ 6,769,000	$ 6,769,000
B-5	BRUSH CREEK	2180' E OF FORT WORTH	FORT WORTH	2,180	0.41	6	PRIMARY ARTERIAL	PA	Widening	299	100%	850	2091	123	1,968	$ 7,344,000	$ 7,344,000
B-6	BRUSH CREEK	FORT WORTH	590' E OF ALLRED	3,615	0.68	6	PRIMARY ARTERIAL	PA	New	New	100%	850	3468	0	3,468	$ 10,698,000	$ 10,698,000
B-7	CORBIN	BONNIE BRAE	IH-35W	3,505	0.66	4	SECONDARY ARTERIAL	SA	Widening	9	100%	750	1980	6	1,974	$ 10,760,000	$ 10,760,000
B-8	CREEKDALE	PIMLICO	RIVERCHASE	3,230	0.61	2	COLLECTOR	C	New	New	100%	550	671	0	671	$ 5,346,000	$ 5,346,000
B-9	CREEKDALE	THISTLE WAY	OAKBLUFF	2,080	0.39	2	COLLECTOR	C	New	New	100%	550	429	0	429	$ 3,461,000	$ 3,461,000
B-10	EL PASEO	BELMONT	COUNTRY CLUB	1,910	0.36	2	COLLECTOR	C	New	New	100%	550	396	0	396	$ 3,369,000	$ 3,369,000
B-11	FM 1515	BONNIE BRAE	IH 35W	770	0.15	6	PRIMARY ARTERIAL	PA	Widening	1,974	100%	850	765	296	469	$ 2,595,000	$ 2,595,000
B-12	HICKORY CREEK	FM 2499	NAUTICA	1,175	0.22	6	PRIMARY ARTERIAL	PA (1/3)	Widening	2,942	100%	850	1122	647	475	$ 1,605,000	$ 1,605,000
B-13	HICKORY CREEK	NAUTICA	TEASLEY	1,310	0.25	6	PRIMARY ARTERIAL	PA (1/3)	Widening	2,942	100%	850	1275	735	540	$ 1,789,000	$ 1,789,000
B-14	HICKORY CREEK	TEASLEY	MONTECITO	4,475	0.85	6	PRIMARY ARTERIAL	PA (1/3)	Widening	436	100%	850	4335	371	3,964	$ 8,638,000	$ 8,638,000
B-15	HICKORY CREEK	MONTECITO	1435' W OF BIDDY BYE	2,230	0.42	6	PRIMARY ARTERIAL	PA (1/3)	Widening	2,261	50%	850	1071	475	596	$ 4,006,000	$ 2,003,000
B-16	HICKORY CREEK	1435' W OF BIDDY BYE	815' E OF COUNTRY CLUB	1,980	0.38	6	PRIMARY ARTERIAL	PA	New	New	100%	850	1938	0	1,938	$ 7,612,000	$ 7,612,000
B-17	HOBSON LANE	TEASLEY	MONTECITO	670	0.13	4	SECONDARY ARTERIAL	SA	Widening	555	100%	750	390	72	318	$ 1,914,000	$ 1,914,000
B-18	HOBSON LANE	MONTECITO	FORRESTRIDGE	1,495	0.28	4	SECONDARY ARTERIAL	SA	Widening	552	100%	750	840	155	685	$ 5,710,000	$ 5,710,000
B-19	HOBSON LANE	FORRESTRIDGE	COUNTRY CLUB	3,785	0.72	4	SECONDARY ARTERIAL	SA	Widening	249	100%	750	2160	179	1,981	$ 11,559,000	$ 11,559,000
B-20	PARVIN	MCCORMICK	HIGHLAND PARK	2,665	0.50	2	COLLECTOR	C	New	New	100%	550	550	0	550	$ 2,150,000	$ 2,150,000
B-21	ROBINSON	230' E OF WHEELER RIDGE	TEASLEY	2,735	0.52	4	SECONDARY ARTERIAL	SA	Widening	1,188	100%	750	1560	618	942	$ 8,061,000	$ 8,061,000
B-22	RYAN	TEASLEY	MONTECITO	4,020	0.76	4	SECONDARY ARTERIAL	SA	Widening	755	100%	750	2280	574	1,706	$ 11,980,000	$ 11,980,000
B-23	RYAN	MONTECITO	FORRESTRIDGE	3,305	0.63	4	SECONDARY ARTERIAL	SA	Widening	552	100%	750	1890	348	1,542	$ 10,878,000	$ 10,878,000
B-24	RYAN	FORRESTRIDGE	COUNTRY CLUB	3,475	0.66	4	SECONDARY ARTERIAL	SA	Widening	45	100%	750	1980	30	1,950	$ 10,824,000	$ 10,824,000
B-25	VINTAGE	FORT WORTH	BONNIE BRAE	4,605	0.87	6	PRIMARY ARTERIAL	PA (1/3)	Widening	423	100%	850	4437	368	4,069	$ 11,721,000	$ 11,721,000
B-26	VINTAGE	BONNIE BRAE	NAPA VALLEY	765	0.14	6	PRIMARY ARTERIAL	PA (1/3)	Widening	1,874	100%	850	714	262	452	$ 1,665,000	$ 1,665,000
B-27	VINTAGE	NAPA VALLEY	IH 35W	3,435	0.65	6	PRIMARY ARTERIAL	PA (1/3)	Widening	1,874	100%	850	3315	1218	2,097	$ 7,975,000	$ 7,975,000
B-28	WILLOWWOOD	1250' W OF HIGHLAND PARK	BONNIE BRAE	1,285	0.24	2	COLLECTOR	C	Widening	1,039	100%	550	264	249	15	$ 2,079,000	$ 2,079,000
B-29	BONNIE BRAE	IH 35E	FM 1515	725	0.14	4	SECONDARY ARTERIAL	SA	Widening	2,992	100%	750	420	419	1	$ 1,285,000	$ 1,285,000
B-30	BONNIE BRAE	FM 1515	WILLOWWOOD	5,740	1.09	4	SECONDARY ARTERIAL	SA	Widening	2,003	100%	750	3270	2183	1,087	$ 11,351,000	$ 11,351,000
B-31	BONNIE BRAE	HIGHLAND PARK	ROSELAWN	2,550	0.48	4	SECONDARY ARTERIAL	SA	New	New	50%	750	720	0	720	$ 4,521,000	$ 2,260,500
B-32	COUNTRY CLUB	FORT WORTH	HOBSON	430	0.08	4	SECONDARY ARTERIAL	SA	Widening	1,436	100%	750	240	115	125	$ 1,229,000	$ 1,229,000
B-33	COUNTRY CLUB	HOBSON	RYAN	5,285	1.00	4	SECONDARY ARTERIAL	SA	Widening	1,284	100%	750	3000	1284	1,716	$ 15,093,000	$ 15,093,000
B-34	COUNTRY CLUB	RYAN	HICKORY CREEK	3,485	0.66	4	SECONDARY ARTERIAL	SA	Widening	552	50%	750	990	182	808	$ 11,902,000	$ 5,951,000
B-35	FORT WORTH	COUNTRY CLUB	VINTAGE	6,965	1.32	6	PRIMARY ARTERIAL	PA	Widening	2,741	100%	850	6732	3618	3,114	$ 26,417,000	$ 26,417,000
B-36	FORT WORTH	VINTAGE	BONNIE BRAE	5,655	1.07	6	PRIMARY ARTERIAL	PA	Widening	2,398	100%	850	5457	2566	2,891	$ 19,299,000	$ 19,299,000
B-37	FORT WORTH	BONNIE BRAE	BRUSH CREEK	1,250	0.24	6	PRIMARY ARTERIAL	PA	Widening	4,723	100%	850	1224	1134	90	$ 4,811,000	$ 4,811,000
B-38	FORT WORTH	BRUSH CREEK	CRAWFORD	5,845	1.11	6	PRIMARY ARTERIAL	PA	Widening	3,590	100%	850	5661	3985	1,676	$ 20,190,000	$ 20,190,000
B-39	JOHN PAINE	JOHNSON	ATHENS	2,210	0.42	4	SECONDARY ARTERIAL	Completed	Widening	1,280	100%	750	1260	538	722	$ 238,000	$ 238,000
B-40	JOHN PAINE	VINTAGE	1045' S OF VINTAGE	1,045	0.20	4	SECONDARY ARTERIAL	SA	New	New	100%	750	600	0	600	$ 3,254,000	$ 3,254,000
B-41	PARVIN-ROSELAWN	PARVIN	ROSELAWN	2,725	0.52	2	COLLECTOR	C	New	New	100%	550	572	0	572	$ 3,878,000	$ 3,878,000
B-42	TEASLEY	IH 35E	LONDONDERRY	1,315	0.25	6	PRIMARY ARTERIAL	PA (1/3)	Widening	3,407	100%	850	1275	852	423	$ 1,039,000	$ 1,039,000
B-43	TEASLEY	LONDONDERRY	HOBSON	5,140	0.97	6	PRIMARY ARTERIAL	PA (1/3)	Widening	3,135	100%	850	4947	3041	1,906	$ 4,558,000	$ 4,558,000
B-44	TEASLEY	LILLIAN B MILLER	PENNSYLVANIA	1,890	0.36	6	PRIMARY ARTERIAL	PA (1/3)	Widening	3,217	100%	850	1836	1158	678	$ 1,493,000	$ 1,493,000
B-45	TEASLEY	PENNSYLVANIA	HOBSON	1,085	0	6	PRIMARY ARTERIAL	PA (1/3)	Widening	3,133	100%	850	1071	658	413	$ 857,000	$ 857,000
ROADWAYS BEING PROVIDED BY HUNTER RANCH AND COLE RANCH WITHOUT CITY PARTICIPATION																	
	ALLRED	JOHN PAINE	365' W OF IH-35W	1,482	0.28	6	PRIMARY ARTERIAL	PA	Widening	1,308	100%	850	1428	366	1,062	$ -	$ -
	ALLRED	365' W OF IH-35W	IH-35W	365	0.07	6	PRIMARY ARTERIAL	PA	Widening	1,438	100%	850	357	101	256	$ -	$ -
	JOHN PAINE	VINTAGE	ALLRED	6,370	1.21	4	SECONDARY ARTERIAL	SA	New	New	100%	750	3630	0	3,630	$ -	$ -
	JOHN PAINE	ALLRED	TEXOMA	2,660	0.50	4	SECONDARY ARTERIAL	SA	New	New	100%	750	1500	0	1,500	$ -	$ -
SUBTOTAL													**89,974**	**29,557**	**60,417**	**$ 306,191,000**	**$ 290,216,000**

2022 Roadway Impact Impact Fee Cost per Service Area $ 37,660

TOTAL COST IN SERVICE AREA B $ 290,253,660

1. Veh-Mi Supply Pk-Hr Total = [Length (mi)] * [Exist Lanes] * [Veh-Mi Capacity Pk-Hr Per Ln] * [% in Service Area]
2. Veh-Mi Demand Pk-Hr Total = [Length (mi)] * [PM Peak Hour Vol] * [% In Service Area]
3. Excess Capacity Pk-Hr Veh-Mi = [Veh-Mi Supply Pk-Hr Total] - [Veh-Mi Demand Pk-Hr Total]

Note: Mileage lengths are shown as rounded to the nearest 0.01. Actual calculations were performed using exact mileage length [Length (ft) / 5,280].

City of Denton - 2022 Roadway Impact Fee Study

CIP Service Units of Supply

Service Area C

5/14/2024

Project ID #	ROADWAY	LIMITS		LENGTH (FT)	LENGTH (MI)	LANES	MTP CLASSIFICATION	IMPACT FEE CLASSIFICATION	ROADWAY STATUS	PEAK HOUR VOLUME	% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN	VEH-MI SUPPLY PK-HR TOTAL[1]	VEH-MI TOTAL DEMAND PK-HR[2]	EXCESS CAPACITY PK-HR VEH-MI[3]	TOTAL PROJECT COST	TOTAL PROJECT COST IN SERVICE AREA
		FROM	TO														
C-1	BARTHOLD	MASCH BRANCH	5200' W OF IIH 35	5,195	0.98	6	PRIMARY ARTERIAL	PA	Widening	250	50%	850	2499	123	2,376	$ 17,750,000	$ 8,875,000
C-2	BOBCAT	FM 2164	IH-35	14,535	2.75	4	SECONDARY ARTERIAL	SA	New	New	100%	750	8250	0	8250	$ 37,762,000	$ 37,762,000.00
C-3	FM 1173	IH 35	4605' W OF IH 35	4,605	0.87	4	SECONDARY ARTERIAL	SA	Widening	648	100%	750	2610	564	2046	$ 13,401,000	$ 13,401,000.00
C-4	FM 1173	4605' W OF IH 35	LOVERS	2,190	0.41	4	SECONDARY ARTERIAL	SA	Widening	648	50%	750	615	133	482	$ 7,704,000	$ 3,852,000
C-5	FM 2164-IH 35	FM 2164	IH 35	14,425	2.73	4	SECONDARY ARTERIAL	SA	New	New	100%	750	8190	0	8,190	$ 37,057,000	$ 37,057,000
C-6	GANZER	FM 2164	GANZER	12,680	2.40	6	PRIMARY ARTERIAL	PA	New	New	100%	850	12240	0	12,240	$ 39,748,000	$ 39,748,000
C-7	GANZER	2900' E OF IH 35	IH 35	2,900	0.55	6	PRIMARY ARTERIAL	PA	Widening	229	100%	850	2805	126	2,679	$ 11,525,000	$ 11,525,000
C-8	GANZER	1620' E OF BARTHOLD	BARTHOLD	1,620	0.31	6	PRIMARY ARTERIAL	PA	Widening	175	50%	850	791	27	764	$ 5,708,000	$ 2,854,000
C-9	GANZER	BARTHOLD	RECTOR	2,585	0.49	6	PRIMARY ARTERIAL	PA	Widening	74	50%	850	1250	18	1,232	$ 9,208,000	$ 4,604,000
A-13,C-10	JIM CHRISTAL	OLD SH 24	WESTERN	2,905	0.55	4	SECONDARY ARTERIAL	SA	Widening	1,056	50%	750	825	290	535	$ 9,746,000	$ 4,873,000
A-14,C-11	JIM CHRISTAL	WESTERN	MASCH BRANCH	3,510	0.66	4	SECONDARY ARTERIAL	SA	Widening	910	50%	750	990	300	690	$ 11,964,000	$ 5,982,000
A-15,C-12	JIM CHRISTAL	MASCH BRANCH	THOMAS J EGAN	5,975	1.13	4	SECONDARY ARTERIAL	SA	Widening	239	50%	750	1695	135	1,560	$ 18,502,000	$ 9,251,000
A-16,C-13	JIM CHRISTAL	THOMAS J EGAN	515' E OF C WOLFE	3,945	0.75	4	SECONDARY ARTERIAL	SA	Widening	239	50%	750	1125	90	1,035	$ 12,707,000	$ 6,353,500
C-14	JIM CHRISTAL	945' W OF C WOLFE	NAIL	3,115	0.59	4	SECONDARY ARTERIAL	SA	Widening	142	50%	750	885	42	843	$ 9,547,000	$ 4,773,500
C-15	JIM CHRISTAL	NAIL	2045' W of Nail	2,045	0.39	4	SECONDARY ARTERIAL	SA	Widening	119	50%	750	585	23	562	$ 5,841,000	$ 2,920,500
C-16	MARSHALL	2845' N OF HAMPTON	HAMPTON	2,845	0.54	2	COLLECTOR	C	New	New	100%	550	594	0	594	$ 5,249,000	$ 5,249,000
C-17	MARSHALL	HAMPTON	US 380	3,090	0.59	2	COLLECTOR	C	Widening	552	100%	550	649	326	323	$ 4,397,000	$ 4,397,000
C-18	MASCH BRANCH	MASCH BRANCH	DARBY SMITH	3,450	0.65	4	SECONDARY ARTERIAL	SA	Widening	405	100%	750	1950	263	1,687	$ 10,602,000	$ 10,602,000
C-19	WESTWARD	NORTHWAY	BONNIE BRAE	1,175	0.22	2	COLLECTOR	C	New	New	100%	550	242	0	242	$ 1,672,000	$ 1,672,000
C-20	RINEY	US 77	2460' W OF US 77	2,460	0.47	4	SECONDARY ARTERIAL	SA (1/2)	Widening	24	100%	750	1410	11	1,399	$ 3,156,000	$ 3,156,000
C-21	RINEY	2460' W OF US 77	BONNIE BRAE	980	0.19	4	SECONDARY ARTERIAL	SA (1/2)	Widening	24	100%	750	570	4	566	$ 1,258,000	$ 1,258,000
C-22	US 77	WINDSOR	FM 2164	1,180	0.22	6	PRIMARY ARTERIAL	PA (1/3)	Widening	706	100%	850	1122	155	967	$ 1,432,000	$ 1,432,000
C-23	US 77	RINEY	WINDSOR	2,430	0.46	6	PRIMARY ARTERIAL	PA (1/3)	Widening	374	100%	850	2346	172	2,174	$ 2,819,000	$ 2,819,000
C-24	US 77	RINEY	RINEY	2,120	0.40	6	PRIMARY ARTERIAL	PA (1/3)	Widening	374	100%	850	2040	149	1,891	$ 2,075,000	$ 2,075,000
C-25	US 77	BONNIE BRAE	RINEY	3,960	0.75	6	PRIMARY ARTERIAL	PA (1/3)	Widening	297	100%	850	3825	223	3,602	$ 3,126,000	$ 3,126,000
C-26	US 77	LOOP 288	BONNIE BRAE	1,720	0.33	6	PRIMARY ARTERIAL	PA (1/3)	Widening	490	100%	850	1683	162	1,521	$ 1,859,000	$ 1,859,000
C-27	US 77	IH 35	LOOP 288	4,610	0.87	6	PRIMARY ARTERIAL	PA (1/3)	Widening	461	100%	850	4437	401	4,036	$ 4,739,000	$ 4,739,000
C-28	MASCH BRANCH-NAIL	MASCH BRANCH	1295' W OF MASCH BRANCH	1,295	0.25	2	COLLECTOR	C	New	New	100%	550	275	0	275	$ 2,094,000	$ 2,094,000
C-29	MASCH BRANCH-NAIL	1050' E OF LOOP 288	1550' W OF LOOP 288	2,600	0.49	2	COLLECTOR	C	New	New	100%	550	539	0	539	$ 4,450,000	$ 4,450,000
C-30	MASCH BRANCH-NAIL	1335' W OF THOMAS J EGAN	775' E OF C WOLFE	2,550	0.48	2	COLLECTOR	C	New	New	100%	550	528	0	528	$ 4,379,000	$ 4,379,000
C-31	MASCH BRANCH-NAIL	775' E OF C WOLFE	690' W OF C WOLFE	1,470	0.28	2	COLLECTOR	C	New	New	50%	550	154	0	154	$ 2,092,000	$ 1,046,000
C-32	MASCH BRANCH-NAIL	690' W OF C WOLFE	NAIL	3,075	0.58	2	COLLECTOR	C	New	New	100%	550	638	0	638	$ 4,376,000	$ 4,376,000
C-33	WESTGATE	WESTGATE	1460' E OF IH-35	975	0.18	4	SECONDARY ARTERIAL	SA	New	New	100%	750	540	0	540	$ 2,336,000	$ 2,336,000
C-34	WINDSOR	US 77	HINKLE	2,420	0.46	4	SECONDARY ARTERIAL	SA	Widening	383	100%	750	1380	176	1,204	$ 6,912,000	$ 6,912,000
C-35	WINDSOR	HINKLE	BONNIE BRAE	5,240	0.99	4	SECONDARY ARTERIAL	SA (1/2)	Widening	478	100%	750	2970	473	2,497	$ 6,972,000	$ 6,972,000
C-36	WINDSOR	WESTGATE	145' W OF CLARENDON	505	0.10	4	SECONDARY ARTERIAL	SA (1/2)	Widening	124	100%	750	300	12	288	$ 649,000	$ 649,000
C-37	WINDSOR	220' W OF WINDSOR FARMS	IH 35	905	0.17	4	SECONDARY ARTERIAL	SA (1/2)	Widening	124	100%	750	510	21	489	$ 1,162,000	$ 1,162,000
C-38	WINDSOR	IH 35	MASCH BRANCH	6,535	1.24	4	SECONDARY ARTERIAL	SA	New	New	100%	750	3720	0	3,720	$ 17,606,000	$ 17,606,000
C-39	BARTHOLD	GANZER	2600' S OF GANZER	2,600	0.49	4	SECONDARY ARTERIAL	SA	Widening	103	100%	750	1470	51	1,419	$ 7,425,000	$ 7,425,000
C-40	BONNIE BRAE	MILAM	LOOP 288	16,505	3.13	6	PRIMARY ARTERIAL	PA	New	New	100%	850	15963	0	15,963	$ 52,065,000	$ 52,065,000
C-41	BONNIE BRAE	LOOP 288	US 77	1,255	0.24	4	SECONDARY ARTERIAL	SA	New	New	100%	750	720	0	720	$ 3,008,000	$ 3,008,000
C-42	BONNIE BRAE	US 77	RINEY	1,985	0.38	4	SECONDARY ARTERIAL	SA	Widening	341	100%	750	1140	130	1,010	$ 6,587,000	$ 6,587,000
C-43	BONNIE BRAE	RINEY	WINDSOR	3,510	0.66	4	SECONDARY ARTERIAL	SA	Widening	220	100%	750	1980	145	1,835	$ 10,320,000	$ 10,320,000
C-44	BONNIE BRAE	WINDSOR	US 380	3,585	0.68	4	SECONDARY ARTERIAL	SA	Widening	959	100%	750	2040	652	1,388	$ 11,981,000	$ 11,981,000
C-45,E-29	BONNIE BRAE	US 380	PANHANDLE	2,910	0.55	4	SECONDARY ARTERIAL	SA	Widening	1,754	50%	750	825	482	343	$ 8,310,000	$ 4,155,000
C-46,E-30	BONNIE BRAE	PANHANDLE	SCRIPTURE	1,070	0.20	4	SECONDARY ARTERIAL	SA	Widening	1,754	50%	750	300	175	125	$ 3,056,000	$ 1,528,000
C-47,E-31	BONNIE BRAE	SCRIPTURE	OAK	1,180	0.22	4	SECONDARY ARTERIAL	SA	Widening	1,754	50%	750	330	193	137	$ 3,370,000	$ 1,685,000
C-48,E-32	BONNIE BRAE	OAK	HICKORY	380	0.07	4	SECONDARY ARTERIAL	SA	Widening	1,754	50%	750	105	61	44	$ 1,087,000	$ 543,500
C-49,E-33	BONNIE BRAE	HICKORY	PRAIRIE	1,425	0.27	4	SECONDARY ARTERIAL	SA	Widening	1,754	50%	750	405	237	168	$ 4,070,000	$ 2,035,000
C-50,E-34	BONNIE BRAE	PRAIRIE	IH 35E	860	0.16	4	SECONDARY ARTERIAL	SA	Widening	1,754	50%	750	240	140	100	$ 2,457,000	$ 1,228,500
C-51	C WOLFE	US 380	WESTERN-NAIL	2,705	0.51	2	PRIMARY ARTERIAL	PA	New	New	100%	850	867	0	867	$ 8,901,000	$ 8,901,000
C-52	FALLMEADOW	MEADOWLEDGE	GARDENVIEW	915	0.17	2	COLLECTOR	C	New	New	100%	550	187	0	187	$ 1,303,000	$ 1,303,000
C-53,D-22	FM 2164	MILAM	LOOP 288	13,855	2.62	6	PRIMARY ARTERIAL	PA	Widening	2,098	50%	850	6681	2749	3,932	$ 49,925,000	$ 24,962,500
C-54,D-28	LOCUST	LOOP 288	HERCULES	2,260	0.43	4	SECONDARY ARTERIAL	SA	Widening	1,923	50%	750	645	413	232	$ 6,954,000	$ 3,477,000
C-55,D-29	LOCUST	HERCULES	BELL	2,375	0.45	4	SECONDARY ARTERIAL	SA	Widening	1,429	50%	750	675	322	353	$ 7,433,000	$ 3,716,500
C-56,D-30	LOCUST	BELL	WINDSOR	1,270	0.24	4	SECONDARY ARTERIAL	SA	Widening	999	50%	750	360	120	240	$ 3,628,000	$ 1,814,000
C-57,D-31	LOCUST	WINDSOR	FM 2164	1,345	0.25	4	SECONDARY ARTERIAL	SA	Widening	941	50%	750	375	118	257	$ 3,841,000	$ 1,920,500
C-58	LOVERS	FM 1173	MASCH BRANCH	4,120	0.78	4	SECONDARY ARTERIAL	SA	Widening	129	100%	750	2340	101	2,239	$ 12,266,000	$ 12,266,000
C-59	LOVERS	1085' N OF MASCH BRANCH	MASCH BRANCH	1,085	0.21	4	SECONDARY ARTERIAL	SA	Widening	160	100%	750	630	34	596	$ 3,349,000	$ 3,349,000
C-60	LOVERS LN CONNECTOR	LOVERS	LOOP 288	315	0.06	4	SECONDARY ARTERIAL	SA	New	New	100%	750	180	0	180	$ 756,000	$ 756,000
C-61	LOVERS LN CONNECTOR	LOOP 288	1085' N OF MASCH BRANCH	405	0.08	4	SECONDARY ARTERIAL	SA	New	New	100%	750	240	0	240	$ 972,000	$ 972,000
C-62	MASCH BRANCH	1295' S OF FM 1173	JACKSON	4,170	0.79	4	SECONDARY ARTERIAL	SA	Widening	444	50%	750	1185	176	1,009	$ 11,908,000	$ 5,954,000
C-63	MASCH BRANCH	LOVERS	US 380	3,800	0.72	4	SECONDARY ARTERIAL	SA	Widening	100	100%	750	2160	72	2,088	$ 11,352,000	$ 11,352,000
C-64	MASCH BRANCH	US 380	JIM CHRISTAL	4,110	0.78	4	SECONDARY ARTERIAL	SA	Widening	147	100%	750	2340	115	2,225	$ 12,137,000	$ 12,137,000
C-65	MILAM-LOOP 288	MILAM	LOOP 288	14,335	2.71	4	SECONDARY ARTERIAL	SA	New	New	100%	750	8130	0	8,130	$ 36,182,000	$ 36,182,000

City of Denton - 2022 Roadway Impact Fee Study

CIP Service Units of Supply

Service Area C

5/14/2024

Project ID #	ROADWAY	LIMITS		LENGTH (FT)	LENGTH (MI)	LANES	MTP CLASSIFICATION	IMPACT FEE CLASSIFICATION	ROADWAY STATUS	PEAK HOUR VOLUME	% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN	VEH-MI SUPPLY PK-HR TOTAL[1]	VEH-MI TOTAL DEMAND PK-HR[2]	EXCESS CAPACITY PK-HR VEH-MI[3]	TOTAL PROJECT COST	TOTAL PROJECT COST IN SERVICE AREA
		FROM	TO														
C-66	MILAM-US 77	MILAM	GANZER	7,975	1.51	4	SECONDARY ARTERIAL	SA	New	New	100%	750	4530	0	4,530	$ 20,546,000	$ 20,546,000
C-67	MILAM-US 77	GANZER	LONG	3,875	0.73	4	SECONDARY ARTERIAL	SA	Widening	95	100%	750	2190	69	2,121	$ 11,567,000	$ 11,567,000
C-68	MILAM-US 77	LONG	US 77	2,800	0.53	4	SECONDARY ARTERIAL	SA	New	New	100%	750	1590	0	1,590	$ 7,359,000	$ 7,359,000
C-69	NICOSIA	LOOP 288	BEALL	645	0.12	2	COLLECTOR	C	New	New	100%	550	132	0	132	$ 1,169,000	$ 1,169,000
C-70	THOMAS J EGAN	US 380	JIM CHRISTAL	4,010	0.76	4	SECONDARY ARTERIAL	SA	Widening	552	100%	750	2280	420	1,860	$ 12,353,000	$ 12,353,000
C-71	WESTERN	US 380	JIM CHRISTAL	4,245	0.80	6	PRIMARY ARTERIAL	PA	Widening	164	100%	850	4080	132	3,948	$ 14,699,000	$ 14,699,000
SUBTOTAL													**145,092**	**11,526**	**133,566**	**$ 695,918,000**	**$ 587,514,000**

2022 Roadway Impact Impact Fee Cost per Service Area $ 37,660

TOTAL COST IN SERVICE AREA C $ 587,551,660

1. Veh-Mi Supply Pk-Hr Total = [Length (mi)] * [Exist Lanes] * [Veh-Mi Capacity Pk-Hr Per Ln] * [% in Service Area]
2. Veh-Mi Demand Pk-Hr Total = [Length (mi)] * [PM Peak Hour Vol] * [% In Service Area]
3. Excess Capacity Pk-Hr Veh-Mi = [Veh-Mi Supply Pk-Hr Total] - [Veh-Mi Demand Pk-Hr Total]

Note: Mileage lengths are shown as rounded to the nearest 0.01. Actual calculations were performed using exact mileage length [Length (ft) / 5,280].

City of Denton - 2022 Roadway Impact Fee Study

CIP Service Units of Supply

Service Area D

5/14/2024

Project ID #	ROADWAY	LIMITS		LENGTH (FT)	LENGTH (MI)	LANES	MTP CLASSIFICATION	IMPACT FEE CLASSIFICATION	ROADWAY STATUS	PEAK HOUR VOLUME	% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN	VEH-MI SUPPLY PK-HR TOTAL[1]	VEH-MI TOTAL DEMAND PK-HR[2]	EXCESS CAPACITY PK-HR VEH-MI[3]	TOTAL PROJECT COST	TOTAL PROJECT COST IN SERVICE AREA
		FROM	TO														
D-1	BOBCAT	560' W OF FM 2164	FM 2164	560	0.11	4	SECONDARY ARTERIAL	SA	Widening	38	50%	750	165	2	163	$ 1,601,000	$ 800,500
D-2	FISHTRAP	MINGO	GEESLING	1,890	0.36	2	COLLECTOR	C	New	New	50%	550	198	0	198	$ 2,939,000	$ 1,469,500.00
D-3	GANZER	15,500' E OF SHERMAN	4600' W OF SHERMAN	17,985	3.41	6	PRIMARY ARTERIAL	PA	New	New	100%	850	17391	0	17391	$ 53,936,000	$ 53,936,000.00
D-4	GRIBBLE SPRINGS	INDIAN WELLS	3015' W OF INDIAN WELLS	3,015	0.57	2	SECONDARY ARTERIAL	SA	Widening	624	50%	750	428	178	250	$ 8,861,000	$ 4,430,500
D-5	HARTLEE FIELD	4220' E OF COOPER CREEK	COOPER CREEK	4,220	0.80	4	SECONDARY ARTERIAL	SA	Widening	624	50%	750	1200	250	950	$ 12,051,000	$ 6,025,500
D-6	HARTLEE FIELD	COOPER CREEK	5170' W OF COOPER CREEK	5,170	0.98	4	SECONDARY ARTERIAL	SA	Widening	37	50%	750	1470	18	1,452	$ 14,764,000	$ 7,382,000
D-7	HARTLEE FIELD	600' E OF SHERMAN	SHERMAN	600	0.11	2	COLLECTOR	C	Widening	4	50%	550	61	0	61	$ 855,000	$ 427,500
D-8	HARTLEE FLD-FM 2164	HARTLEE FIELD	SHERMAN	2,250	0.43	4	SECONDARY ARTERIAL	SA	New	New	100%	750	1290	0	1,290	$ 5,392,000	$ 5,392,000
D-9	HARTLEE FLD-FM 2164	SHERMAN	3500' W OF SHERMAN	3,500	0.66	4	SECONDARY ARTERIAL	SA	New	New	100%	750	1980	0	1,980	$ 8,386,000	$ 8,386,000
D-10	HARTLEE FLD-FM 2164	STUART	1485' W OF STUART	1,485	0.28	4	SECONDARY ARTERIAL	SA	New	New	50%	750	420	0	420	$ 3,809,000	$ 1,904,500
D-11	HARTLEE FLD-FM 2164	475' W OF FM 2164	FM 2164	475	0.09	4	SECONDARY ARTERIAL	SA	New	New	100%	750	270	0	270	$ 1,139,000	$ 1,139,000
D-12	LONG	510' W OF FM 2164	FM 2164	510	0.10	2	COLLECTOR	C	New	New	100%	550	110	0	110	$ 726,000	$ 726,000
D-13	MINGO	E CITY LIMITS	COOPER CREEK	460	0.09	4	SECONDARY ARTERIAL	SA	Widening	260	100%	750	270	23	247	$ 1,315,000	$ 1,315,000
D-14	MINGO	COOPER CREEK	LOOP 288	2,305	0.44	4	SECONDARY ARTERIAL	SA	Widening	552	100%	750	1320	243	1,077	$ 6,583,000	$ 6,583,000
D-15	MINGO	LOOP 288	US 380	2,275	0.43	4	SECONDARY ARTERIAL	SA	Widening	552	100%	750	1290	237	1,053	$ 7,937,000	$ 7,937,000
D-16	KINGS ROW	SILVER DOME	LOOP 288	2,655	0.50	2	COLLECTOR	C	Widening	552	100%	550	550	276	274	$ 3,779,000	$ 3,779,000
D-17	SILVER DOME	COOPER CREEK	FARRIS RD	2,190	0.41	2	COLLECTOR	C	Widening	552	50%	550	226	113	113	$ 3,117,000	$ 1,558,500
D-18	COLLINS	HARTLEE FIELD	2730' S OF HARTLEE FIELD	4,440	0.84	4	COLLECTOR	C	Widening	218	50%	550	924	92	832	$ 6,818,000	$ 3,409,000
D-19	COOPER CREEK	SHERMAN	HARTLEE FIELD	10,065	1.91	6	SECONDARY ARTERIAL	SA	New	New	100%	750	8595	0	8,595	$ 25,554,000	$ 25,554,000
D-20	COOPER CREEK	SILVER DOME	MINGO	4,360	0.83	6	SECONDARY ARTERIAL	SA	Widening	1,822	50%	750	1868	756	1,112	$ 12,452,000	$ 6,226,000
D-21	COOPER CREEK	MINGO	US 380	1,680	0.32	6	PRIMARY ARTERIAL	PA	Widening	2,250	100%	850	1632	720	912	$ 7,361,000	$ 7,361,000
C-53,D-22	FM 2164	MILAM	LOOP 288	13,855	2.62	6	PRIMARY ARTERIAL	PA	Widening	2,098	50%	850	6681	2749	3,932	$ 49,925,000	$ 24,962,500
D-23	GREEN VALLEY	2395' S OF FM 2153	2935' N OF SHEPARD	7,765	1.47	2	SECONDARY ARTERIAL	PA	New	New	100%	750	2205	0	2,205	$ 24,463,000	$ 24,463,000
D-24	GREEN VALLEY	WARSCHUN	SHERMAN	2,095	0.40	2	SECONDARY ARTERIAL	SA	Widening	1,856	100%	750	600	742	-142	$ 6,234,000	$ 6,234,000
D-25	INDIAN WELLS	1615' S OF FM 2153	4930' N OF GRIBBLE SPRINGS	3,870	0.73	2	SECONDARY ARTERIAL	SA	New	New	100%	750	1095	0	1,095	$ 10,021,000	$ 10,021,000
D-26	INDIAN WELLS	4930' N OF GRIBBLE SPRINGS	2905' N OF GRIBBLE SPRINGS	2,025	0.38	2	SECONDARY ARTERIAL	SA	New	New	50%	750	285	0	285	$ 4,853,000	$ 2,426,500
D-27	INDIAN WELLS	2905' N OF GRIBBLE SPRINGS	GRIBBLE SPRINGS	2,905	0.55	2	SECONDARY ARTERIAL	SA	Widening	67	50%	750	413	18	395	$ 8,296,000	$ 4,148,000
C-54,D-28	LOCUST	LOOP 288	HERCULES	2,260	0.43	4	SECONDARY ARTERIAL	SA	Widening	1,923	50%	750	645	413	232	$ 6,954,000	$ 3,477,000
C-55,D-29	LOCUST	HERCULES	BELL	2,375	0.45	4	SECONDARY ARTERIAL	SA	Widening	1,429	50%	750	675	322	353	$ 7,433,000	$ 3,716,500
C-56,D-30	LOCUST	BELL	WINDSOR	1,270	0.24	4	SECONDARY ARTERIAL	SA	Widening	999	50%	750	360	120	240	$ 3,628,000	$ 1,814,000
C-57,D-31	LOCUST	WINDSOR	FM 2164	1,345	0.25	4	SECONDARY ARTERIAL	SA	Widening	941	50%	750	375	118	257	$ 3,841,000	$ 1,920,500
D-32	SHERMAN	LOOP 288	HERCULES	1,650	0.31	4	SECONDARY ARTERIAL	SA	Widening	2,214	100%	750	930	686	244	$ 4,713,000	$ 4,713,000
D-33	SHERMAN	HERCULES	KINGS	1,910	0.36	4	SECONDARY ARTERIAL	SA	Widening	1,923	100%	750	1080	692	388	$ 5,455,000	$ 5,455,000
D-34	SHERMAN	KINGS	WINDSOR	2,025	0.38	4	SECONDARY ARTERIAL	SA	Widening	1,781	100%	750	1140	677	463	$ 7,223,000	$ 7,223,000
D-35	SHERMAN	WINDSOR	WILSONWOOD	1,000	0.19	4	SECONDARY ARTERIAL	SA	Widening	1,651	100%	750	570	314	256	$ 2,856,000	$ 2,856,000
D-36	SHERMAN	WILSONWOOD	CORONADO	1,165	0.22	4	SECONDARY ARTERIAL	SA	Widening	1,646	100%	750	660	362	298	$ 3,328,000	$ 3,328,000
D-37	SHERMAN	CORONADO	GREENWOOD	1,640	0.31	4	SECONDARY ARTERIAL	SA	Widening	1,659	100%	750	930	514	416	$ 4,685,000	$ 4,685,000
D-38	SHERMAN	GREENWOOD	BELL	825	0.16	4	SECONDARY ARTERIAL	SA	Widening	2,075	100%	750	480	332	148	$ 2,357,000	$ 2,357,000
D-39	SHERMAN	BELL	LOCUST	1,715	0.32	4	SECONDARY ARTERIAL	SA	Widening	1,934	100%	750	960	619	341	$ 4,899,000	$ 4,899,000
D-40	WINDSOR	LOOP 288	DOMINION	860	0.16	2	COLLECTOR	C	New	New	100%	550	176	0	176	$ 1,225,000	$ 1,225,000
SUBTOTAL													**61,918**	**11,586**	**50,332**	**$ 351,764,000**	**$ 275,665,500**
															2022 Roadway Impact Impact Fee Cost per Service Area		**$ 37,660**
															TOTAL COST IN SERVICE AREA D		**$ 275,703,160**

1. Veh-Mi Supply Pk-Hr Total = [Length (mi)] * [Exist Lanes] * [Veh-Mi Capacity Pk-Hr Per Ln] * [% in Service Area]
2. Veh-Mi Demand Pk-Hr Total = [Length (mi)] * [PM Peak Hour Vol] * [% In Service Area]
3. Excess Capacity Pk-Hr Veh-Mi = [Veh-Mi Supply Pk-Hr Total] - [Veh-Mi Demand Pk-Hr Total]

Note: Mileage lengths are shown as rounded to the nearest 0.01. Actual calculations were performed using exact mileage length [Length (ft) / 5,280].

City of Denton - 2022 Roadway Impact Fee Study

CIP Service Units of Supply

Service Area E

5/14/2024

Project ID #	ROADWAY	LIMITS FROM	LIMITS TO	LENGTH (FT)	LENGTH (MI)	LANES	MTP CLASSIFICATION	IMPACT FEE CLASSIFICATION	ROADWAY STATUS	PEAK HOUR VOLUME	% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN	VEH-MI SUPPLY PK-HR TOTAL[1]	VEH-MI TOTAL DEMAND PK-HR[2]	EXCESS CAPACITY PK-HR VEH-MI[3]	TOTAL PROJECT COST	TOTAL PROJECT COST IN SERVICE AREA
E-1	AUDRA	LOOP 288	1185' W OF LOOP 288	1,185	0.22	2	COLLECTOR	C	New	New	100%	550	242	0	242	$ 1,687,000	$ 1,687,000
E-2	BLAGG	LAKEVIEW	GEESLING	3,740	0.71	4	SECONDARY ARTERIAL	SA	Widening	552	100%	750	2130	392	1738	$ 11,181,000	$ 11,181,000.00
E-3	BLAGG	GEESLING	2175' W OF GEESLING	2,175	0.41	4	SECONDARY ARTERIAL	SA	Widening	2	100%	750	1230	1	1229	$ 7,651,000	$ 7,651,000.00
E-4	BLAGG	235' E OF MAYHILL	MAYHILL	235	0.04	4	SECONDARY ARTERIAL	SA	New	New	50%	750	60	0	60	$ 563,000	$ 281,500
E-5	DALLAS	TEASLEY	IH 35E	4,590	0.87	6	PRIMARY ARTERIAL	PA (1/3)	Widening	2,394	100%	850	4437	2083	2,354	$ 3,624,000	$ 3,624,000
E-6	DUCHESS	TRAILHEAD	WOODROW	4,005	0.76	2	COLLECTOR	C	New	New	100%	550	836	0	836	$ 5,949,000	$ 5,949,000
E-7	FM 426	LANEY	GRISSOM	2,995	0.57	4	SECONDARY ARTERIAL	SA	Widening	458	100%	750	1710	261	1,449	$ 9,953,000	$ 9,953,000
E-8	MCKINNEY	GRISSOM	LOOP 288	8,735	1.65	4	SECONDARY ARTERIAL	Completed	Widening	458	100%	750	4950	755	4,195	$ 1,551,000	$ 1,551,000
E-9	MCKINNEY	LOOP 288	CARDINAL	670	0.13	4	SECONDARY ARTERIAL	SA	Widening	1,731	100%	750	390	225	165	$ 1,914,000	$ 1,914,000
E-10	MCKINNEY	CARDINAL	MOCKINGBIRD	1,145	0.22	4	SECONDARY ARTERIAL	SA	Widening	1,730	100%	750	660	381	279	$ 3,270,000	$ 3,270,000
E-11	MCKINNEY	MOCKINGBIRD	MACK	3,245	0.61	4	SECONDARY ARTERIAL	SA	Widening	552	100%	750	1830	337	1,493	$ 9,268,000	$ 9,268,000
E-12	MCKINNEY	MACK	AUDRA	1,540	0.29	4	SECONDARY ARTERIAL	SA	Widening	1,367	100%	750	870	396	474	$ 4,399,000	$ 4,399,000
E-13	MILLS	TRINITY	MAYHILL	7,415	1.40	4	SECONDARY ARTERIAL	SA	Widening	552	100%	750	4200	773	3,427	$ 23,115,000	$ 23,115,000
E-14	MILLS	LAKEVIEW	MAYHILL	2,185	0.41	4	SECONDARY ARTERIAL	SA	New	New	100%	750	1230	0	1,230	$ 5,235,000	$ 5,235,000
E-15	MINGO	US 380	OLD NORTH	760	0.14	4	SECONDARY ARTERIAL	SA	Widening	552	100%	750	420	77	343	$ 2,172,000	$ 2,172,000
E-16	MINGO	OLD NORTH	NOTTINGHAM	2,545	0.48	4	SECONDARY ARTERIAL	SA	Widening	527	100%	750	1440	253	1,187	$ 7,268,000	$ 7,268,000
E-17	MINGO	NOTTINGHAM	PERTAIN	2,935	0.56	4	SECONDARY ARTERIAL	SA	Widening	92	100%	750	1680	51	1,629	$ 8,381,000	$ 8,381,000
E-18	MINGO	PERTAIN	RUDDELL	945	0.18	4	SECONDARY ARTERIAL	SA	Widening	201	100%	750	540	36	504	$ 2,700,000	$ 2,700,000
E-19	MINGO	RUDDELL	WILLIS	600	0.11	4	SECONDARY ARTERIAL	SA	Widening	327	100%	750	330	36	294	$ 1,714,000	$ 1,714,000
E-20	MINGO	WILLIS	WITHERS	2,305	0.44	4	SECONDARY ARTERIAL	SA	Widening	521	100%	750	1320	229	1,091	$ 6,583,000	$ 6,583,000
E-21	MINGO	WITHERS	PAISLEY	235	0.04	4	SECONDARY ARTERIAL	SA	Widening	534	100%	750	120	21	99	$ 671,000	$ 671,000
E-22	MINGO	PAISLEY	BELL	985	0.19	4	SECONDARY ARTERIAL	SA	Widening	599	100%	750	570	114	456	$ 2,813,000	$ 2,813,000
E-23	MORSE	MAYHILL	KIMBERLY	1,145	0.22	4	SECONDARY ARTERIAL	SA (1/2)	Widening	1,442	100%	750	660	317	343	$ 1,969,000	$ 1,969,000
E-24	SHADY OAKS	WOODROW	TEASLEY	3,070	0.58	4	SECONDARY ARTERIAL	SA	Widening	159	100%	750	1740	92	1,648	$ 9,967,000	$ 9,967,000
E-25	SPENCER	MAYHILL	LOOP 288	2,315	0.44	4	SECONDARY ARTERIAL	SA	Widening	1,240	100%	750	1320	546	774	$ 6,862,000	$ 6,862,000
E-26	TREATMENT PLANT	MCKINNEY	POST OAK	3,325	0.63	2	COLLECTOR	C	New	New	100%	550	693	0	693	$ 4,731,000	$ 4,731,000
E-27	TREATMENT PLANT	POST OAK	1325' W OF POST OAK	1,325	0.25	6	SECONDARY ARTERIAL	SA	New	New	100%	750	1125	0	1,125	$ 5,015,000	$ 5,015,000
E-28	TREATMENT PLANT	1325' W OF POST OAK	MAYHILL	3,960	0.75	6	SECONDARY ARTERIAL	SA	Widening	552	100%	750	3375	414	2,961	$ 11,310,000	$ 11,310,000
C-45,E-29	BONNIE BRAE	US 380	PANHANDLE	2,910	0.55	4	SECONDARY ARTERIAL	SA	Widening	1,754	50%	750	825	482	343	$ 8,310,000	$ 4,155,000
C-46,E-30	BONNIE BRAE	PANHANDLE	SCRIPTURE	1,070	0.20	4	SECONDARY ARTERIAL	SA	Widening	1,754	50%	750	300	175	125	$ 3,056,000	$ 1,528,000
C-47,E-31	BONNIE BRAE	SCRIPTURE	OAK	1,180	0.22	4	SECONDARY ARTERIAL	SA	Widening	1,754	50%	750	330	193	137	$ 3,370,000	$ 1,685,000
C-48,E-32	BONNIE BRAE	OAK	HICKORY	380	0.07	4	SECONDARY ARTERIAL	SA	Widening	1,754	50%	750	105	61	44	$ 1,087,000	$ 543,500
C-49,E-33	BONNIE BRAE	HICKORY	PRAIRIE	1,425	0.27	4	SECONDARY ARTERIAL	SA	Widening	1,754	50%	750	405	237	168	$ 4,070,000	$ 2,035,000
C-50,E-34	BONNIE BRAE	PRAIRIE	IH 35E	860	0.16	4	SECONDARY ARTERIAL	SA	Widening	1,754	50%	750	240	140	100	$ 2,457,000	$ 1,228,500
E-35	CARDINAL	ORIOLE	MCKINNEY	2,225	0.42	2	COLLECTOR	C	New	New	100%	550	462	0	462	$ 3,167,000	$ 3,167,000
E-36	GEESLING	US 380	BLAGG	2,445	0.46	6	PRIMARY ARTERIAL	PA	Widening	1,948	100%	850	2346	896	1,450	$ 8,237,000	$ 8,237,000
E-37	GEESLING	US 380	BLAGG	5,395	1.02	6	PRIMARY ARTERIAL	PA	New	New	100%	850	5202	0	5,202	$ 18,210,000	$ 18,210,000
E-38	LAKEVIEW	POST OAK	SHADY SHORES	1,385	0.26	6	PRIMARY ARTERIAL	PA (1/3)	Widening	1,520	100%	850	1326	395	931	$ 2,294,000	$ 2,294,000
E-39	MAYHILL	US 380	PROMINENCE	2,335	0.44	6	PRIMARY ARTERIAL	PA (1/3)	Widening	2,874	100%	850	2244	1265	979	$ 2,467,000	$ 2,467,000
E-40	MAYHILL	PROMINENCE	770' N OF RUSSELL NEWMAN	2,040	0.39	6	PRIMARY ARTERIAL	PA (1/3)	Widening	2,874	100%	850	1989	1121	868	$ 2,155,000	$ 2,155,000
E-41	MAYHILL	770' N OF RUSSELL NEWMAN	RUSSELL NEWMAN	775	0.15	6	PRIMARY ARTERIAL	PA (1/3)	Widening	2,874	50%	850	383	216	167	$ 819,000	$ 409,500
E-42	MAYHILL	RUSSELL NEWMAN	460' S OF RUSSELL NEWMAN	460	0.09	6	PRIMARY ARTERIAL	PA (1/3)	Widening	3,066	50%	850	230	138	92	$ 487,000	$ 243,500
E-43	MAYHILL	460' S OF RUSSELL NEWMAN	MILLS	1,080	0.20	6	PRIMARY ARTERIAL	PA (1/3)	Widening	3,066	100%	850	1020	613	407	$ 1,142,000	$ 1,142,000
E-44	MAYHILL	MILLS	MCKINNEY	1,955	0.37	6	PRIMARY ARTERIAL	PA (1/3)	Widening	3,215	100%	850	1887	1190	697	$ 2,066,000	$ 2,066,000
E-45	MAYHILL	MCKINNEY	MORSE	2,045	0.39	6	PRIMARY ARTERIAL	PA (1/3)	Widening	3,731	100%	850	1989	1455	534	$ 2,161,000	$ 2,161,000
E-46	MAYHILL	MORSE	SPENCER	3,520	0.67	6	PRIMARY ARTERIAL	PA (1/3)	Widening	3,002	100%	850	3417	2012	1,405	$ 3,717,000	$ 3,717,000
E-47	MAYHILL	SPENCER	EDWARDS	3,185	0.60	6	PRIMARY ARTERIAL	PA (1/3)	Widening	4,075	100%	850	3060	2445	615	$ 3,864,000	$ 3,864,000
E-48	MAYHILL	2725' N OF COLORADO	COLORADO	2,725	0.52	6	PRIMARY ARTERIAL	PA (1/3)	New	New	100%	850	2652	0	2,652	$ 4,477,000	$ 4,477,000
E-49	MAYHILL	COLORADO	IH 35E	2,330	0.44	6	PRIMARY ARTERIAL	PA (1/3)	Widening	5,548	100%	850	2244	2441	-197	$ 1,840,000	$ 1,840,000
E-50	MAYHILL CONNECTOR	MAYHILL	QUAILCREEK	700	0.13	2	COLLECTOR	PA	New	New	100%	550	143	0	143	$ 2,071,000	$ 2,071,000
E-51	MOCKINGBIRD	MCKINNEY	625' N OF DUCHESS	855	0.16	4	COLLECTOR	C	New	New	100%	550	352	0	352	$ 1,217,000	$ 1,217,000
E-52	MOCKINGBIRD	DUCHESS	SHADY OAKS	2,170	0.41	4	SECONDARY ARTERIAL	SA	New	New	100%	750	1230	0	1,230	$ 7,039,000	$ 7,039,000
E-53	MOCKINGBIRD	SHADY OAKS	SPENCER	2,805	0.53	4	SECONDARY ARTERIAL	SA	New	New	100%	750	1590	0	1,590	$ 6,721,000	$ 6,721,000
E-54	POST OAK	MILLS	SPENCER	6,840	1.30	6	PRIMARY ARTERIAL	PA	New	New	100%	850	6630	0	6,630	$ 20,228,000	$ 20,228,000
E-55	POST OAK	TREATMENT PLANT	EDWARDS	6,685	1.27	6	PRIMARY ARTERIAL	PA	New	New	100%	850	6477	0	6,477	$ 21,525,000	$ 21,525,000
E-56	POST OAK	EDWARDS	POCKRUS PAGE	2,710	0.51	2	PRIMARY ARTERIAL	PA	New	New	100%	850	867	0	867	$ 8,015,000	$ 8,015,000
E-57	SWISHER	EDWARDS	POCKRUS PAGE	2,635	0.50	2	COLLECTOR	C	New	New	100%	550	550	0	550	$ 3,750,000	$ 3,750,000
E-58	TEASLEY	DALLAS	IH 35E	1,870	0.35	6	PRIMARY ARTERIAL	PA (1/3)	Widening	2,090	100%	850	1785	732	1,053	$ 2,077,000	$ 2,077,000
E-59	N STAR	SPENCER	ROY	1,705	0.32	2	COLLECTOR	C	New	New	100%	550	352	0	352	$ 2,427,000	$ 2,427,000
E-60	ROY	MAYHILL	N STAR	1,120	0.21	2	COLLECTOR	C	New	New	100%	550	231	0	231	$ 1,594,000	$ 1,594,000
SUBTOTAL													**92,971**	**23,997**	**68,974**	**$ 317,633,000**	**$ 305,523,500**

2022 Roadway Impact Impact Fee Cost per Service Area $ 37,660

TOTAL COST IN SERVICE AREA E $ 305,561,160

1. Veh-Mi Supply Pk-Hr Total = [Length (mi)] * [Exist Lanes] * [Veh-Mi Capacity Pk-Hr Per Ln] * [% in Service Area]
2. Veh-Mi Demand Pk-Hr Total = [Length (mi)] * [PM Peak Hour Vol] * [% In Service Area]
3. Excess Capacity Pk-Hr Veh-Mi = [Veh-Mi Supply Pk-Hr Total] - [Veh-Mi Demand Pk-Hr Total]

Note: Mileage lengths are shown as rounded to the nearest 0.01. Actual calculations were performed using exact mileage length [Length (ft) / 5,280].

Appendix C – Existing Roadway Facilities Inventory

City of Denton - 2022 Roadway Impact Fee Study

Existing Roadway Facilities Inventory

Service Area A

12/7/2023

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL		VEH-MI DEMAND PK-HR TOTAL		EXCESS CAPACITY PK-HR VEH-MI		EXISTING DEFICIENCIES PK-HR VEH-MI	
					NB/EB	SB/WB			NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
CORBIN	IH-35W	CORBIN	3,055	0.58	1	1	2U-R	SA	5	5	100%	150	150	87	87	3	3	84	84		
FM 1515	IH 35W	CORBIN	5,990	1.13	1	1	2U-H	PA	381	381	100%	725	725	819	819	431	431	389	389		
FM 1515	CORBIN	WESTERN	1,175	0.22	1	1	2U-H	PA	230	230	100%	725	725	160	160	51	51	109	109		
FM 1515	WESTERN	WESTCOURT	1,555	0.29	1	1	2U-H	PA	560	560	100%	725	725	210	210	162	162	48	48		
FM 1515	WESTCOURT	MASCH BRANCH	620	0.12	1	1	2U	PA	276	276	100%	450	450	54	54	33	33	21	21		
FM 1515	TOM COLE	3435' W OF TOM COLE	3,435	0.65	1	1	2U-R	PA	332	332	100%	150	150	98	98	216	216	-118	-118	118	118
FM 1515	3435' W OF TOM COLE	530' E OF C WOLFE	3,750	0.71	1	1	2U-R	PA	309	309	100%	150	150	107	107	219	219	-113	-113	113	113
FM 2449	4380' E OF C WOLFE	C WOLFE	4,380	0.83	1	1	2U-H	PA	682	682	100%	725	725	602	602	566	566	36	36		
FM 2449	AMYX HILL RD	3830' W OF AMYX HILL RD	3,830	0.73	1	1	2U-H	PA	189	189	50%	725	725	265	265	69	69	196	196		
H LIVELY	C WOLFE	2145' W OF H LIVELY	2,145	0.41	1	1	2U-R	PA	24	24	50%	150	150	31	31	5	5	26	26		
H LIVELY	2145' W OF H LIVELY	2150' W OF ED ROBSON	3,915	0.74	1	1	2U-R	PA	117	117	100%	150	150	111	111	87	87	24	24		
JIM CHRISTAL	IH 35	OLD SH 24	3,110	0.59	1	1	2U-H	SA	645	645	100%	725	725	428	428	381	381	47	47		
JIM CHRISTAL	OLD SH 24	WESTERN	2,905	0.55	1	1	2U-H	SA	528	528	50%	725	725	199	199	145	145	54	54		
JIM CHRISTAL	WESTERN	MASCH BRANCH	3,510	0.66	1	1	2U-H	SA	455	455	50%	725	725	239	239	150	150	89	89		
JIM CHRISTAL	MASCH BRANCH	THOMAS J EGAN	5,975	1.13	1	1	2U-H	SA	119	119	50%	725	725	410	410	67	67	342	342		
JIM CHRISTAL	THOMAS J EGAN	515' E OF C WOLFE	3,945	0.75	1	1	2U-H	SA	119	119	50%	725	725	272	272	45	45	227	227		
ROBSON RANCH	IH 35W	ED ROBSON	8,720	1.65	2	2	4U	PA	404	404	50%	550	550	908	908	333	333	574	574		
ROBSON RANCH	ED ROBSON	YARBROUGH	7,150	1.35	2	2	4U	PA	314	314	50%	550	550	743	743	212	212	531	531		
SPRINGSIDE	CORBIN	UNDERWOOD	1,835	0.35	1	1	2U	SA	310	310	100%	450	450	158	158	109	109	49	49		
SPRINGSIDE	UNDERWOOD	WESTCOURT	865	0.16	1	1	2U	SA	15	15	100%	450	450	72	72	2	2	70	70		
C WOLFE	1140' S OF TOM COLE	FM 2449	7,270	1.38	1	1	2U-R	PA	112	112	100%	150	150	207	207	155	155	52	52		
CORBIN	AIRPORT	1335' S OF FM 1515	1,355	0.26	2	2	4U	C	310	310	100%	550	550	286	286	81	81	205	205		
CORBIN	1335' S OF FM 1515	IH-35-CORBIN	675	0.13	1	1	3U	C	310	310	100%	550	550	72	72	40	40	31	31		
CORBIN	IH-35-CORBIN	SPRINGSIDE	2,050	0.39	1	1	2U-R	C	310	310	100%	150	150	59	59	121	121	-62	-62	62	62
H LIVELY	FM 2449	H LIVELY	3,315	0.63	1	1	2U	PA	482	482	50%	450	450	142	142	152	152	-10	-10	10	10
LOOP 288	IH-35W	UNDERWOOD CONNECTOR	2,565	0.49	1	1	2U-H	FWY	1,483	1,483	100%	725	725	355	355	727	727	-371	-371	371	371
PRECISION	1635' N OF FM 1515	FM 1515	1,635	0.31	1	1	2U	C	222	222	100%	450	450	140	140	69	69	71	71		
UNDERWOOD	SPRINGSIDE	UNDERWOOD CONNECTOR	4,000	0.76	1	1	2U	PA	346	346	100%	450	450	342	342	263	263	79	79		
UNDERWOOD	LOOP 288	1610' N OF H LIVELY	5,910	1.12	1	1	2U-R	PA	30	30	100%	150	150	168	168	34	34	134	134		
UNDERWOOD CONNECTOR	UNDERWOOD	915' S OF UNDERWOOD	915	0.17	1	1	2U	SA	321	321	100%	450	450	77	77	55	55	22	22		
WESTCOURT	FM 1515	SPRINGSIDE	4,165	0.79	1	1	2U	SA	276	276	100%	450	450	356	356	218	218	137	137		
WESTERN	JIM CHRISTAL	AIRPORT	6,485	1.23	2	2	4D	PA	127	127	100%	750	750	1,845	1,845	156	156	1,689	1,689		
SUBTOTAL			**112,205**	**21.26**										**10,016**	**10,016**	**5,354**	**5,354**	**4,662**	**4,662**	**674**	**674**
														20,032		**10,709**		**9,323**		**1,348**	

City of Denton - 2022 Roadway Impact Fee Study
Existing Roadway Facilities Inventory

Service Area B

12/7/2023

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL		VEH-MI DEMAND PK-HR TOTAL		EXCESS CAPACITY PK-HR VEH-MI		EXISTING DEFICIENCIES PK-HR VEH-MI	
					NB/EB	SB/WB			NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
ACME	FORT WORTH	BERNARD	480	0.09	1	1	2U	C	485	485	100%	450	450	41	41	44	44	-3	-3	3	3
ALLRED	BONNIE BRAE	BRUSH CREEK	4,285	0.81	1	1	2U-R	C	6	6	50%	150	150	61	61	2	2	58	58		
ALLRED	BRUSH CREEK	JOHN PAINE	1,610	0.30	1	1	2U-R	PA	585	585	50%	150	150	23	23	88	88	-65	-65	65	65
ALLRED	JOHN PAINE	365' W OF IH-35W	1,480	0.28	1	1	2U-R	PA	654	654	100%	150	150	42	42	183	183	-141	-141	141	141
ALLRED	365' W OF IH-35W	IH-35W	365	0.07	1	1	2U-R	PA	719	719	100%	150	150	11	11	50	50	-40	-40	40	40
BRUSH CREEK	815' E OF COUNTRY CLUB	COUNTRY CLUB	815	0.15	1	1	2U-R	PA	1,131	1,131	100%	150	150	23	23	170	170	-147	-147	147	147
BRUSH CREEK	COUNTRY CLUB	1935' W OF COUNTRY CLUB	1,935	0.37	1	1	2U-R	PA	150	150	100%	150	150	56	56	56	56	0	0		
BRUSH CREEK	2180' E OF FORT WORTH	FORT WORTH	2,180	0.41	1	1	2U-R	PA	150	150	100%	150	150	62	62	62	62	0	0		
CORBIN	BONNIE BRAE	IH-35W	3,505	0.66	1	1	2U-R	SA	5	5	100%	150	150	99	99	3	3	96	96		
CRAWFORD	FORT WORTH	IH 35W	3,360	0.64	1	1	2U-R	SA	1,328	1,328	50%	150	150	48	48	425	425	-377	-377	377	377
CREEKDALE	TEASLEY	PIMLICO	2,750	0.52	1	1	2U	C	223	223	100%	450	450	234	234	116	116	118	118		
CREEKDALE	RIVERCHASE	THISTLE WAY	1,610	0.30	1	1	2U	C	495	495	100%	450	450	135	135	149	149	-14	-14	14	14
CREEKDALE	RED FOX	EAGLESTONE	1,425	0.27	1	1	2U	C	349	349	100%	450	450	122	122	94	94	27	27		
CREEKDALE	RYAN	RED FOX	825	0.16	1	1	3U	C	349	349	100%	550	550	88	88	56	56	32	32		
EL PASEO	MONTECITO	FORRESTRIDGE	1,760	0.33	1	1	2U	C	262	262	100%	450	450	149	149	86	86	62	62		
EL PASEO	FORRESTRIDGE	BELMONT	1,905	0.36	1	1	2U	C	131	131	100%	450	450	162	162	47	47	115	115		
FM 1515	BONNIE BRAE	IH 35W	770	0.15	1	1	2U	PA	987	987	100%	450	450	68	68	148	148	-81	-81	81	81
HICKORY CREEK	FM 2499	NAUTICA	1,175	0.22	1	1	2U	PA	1,471	1,471	100%	450	450	99	99	324	324	-225	-225	225	225
HICKORY CREEK	NAUTICA	TEASLEY	1,310	0.25	2	2	4D	PA	1,471	1,471	100%	750	750	375	375	368	368	7	7		
HICKORY CREEK	TEASLEY	MONTECITO	4,475	0.85	1	1	2U	PA	218	218	100%	450	450	383	383	185	185	197	197		
HICKORY CREEK	MONTECITO	1435' W OF BIDDY BYE	2,230	0.42	1	1	2U	PA	1,131	1,131	50%	450	450	95	95	238	238	-143	-143	143	143
HIGHLAND PARK	HIGHLAND PARK	BONNIE BRAE	1,840	0.35	1	1	2U	C	20	20	100%	450	450	158	158	7	7	151	151		
HOBSON LANE	TEASLEY	MONTECITO	670	0.13	1	1	2U	SA	278	278	100%	450	450	59	59	36	36	22	22		
HOBSON LANE	MONTECITO	FORRESTRIDGE	1,495	0.28	1	1	2U	SA	276	276	100%	450	450	126	126	77	77	49	49		
HOBSON LANE	FORRESTRIDGE	COUNTRY CLUB	3,785	0.72	1	1	2U	SA	125	125	100%	450	450	324	324	90	90	234	234		
LONDONDERRY	SOUTHRIDGE	TEASLEY	1,755	0.33	1	1	2U	C	7	7	100%	450	450	149	149	2	2	146	146		
LONDONDERRY	TEASLEY	SAM BASS	2,105	0.40	1	1	2U	C	4	4	100%	450	450	180	180	2	2	178	178		
MONTECITO	HICKORY CREEK	TEASLEY	5,875	1.11	2	2	4U	C	847	847	100%	550	550	1,221	1,221	940	940	281	281		
PARVIN	BERNARD	MCCORMICK	1,580	0.30	1	1	2U	C	47	47	100%	450	450	135	135	14	14	121	121		
ROBINSON	POST OAK	FM 2499	685	0.13	2	2	4D	SA	1,379	1,379	50%	750	750	98	98	90	90	8	8		
ROBINSON	HARVARD	BERKLEY	1,055	0.20	2	2	4D	SA	774	774	100%	750	750	300	300	155	155	145	145		
ROBINSON	BERKLEY	230' E OF WHEELER RIDGE	505	0.10	2	2	4D	SA	774	774	100%	750	750	150	150	77	77	73	73		
ROBINSON	230' E OF WHEELER RIDGE	TEASLEY	2,735	0.52	1	1	2U	SA	594	594	100%	450	450	234	234	309	309	-75	-75	75	75
ROSELAWN	BERNARD	BONNIE BRAE	8,310	1.57	1	1	2U	C	231	231	100%	450	450	707	707	363	363	344	344		
RYAN	TEASLEY	MONTECITO	4,020	0.76	1	1	2U	SA	378	378	100%	450	450	342	342	287	287	55	55		
RYAN	MONTECITO	FORRESTRIDGE	3,305	0.63	1	1	2U	SA	276	276	100%	450	450	284	284	174	174	110	110		
RYAN	FORRESTRIDGE	COUNTRY CLUB	3,475	0.66	1	1	2U	SA	23	23	100%	450	450	297	297	15	15	282	282		
VINTAGE	FORT WORTH	BONNIE BRAE	4,605	0.87	1	1	2D	PA	211	211	100%	550	550	479	479	184	184	295	295		
VINTAGE	BONNIE BRAE	NAPA VALLEY	765	0.14	1	1	2D	PA	937	937	100%	550	550	77	77	131	131	-54	-54	54	54
VINTAGE	NAPA VALLEY	IH 35W	3,435	0.65	1	1	2U	PA	937	937	100%	450	450	293	293	609	609	-317	-317	317	317
WILLOWWOOD	BERNARD	MCCORMICK	1,735	0.33	1	1	2U	C	58	58	100%	450	450	149	149	19	19	129	129		
WILLOWWOOD	MCCORMICK	HIGHLAND PARK	2,250	0.43	1	1	2U	C	132	132	100%	450	450	194	194	57	57	137	137		
WILLOWWOOD	HIGHLAND PARK	1250' W OF HIGHLAND PARK	775	0.15	1	1	2U	C	301	301	100%	450	450	68	68	45	45	22	22		
WILLOWWOOD	1250' W OF HIGHLAND PARK	BONNIE BRAE	1,285	0.24	1	1	2U-R	C	519	519	100%	150	150	36	36	125	125	-89	-89	89	89
WIND RIVER	IH 35E	TEASLEY	5,995	1.14	1	1	3U	C	58	58	100%	550	550	627	627	66	66	561	561		
MCCORMICK	IH 35E	WILLOWWOOD	1,875	0.36	1	1	2U	C	96	96	100%	450	450	162	162	35	35	127	127		
BERNARD	IH 35E	WILLOWWOOD	315	0.06	1	1	2U	C	100	100	100%	450	450	27	27	6	6	21	21		
BERNARD	WILLOWWOOD	ACME	505	0.10	1	1	2U	C	55	55	100%	450	450	45	45	6	6	40	40		
BERNARD	ACME	PARVIN	1,520	0.29	1	1	2U	C	527	527	100%	450	450	131	131	153	153	-22	-22	22	22
BONNIE BRAE	IH 35E	FM 1515	725	0.14	1	1	2U	SA	1,496	1,496	100%	450	450	63	63	209	209	-146	-146	146	146
BONNIE BRAE	FM 1515	WILLOWWOOD	5,740	1.09	1	1	2U	SA	1,001	1,001	100%	450	450	491	491	1,091	1,091	-601	-601	601	601
BONNIE BRAE	1010' N OF VINTAGE	VINTAGE	1,010	0.19	1	1	2U	SA	847	847	100%	450	450	86	86	161	161	-75	-75	75	75
BONNIE BRAE	VINTAGE	ALLRED	6,275	1.19	1	1	2U	C	1,154	1,154	50%	450	450	268	268	687	687	-419	-419	419	419
COUNTRY CLUB	FORT WORTH	HOBSON	430	0.08	1	1	2U	SA	718	718	100%	450	450	36	36	57	57	-21	-21	21	21
COUNTRY CLUB	HOBSON	RYAN	5,285	1.00	1	1	2U	SA	642	642	100%	450	450	450	450	642	642	-192	-192	192	192
COUNTRY CLUB	RYAN	HICKORY CREEK	3,485	0.66	1	1	2U	SA	276	276	50%	450	450	149	149	91	91	57	57		
FM 2499	IH 35E	ROBINSON	5,755	1.09	3	3	6D	PA	2,970	2,970	100%	850	850	2,780	2,780	3,237	3,237	-458	-458	458	458
FM 2499	ROBINSON	600' S OF OCEAN	5,940	1.13	3	3	6D	PA	2,412	2,412	100%	850	850	2,882	2,882	2,726	2,726	156	156		
FORRESTRIDGE	HOBSON	EL PASEO	2,855	0.54	1	1	2U	C	108	108	100%	450	450	243	243	58	58	185	185		
FORRESTRIDGE	EL PASEO	RYAN	2,505	0.47	1	1	2U	C	23	23	100%	450	450	212	212	11	11	201	201		
FORT WORTH	IH 35E	COUNTRY CLUB	7,390	1.40	1	1	6D	PA	1,603	1,603	100%	850	850	1,190	1,190	2,244	2,244	-1,054	-1,054	1,054	1,054
FORT WORTH	COUNTRY CLUB	VINTAGE	6,965	1.32	1	1	2U-H	PA	1,370	1,370	100%	725	725	957	957	1,808	1,808	-851	-851	851	851
FORT WORTH	VINTAGE	BONNIE BRAE	5,655	1.07	1	1	2U-H	PA	1,199	1,199	100%	725	725	776	776	1,283	1,283	-507	-507	507	507
FORT WORTH	BONNIE BRAE	BRUSH CREEK	1,250	0.24	1	1	2U-H	PA	2,362	2,362	100%	725	725	174	174	567	567	-393	-393	393	393
FORT WORTH	BRUSH CREEK	CRAWFORD	5,845	1.11	1	1	2U-H	PA	1,795	1,795	100%	725	725	805	805	1,992	1,992	-1,188	-1,188	1,188	1,188
HIGHLAND PARK	IH 35E	WILLOWWOOD	3,155	0.60	1	1	2U	C	170	170	100%	450	450	270	270	102	102	168	168		
JOHN PAINE	TEXOMA	ATHENS	675	0.13	2	2	4U	SA	640	640	100%	550	550	143	143	83	83	60	60		
JOHN PAINE	ATHENS	CREEKWAY	3,500	0.66	2	2	4U	SA	640	640	100%	550	550	726	726	422	422	304	304		
LILLIAN MILLER	IH 35E	SOUTHRIDGE	2,070	0.39	2	2	4D	PA	1,508	1,508	100%	750	750	585	585	588	588	-3	-3	3	3

City of Denton - 2022 Roadway Impact Fee Study
Existing Roadway Facilities Inventory

Service Area B

12/7/2023

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL		VEH-MI DEMAND PK-HR TOTAL		EXCESS CAPACITY PK-HR VEH-MI		EXISTING DEFICIENCIES PK-HR VEH-MI	
					NB/EB	SB/WB			NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
LILLIAN MILLER	SOUTHRIDGE	WIND RIVER	2,170	0.41	2	2	4D	PA	1,335	1,335	100%	750	750	615	615	547	547	68	68		
MCCORMICK	WILLOWWOOD	PARVIN	2,085	0.39	1	1	2U	C	4	4	100%	450	450	176	176	2	2	174	174		
MONTECITO	HOBSON	EL PASEO	2,960	0.56	1	1	2U	C	153	153	100%	450	450	252	252	86	86	166	166		
MONTECITO	EL PASEO	RYAN	3,060	0.58	1	1	2U	C	310	310	100%	450	450	261	261	180	180	81	81		
PENNSYLVANIA	IH 35E	SOUTHRIDGE	1,560	0.30	1	1	2U	C	32	32	100%	450	450	135	135	10	10	125	125		
PENNSYLVANIA	SOUTHRIDGE	TEASLEY	4,075	0.77	1	1	2U	C	1	1	100%	450	450	347	347	1	1	346	346		
RIVERPASS	CREEKDALE	HICKORY CREEK	2,595	0.49	1	1	2U	C	636	636	100%	450	450	221	221	312	312	-91	-91	91	91
SAM BASS	IH 35E	LONDONDERRY	1,600	0.30	1	1	2U	C	2	2	100%	450	450	135	135	1	1	134	134		
SOUTHRIDGE	IH 35E	LONDONDERRY	505	0.10	1	1	2U	C	4	4	100%	450	450	45	45	0	0	45	45		
SOUTHRIDGE	LONDONDERRY	PENNSYLVANIA	2,410	0.46	1	1	2U	C	3	3	100%	450	450	207	207	1	1	206	206		
SOUTHRIDGE	PENNSYLVANIA	LILLIAN B MILLER	2,045	0.39	1	1	2U	C	119	119	100%	450	450	176	176	46	46	129	129		
TEASLEY	IH 35E	LONDONDERRY	1,315	0.25	2	2	4D	PA	1,704	1,704	100%	750	750	375	375	426	426	-51	-51	51	51
TEASLEY	LONDONDERRY	HOBSON	5,140	0.97	2	2	4D	PA	1,568	1,568	100%	750	750	1,455	1,455	1,521	1,521	-66	-66	66	66
TEASLEY	LILLIAN B MILLER	PENNSYLVANIA	1,890	0.36	2	2	4D	PA	1,608	1,608	100%	750	750	540	540	579	579	-39	-39	39	39
TEASLEY	PENNSYLVANIA	HOBSON	1,085	0.21	2	2	4D	PA	1,567	1,567	100%	750	750	315	315	329	329	-14	-14	14	14
TEASLEY	WIND RIVER	BENT OAKS	1,230	0.23	2	2	4D	PA	2,542	2,542	100%	750	750	345	345	585	585	-240	-240	240	240
TEASLEY	BENT OAKS	RYAN	4,455	0.84	2	2	6D	PA	2,542	2,542	100%	850	850	1,428	1,428	2,135	2,135	-707	-707	707	707
TEASLEY	RYAN	ROBINSON	1,245	0.24	2	2	6D	PA	2,665	2,665	100%	850	850	408	408	640	640	-232	-232	232	232
TEASLEY	ROBINSON	HICKORY CREEK	4,145	0.79	2	2	6D	PA	2,888	2,888	100%	850	850	1,343	1,343	2,282	2,282	-939	-939	939	939
TEASLEY	HICKORY CREEK	MONTECITO	1,890	0.36	2	2	6D	PA	2,096	2,096	100%	850	850	612	612	755	755	-143	-143	143	143
TEASLEY	MONTECITO	OLD ALTON	3,760	0.71	2	2	6D	PA	2,638	2,638	100%	850	850	1,207	1,207	1,873	1,873	-666	-666	666	666
TEASLEY	OLD ALTON	635' W OF FM 2499	1,890	0.36	2	2	6D	PA	2,260	2,260	100%	850	850	612	612	814	814	-202	-202	202	202
SUBTOTAL			**238,125**	**45.13**										**33,907**	**33,907**	**38,149**	**38,149**	**-4,242**	**-4,242**	**11,091**	**11,091**
														67,813		**76,298**		**-8,485**		**22,182**	

City of Denton - 2022 Roadway Impact Fee Study
Existing Roadway Facilities Inventory

Service Area C

12/7/2023

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL		VEH-MI DEMAND PK-HR TOTAL		EXCESS CAPACITY PK-HR VEH-MI		EXISTING DEFICIENCIES PK-HR VEH-MI	
					NB/EB	SB/WB			NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
BARTHOLD	MASCH BRANCH	5200' W OF IIH 35	5,195	0.98	1	1	2U-R	PA	125	125	50%	150	150	74	74	61	61	12	12		
FM 1173	IH 35	4605' W OF IH 35	4,605	0.87	1	1	2U-H	SA	324	324	100%	725	725	631	631	282	282	349	349		
FM 1173	4605' W OF IH 35	LOVERS	2,190	0.41	1	1	2U-H	SA	324	324	50%	725	725	149	149	66	66	82	82		
FM 2164	LOCUST	ELM	490	0.09	2	2	4D	SA	760	760	100%	750	750	135	135	68	68	67	67		
GANZER	2900' E OF IH 35	IH 35	2,900	0.55	1	1	2U-R	PA	115	115	100%	150	150	83	83	63	63	19	19		
GANZER	1620' E OF BARTHOLD	BARTHOLD	1,620	0.31	1	1	2U	PA	87	87	50%	450	450	70	70	13	13	56	56		
GANZER	BARTHOLD	RECTOR	2,585	0.49	1	1	2U	PA	37	37	50%	450	450	110	110	9	9	101	101		
HERCULES	LOCUST	TRISTAN	825	0.16	1	1	2U	C	276	276	100%	450	450	72	72	44	44	28	28		
HERCULES	TRISTAN	MEADOWTRAIL LN	770	0.15	1	1	2U	C	276	276	100%	450	450	68	68	41	41	26	26		
HERCULES	MEADOWTRAIL	NICOSIA	3,275	0.62	1	1	2U	C	42	42	100%	450	450	279	279	26	26	253	253		
HICKORY	BONNIE BRAE	OAK	530	0.10	2	2	4D	SA	628	628	100%	750	750	150	150	63	63	87	87		
JIM CHRISTAL	OLD SH 24	WESTERN	2,905	0.55	1	1	2U-H	SA	528	528	50%	725	725	199	199	145	145	54	54		
JIM CHRISTAL	WESTERN	MASCH BRANCH	3,510	0.66	1	1	2U-H	SA	455	455	50%	725	725	239	239	150	150	89	89		
JIM CHRISTAL	MASCH BRANCH	THOMAS J EGAN	5,975	1.13	1	1	2U-H	SA	119	119	50%	725	725	410	410	67	67	342	342		
JIM CHRISTAL	THOMAS J EGAN	515' E OF C WOLFE	3,945	0.75	1	1	2U-H	SA	119	119	50%	725	725	272	272	45	45	227	227		
JIM CHRISTAL	945' W OF C WOLFE	NAIL	3,115	0.59	1	1	2U-H	SA	71	71	50%	725	725	214	214	21	21	193	193		
JIM CHRISTAL	NAIL	2045' W of Nail	2,045	0.39	1	1	2U-H	SA	60	60	50%	725	725	141	141	12	12	130	130		
LONG	N BONNIE BRAE	MILAM-US 77	1,255	0.24	1	1	2U-R	C	54	54	50%	150	150	18	18	6	6	12	12		
MASCH BRANCH	MASCH BRANCH	DARBY SMITH	3,450	0.65	1	1	2U	SA	202	202	100%	450	450	293	293	131	131	161	161		
MILAM	FM 2164	IH 35	14,085	2.67	1	1	2U-R	FWY	312	312	50%	150	150	200	200	417	417	-216	-216	216	216
OAK	BONNIE BRAE	HICKORY	405	0.08	2	2	4D	SA	419	419	100%	750	750	120	120	34	34	86	86		
OAK	HICKORY	IH 35	2,090	0.40	2	2	4D	SA	1,151	1,151	100%	750	750	600	600	460	460	140	140		
PANHANDLE	BONNIE BRAE	IH 35	3,000	0.57	1	1	2U	C	131	131	100%	450	450	257	257	75	75	182	182		
RINEY	US 77	2460' W OF US 77	2,460	0.47	1	1	2U	SA	12	12	100%	450	450	212	212	6	6	206	206		
RINEY	2460' W OF US 77	BONNIE BRAE	980	0.19	1	1	2U-R	SA	12	12	100%	150	150	29	29	2	2	26	26		
SCRIPTURE	BONNIE BRAE	IH 35	2,455	0.46	1	1	2U	C	110	110	100%	450	450	207	207	51	51	156	156		
SHERMAN	LOCUST	ELM	405	0.08	2	2	4U	SA	854	854	100%	550	550	88	88	68	68	20	20		
SHERMAN	ELM	CARROLL	1,060	0.20	2	2	4U	SA	838	838	100%	550	550	220	220	168	168	52	52		
THUNDERBIRD	IH 35	NORTHWAY	3,775	0.71	1	1	2U	C	140	140	100%	450	450	320	320	99	99	220	220		
US 380	LOCUST	ELM	410	0.08	3	3	6D	PA	1,251	1,251	50%	850	850	102	102	50	50	52	52		
US 380	ELM	BOLIVAR	380	0.07	3	3	6D	PA	1,077	1,077	50%	850	850	89	89	38	38	52	52		
US 380	BOLIVAR	CARROLL	680	0.13	3	3	6D	PA	1,076	1,076	50%	850	850	166	166	70	70	96	96		
US 380	CARROLL	FULTON	1,955	0.37	3	3	6D	PA	1,017	1,017	50%	850	850	472	472	188	188	284	284		
US 380	FULTON	HINKLE	475	0.09	3	3	6D	PA	856	856	50%	850	850	115	115	39	39	76	76		
US 380	HINKLE	MALONE	1,545	0.29	3	3	6D	PA	856	856	50%	850	850	370	370	124	124	246	246		
US 380	MALONE	ECTOR	1,595	0.30	3	3	6D	PA	856	856	50%	850	850	383	383	128	128	254	254		
US 380	ECTOR	BONNIE BRAE	1,865	0.35	3	3	6D	PA	890	890	50%	850	850	446	446	156	156	291	291		
US 380	BONNIE BRAE	IH 35	3,985	0.75	3	3	6D	PA	1,330	1,330	100%	850	850	1,913	1,913	998	998	915	915		
US 380	WESTERN	IH 35	4,180	0.79	3	3	6D	PA	495	495	100%	850	850	2,015	2,015	391	391	1,623	1,623		
US 380	WESTERN	MASCH BRANCH	2,925	0.55	3	3	6D	PA	467	467	100%	850	850	1,403	1,403	257	257	1,146	1,146		
US 380	MASCH BRANCH	THOMAS J EGAN	2,665	0.50	3	3	6D	PA	487	487	100%	850	850	1,275	1,275	244	244	1,032	1,032		
US 380	LOOP 288	THOMAS J EGAN	4,595	0.87	3	3	6D	FWY	378	378	100%	850	850	2,219	2,219	329	329	1,890	1,890		
US 380	THOMAS J EGAN	C WOLFE	3,930	0.74	3	3	6D	FWY	378	378	100%	850	850	1,887	1,887	280	280	1,607	1,607		
US 380	C WOLFE	NAIL	3,115	0.59	3	3	6D	FWY	378	378	50%	850	850	752	752	112	112	641	641		
US 77	WINDSOR	FM 2164	1,180	0.22	2	2	4D	PA	353	353	100%	750	750	330	330	78	78	252	252		
US 77	RINEY	WINDSOR	2,430	0.46	2	2	4D	PA	187	187	100%	750	750	690	690	86	86	604	604		
US 77	RINEY	RINEY	2,120	0.40	2	2	4D	PA	187	187	100%	750	750	600	600	75	75	525	525		
US 77	BONNIE BRAE	RINEY	3,960	0.75	2	2	4D	PA	149	149	100%	750	750	1,125	1,125	112	112	1,013	1,013		
US 77	LOOP 288	BONNIE BRAE	1,720	0.33	2	2	4D	PA	245	245	100%	750	750	495	495	81	81	414	414		
US 77	IH 35	LOOP 288	4,610	0.87	2	2	4D	PA	231	231	100%	750	750	1,305	1,305	201	201	1,104	1,104		
WESTGATE	1460' E OF IH-35	IH-35	1,460	0.28	2	2	4D	SA	57	57	100%	750	750	420	420	16	16	404	404		
WINDSOR	LOCUST	US 77	2,010	0.38	1	1	3U	C	148	148	100%	550	550	209	209	56	56	153	153		
WINDSOR	US 77	HINKLE	2,420	0.46	1	1	3U	SA	192	192	100%	550	550	253	253	88	88	165	165		
WINDSOR	HINKLE	BONNIE BRAE	5,240	0.99	1	1	2U	SA	239	239	100%	450	450	446	446	237	237	209	209		
WINDSOR	BONNIE BRAE	WESTGATE	2,700	0.51	2	2	4D	SA	62	62	100%	750	750	765	765	32	32	733	733		
WINDSOR	WESTGATE	145' W OF CLARENDON	505	0.10	1	1	2U	SA	62	62	100%	450	450	45	45	6	6	39	39		
WINDSOR	145' W OF CLARENDON	220' W OF WINDSOR FARMS	610	0.12	2	2	4D	SA	62	62	100%	750	750	180	180	7	7	173	173		
WINDSOR	220' W OF WINDSOR FARMS	IH 35	905	0.17	1	1	2U	SA	62	62	100%	450	450	77	77	11	11	66	66		
BARTHOLD	GANZER	2600' S OF GANZER	2,600	0.49	1	1	2U	SA	52	52	100%	450	450	221	221	25	25	195	195		
BONNIE BRAE	US 77	RINEY	1,985	0.38	1	1	2U	SA	170	170	100%	450	450	171	171	65	65	106	106		
BONNIE BRAE	RINEY	WINDSOR	3,510	0.66	2	2	4U	SA	110	110	100%	550	550	726	726	73	73	653	653		
BONNIE BRAE	WINDSOR	US 380	3,585	0.68	2	2	4U	SA	479	479	100%	550	550	748	748	326	326	422	422		
BONNIE BRAE	US 380	PANHANDLE	2,910	0.55	2	2	4U	SA	877	877	50%	550	550	303	303	241	241	61	61		
BONNIE BRAE	PANHANDLE	SCRIPTURE	1,070	0.20	2	2	4U	SA	877	877	50%	550	550	110	110	88	88	22	22		
BONNIE BRAE	SCRIPTURE	OAK	1,180	0.22	2	2	4U	SA	877	877	50%	550	550	121	121	96	96	25	25		
BONNIE BRAE	OAK	HICKORY	380	0.07	2	2	4U	SA	877	877	50%	550	550	39	39	31	31	8	8		
BONNIE BRAE	HICKORY	PRAIRIE	1,425	0.27	2	2	4U	SA	877	877	50%	550	550	149	149	118	118	30	30		
BONNIE BRAE	PRAIRIE	IH 35E	860	0.16	2	2	4U	SA	877	877	50%	550	550	88	88	70	70	18	18		
CARROLL	SHERMAN	US 380	525	0.10	3	3	6D	PA	1,087	1,087	100%	850	850	255	255	109	109	146	146		

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Service Area C

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ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL		VEH-MI DEMAND PK-HR TOTAL		EXCESS CAPACITY PK-HR VEH-MI		EXISTING DEFICIENCIES PK-HR VEH-MI	
					NB/EB	SB/WB			NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
ELM	FM 2164	SHERMAN	3,090	0.59	0	2	6D	SA	0	1,106	100%	850	850	0	752	0	653	0	100		
ELM	SHERMAN	US 380	455	0.09	0	2	6D	SA	0	1,072	100%	850	850	0	115	0	96	0	18		
FALLMEADOW	HERCULES	MEADOWEDGE LN	1,095	0.21	1	1	2U	C	276	276	100%	450	450	95	95	58	58	37	37		
FALLMEADOW	GARDENVIEW	US 77	1,530	0.29	1	1	2U	C	276	276	100%	450	450	131	131	80	80	50	50		
FM 2164	KLEIN	MILAM	635	0.12	1	1	2U	PA	169	169	50%	450	450	27	27	10	10	17	17		
FM 2164	MILAM	LOOP 288	13,855	2.62	1	1	2U	PA	1,049	1,049	50%	450	450	590	590	1,374	1,374	-785	-785	785	785
HERITAGE TRAIL	US 380	SCRIPTURE	4,050	0.77	2	2	4D	SA	132	132	100%	750	750	1,155	1,155	102	102	1,053	1,053		
HINKLE	WINDSOR	US 380	4,555	0.86	1	1	2U	C	276	276	100%	450	450	387	387	237	237	150	150		
LOCUST	LOOP 288	HERCULES	2,260	0.43	1	1	2U	SA	962	962	50%	450	450	97	97	207	207	-110	-110	110	110
LOCUST	HERCULES	BELL	2,375	0.45	1	1	2U	SA	715	715	50%	450	450	101	101	161	161	-60	-60	60	60
LOCUST	BELL	WINDSOR	1,270	0.24	1	1	2U	SA	499	499	50%	450	450	54	54	60	60	-6	-6	6	6
LOCUST	WINDSOR	FM 2164	1,345	0.25	1	1	2U	SA	471	471	50%	450	450	56	56	59	59	-3	-3	3	3
LOCUST	FM 2164	CORONADO	630	0.12	2	0	4D	SA	870	0	100%	750	750	180	0	104	0	76	0		
LOCUST	CORONADO	SHERMAN	2,420	0.46	2	0	4D	SA	870	0	100%	750	750	690	0	400	0	290	0		
LOCUST	SHERMAN	US 380	475	0.09	2	0	4D	SA	1,025	513	100%	750	750	135	0	92	46	43	-46		46
LOVERS	FM 1173	MASCH BRANCH	4,120	0.78	1	1	2U	SA	65	65	100%	450	450	351	351	51	51	300	300		
LOVERS	1085' N OF MASCH BRANCH	MASCH BRANCH	1,085	0.21	1	1	2U	SA	80	80	100%	450	450	95	95	17	17	78	78		
MALONE	AUBURN	US 380	2,545	0.48	1	1	2U	C	276	276	100%	450	450	216	216	132	132	84	84		
MASCH BRANCH	1295' S OF FM 1173	JACKSON	4,170	0.79	1	1	2U	SA	222	222	50%	450	450	178	178	88	88	90	90		
MASCH BRANCH	LOVERS	US 380	3,800	0.72	1	1	2U	SA	50	50	100%	450	450	324	324	36	36	288	288		
MASCH BRANCH	US 380	JIM CHRISTAL	4,110	0.78	1	1	2U	SA	74	74	100%	450	450	351	351	58	58	293	293		
MILAM-US 77	GANZER	LONG	3,875	0.73	1	1	2U-R	SA	48	48	100%	150	150	110	110	35	35	74	74		
NAIL	US 380	2255' S OF JIM CHRISTAL	2,255	0.43	1	1	2U	SA	30	30	50%	450	450	97	97	6	6	90	90		
NAIL	2255' S OF JIM CHRISTAL	JIM CHRISTAL	2,470	0.47	1	1	2U	SA	30	30	100%	450	450	212	212	14	14	197	197		
NICOSIA	BEALL	US 77	2,820	0.53	1	1	2U	C	62	62	100%	450	450	239	239	33	33	206	206		
NORTHWAY	WINDSOR	THUNDERBIRD	1,045	0.20	1	1	2U	C	5	5	100%	450	450	90	90	1	1	89	89		
RINEY	US 77	WINDSOR	1,420	0.27	1	1	2U	C	276	276	100%	450	450	122	122	75	75	47	47		
THOMAS J EGAN	550' N OF US 380	US 380	550	0.10	1	1	2U	SA	276	276	50%	450	450	23	23	14	14	9	9		
THOMAS J EGAN	US 380	JIM CHRISTAL	4,010	0.76	1	1	2U	SA	276	276	100%	450	450	342	342	210	210	132	132		
WESTERN	US 380	JIM CHRISTAL	4,245	0.80	1	1	2U	PA	82	82	100%	450	450	360	360	66	66	294	294		
WESTGATE	WESTGATE	WINDSOR	4,310	0.82	1	1	2U	C	1	1	100%	450	450	369	369	1	1	368	368		
SUBTOTAL			**254,970**	**48.27**										**36,501**	**36,363**	**12,203**	**12,401**	**24,298**	**23,961**	**1,180**	**1,226**
														72,863		**24,604**		**48,259**		**2,406**	

City of Denton - 2022 Roadway Impact Fee Study
Existing Roadway Facilities Inventory

Service Area D

12/7/2023

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL		VEH-MI DEMAND PK-HR TOTAL		EXCESS CAPACITY PK-HR VEH-MI		EXISTING DEFICIENCIES PK-HR VEH-MI	
					NB/EB	SB/WB			NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
BOBCAT	560' W OF FM 2164	FM 2164	560	0.11	1	1	2U-R	SA	19	19	50%	150	150	8	8	1	1	7	7		
CORONADO	SHERMAN	BELL	1,355	0.26	1	1	2U	C	276	276	100%	450	450	117	117	72	72	45	45		
CORONADO	BELL	LOCUST	1,735	0.33	1	1	2U	C	276	276	100%	450	450	149	149	91	91	57	57		
EMERSON	OLD NORTH	NOTTINGHAM	2,745	0.52	1	1	2U	C	7	7	100%	450	450	234	234	4	4	230	230		
EMERSON	NOTTINGHAM	GLENWOOD	3,010	0.57	1	1	2U	C	4	4	100%	450	450	257	257	2	2	254	254		
EMERSON	GLENWOOD	WILSONWOOD	1,140	0.22	1	1	2U	C	25	25	100%	450	450	99	99	6	6	94	94		
FISHTRAP	270' E OF GREEN LEAF	150' E OF MINGO	2,815	0.53	1	1	2U	C	203	203	100%	450	450	239	239	108	108	131	131		
FM 2153	2520' W OF CEMETERY	CEMETERY	2,525	0.48	1	1	2U-H	SA	86	86	50%	725	725	174	174	21	21	153	153		
GREENWOOD	GLENWOOD	SHERMAN	2,690	0.51	1	1	2U	C	5	5	100%	450	450	230	230	3	3	227	227		
GRIBBLE SPRINGS	INDIAN WELLS	3015' W OF INDIAN WELLS	3,015	0.57	1	1	2U-R	SA	312	312	50%	150	150	43	43	89	89	-46	-46	46	46
HARTLEE FIELD	3540' E OF COOPER CREEK	COOPER CREEK	3,540	0.67	1	1	2U-R	SA	312	312	50%	150	150	50	50	105	105	-54	-54	54	54
HARTLEE FIELD	COOPER CREEK	5170' W OF COOPER CREEK	5,170	0.98	1	1	2U-R	SA	18	18	50%	150	150	74	74	9	9	65	65		
HARTLEE FIELD	600' E OF SHERMAN	SHERMAN	600	0.11	1	1	2U-R	C	2	2	50%	150	150	8	8	0	0	8	8		
HERCULES	SHERMAN	STUART	2,960	0.56	1	1	2U	C	276	276	100%	450	450	252	252	155	155	97	97		
HERCULES	STUART	REDSTONE	1,385	0.26	2	2	4D	C	104	104	100%	750	750	390	390	27	27	363	363		
HERCULES	REDSTONE	MEADOW LANE	810	0.15	1	1	2U	C	104	104	100%	450	450	68	68	16	16	52	52		
HERCULES	MEADOW LANE	LOCUST	725	0.14	1	1	3U	C	104	104	100%	550	550	77	77	15	15	62	62		
KINGS	COOPER BRANCH	DUNES	3,035	0.57	1	1	2U	C	276	276	100%	450	450	257	257	157	157	99	99		
KINGS	DUNES	NOTTINGHAM	1,525	0.29	1	1	3U	C	148	148	100%	550	550	160	160	43	43	117	117		
KINGS	NOTTINGHAM	SHERMAN	1,970	0.37	1	1	3U	C	148	148	100%	550	550	204	204	55	55	149	149		
KINGS	SHERMAN	STUART	2,045	0.39	1	1	2U	C	276	276	100%	450	450	176	176	108	108	68	68		
LONG	SHERMAN	BOBCAT	2,965	0.56	1	1	3U	C	148	148	100%	550	550	308	308	83	83	225	225		
LONG	BOBCAT	1360' W OF BOBCAT	1,360	0.26	1	1	2U	C	276	276	50%	450	450	59	59	36	36	23	23		
LONG	STUART	1600' W OF STUART	1,600	0.30	1	1	2U	C	276	276	100%	450	450	135	135	83	83	52	52		
MINGO	E CITY LIMITS	COOPER CREEK	460	0.09	1	1	2U	SA	130	130	100%	450	450	41	41	12	12	29	29		
MINGO	COOPER CREEK	LOOP 288	2,305	0.44	1	1	2U	SA	276	276	100%	450	450	198	198	121	121	77	77		
MINGO	LOOP 288	US 380	2,275	0.43	1	1	2U	SA	276	276	100%	450	450	194	194	119	119	75	75		
SHEPARD	FM 2153	1490' W OF FM 2153	1,490	0.28	1	1	2U	SA	24	24	100%	450	450	126	126	7	7	119	119		
SHEPARD	1490' W OF FM 2153	4785' W OF FM 2153	3,295	0.62	1	1	2U	SA	24	24	50%	450	450	140	140	7	7	132	132		
SHERMAN	ZACKERY	FM 2153	1,715	0.32	1	1	2U-H	FWY	560	560	50%	725	725	116	116	90	90	26	26		
SHERMAN	FM 2153	GREEN VALLEY	9,105	1.72	1	1	2U-H	FWY	1,142	1,142	100%	725	725	1,247	1,247	1,964	1,964	-717	-717	717	717
US 380	LAKEVIEW	GEESLING	6,895	1.31	3	3	7U	FWY	2,268	2,268	100%	850	850	3,341	3,341	2,971	2,971	369	369		
US 380	GEESLING	MAYHILL	2,920	0.55	3	3	7U	PA	1,542	1,542	100%	850	850	1,403	1,403	848	848	554	554		
US 380	MAYHILL	LOOP 288	2,310	0.44	3	3	7U	PA	1,228	1,228	100%	850	850	1,122	1,122	540	540	582	582		
US 380	LOOP 288	MINGO	2,145	0.41	3	3	6D	PA	1,200	1,200	50%	850	850	523	523	246	246	277	277		
US 380	MINGO	OLD NORTH	790	0.15	3	3	6D	PA	1,317	1,317	50%	850	850	191	191	99	99	92	92		
US 380	OLD NORTH	NOTTINGHAM	2,465	0.47	3	3	6D	PA	1,187	1,187	50%	850	850	599	599	279	279	320	320		
US 380	NOTTINGHAM	GLENWOOD	3,090	0.59	3	3	6D	PA	1,089	1,089	50%	850	850	752	752	321	321	431	431		
US 380	GLENWOOD	RUDDELL	390	0.07	3	3	6D	PA	984	984	50%	850	850	89	89	34	34	55	55		
US 380	RUDDELL	BELL	3,065	0.58	3	3	6D	PA	1,042	1,042	50%	850	850	740	740	302	302	437	437		
US 380	BELL	LOCUST	1,495	0.28	3	3	6D	PA	1,138	1,138	50%	850	850	357	357	159	159	198	198		
WILSONWOOD	EMERSON	SHERMAN	530	0.10	1	1	2U	C	24	24	100%	450	450	45	45	2	2	43	43		
WINDSOR	DOMINION	OLD NORTH	1,390	0.26	1	1	2U	C	336	336	100%	450	450	117	117	87	87	30	30		
WINDSOR	OLD NORTH	DUNES	1,990	0.38	1	1	2U	C	358	358	100%	450	450	171	171	136	136	35	35		
WINDSOR	DUNES	NOTTINGHAM	700	0.13	1	1	2U	C	110	110	100%	450	450	59	59	14	14	44	44		
WINDSOR	NOTTINGHAME	GLENWOOD	3,375	0.64	1	1	2U	C	25	25	100%	450	450	288	288	16	16	272	272		
WINDSOR	GLENWOOD	SHERMAN	1,160	0.22	1	1	2U	C	276	276	100%	450	450	99	99	61	61	38	38		
WINDSOR	SHERMAN	STUART	1,150	0.22	1	1	3U	C	137	137	100%	550	550	121	121	30	30	91	91		
WINDSOR	STUART	BELL	1,270	0.24	1	1	3U	C	137	137	100%	550	550	132	132	33	33	99	99		
WINDSOR	BELL	LOCUST	1,605	0.30	2	2	3U	C	146	146	100%	550	550	330	330	44	44	286	286		
BELL	LOCUST	WINDSOR	2,325	0.44	1	1	2U	C	276	276	100%	450	450	198	198	121	121	77	77		
BELL	WINDSOR	CORONADO	1,740	0.33	1	1	2U	C	276	276	100%	450	450	149	149	91	91	57	57		
BELL	CORONADO	SHERMAN	1,960	0.37	1	1	2U	C	276	276	100%	450	450	167	167	102	102	64	64		
BELL	SHERMAN	US 380	1,230	0.23	1	1	2U	C	67	67	100%	450	450	104	104	15	15	88	88		
COLLINS	635' S OF HARTLEE FIELD	2000' S OF HARTLEE FIELD	1,375	0.26	1	1	2U-R	SA	109	109	50%	150	150	20	20	14	14	5	5		
COOPER CREEK	SILVER DOME	MINGO	4,360	0.83	1	1	2U-R	PA	911	911	50%	150	150	62	62	378	378	-316	-316	316	316
COOPER CREEK	MINGO	US 380	1,680	0.32	1	1	2U	PA	1,125	1,125	100%	450	450	144	144	360	360	-216	-216	216	216
DUNES	KINGS	WINDSOR	1,150	0.22	1	1	2U	C	276	276	100%	450	450	99	99	61	61	38	38		
FM 2153	COSNER	SHEPARD	2,780	0.53	1	1	2U-H	SA	86	86	100%	725	725	384	384	46	46	339	339		
FM 2153	COSNER	SHEPARD	8,905	1.69	1	1	2U-H	SA	86	86	50%	725	725	613	613	73	73	540	540		
FM 2153	SHEPARD	SHERMAN	2,635	0.50	1	1	2U-H	SA	86	86	50%	725	725	181	181	22	22	160	160		
FM 2164	320' S OF DOC HOLLIDAY	JOHN GEORGE	6,430	1.22	1	1	2U-H	PA	169	169	50%	725	725	442	442	103	103	339	339		
FM 2164	KLEIN	MILAM	635	0.12	1	1	2U	PA	169	169	50%	450	450	27	27	10	10	17	17		
FM 2164	MILAM	LOOP 288	13,855	2.62	1	1	2U	PA	1,049	1,049	50%	450	450	590	590	1,374	1,374	-785	-785	785	785
GLENWOOD	WINDSOR	EMERSON	580	0.11	1	1	2U	C	29	29	100%	450	450	50	50	3	3	46	46		
GLENWOOD	EMERSON	GREENWOOD	2,325	0.44	1	1	2U	C	7	7	100%	450	450	198	198	3	3	195	195		
GLENWOOD	GREENWOOD	US 380	830	0.16	1	1	2U	C	12	12	100%	450	450	72	72	2	2	70	70		
GREEN VALLEY	WARSCHUN	SHERMAN	2,305	0.44	1	1	2U-R	PA	928	928	100%	150	150	66	66	408	408	-342	-342	342	342
INDIAN WELLS	2905' N OF GRIBBLE SPRINGS	GRIBBLE SPRINGS	2,905	0.55	1	1	2U-R	SA	34	34	50%	150	150	41	41	9	9	32	32		

City of Denton - 2022 Roadway Impact Fee Study
Existing Roadway Facilities Inventory

Service Area D

12/7/2023

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL		VEH-MI DEMAND PK-HR TOTAL		EXCESS CAPACITY PK-HR VEH-MI		EXISTING DEFICIENCIES PK-HR VEH-MI	
					NB/EB	SB/WB			NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
LOCUST	LOOP 288	HERCULES	2,260	0.43	1	1	2U	SA	962	962	50%	450	450	97	97	207	207	-110	-110	110	110
LOCUST	HERCULES	BELL	2,375	0.45	1	1	2U	SA	715	715	50%	450	450	101	101	161	161	-60	-60	60	60
LOCUST	BELL	WINDSOR	1,270	0.24	1	1	2U	SA	499	499	50%	450	450	54	54	60	60	-6	-6	6	6
LOCUST	WINDSOR	FM 2164	1,345	0.25	1	1	2U	SA	471	471	50%	450	450	56	56	59	59	-3	-3	3	3
LOCUST	FM 2164	CORONADO	630	0.12	2	0	4D	SA	870	0	100%	750	750	180	0	104	0	76	0		
LOCUST	CORONADO	SHERMAN	2,420	0.46	2	0	4D	SA	870	0	100%	750	750	690	0	400	0	290	0		
LOCUST	SHERMAN	US 380	475	0.09	2	0	4D	SA	1,025	0	100%	750	750	135	0	92	0	43	0		
NOTTINGHAM	KINGS	WINDSOR	1,490	0.28	1	1	2U	C	2	2	100%	450	450	126	126	1	1	125	125		
NOTTINGHAM	WINDSOR	EMERSON	1,395	0.26	1	1	2U	C	276	276	100%	450	450	117	117	72	72	45	45		
NOTTINGHAM	EMERSON	US 380	2,445	0.46	1	1	2U	C	276	276	100%	450	450	207	207	127	127	80	80		
OLD NORTH	WINDSOR	EMERSON	1,585	0.30	1	1	2U	C	22	22	100%	450	450	135	135	7	7	128	128		
OLD NORTH	EMERSON	US 380	1,725	0.33	1	1	2U	C	8	8	100%	450	450	149	149	3	3	146	146		
SHERMAN	GREEN VALLEY	HARTLEE FIELD	12,485	2.36	1	1	2U-H	FWY	1,305	1,305	100%	725	725	1,711	1,711	3,080	3,080	-1,369	-1,369	1,369	1,369
SHERMAN	HARTLEE FIELD	LOOP 288	1,460	0.28	1	1	2U-H	FWY	1,377	1,377	100%	725	725	203	203	386	386	-183	-183	183	183
SHERMAN	LOOP 288	HERCULES	1,650	0.31	2	2	4U	SA	1,107	1,107	100%	550	550	341	341	343	343	-2	-2	2	2
SHERMAN	HERCULES	KINGS	1,910	0.36	2	2	4U	SA	962	962	100%	550	550	396	396	346	346	50	50		
SHERMAN	KINGS	WINDSOR	2,025	0.38	2	2	4U	SA	890	890	100%	550	550	418	418	338	338	80	80		
SHERMAN	WINDSOR	WILSONWOOD	1,000	0.19	2	2	4U	SA	826	826	100%	550	550	209	209	157	157	52	52		
SHERMAN	WILSONWOOD	CORONADO	1,165	0.22	2	2	4U	SA	823	823	100%	550	550	242	242	181	181	61	61		
SHERMAN	CORONADO	GREENWOOD	1,640	0.31	2	2	4U	SA	830	830	100%	550	550	341	341	257	257	84	84		
SHERMAN	GREENWOOD	BELL	825	0.16	2	2	4U	SA	1,038	1,038	100%	550	550	176	176	166	166	10	10		
SHERMAN	BELL	LOCUST	1,715	0.32	2	2	4U	SA	967	967	100%	550	550	352	352	309	309	43	43		
STUART	LAKEVIEW	LOOP 288	3,105	0.59	1	1	2U	C	276	276	50%	450	450	133	133	81	81	51	51		
STUART	LOOP 288	HERCULES	2,250	0.43	1	1	2U	C	276	276	100%	450	450	194	194	119	119	75	75		
STUART	HERCULES	KINGS	1,555	0.29	1	1	2U	C	276	276	100%	450	450	131	131	80	80	50	50		
STUART	KINGS	WINDSOR	1,875	0.36	1	1	2U	C	276	276	100%	450	450	162	162	99	99	63	63		
STUART	WINDSOR	CORONADO	1,840	0.35	1	1	2U	C	45	45	100%	450	450	158	158	16	16	142	142		
SUBTOTAL			**226,580**	**42.91**										**27,118**	**26,113**	**20,275**	**19,678**	**6,843**	**6,435**	**4,209**	**4,209**
														53,231		**39,954**		**13,278**		**8,418**	

City of Denton - 2022 Roadway Impact Fee Study
Existing Roadway Facilities Inventory

Service Area E

12/7/2023

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL		VEH-MI DEMAND PK-HR TOTAL		EXCESS CAPACITY PK-HR VEH-MI		EXISTING DEFICIENCIES PK-HR VEH-MI	
					NB/EB	SB/WB			NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
AUDRA	1185' W OF LOOP 288	MOCKINGBIRD	1,445	0.27	1	1	2U	C	276	276	100%	450	450	122	122	75	75	47	47		
AUDRA	MOCKINGBIRD	MOCKINGBIRD	340	0.06	1	1	2U	C	276	276	100%	450	450	27	27	17	17	10	10		
AUDRA	MOCKINGBIRD	NOTTINGHAM	1,995	0.38	1	1	2U	C	276	276	100%	450	450	171	171	105	105	66	66		
AVE A	WELCH	HICKORY	955	0.18	1	1	2U	C	38	38	100%	450	450	81	81	7	7	74	74		
BLAGG	LAKEVIEW	GEESLING	3,740	0.71	1	1	2U	SA	276	276	100%	450	450	320	320	196	196	124	124		
BLAGG	GEESLING	2175' W OF GEESLING	2,175	0.41	1	1	2U	SA	1	1	100%	450	450	185	185	0	0	184	184		
BRINKER	MEDPARK	COLORADO	1,015	0.19	2	2	4D	SA	756	756	100%	750	750	285	285	144	144	141	141		
COLLINS	FORT WORTH	BERNARD	1,760	0.33	1	1	2U	C	106	106	100%	450	450	149	149	35	35	114	114		
CONGRESS	OAKLAND	LOCUST	735	0.14	1	1	2U	C	14	14	100%	450	450	63	63	2	2	61	61		
CONGRESS	LOCUST	ELM	390	0.07	1	1	2U	C	109	109	100%	450	450	32	32	8	8	24	24		
CONGRESS	ELM	BOLIVAR	445	0.08	1	1	2U	C	24	24	100%	450	450	36	36	2	2	34	34		
CONGRESS	BOLIVAR	CARROLL	615	0.12	1	1	2U	C	19	19	100%	450	450	54	54	2	2	52	52		
CONGRESS	CARROLL	FULTON	1,950	0.37	1	1	2U	C	3	3	100%	450	450	167	167	1	1	165	165		
CRESCENT	CARROLL	FULTON	1,950	0.37	1	1	2U	C	43	43	100%	450	450	167	167	16	16	151	151		
CRESCENT	FULTON	MALONE	2,095	0.40	1	1	2U	C	45	45	100%	450	450	180	180	18	18	162	162		
DALLAS	TEASLEY	IH 35E	4,590	0.87	2	2	4D	PA	1,197	1,197	100%	750	750	1,305	1,305	1,041	1,041	264	264		
DALLAS	ALEGRE VISTA	TEASLEY	945	0.18	2	2	5U	PA	2,062	2,062	100%	725	725	261	261	371	371	-110	-110	110	110
DALLAS	EAGLE	ALEGRE VISTA	3,060	0.58	2	2	5U	PA	1,876	1,876	100%	725	725	841	841	1,088	1,088	-247	-247	247	247
DUCHESS	LOOP 288	TRAILHEAD	2,885	0.55	1	1	2U	C	276	276	100%	450	450	248	248	152	152	96	96		
EAGLE	BELL	LOCUST	235	0.04	2	2	4U	SA	1,742	1,742	100%	550	550	44	44	70	70	-26	-26	26	26
EAGLE	LOCUST	ELM	530	0.10	2	2	4U	SA	1,369	1,369	100%	550	550	110	110	137	137	-27	-27	27	27
EAGLE	ELM	CARROLL	695	0.13	2	2	4U	SA	443	443	100%	550	550	143	143	58	58	85	85		
EAGLE	CARROLL	BERNARD	1,525	0.29	1	1	3U	SA	148	148	100%	550	550	160	160	43	43	117	117		
EAGLE	BERNARD	WELCH	885	0.17	1	1	3U	SA	7	7	100%	550	550	94	94	1	1	92	92		
EAGLE	WELCH	AVE A	485	0.09	1	1	3U	SA	14	14	100%	550	550	50	50	1	1	48	48		
EAGLE	AVE A	AVE C	1,460	0.28	1	1	3U	SA	372	372	100%	550	550	154	154	104	104	50	50		
EAGLE	AVE C	NORTH TEXAS	915	0.17	1	1	3U	SA	148	148	100%	550	550	94	94	25	25	68	68		
EDWARDS	LAKEVIEW	SWISHER	2,940	0.56	1	1	2U	C	276	276	100%	450	450	252	252	155	155	97	97		
EDWARDS	SWISHER	MAYHILL	5,945	1.13	1	1	2U	C	22	22	100%	450	450	509	509	25	25	484	484		
FM 426	TRINITY	MAYHILL	9,365	1.77	1	1	2U	SA	229	229	100%	450	450	797	797	405	405	391	391		
HICKORY	RUDDELL	BELL	3,280	0.62	2	0	2U	C	552	0	100%	450	450	558	0	342	0	216	0		
HICKORY	BELL	LOCUST	1,295	0.25	2	0	4D	C	1,520	0	100%	750	750	375	0	380	0	-5	0	5	
HICKORY	LOCUST	ELM	370	0.07	2	0	4D	SA	169	0	100%	750	750	105	0	12	0	93	0		
HICKORY	ELM	CARROLL	1,050	0.20	2	0	4D	SA	685	0	100%	750	750	300	0	137	0	163	0		
HICKORY	CARROLL	BERNARD	1,270	0.24	2	0	4D	SA	806	0	100%	750	750	360	0	193	0	167	0		
HICKORY	BERNARD	WELCH	865	0.16	2	0	4D	SA	815	0	100%	750	750	240	0	130	0	110	0		
HICKORY	WELCH	AVE A	665	0.13	2	0	4D	SA	834	0	100%	750	750	195	0	108	0	87	0		
HICKORY	AVE A	AVE C	1,300	0.25	2	0	4D	SA	324	0	100%	750	750	375	0	81	0	294	0		
HICKORY	AVE C	NORTH TEXAS	1,340	0.25	2	0	4D	SA	962	0	100%	750	750	375	0	241	0	135	0		
HICKORY	NORTH TEXAS	BONNIE BRAE	1,940	0.37	2	0	4D	SA	1,256	0	100%	750	750	555	0	465	0	90	0		
HIGHLAND	BERNARD	WELCH	875	0.17	1	1	2U	C	147	147	100%	450	450	77	77	25	25	52	52		
HIGHLAND	WELCH	AVE A	575	0.11	1	1	2U	C	62	62	100%	450	450	50	50	7	7	43	43		
HIGHLAND	AVE C	AVE D	660	0.13	1	1	2U	C	276	276	100%	450	450	59	59	36	36	23	23		
HIGHLAND	AVE D	NORTH TEXAS	660	0.13	1	1	2U	C	276	276	100%	450	450	59	59	36	36	23	23		
LATTIMORE	AUDRA	PERTAIN	2,980	0.56	1	1	2U	C	10	10	100%	450	450	252	252	6	6	246	246		
LOOP 288	SPENCER	BRINKER	1,335	0.25	3	3	6D	PA	1,577	1,577	100%	850	850	638	638	394	394	243	243		
LOOP 288	BRINKER	COLORADO	2,830	0.54	3	3	6D	PA	1,778	1,778	100%	850	850	1,377	1,377	960	960	417	417		
LOOP 288	COLORADO	IH 35E	1,570	0.30	3	3	6D	PA	1,827	1,827	100%	850	850	765	765	548	548	217	217		
MAPLE	BERNARD	WELCH	885	0.17	1	1	2U	C	120	120	100%	450	450	77	77	20	20	56	56		
MAPLE	WELCH	AVE A	555	0.11	1	1	2U	C	392	392	100%	450	450	50	50	43	43	6	6		
MAPLE	AVE A	AVE C	1,405	0.27	1	1	2U	C	418	418	100%	450	450	122	122	113	113	9	9		
MAPLE	AVE C	AVE D	660	0.13	1	1	2U	C	276	276	100%	450	450	59	59	36	36	23	23		
MCKINNEY	MAYHILL	LOOP 288	2,365	0.45	1	1	2U	SA	276	276	100%	450	450	203	203	124	124	78	78		
MCKINNEY	LOOP 288	CARDINAL	670	0.13	1	1	2U	SA	866	866	100%	450	450	59	59	113	113	-54	-54	54	54
MCKINNEY	CARDINAL	MOCKINGBIRD	1,145	0.22	1	1	2U	SA	865	865	100%	450	450	99	99	190	190	-91	-91	91	91
MCKINNEY	MOCKINGBIRD	MACK	3,245	0.61	1	1	2U	SA	276	276	100%	450	450	275	275	168	168	106	106		
MCKINNEY	MACK	AUDRA	1,540	0.29	1	1	2U	SA	684	684	100%	450	450	131	131	198	198	-68	-68	68	68
MCKINNEY	AUDRA	RUDDELL	1,710	0.32	2	2	4U	SA	786	786	100%	550	550	352	352	252	252	100	100		
MCKINNEY	RUDDELL	RUDDELL	120	0.02	2	2	4U	SA	792	792	100%	550	550	22	22	16	16	6	6		
MCKINNEY	RUDDELL	BELL	2,910	0.55	2	2	4U	SA	818	818	100%	550	550	605	605	450	450	155	155		
MCKINNEY	BELL	BELL	260	0.05	2	2	4U	SA	1,042	1,042	100%	550	550	55	55	52	52	3	3		
MCKINNEY	BELL	LOCUST	1,285	0.24	2	2	4U	SA	640	640	100%	550	550	264	264	154	154	110	110		
MCKINNEY	LOCUST	ELM	380	0.07	2	2	4U	SA	640	640	100%	550	550	77	77	45	45	32	32		
MCKINNEY	ELM	CARROLL	1,090	0.21	2	2	4U	SA	640	640	100%	550	550	231	231	134	134	97	97		
MILLS	TRINITY	MAYHILL	7,415	1.40	1	1	2U	SA	0	0	100%	450	450	630	630	0	0	630	630		
MINGO	US 380	OLD NORTH	760	0.14	1	1	2U	SA	276	276	100%	450	450	63	63	39	39	24	24		
MINGO	OLD NORTH	NOTTINGHAM	2,545	0.48	1	1	2U	SA	263	263	100%	450	450	216	216	126	126	90	90		
MINGO	NOTTINGHAM	PERTAIN	2,935	0.56	1	1	2U	SA	46	46	100%	450	450	252	252	26	26	226	226		
MINGO	PERTAIN	RUDDELL	945	0.18	1	1	2U	SA	101	101	100%	450	450	81	81	18	18	63	63		

City of Denton - 2022 Roadway Impact Fee Study
Existing Roadway Facilities Inventory

Service Area E

12/7/2023

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL		VEH-MI DEMAND PK-HR TOTAL		EXCESS CAPACITY PK-HR VEH-MI		EXISTING DEFICIENCIES PK-HR VEH-MI	
					NB/EB	SB/WB			NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
MINGO	RUDDELL	WILLIS	600	0.11	1	1	2U	SA	164	164	100%	450	450	50	50	18	18	31	31		
MINGO	WILLIS	WITHERS	2,305	0.44	1	1	2U	SA	261	261	100%	450	450	198	198	115	115	83	83		
MINGO	WITHERS	PAISLEY	235	0.04	1	1	2U	SA	267	267	100%	450	450	18	18	11	11	7	7		
MINGO	PAISLEY	BELL	985	0.19	1	1	2U	SA	299	299	100%	450	450	86	86	57	57	29	29		
MORSE	MAYHILL	KIMBERLY	1,145	0.22	1	1	2U	SA	721	721	100%	450	450	99	99	159	159	-60	-60	60	60
MORSE	KIMBERLY	LOOP 288	920	0.17	2	2	4D	SA	721	721	100%	750	P	255		123	123	132			
MORSE	WOODROW	NEWTON	1,460	0.28	1	1	2U	C	7	7	100%	450	450	126	126	2	2	124	124		
MORSE	NEWTON	LAKEY	2,305	0.44	1	1	2U	C	276	276	100%	450	450	198	198	121	121	77	77		
MULBERRY	ELM	CARROLL	1,045	0.20	1	1	2U	C	1	1	100%	450	450	90	90	0	0	90	90		
MULBERRY	CARROLL	BERNARD	1,315	0.25	1	1	2U	C	15	15	100%	450	450	113	113	4	4	109	109		
MULBERRY	BERNARD	WELCH	870	0.16	1	1	2U	C	3	3	100%	450	450	72	72	0	0	72	72		
OAK	BELL	LOCUST	1,290	0.24	0	2	4D	C	0	1,520	100%	750	750	0	360	0	365	0	-5		5
OAK	LOCUST	ELM	380	0.07	0	2	4D	SA	0	410	100%	750	750	0	105	0	29	0	76		
OAK	ELM	BOLIVAR	460	0.09	0	2	4D	SA	0	524	100%	750	750	0	135	0	47	0	88		
OAK	BOLIVAR	CARROLL	595	0.11	0	2	4D	SA	0	525	100%	750	750	0	165	0	58	0	107		
OAK	CARROLL	FULTON	1,900	0.36	0	2	4D	SA	0	477	100%	750	750	0	540	0	172	0	368		
OAK	FULTON	WELCH	225	0.04	0	2	4D	SA	0	560	100%	750	750	0	60	0	22	0	38		
OAK	WELCH	FRY	675	0.13	0	2	4D	SA	0	560	100%	750	750	0	195	0	73	0	122		
OAK	FRY	AVE C	1,280	0.24	0	2	4D	SA	0	556	100%	750	750	0	360	0	133	0	227		
OAK	JAGOE	NORTH TEXAS	1,355	0.26	0	2	4D	SA	0	556	100%	750	750	0	390	0	145	0	245		
OAK	NORTH TEXAS	BONNIE BRAE	1,935	0.37	0	2	4D	SA	0	849	100%	750	750	0	555	0	314	0	241		
PAISLEY	MOCKINGBIRD	MACK	2,895	0.55	1	1	2U	C	276	276	100%	450	450	248	248	152	152	96	96		
PAISLEY	MACK	AUDRA	835	0.16	1	1	2U	C	205	205	100%	450	450	72	72	33	33	39	39		
PAISLEY	AUDRA	RUDDELL	2,840	0.54	1	1	2U	C	15	15	100%	450	450	243	243	8	8	235	235		
PAISLEY	RUDDELL	FRAME	2,135	0.40	1	1	2U	C	276	276	100%	450	450	180	180	110	110	70	70		
PARKWAY	LOCUST	ELM	390	0.07	2	2	4U	C	0	0	100%	550	550	77	77	0	0	77	77		
PARKWAY	ELM	BOLIVAR	450	0.09	2	2	4U	C	3	3	100%	550	550	99	99	0	0	99	99		
PARKWAY	BOLIVAR	CARROLL	615	0.12	2	2	4U	C	3	3	100%	550	550	132	132	0	0	132	132		
POCKRUS PAGE	POST OAK	IH 35E	5,535	1.05	1	1	2U	C	355	355	100%	450	450	473	473	373	373	100	100		
PRAIRIE	BELL	LAKEY	1,850	0.35	1	1	2U	C	0	0	100%	450	450	158	158	0	0	158	158		
PRAIRIE	NORTH TEXAS	BONNIE BRAE	1,945	0.37	1	1	2U	C	276	276	100%	450	450	167	167	102	102	64	64		
PROMINENCE	MAYHILL	1095' E OF LOOP 288	1,260	0.24	1	1	2U	C	1	1	100%	450	450	108	108	0	0	108	108		
PROMINENCE	1095' E OF LOOP 288	LOOP 288	1,095	0.21	1	1	3U	C	1	1	100%	550	550	116	116	0	0	115	115		
ROBERTSON	BELL	DUNCAN	2,215	0.42	1	1	2U	C	36	36	100%	450	450	189	189	15	15	174	174		
RUSSELL NEWMAN	MAYHILL	LOOP 288	2,230	0.42	1	1	3U	C	148	148	100%	550	550	231	231	62	62	169	169		
SAN JACINTO	COLORADO	DALLAS	2,275	0.43	2	2	4D	SA	168	168	100%	750	750	645	645	72	72	573	573		
SCRIPTURE	FULTON	MALONE	2,415	0.46	1	1	2U	C	51	51	100%	450	450	207	207	23	23	184	184		
SCRIPTURE	MALONE	ECTOR	1,405	0.27	1	1	2U	C	8	8	100%	450	450	122	122	2	2	119	119		
SCRIPTURE	ECTOR	BONNIE BRAE	2,095	0.40	1	1	2U	C	84	84	100%	450	450	180	180	34	34	146	146		
SHADY OAKS	LOOP 288	WOODROW	7,230	1.37	2	2	4D	SA	200	200	100%	750	750	2,055	2,055	274	274	1,781	1,781		
SHADY OAKS	WOODROW	TEASLEY	3,070	0.58	1	1	3U	SA	80	80	100%	550	550	319	319	46	46	273	273		
SPENCER	MAYHILL	LOOP 288	2,315	0.44	1	1	2U	SA	620	620	100%	450	450	198	198	273	273	-75	-75	75	75
SPENCER	LOOP 288	BRINKER	1,205	0.23	2	2	4U	SA	185	185	100%	550	550	253	253	43	43	210	210		
SPENCER	BRINKER	WOODROW	5,320	1.01	2	2	4U	SA	171	171	100%	550	550	1,111	1,111	173	173	938	938		
TREATMENT PLANT	1325' W OF POST OAK	MAYHILL	3,960	0.75	1	1	2U	SA	0	0	100%	450	450	338	338	0	0	338	338		
US 380	US 377	LAKEVIEW	8,120	1.54	3	3	7U	FWY	2,269	2,269	100%	850	850	3,927	3,927	3,494	3,494	433	433		
US 380	LOOP 288	MINGO	2,145	0.41	3	3	6D	PA	1,200	1,200	50%	850	850	523	523	246	246	277	277		
US 380	MINGO	OLD NORTH	790	0.15	3	3	6D	PA	1,317	1,317	50%	850	850	191	191	99	99	92	92		
US 380	OLD NORTH	NOTTINGHAM	2,465	0.47	3	3	6D	PA	1,187	1,187	50%	850	850	599	599	279	279	320	320		
US 380	NOTTINGHAM	GLENWOOD	3,090	0.59	3	3	6D	PA	1,089	1,089	50%	850	850	752	752	321	321	431	431		
US 380	GLENWOOD	RUDDELL	390	0.07	3	3	6D	PA	984	984	50%	850	850	89	89	34	34	55	55		
US 380	RUDDELL	BELL	3,065	0.58	3	3	6D	PA	1,042	1,042	50%	850	850	740	740	302	302	437	437		
US 380	BELL	LOCUST	1,495	0.28	3	3	6D	PA	1,138	1,138	50%	850	850	357	357	159	159	198	198		
US 380	LOCUST	ELM	410	0.08	3	3	6D	PA	1,251	1,251	50%	850	850	102	102	50	50	52	52		
US 380	ELM	BOLIVAR	380	0.07	3	3	6D	PA	1,077	1,077	50%	850	850	89	89	38	38	52	52		
US 380	BOLIVAR	CARROLL	680	0.13	3	3	6D	PA	1,076	1,076	50%	850	850	166	166	70	70	96	96		
US 380	CARROLL	FULTON	1,955	0.37	3	3	6D	PA	1,017	1,017	50%	850	850	472	472	188	188	284	284		
US 380	FULTON	HINKLE	475	0.09	3	3	6D	PA	856	856	50%	850	850	115	115	39	39	76	76		
US 380	HINKLE	MALONE	1,545	0.29	3	3	6D	PA	856	856	50%	850	850	370	370	124	124	246	246		
US 380	MALONE	ECTOR	1,595	0.30	3	3	6D	PA	856	856	50%	850	850	383	383	128	128	254	254		
US 380	ECTOR	BONNIE BRAE	1,865	0.35	3	3	6D	PA	890	890	50%	850	850	446	446	156	156	291	291		
WELCH	BERNARD	WELCH	1,380	0.26	1	1	2U	C	211	211	100%	450	450	117	117	55	55	62	62		
WILLIS	RUDDELL	MINGO	545	0.10	1	1	2U	C	276	276	100%	450	450	45	45	28	28	17	17		
WITHERS	MINGO	BELL	655	0.12	1	1	2U	C	27	27	100%	450	450	54	54	3	3	51	51		
WITHERS	BELL	OAKLAND	810	0.15	1	1	2U	C	43	43	100%	450	450	68	68	6	6	61	61		
BERNARD	COLLINS	IH 35E	2,275	0.43	1	1	2U	C	70	70	100%	450	450	194	194	30	30	163	163		
DUNCAN	MORSE	TEASLEY	2,865	0.54	1	1	2U	C	72	72	100%	450	450	243	243	39	39	204	204		

City of Denton - 2022 Roadway Impact Fee Study
Existing Roadway Facilities Inventory

Service Area E

12/7/2023

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL		VEH-MI DEMAND PK-HR TOTAL		EXCESS CAPACITY PK-HR VEH-MI		EXISTING DEFICIENCIES PK-HR VEH-MI	
					NB/EB	SB/WB			NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
AUDRA	NOTTINGHAM	LATTIMORE	1,260	0.24	2	2	4U	SA	263	263	100%	550	550	264	264	63	63	201	201		
AUDRA	LATTIMORE	PAISLEY	1,755	0.33	2	2	4U	SA	347	347	100%	550	550	363	363	115	115	248	248		
AUDRA	PAISLEY	1385' N OF MCKINNEY	805	0.15	2	2	4U	SA	640	640	100%	550	550	165	165	96	96	69	69		
AUDRA	1385' N OF MCKINNEY	MCKINNEY	1,385	0.26	2	2	4D	SA	760	760	100%	750	750	390	390	198	198	192	192		
AVE A	HIGHLAND	MAPLE	405	0.08	1	1	2U	C	61	61	100%	450	450	36	36	5	5	31	31		
AVE A	MAPLE	EAGLE	575	0.11	2	2	4U	C	70	70	100%	550	550	121	121	8	8	113	113		
AVE A	EAGLE	IH 35E	1,875	0.36	2	2	4U	SA	9	9	100%	550	550	396	396	3	3	393	393		
AVE C	OAK	HICKORY	395	0.07	2	2	4U	C	640	640	100%	550	550	77	77	45	45	32	32		
AVE C	HIGHLAND	MAPLE	400	0.08	1	1	2D	C	600	600	100%	550	550	44	44	48	48	-4	-4	4	4
AVE C	MAPLE	EAGLE	540	0.10	1	1	2D	C	600	600	100%	550	550	55	55	60	60	-5	-5	5	5
AVE D	HIGHLAND	MAPLE	395	0.07	1	1	2U	C	276	276	100%	450	450	32	32	19	19	12	12		
BELL	US 380	COLLEGE	2,255	0.43	1	1	2D	SA	600	600	100%	550	550	237	237	258	258	-22	-22	22	22
BELL	COLLEGE	WITHERS	1,250	0.24	1	1	3U	SA	148	148	100%	550	550	132	132	36	36	96	96		
BELL	WITHERS	PAISLEY	245	0.05	2	2	4U	SA	640	640	100%	550	550	55	55	32	32	23	23		
BELL	PAISLEY	MINGO	820	0.16	2	2	4U	SA	640	640	100%	550	550	176	176	102	102	74	74		
BELL	MINGO	MCKINNEY	705	0.13	2	2	4U	SA	640	640	100%	550	550	143	143	83	83	60	60		
BELL	MINGO	MCKINNEY	650	0.12	1	1	2U	C	299	299	100%	450	450	54	54	36	36	18	18		
BELL	MCKINNEY	OAK	340	0.06	2	2	4U	SA	1,042	1,042	100%	550	550	66	66	63	63	3	3		
BELL	OAK	HICKORY	380	0.07	2	2	4U	SA	1,042	1,042	100%	550	550	77	77	73	73	4	4		
BELL	HICKORY	PRAIRIE	1,635	0.31	2	2	4U	SA	1,113	1,113	100%	550	550	341	341	345	345	-4	-4	4	4
BELL	PRAIRIE	ROBERTSON	655	0.12	2	2	4U	SA	1,337	1,337	100%	550	550	132	132	160	160	-28	-28	28	28
BELL	ROBERTSON	EAGLE	990	0.19	2	2	4U	SA	1,273	1,273	100%	550	550	209	209	242	242	-33	-33	33	33
BERNARD	HICKORY	MULBERRY	390	0.07	1	1	2U	C	5	5	100%	450	450	32	32	0	0	31	31		
BERNARD	MULBERRY	HIGHLAND	1,555	0.29	1	1	2U	C	5	5	100%	450	450	131	131	1	1	129	129		
BERNARD	HIGHLAND	MAPLE	420	0.08	1	1	2U	C	156	156	100%	450	450	36	36	12	12	24	24		
BERNARD	MAPLE	EAGLE	580	0.11	1	1	2U	C	51	51	100%	450	450	50	50	6	6	44	44		
BERNARD	EAGLE	COLLINS	885	0.17	1	1	2U	C	0	0	100%	450	450	77	77	0	0	77	77		
BOLIVAR	US 380	PANHANDLE	3,475	0.66	1	1	2U	C	0	0	100%	450	450	297	297	0	0	297	297		
BOLIVAR	PANHANDLE	CONGRESS	740	0.14	1	1	2U	C	3	3	100%	450	450	63	63	0	0	63	63		
BOLIVAR	CONGRESS	PARKWAY	450	0.09	1	1	2U	C	1	1	100%	450	450	41	41	0	0	40	40		
BOLIVAR	PARKWAY	OAK	895	0.17	1	1	2U	C	1	1	100%	450	450	77	77	0	0	76	76		
BONNIE BRAE	US 380	PANHANDLE	2,910	0.55	2	2	4U	SA	877	877	50%	550	550	303	303	241	241	61	61		
BONNIE BRAE	PANHANDLE	SCRIPTURE	1,070	0.20	2	2	4U	SA	877	877	50%	550	550	110	110	88	88	22	22		
BONNIE BRAE	SCRIPTURE	OAK	1,180	0.22	2	2	4U	SA	877	877	50%	550	550	121	121	96	96	25	25		
BONNIE BRAE	OAK	HICKORY	380	0.07	2	2	4U	SA	877	877	50%	550	550	39	39	31	31	8	8		
BONNIE BRAE	HICKORY	PRAIRIE	1,425	0.27	2	2	4U	SA	877	877	50%	550	550	149	149	118	118	30	30		
BONNIE BRAE	PRAIRIE	IH 35E	860	0.16	2	2	4U	SA	877	877	50%	550	550	88	88	70	70	18	18		
BRINKER	SPENCER	LOOP 288	1,080	0.20	2	2	4D	SA	821	821	100%	750	750	300	300	164	164	136	136		
BRINKER	LOOP 288	MEDPARK	3,070	0.58	2	2	4D	SA	788	788	100%	750	750	870	870	457	457	413	413		
BRINKER	COLORADO	IH 35E	740	0.14	2	2	4D	SA	756	756	100%	750	750	210	210	106	106	104	104		
CARDINAL	995' N OF ORIOLE	ORIOLE	995	0.19	1	1	2U	C	260	260	100%	450	450	86	86	49	49	36	36		
CARDINAL	ORIOLE	MCKINNEY	1,815	0.34	1	1	2U	C	1	1	100%	450	450	153	153	0	0	153	153		
CARROLL	US 380	CRESCENT	2,015	0.38	3	3	6D	PA	1,439	1,439	100%	850	850	969	969	547	547	422	422		
CARROLL	CRESCENT	PANHANDLE	1,465	0.28	3	3	6D	PA	1,480	1,480	100%	850	850	714	714	414	414	300	300		
CARROLL	PANHANDLE	CONGRESS	760	0.14	3	3	6D	PA	1,480	1,480	100%	850	850	357	357	207	207	150	150		
CARROLL	CONGRESS	PARKWAY	390	0.07	3	3	6D	PA	1,701	1,701	100%	850	850	179	179	119	119	59	59		
CARROLL	PARKWAY	OAK	955	0.18	3	3	6D	PA	1,734	1,734	100%	850	850	459	459	312	312	147	147		
CARROLL	OAK	HICKORY	380	0.07	3	3	6D	PA	1,649	1,649	100%	850	850	179	179	115	115	63	63		
CARROLL	HICKORY	MULBERRY	380	0.07	3	3	6D	PA	1,508	1,508	100%	850	850	179	179	106	106	73	73		
CARROLL	MULBERRY	EAGLE	2,575	0.49	3	3	6D	PA	1,565	1,565	100%	850	850	1,250	1,250	767	767	483	483		
CARROLL	EAGLE	COLLINS	880	0.17	3	3	6D	PA	1,646	1,646	100%	850	850	434	434	280	280	154	154		
CENTRE PLACE	DALLAS	IH 35E	2,760	0.52	1	1	2U	C	3	3	100%	450	450	234	234	2	2	232	232		
COLORADO	SPENCER	SAN JACINTO	3,215	0.61	2	2	4U	SA	132	132	100%	550	550	671	671	81	81	590	590		
COLORADO	SAN JACINTO	LOOP 288	1,920	0.36	2	2	4D	SA	760	760	100%	750	750	540	540	274	274	266	266		
COLORADO	BRINKER	LOOP 288	2,840	0.54	2	2	4D	SA	760	760	100%	750	750	810	810	410	410	400	400		
COLORADO	MEDPARK	BRINKER	2,155	0.41	2	2	4D	SA	760	760	100%	750	750	615	615	312	312	303	303		
COLORADO	MAYHILL	MEDPARK	1,495	0.28	2	2	4D	SA	760	760	100%	750	750	420	420	213	213	207	207		
ECTOR	US 380	PANHANDLE	2,835	0.54	1	1	2U	C	35	35	100%	450	450	243	243	19	19	224	224		
ECTOR	PANHANDLE	SCRIPTURE	1,030	0.20	1	1	2U	C	276	276	100%	450	450	90	90	55	55	35	35		
ELM	US 380	CONGRESS	4,200	0.80	0	2	4D	SA	513	513	100%	750	750	0	1,200	410	410	-410	790	410	
ELM	CONGRESS	PARKWAY	445	0.08	0	2	6D	SA	532	532	100%	850	850	0	102	43	43	-43	59	43	

City of Denton - 2022 Roadway Impact Fee Study
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Service Area E

12/7/2023

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL		VEH-MI DEMAND PK-HR TOTAL		EXCESS CAPACITY PK-HR VEH-MI		EXISTING DEFICIENCIES PK-HR VEH-MI	
					NB/EB	SB/WB			NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
ELM	PARKWAY	MCKINNEY	535	0.10	0	2	6D	SA	534	534	100%	850	850	0	128	53	53	-53	74	53	
ELM	MCKINNEY	OAK	375	0.07	0	2	4D	SA	534	534	100%	750	750	0	105	37	37	-37	68	37	
ELM	OAK	HICKORY	380	0.07	0	2	4D	SA	477	477	100%	750	750	0	105	33	33	-33	72	33	
ELM	HICKORY	MULBERRY	375	0.07	0	2	4D	SA	737	737	100%	750	750	0	105	52	52	-52	53	52	
ELM	MULBERRY	EAGLE	2,570	0.49	0	2	4D	SA	542	542	100%	750	750	0	735	266	266	-266	469	266	
FORT WORTH	EAGLE	CARROLL	965	0.18	2	2	4U	SA	393	393	100%	550	550	198	198	71	71	127	127		
FORT WORTH	COLLINS	IH 35E	3,035	0.57	3	3	6D	PA	1,661	1,661	100%	850	850	1,454	1,454	947	947	507	507		
FRY	OAK	HICKORY	380	0.07	1	1	2U	C	247	247	100%	450	450	32	32	17	17	14	14		
FULTON	US 380	CRESCENT	1,520	0.29	1	1	2U	C	265	265	100%	450	450	131	131	77	77	54	54		
FULTON	CRESCENT	PANHANDLE	1,500	0.28	1	1	2U	C	276	276	100%	450	450	126	126	77	77	49	49		
FULTON	PANHANDLE	CONGRESS	720	0.14	1	1	2U	C	143	143	100%	450	450	63	63	20	20	43	43		
FULTON	CONGRESS	OAK	1,370	0.26	1	1	2U	C	22	22	100%	450	450	117	117	6	6	111	111		
GEESLING	US 380	BLAGG	2,445	0.46	1	1	2U	PA	974	974	100%	450	450	207	207	448	448	-241	-241	241	241
JAGOE	SCRIPTURE	OAK	1,115	0.21	1	1	2U	C	276	276	100%	450	450	95	95	58	58	37	37		
LAKEVIEW	POST OAK	SHADY SHORES	1,385	0.26	2	2	4D	PA	760	760	100%	750	750	390	390	198	198	192	192		
LAKEY	PRAIRIE	MORSE	1,535	0.29	1	1	2U	C	12	12	100%	450	450	131	131	3	3	127	127		
LOCUST	US 380	OAKLAND	1,285	0.24	2	0	4D	SA	668	668	100%	750	750	360	0	160	160	200	-160		160
LOCUST	OAKLAND	CONGRESS	2,905	0.55	2	0	4D	SA	488	488	100%	750	750	825	0	268	268	557	-268		268
LOCUST	CONGRESS	PARKWAY	415	0.08	2	0	4D	SA	503	503	100%	750	750	120	0	40	40	80	-40		40
LOCUST	PARKWAY	MCKINNEY	565	0.11	2	0	4D	SA	503	503	100%	750	750	165	0	55	55	110	-55		55
LOCUST	MCKINNEY	OAK	390	0.07	2	0	4D	SA	503	503	100%	750	750	105	0	35	35	70	-35		35
LOCUST	OAK	HICKORY	375	0.07	2	0	4D	SA	708	708	100%	750	750	105	0	50	50	55	-50		50
LOCUST	HICKORY	EAGLE	2,920	0.55	2	0	4D	SA	479	479	100%	750	750	825	0	263	263	562	-263		263
LOOP 288	US 380	AUDRA	1,765	0.33	3	3	6D	PA	1,200	1,200	100%	850	850	842	842	396	396	446	446		
LOOP 288	AUDRA	PROMINENCE	600	0.11	3	3	6D	PA	1,726	1,726	100%	850	850	281	281	190	190	91	91		
LOOP 288	PROMINENCE	RUSSELL NEWMAN	2,560	0.48	3	3	6D	PA	1,679	1,679	100%	850	850	1,224	1,224	806	806	418	418		
LOOP 288	RUSSELL NEWMAN	ORIOLE	565	0.11	3	3	6D	PA	1,689	1,689	100%	850	850	281	281	186	186	95	95		
LOOP 288	ORIOLE	MCKINNEY	1,845	0.35	3	3	6D	PA	1,724	1,724	100%	850	850	893	893	603	603	289	289		
LOOP 288	MCKINNEY	MORSE	2,970	0.56	3	3	6D	PA	1,736	1,736	100%	850	850	1,428	1,428	972	972	456	456		
LOOP 288	MORSE	SPENCER	3,510	0.66	3	3	6D	PA	1,424	1,424	100%	850	850	1,683	1,683	940	940	743	743		
MACK	PAISLEY	MCKINNEY	1,970	0.37	1	1	2U	C	198	198	100%	450	450	167	167	73	73	93	93		
MALONE	US 380	CRESCENT	960	0.18	1	1	3U	C	148	148	100%	550	550	99	99	27	27	72	72		
MALONE	CRESCENT	PANHANDLE	1,875	0.36	1	1	3U	C	148	148	100%	550	550	198	198	53	53	145	145		
MALONE	PANHANDLE	SCRIPTURE	1,120	0.21	1	1	3U	C	148	148	100%	550	550	116	116	31	31	84	84		
MAYHILL	US 380	PROMINENCE	2,335	0.44	2	2	4D	PA	1,437	1,437	100%	750	750	660	660	632	632	28	28		
MAYHILL	PROMINENCE	770' N OF RUSSELL NEWMAN	2,040	0.39	2	2	4D	PA	1,437	1,437	100%	750	750	585	585	560	560	25	25		
MAYHILL	770' N OF RUSSELL NEWMAN	RUSSELL NEWMAN	775	0.15	2	2	4D	PA	1,437	1,437	50%	750	750	113	113	108	108	5	5		
MAYHILL	RUSSELL NEWMAN	460' S OF RUSSELL NEWMAN	460	0.09	2	2	4D	PA	1,533	1,533	50%	750	750	68	68	69	69	-1	-1	1	1
MAYHILL	460' S OF RUSSELL NEWMAN	MILLS	1,080	0.20	2	2	4D	PA	1,533	1,533	100%	750	750	300	300	307	307	-7	-7	7	7
MAYHILL	MILLS	MCKINNEY	1,955	0.37	2	2	4D	PA	1,608	1,608	100%	750	750	555	555	595	595	-40	-40	40	40
MAYHILL	MCKINNEY	MORSE	2,045	0.39	2	2	4D	PA	1,865	1,865	100%	750	750	585	585	727	727	-142	-142	142	142
MAYHILL	MORSE	SPENCER	3,520	0.67	2	2	4D	PA	1,501	1,501	100%	750	750	1,005	1,005	1,006	1,006	-1	-1	1	1
MAYHILL	SPENCER	EDWARDS	3,185	0.60	2	2	4D	PA	2,037	2,037	100%	750	750	900	900	1,222	1,222	-322	-322	322	322
MAYHILL	QUAILCREEK	EDWARDS	1,560	0.30	1	1	2U	C	1,116	1,116	100%	450	450	135	135	335	335	-200	-200	200	200
MAYHILL	EDWARDS	COLORADO	515	0.10	2	2	4U	C	1,138	1,138	100%	550	550	110	110	114	114	-4	-4	4	4
MAYHILL	COLORADO	IH 35E	2,330	0.44	2	2	4D	PA	2,774	2,774	100%	750	750	660	660	1,221	1,221	-561	-561	561	561
MEDPARK	BRINKER	COLORADO	2,140	0.41	1	1	3U	C	148	148	100%	550	550	226	226	61	61	165	165		
MEDPARK	COLORADO	IH 35E	1,360	0.26	1	1	3U	C	148	148	100%	550	550	143	143	38	38	105	105		
MOCKINGBIRD	MINGO	AUDRA	1,890	0.36	1	1	2U	C	276	276	100%	450	450	162	162	99	99	63	63		
MOCKINGBIRD	AUDRA	PAISLEY	2,895	0.55	1	1	2U	C	15	15	100%	450	450	248	248	8	8	239	239		
MOCKINGBIRD	PAISLEY	ORIOLE	940	0.18	1	1	2U	C	91	91	100%	450	450	81	81	16	16	65	65		
MOCKINGBIRD	ORIOLE	MCKINNEY	1,670	0.32	1	1	2U	C	91	91	100%	450	450	144	144	29	29	115	115		
MOCKINGBIRD	625' N OF DUCHESS	DUCHESS	625	0.12	1	1	2U	SA	137	137	100%	450	450	54	54	16	16	38	38		
NORTH TEXAS	OAK	HICKORY	360	0.07	1	1	2U	SA	216	216	100%	450	450	32	32	15	15	16	16		
NORTH TEXAS	HICKORY	PRAIRIE	1,425	0.27	2	2	4U	SA	640	640	100%	550	550	297	297	173	173	124	124		
NORTH TEXAS	PRAIRIE	HIGHLAND	520	0.10	2	2	4U	SA	640	640	100%	550	550	110	110	64	64	46	46		
NORTH TEXAS	HIGHLAND	EAGLE	1,265	0.24	2	2	4U	SA	640	640	100%	550	550	264	264	154	154	110	110		
NORTH TEXAS	EAGLE	IH 35E	750	0.14	2	2	4U	SA	640	640	100%	550	550	154	154	90	90	64	64		
NOTTINGHAM	US 380	MINGO	1,820	0.34	2	2	4U	SA	640	640	100%	550	550	374	374	218	218	156	156		
NOTTINGHAM	MINGO	AUDRA	1,060	0.20	2	2	4U	SA	263	263	100%	550	550	220	220	53	53	167	167		
OAKLAND	LOCUST	WITHERS	2,775	0.53	1	1	2U	C	1	1	100%	450	450	239	239	1	1	238	238		

City of Denton - 2022 Roadway Impact Fee Study
Existing Roadway Facilities Inventory

Service Area E

12/7/2023

ROADWAY	FROM	TO	LENGTH (ft)	LENGTH (mi)	EXIST LANES		EXIST LANES	CLASS	PM PEAK HOUR VOL		% IN SERVICE AREA	VEH-MI CAPACITY PK-HR PER LN		VEH-MI SUPPLY PK-HR TOTAL		VEH-MI DEMAND PK-HR TOTAL		EXCESS CAPACITY PK-HR VEH-MI		EXISTING DEFICIENCIES PK-HR VEH-MI	
					NB/EB	SB/WB			NB/EB	SB/WB		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
OAKLAND	WITHERS	CONGRESS	680	0.13	1	1	2U	C	15	15	100%	450	450	59	59	2	2	57	57		
OLD NORTH	US 380	MINGO	600	0.11	1	1	2U	C	263	263	100%	450	450	50	50	29	29	21	21		
PERTAIN	MINGO	LATTIMORE	805	0.15	1	1	2U	C	2	2	100%	450	450	68	68	0	0	67	67		
POST OAK	POCKRUS PAGE	LAKEVIEW	1,240	0.23	1	1	2U	PA	276	276	100%	450	450	104	104	63	63	40	40		
RUDDELL	US 380	MINGO	2,460	0.47	1	1	2U	C	62	62	100%	450	450	212	212	29	29	182	182		
RUDDELL	WILLIS	PAISLEY	1,455	0.28	1	1	2U	C	17	17	100%	450	450	126	126	5	5	121	121		
RUDDELL	PAISLEY	MCKINNEY	1,580	0.30	1	1	2U	C	48	48	100%	450	450	135	135	14	14	121	121		
RUDDELL	MCKINNEY	HICKORY	590	0.11	1	1	2U	C	0	0	100%	450	450	50	50	0	0	50	50		
RUDDELL	HICKORY	MORSE	3,255	0.62	1	1	2U	C	8	8	100%	450	450	279	279	5	5	274	274		
TEASLEY	SHADY OAKS	DALLAS	860	0.16	2	2	4D	SA	760	760	100%	750	750	240	240	122	122	118	118		
TEASLEY	DALLAS	IH 35E	1,870	0.35	2	2	4D	PA	1,045	1,045	100%	750	750	525	525	366	366	159	159		
WELCH	OAK	HICKORY	380	0.07	2	2	4U	SA	640	640	100%	550	550	77	77	45	45	32	32		
WELCH	HICKORY	MULBERRY	350	0.07	2	2	4U	SA	277	277	100%	550	550	77	77	19	19	58	58		
WELCH	MULBERRY	HIGHLAND	1,570	0.30	2	2	4U	SA	187	187	100%	550	550	330	330	56	56	274	274		
WELCH	HIGHLAND	MAPLE	400	0.08	2	2	4U	SA	182	182	100%	550	550	88	88	15	15	73	73		
WELCH	MAPLE	EAGLE	575	0.11	2	2	4U	SA	640	640	100%	550	550	121	121	70	70	51	51		
WELCH	EAGLE	COLLINS	925	0.18	2	2	4U	C	640	640	100%	550	550	198	198	115	115	83	83		
WOODROW	MCKINNEY	MORSE	3,910	0.74	2	2	5U	SA	1,960	1,960	100%	725	725	1,073	1,073	1,450	1,450	-377	-377	377	377
WOODROW	MORSE	SHADY OAKS	1,305	0.25	2	2	4U	SA	640	640	100%	550	550	275	275	160	160	115	115		
WOODROW	SHADY OAKS	SPENCER	475	0.09	2	2	5U	SA	1,960	1,960	100%	725	725	131	131	176	176	-46	-46	46	46
SUBTOTAL			**158,685**	**30.09**										**20,658**	**19,830**	**11,737**	**11,004**	**8,921**	**8,948**	**3,695**	**3,672**
														40,488		**22,741**		**17,870**		**7,367**	

Appendix D – Plan for Awarding the Transportation Impact Fee Credit Summary

(as prepared by NewGen Strategies.)

SUMMARY OF ROADWAY IMPACT FEE DETERMINATION

Service Area A

Recoverable Impact Fee CIP Costs	$	88,707,667	Kimley-Horn Impact Fee Study
Financing Cost		43,092,001	See Detail Below
Existing Fund Balance		(4,394,807)	Roadway Appendices - page 1
Interest Earnings		(21,126,791)	Roadway Appendices - page 4
Pre Credit Recoverable Cost for Impact Fee	**$**	**106,278,070**	**Sum of Above**
Credit for Ad Valorem Revenues		(6,535,564)	Roadway Appendices - page 7
Maximum Recoverable Cost for Impact Fee	**$**	**99,742,506**	

Recoverable Impact Fee CIP Costs:

Represents the portion of capital improvement costs that are eligible for funding through Impact fees. Reference is the Kimley-Horn Impact Fee Study.

Financing Costs:

Represents the interest costs associated with debt financing the new Impact fee project costs. Interest costs are derived from existing debt issues and forecasted debt issues.

New Annual Debt Service	$	114,028,007	Roadway Appendices - page 2
Existing Annual Debt Service		-	Roadway Appendices - page 3
Principal Component (New and Existing Debt)		(70,936,006)	Roadway Appendices - page 1
Financing Costs	$	43,092,001	

Existing Fund Balance:

Represents impact fee revenue collected but not yet expended. To avoid charging twice for the same project, the impact fee revenues collected but yet to be expended (i.e. fund balance) are credited against the recoverable costs. Reference is page 1 of Roadway Appendices.

Interest Earnings:

Represents the interest earned on cash flows and assumes a 2.00% annual interest rate. The Impact Fee Statute states that interest earnings are funds of the Impact fee account and are held to the same restrictions as Impact fee revenues. Therefore in order to recognize that interest earnings are used to fund capital improvements, interest earnings are credited against the recoverable costs. Reference is the sum of Accumulated Interest on page 4 of Roadway Appendices.

Pre Credit Recoverable Cost for Impact Fee:

Represents Recoverable Impact Fee CIP Costs plus Financing Costs less Existing Fund Balance and Interest Earnings.

Credit for Ad Valorem Revenues:

In 2001, the LGC Chapter 395 was amended to include a credit for ad valorem and utility revenues generated by new service units during the ten-year timeframe that are used to fund Impact fee eligible projects for which the new service units were charged an Impact fee. The intent of this amendment is to avoid double-charging the new service units for Impact fee capital improvements. The credit recognizes ad valorem revenues used to fund the debt service of debt financed Impact fee eligible projects and assumes that all non-debt funded impact fee eligible project costs will be funded solely through impact fee revenues or non-ad valorem revenue sources. Reference is page 7 of Roadway Appendices.

Maximum Recoverable Cost for Impact Fee:

Represents Pre Credit Recoverable Cost for Impact Fee less Credit for Ad Valorem Revenues. This is the maximum cost that can be recovered through Impact fees.

SUMMARY OF ROADWAY IMPACT FEE DETERMINATION

Service Area B

Recoverable Impact Fee CIP Costs	$	52,791,687	Kimley-Horn Impact Fee Study
Financing Cost		24,683,794	See Detail Below
Existing Fund Balance		(2,004,188)	Roadway Appendices - page 1
Interest Earnings		(12,622,463)	Roadway Appendices - page 4
Pre Credit Recoverable Cost for Impact Fee	**$**	**62,848,830**	**Sum of Above**
Credit for Ad Valorem Revenues		(1,580,744)	Roadway Appendices - page 7
Maximum Recoverable Cost for Impact Fee	**$**	**61,268,086**	

Recoverable Impact Fee CIP Costs:

Represents the portion of capital improvement costs that are eligible for funding through Impact fees. Reference is the Kimley-Horn Impact Fee Study.

Financing Costs:

Represents the interest costs associated with debt financing the new Impact fee project costs. Interest costs are derived from existing debt issues and forecasted debt issues.

New Annual Debt Service	$	64,669,539	Roadway Appendices - page 2
Existing Annual Debt Service		1,170,764	Roadway Appendices - page 3
Principal Component (New and Existing Debt)		(41,156,509)	Roadway Appendices - page 1
Financing Costs	$	24,683,794	

Existing Fund Balance:

Represents impact fee revenue collected but not yet expended. To avoid charging twice for the same project, the impact fee revenues collected but yet to be expended (i.e. fund balance) are credited against the recoverable costs. Reference is page 1 of Roadway Appendices.

Interest Earnings:

Represents the interest earned on cash flows and assumes a 2.00% annual interest rate. The Impact Fee Statute states that interest earnings are funds of the Impact fee account and are held to the same restrictions as Impact fee revenues. Therefore in order to recognize that interest earnings are used to fund capital improvements, interest earnings are credited against the recoverable costs. Reference is the sum of Accumulated Interest on page 4 of Roadway Appendices.

Pre Credit Recoverable Cost for Impact Fee:

Represents Recoverable Impact Fee CIP Costs plus Financing Costs less Existing Fund Balance and Interest Earnings.

Credit for Ad Valorem Revenues:

In 2001, the LGC Chapter 395 was amended to include a credit for ad valorem and utility revenues generated by new service units during the ten-year timeframe that are used to fund Impact fee eligible projects for which the new service units were charged an Impact fee. The intent of this amendment is to avoid double-charging the new service units for Impact fee capital improvements. The credit recognizes ad valorem revenues used to fund the debt service of debt financed Impact fee eligible projects and assumes that all non-debt funded impact fee eligible project costs will be funded solely through impact fee revenues or non-ad valorem revenue sources. Reference is page 7 of Roadway Appendices.

Maximum Recoverable Cost for Impact Fee:

Represents Pre Credit Recoverable Cost for Impact Fee less Credit for Ad Valorem Revenues. This is the maximum cost that can be recovered through Impact fees.

SUMMARY OF ROADWAY IMPACT FEE DETERMINATION

Service Area C

Recoverable Impact Fee CIP Costs	$	126,409,861	Kimley-Horn Impact Fee Study
Financing Cost		61,414,578	See Detail Below
Existing Fund Balance		(3,170,473)	Roadway Appendices - page 1
Interest Earnings		(30,142,851)	Roadway Appendices - page 4
Pre Credit Recoverable Cost for Impact Fee	**$**	**154,511,114**	**Sum of Above**
Credit for Ad Valorem Revenues		(7,396,751)	Roadway Appendices - page 7
Maximum Recoverable Cost for Impact Fee	**$**	**147,114,363**	

Recoverable Impact Fee CIP Costs:

Represents the portion of capital improvement costs that are eligible for funding through Impact fees. Reference is the Kimley-Horn Impact Fee Study.

Financing Costs:

Represents the interest costs associated with debt financing the new Impact fee project costs. Interest costs are derived from existing debt issues and forecasted debt issues.

New Annual Debt Service	$	162,512,338	Roadway Appendices - page 2
Existing Annual Debt Service		-	Roadway Appendices - page 3
Principal Component (New and Existing Debt)		(101,097,761)	Roadway Appendices - page 1
Financing Costs	$	61,414,578	

Existing Fund Balance:

Represents impact fee revenue collected but not yet expended. To avoid charging twice for the same project, the impact fee revenues collected but yet to be expended (i.e. fund balance) are credited against the recoverable costs. Reference is page 1 of Roadway Appendices.

Interest Earnings:

Represents the interest earned on cash flows and assumes a 2.00% annual interest rate. The Impact Fee Statute states that interest earnings are funds of the Impact fee account and are held to the same restrictions as Impact fee revenues. Therefore in order to recognize that interest earnings are used to fund capital improvements, interest earnings are credited against the recoverable costs. Reference is the sum of Accumulated Interest on page 4 of Roadway Appendices.

Pre Credit Recoverable Cost for Impact Fee:

Represents Recoverable Impact Fee CIP Costs plus Financing Costs less Existing Fund Balance and Interest Earnings.

Credit for Ad Valorem Revenues:

In 2001, the LGC Chapter 395 was amended to include a credit for ad valorem and utility revenues generated by new service units during the ten-year timeframe that are used to fund Impact fee eligible projects for which the new service units were charged an Impact fee. The intent of this amendment is to avoid double-charging the new service units for Impact fee capital improvements. The credit recognizes ad valorem revenues used to fund the debt service of debt financed Impact fee eligible projects and assumes that all non-debt funded impact fee eligible project costs will be funded solely through impact fee revenues or non-ad valorem revenue sources. Reference is page 7 of Roadway Appendices.

Maximum Recoverable Cost for Impact Fee:

Represents Pre Credit Recoverable Cost for Impact Fee less Credit for Ad Valorem Revenues. This is the maximum cost that can be recovered through Impact fees.

SUMMARY OF ROADWAY IMPACT FEE DETERMINATION

Service Area D

Recoverable Impact Fee CIP Costs	$	51,696,805	Kimley-Horn Impact Fee Study
Financing Cost		25,105,399	See Detail Below
Existing Fund Balance		(1,685,562)	Roadway Appendices - page 1
Interest Earnings		(12,702,369)	Roadway Appendices - page 4
Pre Credit Recoverable Cost for Impact Fee	**$**	**62,414,273**	**Sum of Above**
Credit for Ad Valorem Revenues		(1,157,132)	Roadway Appendices - page 7
Maximum Recoverable Cost for Impact Fee	**$**	**61,257,141**	

Recoverable Impact Fee CIP Costs:

Represents the portion of capital improvement costs that are eligible for funding through Impact fees. Reference is the Kimley-Horn Impact Fee Study.

Financing Costs:

Represents the interest costs associated with debt financing the new Impact fee project costs. Interest costs are derived from existing debt issues and forecasted debt issues.

New Annual Debt Service	$	66,432,715	Roadway Appendices - page 2
Existing Annual Debt Service		-	Roadway Appendices - page 3
Principal Component (New and Existing Debt)		(41,327,316)	Roadway Appendices - page 1
Financing Costs	$	25,105,399	

Existing Fund Balance:

Represents impact fee revenue collected but not yet expended. To avoid charging twice for the same project, the impact fee revenues collected but yet to be expended (i.e. fund balance) are credited against the recoverable costs. Reference is page 1 of Roadway Appendices.

Interest Earnings:

Represents the interest earned on cash flows and assumes a 2.00% annual interest rate. The Impact Fee Statute states that interest earnings are funds of the Impact fee account and are held to the same restrictions as Impact fee revenues. Therefore in order to recognize that interest earnings are used to fund capital improvements, interest earnings are credited against the recoverable costs. Reference is the sum of Accumulated Interest on page 4 of Roadway Appendices.

Pre Credit Recoverable Cost for Impact Fee:

Represents Recoverable Impact Fee CIP Costs plus Financing Costs less Existing Fund Balance and Interest Earnings.

Credit for Ad Valorem Revenues:

In 2001, the LGC Chapter 395 was amended to include a credit for ad valorem and utility revenues generated by new service units during the ten-year timeframe that are used to fund Impact fee eligible projects for which the new service units were charged an Impact fee. The intent of this amendment is to avoid double-charging the new service units for Impact fee capital improvements. The credit recognizes ad valorem revenues used to fund the debt service of debt financed Impact fee eligible projects and assumes that all non-debt funded impact fee eligible project costs will be funded solely through impact fee revenues or non-ad valorem revenue sources. Reference is page 7 of Roadway Appendices.

Maximum Recoverable Cost for Impact Fee:

Represents Pre Credit Recoverable Cost for Impact Fee less Credit for Ad Valorem Revenues. This is the maximum cost that can be recovered through Impact fees.

SUMMARY OF ROADWAY IMPACT FEE DETERMINATION

Service Area E

Recoverable Impact Fee CIP Costs	$	79,169,421	Kimley-Horn Impact Fee Study
Financing Cost		38,714,769	See Detail Below
Existing Fund Balance		(4,840,794)	Roadway Appendices - page 1
Interest Earnings		(19,534,195)	Roadway Appendices - page 4
Pre Credit Recoverable Cost for Impact Fee	**$**	**93,509,200**	**Sum of Above**
Credit for Ad Valorem Revenues		(3,628,065)	Roadway Appendices - page 7
Maximum Recoverable Cost for Impact Fee	**$**	**89,881,135**	

Recoverable Impact Fee CIP Costs:

Represents the portion of capital improvement costs that are eligible for funding through Impact fees. Reference is the Kimley-Horn Impact Fee Study.

Financing Costs:

Represents the interest costs associated with debt financing the new Impact fee project costs. Interest costs are derived from existing debt issues and forecasted debt issues.

New Annual Debt Service	$	102,210,271	Roadway Appendices - page 2
Existing Annual Debt Service		388,356	Roadway Appendices - page 3
Principal Component (New and Existing Debt)		(63,883,858)	Roadway Appendices - page 1
Financing Costs	$	38,714,769	

Existing Fund Balance:

Represents impact fee revenue collected but not yet expended. To avoid charging twice for the same project, the impact fee revenues collected but yet to be expended (i.e. fund balance) are credited against the recoverable costs. Reference is page 1 of Roadway Appendices.

Interest Earnings:

Represents the interest earned on cash flows and assumes a 2.00% annual interest rate. The Impact Fee Statute states that interest earnings are funds of the Impact fee account and are held to the same restrictions as Impact fee revenues. Therefore in order to recognize that interest earnings are used to fund capital improvements, interest earnings are credited against the recoverable costs. Reference is the sum of Accumulated Interest on page 4 of Roadway Appendices.

Pre Credit Recoverable Cost for Impact Fee:

Represents Recoverable Impact Fee CIP Costs plus Financing Costs less Existing Fund Balance and Interest Earnings.

Credit for Ad Valorem Revenues:

In 2001, the LGC Chapter 395 was amended to include a credit for ad valorem and utility revenues generated by new service units during the ten-year timeframe that are used to fund Impact fee eligible projects for which the new service units were charged an Impact fee. The intent of this amendment is to avoid double-charging the new service units for Impact fee capital improvements. The credit recognizes ad valorem revenues used to fund the debt service of debt financed Impact fee eligible projects and assumes that all non-debt funded impact fee eligible project costs will be funded solely through impact fee revenues or non-ad valorem revenue sources. Reference is page 7 of Roadway Appendices.

Maximum Recoverable Cost for Impact Fee:

Represents Pre Credit Recoverable Cost for Impact Fee less Credit for Ad Valorem Revenues. This is the maximum cost that can be recovered through Impact fees.

Appendix E – Plan for Awarding the Transportation Impact Fee Credit Supporting Exhibits

(as prepared by NewGen Strategies.)

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Calculation Assumptions

Appendix E - Impact Fee Calculation Assumptions

Service Area A

I. General Assumptions

Annual Interest Rate on Deposits (1)	2.00%
Annual Vehicle Mile Growth (2)	3,997
Existing Fund Balance (3)	4,394,807

Portion of Projects Funded by Existing Debt (3)	$ -
Non-debt Funded Project Cost (4)	17,771,661
New Project Cost Funded Through New Debt (5)	70,936,006
Total Recoverable Project Cost (6)	$ 88,707,667

II. New Debt Issues Assumptions

Year	Principal (7)	Interest (8)	Term
1	$ 7,093,601	4.05%	20
2	7,093,601	4.30%	20
3	7,093,601	5.00%	20
4	7,093,601	5.00%	20
5	7,093,601	5.15%	20
6	7,093,601	5.15%	20
7	7,093,601	5.25%	20
8	7,093,601	5.25%	20
9	7,093,601	5.50%	20
10	7,093,601	5.50%	20
Total	$ 70,936,006		

III. Capital Expenditure Assumptions

Year	Annual Capital Expenditures (9)
1	$ 1,777,166
2	4,141,700
3	6,506,233
4	8,870,767
5	8,870,767
6	8,870,767
7	8,870,767
8	8,870,767
9	8,870,767
10	8,870,767
11	7,093,601
12	4,729,067
13	2,364,534
Total	88,707,667

(1) Per discussions with City Staff and City files
(2) Per Kimley-Horn Impact Fee Study
(3) Per discussions with City Staff and City files
(4) Per discussions with City Staff and City files
(5) This assumes 20% of new project costs funded through sources other than debt, unless specified otherwise
(6) This assumes 80% of new project costs funded through new debt issues, unless specified otherwise
(7) Per Kimley-Horn Impact Fee Study
(8) Assumes new debt issued in equal amounts every year
(9) Estimated interest on future debt from City's Financial Advisor October 2022
(10) Assumes new debt proceeds expended over a 3-year timeframe
Non-debt funded capital expenditures allocated per discussions with City Staff

City of Denton - 2022 Roadway Impact Fee Study

Appendix E - Impact Fee Calculation Assumptions

Debt Service and Expense Summary

Service Area A

I. New Debt Service Detail

Year	Series 1	Series 2	Series 3	Series 4	Series 5	Series 6	Series 7	Series 8	Series 9	Series 10	Total Annual New Debt Service
1	$ 524,273	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 524,273
2	524,273	535,919	-	-	-	-	-	-	-	-	1,060,192
3	524,273	535,919	569,209	-	-	-	-	-	-	-	1,629,401
4	524,273	535,919	569,209	569,209	-	-	-	-	-	-	2,198,610
5	524,273	535,919	569,209	569,209	576,471	-	-	-	-	-	2,775,081
6	524,273	535,919	569,209	569,209	576,471	576,471	-	-	-	-	3,351,551
7	524,273	535,919	569,209	569,209	576,471	576,471	581,337	-	-	-	3,932,888
8	524,273	535,919	569,209	569,209	576,471	576,471	581,337	581,337	-	-	4,514,225
9	524,273	535,919	569,209	569,209	576,471	576,471	581,337	581,337	593,588	-	5,107,813
10	524,273	535,919	569,209	569,209	576,471	576,471	581,337	581,337	593,588	593,588	5,701,400
11	524,273	535,919	569,209	569,209	576,471	576,471	581,337	581,337	593,588	593,588	5,701,400
12	524,273	535,919	569,209	569,209	576,471	576,471	581,337	581,337	593,588	593,588	5,701,400
13	524,273	535,919	569,209	569,209	576,471	576,471	581,337	581,337	593,588	593,588	5,701,400
14	524,273	535,919	569,209	569,209	576,471	576,471	581,337	581,337	593,588	593,588	5,701,400
15	524,273	535,919	569,209	569,209	576,471	576,471	581,337	581,337	593,588	593,588	5,701,400
16	524,273	535,919	569,209	569,209	576,471	576,471	581,337	581,337	593,588	593,588	5,701,400
17	524,273	535,919	569,209	569,209	576,471	576,471	581,337	581,337	593,588	593,588	5,701,400
18	524,273	535,919	569,209	569,209	576,471	576,471	581,337	581,337	593,588	593,588	5,701,400
19	524,273	535,919	569,209	569,209	576,471	576,471	581,337	581,337	593,588	593,588	5,701,400
20	524,273	535,919	569,209	569,209	576,471	576,471	581,337	581,337	593,588	593,588	5,701,400
21	-	535,919	569,209	569,209	576,471	576,471	581,337	581,337	593,588	593,588	5,177,127
22	-	-	569,209	569,209	576,471	576,471	581,337	581,337	593,588	593,588	4,641,208
23	-	-	-	569,209	576,471	576,471	581,337	581,337	593,588	593,588	4,071,999
24	-	-	-	-	576,471	576,471	581,337	581,337	593,588	593,588	3,502,790
25	-	-	-	-	-	576,471	581,337	581,337	593,588	593,588	2,926,320
26	-	-	-	-	-	-	581,337	581,337	593,588	593,588	2,349,849
27	-	-	-	-	-	-	-	581,337	593,588	593,588	1,768,512
28	-	-	-	-	-	-	-	-	593,588	593,588	1,187,175
29	-	-	-	-	-	-	-	-	-	593,588	593,588
	$ 10,485,462	$ 10,718,380	$ 11,384,177	$ 11,384,177	$ 11,529,415	$ 11,529,415	$ 11,626,735	$ 11,626,735	$ 11,871,755	$ 11,871,755	$ 114,028,007

City of Denton - 2022 Roadway Impact Fee Study

Appendix E - Impact Fee Calculation Assumptions

Debt Service and Expense Summary

Service Area A

II. Summary of Annual Expenses

Year	New Annual Debt Service[1]	Annual Capital Expenditures[2]	Annual Bond Proceeds[2]	Existing Annual Debt Service[3]	Annual Credit[4]	Total Expense
1	$ 524,273	$ 1,777,166	$ (7,093,601)	$ -	$ (3,449)	$ (4,795,611)
2	1,060,192	4,141,700	(7,093,601)	-	(13,859)	(1,905,568)
3	1,629,401	6,506,233	(7,093,601)	-	(31,743)	1,010,291
4	2,198,610	8,870,767	(7,093,601)	-	(56,740)	3,919,036
5	2,775,081	8,870,767	(7,093,601)	-	(88,948)	4,463,299
6	3,351,551	8,870,767	(7,093,601)	-	(128,089)	5,000,628
7	3,932,888	8,870,767	(7,093,601)	-	(174,248)	5,535,807
8	4,514,225	8,870,767	(7,093,601)	-	(227,138)	6,064,253
9	5,107,813	8,870,767	(7,093,601)	-	(287,324)	6,597,655
10	5,701,400	8,870,767	(7,093,601)	-	(354,136)	7,124,431
11	5,701,400	7,093,601	-	-	(354,136)	12,440,865
12	5,701,400	4,729,067	-	-	(354,136)	10,076,332
13	5,701,400	2,364,534	-	-	(354,136)	7,711,798
14	5,701,400	-	-	-	(354,136)	5,347,265
15	5,701,400	-	-	-	(354,136)	5,347,265
16	5,701,400	-	-	-	(354,136)	5,347,265
17	5,701,400	-	-	-	(354,136)	5,347,265
18	5,701,400	-	-	-	(354,136)	5,347,265
19	5,701,400	-	-	-	(354,136)	5,347,265
20	5,701,400	-	-	-	(354,136)	5,347,265
21	5,177,127	-	-	-	(321,571)	4,855,556
22	4,641,208	-	-	-	(288,283)	4,352,925
23	4,071,999	-	-	-	(252,927)	3,819,072
24	3,502,790	-	-	-	(217,572)	3,285,219
25	2,926,320	-	-	-	(181,765)	2,744,555
26	2,349,849	-	-	-	(145,958)	2,203,891
27	1,768,512	-	-	-	(109,849)	1,658,663
28	1,187,175	-	-	-	(73,740)	1,113,436
29	593,588	-	-	-	(36,870)	556,718
PTD	-	-	-	-	-	-
	$ 114,028,007	$ 88,707,667	$ (70,936,006)	$ -	$ (6,535,564)	$ 125,264,104

(1) Appendix D - Service Area A, Page 2

(2) Appendix D - Service Area A, Page 1

(3) Eligible outstanding debt funded projects as a percent of total principal times original annual debt service, including Paid-To-Date (PTD) amounts

(4) Appendix D - Service Area A, Page 7

City of Denton - 2022 Roadway Impact Fee Study

Revenue Test

Appendix E - Impact Fee Calculation Assumptions

Service Area A

Year	Impact Fee	Vehicle Miles	Impact Fee Revenue	Annual Expenses	Sub-Total	Accumulated Interest	Estimated Fund Balance
Initial							$ 4,394,807
1	$ 2,496	3,997	$ 9,974,251	$ (4,795,611)	$ 14,769,861	$ 235,595	19,400,263
2	2,496	3,997	9,974,251	(1,905,568)	11,879,819	506,803	31,786,885
3	2,496	3,997	9,974,251	1,010,291	8,963,960	725,377	41,476,222
4	2,496	3,997	9,974,251	3,919,036	6,055,215	890,077	48,421,514
5	2,496	3,997	9,974,251	4,463,299	5,510,952	1,023,540	54,956,005
6	2,496	3,997	9,974,251	5,000,628	4,973,622	1,148,856	61,078,484
7	2,496	3,997	9,974,251	5,535,807	4,438,444	1,265,954	66,782,882
8	2,496	3,997	9,974,251	6,064,253	3,909,998	1,374,758	72,067,637
9	2,496	3,997	9,974,251	6,597,655	3,376,596	1,475,119	76,919,351
10	2,496	3,997	9,974,251	7,124,431	2,849,820	1,566,885	81,336,056
11	-	-	-	12,440,865	(12,440,865)	1,502,312	70,397,503
12	-	-	-	10,076,332	(10,076,332)	1,307,187	61,628,358
13	-	-	-	7,711,798	(7,711,798)	1,155,449	55,072,009
14	-	-	-	5,347,265	(5,347,265)	1,047,968	50,772,712
15	-	-	-	5,347,265	(5,347,265)	961,982	46,387,429
16	-	-	-	5,347,265	(5,347,265)	874,276	41,914,440
17	-	-	-	5,347,265	(5,347,265)	784,816	37,351,992
18	-	-	-	5,347,265	(5,347,265)	693,567	32,698,294
19	-	-	-	5,347,265	(5,347,265)	600,493	27,951,523
20	-	-	-	5,347,265	(5,347,265)	505,558	23,109,816
21	-	-	-	4,855,556	(4,855,556)	413,641	18,667,900
22	-	-	-	4,352,925	(4,352,925)	329,829	14,644,804
23	-	-	-	3,819,072	(3,819,072)	254,705	11,080,437
24	-	-	-	3,285,219	(3,285,219)	188,757	7,983,975
25	-	-	-	2,744,555	(2,744,555)	132,234	5,371,654
26	-	-	-	2,203,891	(2,203,891)	85,394	3,253,157
27	-	-	-	1,658,663	(1,658,663)	48,477	1,642,970
28	-	-	-	1,113,436	(1,113,436)	21,725	551,260
29	-	-	-	556,718	(556,718)	5,458	-
PTD	-	-	-	-	-	-	-
			$ 99,742,506	$ 125,264,104		$ 21,126,791	

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Calculation

Appendix E - Impact Fee Calculation Assumptions

Service Area A

Year	Number of Years to End of Period	Future Value Escalation: Interest Rate Factor	Future Value Escalation: Recovery Fee Factor	Annual Vehicle Miles: Actual	Annual Vehicle Miles: Escalated	Annual Expense: Actual	Annual Expense: Escalated
1	29	1.7584	1.0000	3,997	7,028	$ (4,795,611)	$ (8,432,767)
2	28	1.7240	1.0000	3,997	6,890	(1,905,568)	(3,285,114)
3	27	1.6902	1.0000	3,997	6,755	1,010,291	1,707,546
4	26	1.6570	1.0000	3,997	6,623	3,919,036	6,493,890
5	25	1.6245	1.0000	3,997	6,493	4,463,299	7,250,726
6	24	1.5927	1.0000	3,997	6,366	5,000,628	7,964,342
7	23	1.5614	1.0000	3,997	6,241	5,535,807	8,643,827
8	22	1.5308	1.0000	3,997	6,118	6,064,253	9,283,298
9	21	1.5008	1.0000	3,997	5,998	6,597,655	9,901,806
10	20	1.4714	1.0000	3,997	5,881	7,124,431	10,482,740
11	19	1.4425	1.0000	-	-	12,440,865	17,946,305
12	18	1.4142	1.0000	-	-	10,076,332	14,250,390
13	17	1.3865	1.0000	-	-	7,711,798	10,692,513
14	16	1.3593	1.0000	-	-	5,347,265	7,268,681
15	15	1.3327	1.0000	-	-	5,347,265	7,126,158
16	14	1.3065	1.0000	-	-	5,347,265	6,986,430
17	13	1.2809	1.0000	-	-	5,347,265	6,849,441
18	12	1.2558	1.0000	-	-	5,347,265	6,715,138
19	11	1.2312	1.0000	-	-	5,347,265	6,583,469
20	10	1.2070	1.0000	-	-	5,347,265	6,454,381
21	9	1.1834	1.0000	-	-	4,855,556	5,745,949
22	8	1.1602	1.0000	-	-	4,352,925	5,050,144
23	7	1.1374	1.0000	-	-	3,819,072	4,343,904
24	6	1.1151	1.0000	-	-	3,285,219	3,663,419
25	5	1.0933	1.0000	-	-	2,744,555	3,000,502
26	4	1.0718	1.0000	-	-	2,203,891	2,362,175
27	3	1.0508	1.0000	-	-	1,658,663	1,742,930
28	2	1.0302	1.0000	-	-	1,113,436	1,147,061
29	1	1.0100	1.0000	-	-	556,718	562,285
PTD		1.0000	1.0000	-	-	-	-
					64,394		$ 168,501,568

Annual Interest Rate:	2.00%
Total Escalated Expense for Entire Period	$ 168,501,568
Less Future Value of Initial Impact Fee Fund Balance	7,804,495
Sub-Total	$ 160,697,073
Total Escalated Vehicle Miles	64,394
Maximum Assessable Impact Fee for Roadway Service Area A	**$ 2,496**

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Project Funding

Appendix E - Impact Fee Calculation Assumptions

Service Area A

Street Name	Cost In Service Area [1]	Impact Fee Recoverable Cost[1]	Debt Funded[2] Existing	Debt Funded[2] Proposed	Non-Debt Funded[2]	Impact Fee Recoverable Cost
CORBIN	$ 10,164,000	$ 3,360,317	$ -	$ 2,688,253	$ 672,063	$ 3,360,317
CORBIN	3,378,000	1,116,799	-	893,440	223,360	1,116,799
FM 1515	23,533,000	7,780,237	-	6,224,190	1,556,047	7,780,237
FM 1515	3,959,000	1,308,884	-	1,047,107	261,777	1,308,884
FM 1515	7,495,000	2,477,919	-	1,982,336	495,584	2,477,919
FM 1515	2,089,000	690,644	-	552,515	138,129	690,644
FM 1515	13,827,000	4,571,340	-	3,657,072	914,268	4,571,340
FM 1515	13,132,000	4,341,566	-	3,473,253	868,313	4,341,566
H LIVELY	3,613,000	1,194,493	-	955,594	238,899	1,194,493
H LIVELY	13,188,000	4,360,080	-	3,488,064	872,016	4,360,080
IH-35-CORBIN	7,040,000	2,327,492	-	1,861,994	465,498	2,327,492
JIM CHRISTAL	10,332,000	3,415,859	-	2,732,687	683,172	3,415,859
JIM CHRISTAL	4,873,000	1,611,061	-	1,288,849	322,212	1,611,061
JIM CHRISTAL	5,982,000	1,977,707	-	1,582,166	395,541	1,977,707
JIM CHRISTAL	9,251,000	3,058,470	-	2,446,776	611,694	3,058,470
JIM CHRISTAL	6,353,500	2,100,528	-	1,680,423	420,106	2,100,528
PRECISION-WESTERN	6,566,000	2,170,783	-	1,736,626	434,157	2,170,783
ROBSON RANCH	15,487,000	5,120,152	-	4,096,121	1,024,030	5,120,152
ROBSON RANCH	12,667,500	4,187,998	-	3,350,398	837,600	4,187,998
SPRINGSIDE	6,141,000	2,030,274	-	1,624,219	406,055	2,030,274
SPRINGSIDE	2,971,000	982,241	-	785,793	196,448	982,241
TJ EGAN-LOOP 288	3,722,000	1,230,529	-	984,423	246,106	1,230,529
C WOLFE	13,120,000	4,337,599	-	3,470,079	867,520	4,337,599
C WOLFE	6,009,000	1,986,633	-	1,589,307	397,327	1,986,633
CORBIN	3,667,000	1,212,346	-	969,877	242,469	1,212,346
J CHRISTAL-H LIVELY	5,353,000	1,769,754	-	1,415,803	353,951	1,769,754
PRECISION	3,694,000	1,221,272	-	977,018	244,254	1,221,272
THOMAS J EGAN	6,984,000	2,308,978	-	1,847,182	461,796	2,308,978
THOMAS J EGAN	2,317,500	766,188	-	612,950	153,238	766,188
UNDERWOOD	15,229,000	5,034,855	-	4,027,884	1,006,971	5,034,855
WESTCOURT	5,343,000	1,766,447	-	1,413,158	353,289	1,766,447
WESTERN	6,619,000	2,188,305	-	1,750,644	437,661	2,188,305
WESTERN	14,102,000	4,662,257	-	3,729,806	932,451	4,662,257
	37,660	37,660	-	-	37,660	37,660
	$ 268,239,160	$ 88,707,667	$ -	$ 70,936,006	$ 17,771,661	$ 88,707,667

(1) Per Kimley-Horn Impact Fee Study

(2) Per discussions with City staff and City files

City of Denton - 2022 Roadway Impact Fee Study

Credit Determination

Appendix E - Impact Fee Calculation Assumptions

Service Area A

Year	Eligible Debt Service[1]	Annual Vehicle Miles	Eligible Debt Service per Vehicle Mile	Annual Growth in Vehicle Miles (Cumulative)	Credit for Annual Ad Valorem Rate Revenues
1	$ 524,273	607,498	$ 0.86	3,997	$ 3,449
2	1,060,192	611,495	1.73	7,994	13,859
3	1,629,401	615,491	2.65	11,990	31,743
4	2,198,610	619,488	3.55	15,987	56,740
5	2,775,081	623,485	4.45	19,984	88,948
6	3,351,551	627,482	5.34	23,981	128,089
7	3,932,888	631,479	6.23	27,978	174,248
8	4,514,225	635,476	7.10	31,975	227,138
9	5,107,813	639,472	7.99	35,971	287,324
10	5,701,400	643,469	8.86	39,968	354,136
11	5,701,400	643,469	8.86	39,968	354,136
12	5,701,400	643,469	8.86	39,968	354,136
13	5,701,400	643,469	8.86	39,968	354,136
14	5,701,400	643,469	8.86	39,968	354,136
15	5,701,400	643,469	8.86	39,968	354,136
16	5,701,400	643,469	8.86	39,968	354,136
17	5,701,400	643,469	8.86	39,968	354,136
18	5,701,400	643,469	8.86	39,968	354,136
19	5,701,400	643,469	8.86	39,968	354,136
20	5,701,400	643,469	8.86	39,968	354,136
21	5,177,127	643,469	8.05	39,968	321,571
22	4,641,208	643,469	7.21	39,968	288,283
23	4,071,999	643,469	6.33	39,968	252,927
24	3,502,790	643,469	5.44	39,968	217,572
25	2,926,320	643,469	4.55	39,968	181,765
26	2,349,849	643,469	3.65	39,968	145,958
27	1,768,512	643,469	2.75	39,968	109,849
28	1,187,175	643,469	1.84	39,968	73,740
29	593,588	643,469	0.92	39,968	36,870
Total	$ 114,028,007				$ 6,535,564

2022 Vehicle Miles (All Service Areas) [2]	603,501	
Ten Year Growth in Vehicle Miles (Service Area A) [2]	39,968	
	10	years
Annual Growth in Vehicle Miles	3,997	
Credit Amount	**$ 6,535,564**	

(1) Appendix D - Service Area A, Page 3

(2) Per Kimley-Horn Impact Fee Study

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Calculation Assumptions

Appendix E - Impact Fee Calculation Assumptions

Service Area B

I. General Assumptions

Annual Interest Rate on Deposits (1)	2.00%
Annual Vehicle Mile Growth (2)	1,637
Existing Fund Balance (3)	2,004,188

Portion of Projects Funded by Existing Debt (3)	$ 926,052
Non-debt Funded Project Cost (4)	11,635,178
New Project Cost Funded Through New Debt (5)	40,230,457
Total Recoverable Project Cost (6)	$ 52,791,687

II. New Debt Issues Assumptions

Year	Principal (7)	Interest (8)	Term
1	$ 4,023,046	4.05%	20
2	4,023,046	4.30%	20
3	4,023,046	5.00%	20
4	4,023,046	5.00%	20
5	4,023,046	5.15%	20
6	4,023,046	5.15%	20
7	4,023,046	5.25%	20
8	4,023,046	5.25%	20
9	4,023,046	5.50%	20
10	4,023,046	5.50%	20
Total	$ 40,230,457		

III. Capital Expenditure Assumptions

Year	Annual Capital Expenditures (9)
1	$ 1,163,518
2	2,504,533
3	3,845,548
4	5,186,563
5	5,186,563
6	5,186,563
7	5,186,563
8	5,186,563
9	5,186,563
10	5,186,563
11	4,023,046
12	2,682,030
13	1,341,015
Total	51,865,635

(1) Per discussions with City Staff and City files
(2) Per Kimley-Horn Impact Fee Study
(3) Per discussions with City Staff and City files
(4) Per discussions with City Staff and City files
(5) This assumes 20% of new project costs funded through sources other than debt, unless specified otherwise
(6) This assumes 80% of new project costs funded through new debt issues, unless specified otherwise
(7) Per Kimley-Horn Impact Fee Study
(8) Assumes new debt issued in equal amounts every year
(9) Estimated interest on future debt from City's Financial Advisor October 2022
(10) Assumes new debt proceeds expended over a 3-year timeframe
Non-debt funded capital expenditures allocated per discussions with City Staff

City of Denton - 2022 Roadway Impact Fee Study

Appendix E - Impact Fee Calculation Assumptions

Debt Service and Expense Summary

Service Area B

I. New Debt Service Detail

Year	Series 1	Series 2	Series 3	Series 4	Series 5	Series 6	Series 7	Series 8	Series 9	Series 10	Total Annual New Debt Service
1	$ 297,335	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 297,335
2	297,335	303,940	-	-	-	-	-	-	-	-	601,275
3	297,335	303,940	322,820	-	-	-	-	-	-	-	924,094
4	297,335	303,940	322,820	322,820	-	-	-	-	-	-	1,246,914
5	297,335	303,940	322,820	322,820	326,938	-	-	-	-	-	1,573,852
6	297,335	303,940	322,820	322,820	326,938	326,938	-	-	-	-	1,900,790
7	297,335	303,940	322,820	322,820	326,938	326,938	329,698	-	-	-	2,230,488
8	297,335	303,940	322,820	322,820	326,938	326,938	329,698	329,698	-	-	2,560,185
9	297,335	303,940	322,820	322,820	326,938	326,938	329,698	329,698	336,646	-	2,896,831
10	297,335	303,940	322,820	322,820	326,938	326,938	329,698	329,698	336,646	336,646	3,233,477
11	297,335	303,940	322,820	322,820	326,938	326,938	329,698	329,698	336,646	336,646	3,233,477
12	297,335	303,940	322,820	322,820	326,938	326,938	329,698	329,698	336,646	336,646	3,233,477
13	297,335	303,940	322,820	322,820	326,938	326,938	329,698	329,698	336,646	336,646	3,233,477
14	297,335	303,940	322,820	322,820	326,938	326,938	329,698	329,698	336,646	336,646	3,233,477
15	297,335	303,940	322,820	322,820	326,938	326,938	329,698	329,698	336,646	336,646	3,233,477
16	297,335	303,940	322,820	322,820	326,938	326,938	329,698	329,698	336,646	336,646	3,233,477
17	297,335	303,940	322,820	322,820	326,938	326,938	329,698	329,698	336,646	336,646	3,233,477
18	297,335	303,940	322,820	322,820	326,938	326,938	329,698	329,698	336,646	336,646	3,233,477
19	297,335	303,940	322,820	322,820	326,938	326,938	329,698	329,698	336,646	336,646	3,233,477
20	297,335	303,940	322,820	322,820	326,938	326,938	329,698	329,698	336,646	336,646	3,233,477
21	-	303,940	322,820	322,820	326,938	326,938	329,698	329,698	336,646	336,646	2,936,142
22	-	-	322,820	322,820	326,938	326,938	329,698	329,698	336,646	336,646	2,632,202
23	-	-	-	322,820	326,938	326,938	329,698	329,698	336,646	336,646	2,309,383
24	-	-	-	-	326,938	326,938	329,698	329,698	336,646	336,646	1,986,563
25	-	-	-	-	-	326,938	329,698	329,698	336,646	336,646	1,659,625
26	-	-	-	-	-	-	329,698	329,698	336,646	336,646	1,332,687
27	-	-	-	-	-	-	-	329,698	336,646	336,646	1,002,989
28	-	-	-	-	-	-	-	-	336,646	336,646	673,292
29	-	-	-	-	-	-	-	-	-	336,646	336,646
	$ 5,946,697	$ 6,078,794	$ 6,456,392	$ 6,456,392	$ 6,538,762	$ 6,538,762	$ 6,593,956	$ 6,593,956	$ 6,732,915	$ 6,732,915	$ 64,669,539

City of Denton - 2022 Roadway Impact Fee Study

Appendix E - Impact Fee Calculation Assumptions

Debt Service and Expense Summary

Service Area B

II. Summary of Annual Expenses

Year	New Annual Debt Service[1]	Annual Capital Expenditures[2]	Annual Bond Proceeds[2]	Existing Annual Debt Service[3]	Annual Credit[4]	Total Expense
1	$ 297,335	$ 1,163,518	$ (4,023,046)	$ 33,574	$ (895)	$ (2,529,515)
2	601,275	2,504,533	(4,023,046)	30,403	(3,409)	(890,244)
3	924,094	3,845,548	(4,023,046)	30,332	(7,706)	769,223
4	1,246,914	5,186,563	(4,023,046)	30,245	(13,712)	2,426,964
5	1,573,852	5,186,563	(4,023,046)	30,697	(21,476)	2,746,591
6	1,900,790	5,186,563	(4,023,046)	30,559	(30,937)	3,063,929
7	2,230,488	5,186,563	(4,023,046)	30,960	(42,149)	3,382,816
8	2,560,185	5,186,563	(4,023,046)	30,755	(55,043)	3,699,416
9	2,896,831	5,186,563	(4,023,046)	31,057	(69,790)	4,021,615
10	3,233,477	5,186,563	(4,023,046)	31,288	(86,239)	4,342,044
11	3,233,477	4,023,046	-	30,909	(86,229)	7,201,203
12	3,233,477	2,682,030	-	31,604	(86,247)	5,860,864
13	3,233,477	1,341,015	-	31,666	(86,249)	4,519,910
14	3,233,477	-	-	-	(85,412)	3,148,065
15	3,233,477	-	-	-	(85,412)	3,148,065
16	3,233,477	-	-	-	(85,412)	3,148,065
17	3,233,477	-	-	-	(85,412)	3,148,065
18	3,233,477	-	-	-	(85,412)	3,148,065
19	3,233,477	-	-	-	(85,412)	3,148,065
20	3,233,477	-	-	-	(85,412)	3,148,065
21	2,936,142	-	-	-	(77,558)	2,858,584
22	2,632,202	-	-	-	(69,530)	2,562,673
23	2,309,383	-	-	-	(61,002)	2,248,381
24	1,986,563	-	-	-	(52,475)	1,934,088
25	1,659,625	-	-	-	(43,839)	1,615,786
26	1,332,687	-	-	-	(35,203)	1,297,484
27	1,002,989	-	-	-	(26,494)	976,495
28	673,292	-	-	-	(17,785)	655,507
29	336,646	-	-	-	(8,892)	327,753
PTD	-	-	-	766,716	-	766,716
	$ 64,669,539	$ 51,865,635	$ (40,230,457)	$ 1,170,764	$ (1,580,744)	$ 75,894,737

(1) Appendix D - Service Area B, Page 2

(2) Appendix D - Service Area B, Page 1

(3) Eligible outstanding debt funded projects as a percent of total principal times original annual debt service, including Paid-To-Date (PTD) amounts

(4) Appendix D - Service Area B, Page 7

City of Denton - 2022 Roadway Impact Fee Study

Revenue Test

Appendix E - Impact Fee Calculation Assumptions

Service Area B

Year	Impact Fee	Vehicle Miles	Impact Fee Revenue	Annual Expenses	Sub-Total	Accumulated Interest	Estimated Fund Balance
Initial							$ 2,004,188
1	$ 3,742	1,637	$ 6,126,809	$ (2,529,515)	$ 8,656,323	$ 126,647	10,787,158
2	3,742	1,637	6,126,809	(890,244)	7,017,053	285,914	18,090,125
3	3,742	1,637	6,126,809	769,223	5,357,585	415,378	23,863,089
4	3,742	1,637	6,126,809	2,426,964	3,699,844	514,260	28,077,193
5	3,742	1,637	6,126,809	2,746,591	3,380,217	595,346	32,052,757
6	3,742	1,637	6,126,809	3,063,929	3,062,879	671,684	35,787,320
7	3,742	1,637	6,126,809	3,382,816	2,743,992	743,186	39,274,498
8	3,742	1,637	6,126,809	3,699,416	2,427,393	809,764	42,511,655
9	3,742	1,637	6,126,809	4,021,615	2,105,194	871,285	45,488,134
10	3,742	1,637	6,126,809	4,342,044	1,784,764	927,610	48,200,509
11	-	-	-	7,201,203	(7,201,203)	891,998	41,891,304
12	-	-	-	5,860,864	(5,860,864)	779,217	36,809,657
13	-	-	-	4,519,910	(4,519,910)	690,994	32,980,741
14	-	-	-	3,148,065	(3,148,065)	628,134	30,460,811
15	-	-	-	3,148,065	(3,148,065)	577,736	27,890,482
16	-	-	-	3,148,065	(3,148,065)	526,329	25,268,746
17	-	-	-	3,148,065	(3,148,065)	473,894	22,594,575
18	-	-	-	3,148,065	(3,148,065)	420,411	19,866,922
19	-	-	-	3,148,065	(3,148,065)	365,858	17,084,715
20	-	-	-	3,148,065	(3,148,065)	310,214	14,246,864
21	-	-	-	2,858,584	(2,858,584)	256,351	11,644,631
22	-	-	-	2,562,673	(2,562,673)	207,266	9,289,224
23	-	-	-	2,248,381	(2,248,381)	163,301	7,204,144
24	-	-	-	1,934,088	(1,934,088)	124,742	5,394,798
25	-	-	-	1,615,786	(1,615,786)	91,738	3,870,750
26	-	-	-	1,297,484	(1,297,484)	64,440	2,637,706
27	-	-	-	976,495	(976,495)	42,989	1,704,200
28	-	-	-	655,507	(655,507)	27,529	1,076,222
29	-	-	-	327,753	(327,753)	18,247	766,716
PTD	-	-	-	766,716	(766,716)	-	-
			$ 61,268,086	$ 75,894,737		$ 12,622,463	

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Calculation

Appendix E - Impact Fee Calculation Assumptions

Service Area B

Year	Number of Years to End of Period	Future Value Escalation: Interest Rate Factor	Future Value Escalation: Recovery Fee Factor	Annual Vehicle Miles: Actual	Annual Vehicle Miles: Escalated	Annual Expense: Actual	Annual Expense: Escalated
1	29	1.7584	1.0000	1,637	2,879	$ (2,529,515)	$ (4,447,986)
2	28	1.7240	1.0000	1,637	2,823	(890,244)	(1,534,742)
3	27	1.6902	1.0000	1,637	2,767	769,223	1,300,104
4	26	1.6570	1.0000	1,637	2,713	2,426,964	4,021,509
5	25	1.6245	1.0000	1,637	2,660	2,746,591	4,461,897
6	24	1.5927	1.0000	1,637	2,608	3,063,929	4,879,823
7	23	1.5614	1.0000	1,637	2,557	3,382,816	5,282,063
8	22	1.5308	1.0000	1,637	2,507	3,699,416	5,663,150
9	21	1.5008	1.0000	1,637	2,457	4,021,615	6,035,668
10	20	1.4714	1.0000	1,637	2,409	4,342,044	6,388,794
11	19	1.4425	1.0000	-	-	7,201,203	10,387,942
12	18	1.4142	1.0000	-	-	5,860,864	8,288,691
13	17	1.3865	1.0000	-	-	4,519,910	6,266,916
14	16	1.3593	1.0000	-	-	3,148,065	4,279,249
15	15	1.3327	1.0000	-	-	3,148,065	4,195,343
16	14	1.3065	1.0000	-	-	3,148,065	4,113,081
17	13	1.2809	1.0000	-	-	3,148,065	4,032,432
18	12	1.2558	1.0000	-	-	3,148,065	3,953,365
19	11	1.2312	1.0000	-	-	3,148,065	3,875,848
20	10	1.2070	1.0000	-	-	3,148,065	3,799,851
21	9	1.1834	1.0000	-	-	2,858,584	3,382,780
22	8	1.1602	1.0000	-	-	2,562,673	2,973,143
23	7	1.1374	1.0000	-	-	2,248,381	2,557,362
24	6	1.1151	1.0000	-	-	1,934,088	2,156,744
25	5	1.0933	1.0000	-	-	1,615,786	1,766,469
26	4	1.0718	1.0000	-	-	1,297,484	1,390,670
27	3	1.0508	1.0000	-	-	976,495	1,026,105
28	2	1.0302	1.0000	-	-	655,507	675,303
29	1	1.0100	1.0000	-	-	327,753	331,031
PTD		1.0000	1.0000	-	-	766,716	766,716
					26,380		$ 102,269,320

Annual Interest Rate:	2.00%
Total Escalated Expense for Entire Period	$ 102,269,320
Less Future Value of Initial Impact Fee Fund Balance	3,559,127
Sub-Total	$ 98,710,193
Total Escalated Vehicle Miles	26,380
Maximum Assessable Impact Fee for Roadway Service Area B	**$ 3,742**

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Project Funding

Appendix E - Impact Fee Calculation Assumptions

Service Area B

Street Name	Cost In Service Area [1]	Impact Fee Recoverable Cost[1]	Debt Funded[2] Existing	Debt Funded[2] Proposed	Non-Debt Funded[2]	Impact Fee Recoverable Cost
ALLRED	$ 3,048,500	$ 554,141	$ -	$ 443,313	$ 110,828	$ 554,141
ALLRED	2,712,000	492,974	-	394,379	98,595	492,974
BRUSH CREEK	2,747,000	499,336	-	399,469	99,867	499,336
BRUSH CREEK	6,769,000	1,230,435	-	984,348	246,087	1,230,435
BRUSH CREEK	7,344,000	1,334,956	-	1,067,965	266,991	1,334,956
BRUSH CREEK	10,698,000	1,944,629	-	1,555,704	388,926	1,944,629
CORBIN	10,760,000	1,955,900	-	1,564,720	391,180	1,955,900
CREEKDALE	5,346,000	971,769	-	777,416	194,354	971,769
CREEKDALE	3,461,000	629,123	-	503,299	125,825	629,123
EL PASEO	3,369,000	612,400	-	489,920	122,480	612,400
FM 1515	2,595,000	471,706	-	377,365	94,341	471,706
HICKORY CREEK	1,605,000	291,749	88,729	168,830	34,190	291,749
HICKORY CREEK	1,789,000	325,196	98,957	188,120	38,119	325,196
HICKORY CREEK	8,638,000	1,570,173	591,089	751,270	227,814	1,570,173
HICKORY CREEK	2,003,000	364,095	147,277	160,056	56,763	364,095
HICKORY CREEK	7,612,000	1,383,672	-	1,349,481	34,190	1,383,672
HOBSON LANE	1,914,000	347,917	-	278,334	69,583	347,917
HOBSON LANE	5,710,000	1,037,936	-	830,348	207,587	1,037,936
HOBSON LANE	11,559,000	2,101,138	-	1,680,910	420,228	2,101,138
PARVIN	2,150,000	390,816	-	312,653	78,163	390,816
ROBINSON	8,061,000	1,465,289	-	1,172,231	293,058	1,465,289
RYAN	11,980,000	2,177,665	-	1,742,132	435,533	2,177,665
RYAN	10,878,000	1,977,349	-	1,581,879	395,470	1,977,349
RYAN	10,824,000	1,967,533	-	1,574,026	393,507	1,967,533
VINTAGE	11,721,000	2,130,585	-	969,951	1,160,634	2,130,585
VINTAGE	1,665,000	302,655	-	109,847	192,809	302,655
VINTAGE	7,975,000	1,449,656	-	583,906	865,750	1,449,656
WILLOWWOOD	2,079,000	377,910	-	302,328	75,582	377,910
BONNIE BRAE	1,285,000	233,581	-	186,865	46,716	233,581
BONNIE BRAE	11,351,000	2,063,329	-	1,650,663	412,666	2,063,329
BONNIE BRAE	2,260,500	410,902	-	328,722	82,180	410,902
COUNTRY CLUB	1,229,000	223,402	-	178,721	44,680	223,402
COUNTRY CLUB	15,093,000	2,743,531	-	2,194,825	548,706	2,743,531
COUNTRY CLUB	5,951,000	1,081,743	-	865,395	216,349	1,081,743
FORT WORTH	26,417,000	4,801,951	-	3,841,561	960,390	4,801,951
FORT WORTH	19,299,000	3,508,077	-	2,806,461	701,615	3,508,077
FORT WORTH	4,811,000	874,520	-	699,616	174,904	874,520
FORT WORTH	20,190,000	3,670,038	-	2,936,031	734,008	3,670,038
JOHN PAINE	238,000	43,262	-	34,610	8,652	43,262
JOHN PAINE	3,254,000	591,496	-	473,197	118,299	591,496
PARVIN-ROSELAWN	3,878,000	704,924	-	563,939	140,985	704,924
TEASLEY	1,039,000	188,864	-	151,091	37,773	188,864
TEASLEY	4,558,000	828,531	-	662,825	165,706	828,531
TEASLEY	1,493,000	271,390	-	217,112	54,278	271,390
TEASLEY	857,000	155,781	-	124,625	31,156	155,781
	37,660	37,660	-	-	37,660	37,660
	$ 290,253,660	$ 52,791,687	$ 926,052	$ 40,230,457	$ 11,635,178	$ 52,791,687

(1) Per Kimley-Horn Impact Fee Study

(2) Per discussions with City staff and City files

City of Denton - 2022 Roadway Impact Fee Study

Credit Determination

Appendix E - Impact Fee Calculation Assumptions

Service Area B

Year	Eligible Debt Service[1]	Annual Vehicle Miles	Eligible Debt Service per Vehicle Mile	Annual Growth in Vehicle Miles (Cumulative)	Credit for Annual Ad Valorem Rate Revenues
1	$ 330,909	605,138	$ 0.55	1,637	$ 895
2	631,678	606,776	1.04	3,275	3,409
3	954,426	608,413	1.57	4,912	7,706
4	1,277,158	610,051	2.09	6,550	13,712
5	1,604,549	611,688	2.62	8,187	21,476
6	1,931,348	613,325	3.15	9,824	30,937
7	2,261,448	614,963	3.68	11,462	42,149
8	2,590,940	616,600	4.20	13,099	55,043
9	2,927,888	618,238	4.74	14,737	69,790
10	3,264,765	619,875	5.27	16,374	86,239
11	3,264,386	619,875	5.27	16,374	86,229
12	3,265,081	619,875	5.27	16,374	86,247
13	3,265,143	619,875	5.27	16,374	86,249
14	3,233,477	619,875	5.22	16,374	85,412
15	3,233,477	619,875	5.22	16,374	85,412
16	3,233,477	619,875	5.22	16,374	85,412
17	3,233,477	619,875	5.22	16,374	85,412
18	3,233,477	619,875	5.22	16,374	85,412
19	3,233,477	619,875	5.22	16,374	85,412
20	3,233,477	619,875	5.22	16,374	85,412
21	2,936,142	619,875	4.74	16,374	77,558
22	2,632,202	619,875	4.25	16,374	69,530
23	2,309,383	619,875	3.73	16,374	61,002
24	1,986,563	619,875	3.20	16,374	52,475
25	1,659,625	619,875	2.68	16,374	43,839
26	1,332,687	619,875	2.15	16,374	35,203
27	1,002,989	619,875	1.62	16,374	26,494
28	673,292	619,875	1.09	16,374	17,785
29	336,646	619,875	0.54	16,374	8,892
Total	$ 65,073,588				$ 1,580,744

2022 Vehicle Miles (All Service Areas) [2]	603,501	
Ten Year Growth in Vehicle Miles (Service Area B) [2]	16,374	
	10	years
Annual Growth in Vehicle Miles	1,637	
Credit Amount	**$ 1,580,744**	

(1) Appendix D - Service Area B, Page 3

(2) Per Kimley-Horn Impact Fee Study

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Calculation Assumptions

Appendix E - Impact Fee Calculation Assumptions

Service Area C

I. General Assumptions

Annual Interest Rate on Deposits (1)	2.00%
Annual Vehicle Mile Growth (2)	3,133
Existing Fund Balance (3)	3,170,473

Portion of Projects Funded by Existing Debt (3)	$ -
Non-debt Funded Project Cost (4)	25,312,100
New Project Cost Funded Through New Debt (5)	101,097,761
Total Recoverable Project Cost (6)	$ 126,409,861

II. New Debt Issues Assumptions

Year	Principal (7)	Interest (8)	Term
1	$ 10,109,776	4.05%	20
2	10,109,776	4.30%	20
3	10,109,776	5.00%	20
4	10,109,776	5.00%	20
5	10,109,776	5.15%	20
6	10,109,776	5.15%	20
7	10,109,776	5.25%	20
8	10,109,776	5.25%	20
9	10,109,776	5.50%	20
10	10,109,776	5.50%	20
Total	$ 101,097,761		

III. Capital Expenditure Assumptions

Year	Annual Capital Expenditures (9)
1	$ 2,531,210
2	5,901,135
3	9,271,061
4	12,640,986
5	12,640,986
6	12,640,986
7	12,640,986
8	12,640,986
9	12,640,986
10	12,640,986
11	10,109,776
12	6,739,851
13	3,369,925
Total	126,409,861

(1) Per discussions with City Staff and City files
(2) Per Kimley-Horn Impact Fee Study
(3) Per discussions with City Staff and City files
(4) Per discussions with City Staff and City files
(5) This assumes 20% of new project costs funded through sources other than debt, unless specified otherwise
(6) This assumes 80% of new project costs funded through new debt issues, unless specified otherwise
(7) Per Kimley-Horn Impact Fee Study
(8) Assumes new debt issued in equal amounts every year
(9) Estimated interest on future debt from City's Financial Advisor October 2022
(10) Assumes new debt proceeds expended over a 3-year timeframe
Non-debt funded capital expenditures allocated per discussions with City Staff

City of Denton - 2022 Roadway Impact Fee Study

Appendix E - Impact Fee Calculation Assumptions

Debt Service and Expense Summary

Service Area C

I. New Debt Service Detail

Year	Series 1	Series 2	Series 3	Series 4	Series 5	Series 6	Series 7	Series 8	Series 9	Series 10	Total Annual New Debt Service
1	$ 747,192	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 747,192
2	747,192	763,790	-	-	-	-	-	-	-	-	1,510,982
3	747,192	763,790	811,235	-	-	-	-	-	-	-	2,322,217
4	747,192	763,790	811,235	811,235	-	-	-	-	-	-	3,133,451
5	747,192	763,790	811,235	811,235	821,584	-	-	-	-	-	3,955,036
6	747,192	763,790	811,235	811,235	821,584	821,584	-	-	-	-	4,776,620
7	747,192	763,790	811,235	811,235	821,584	821,584	828,519	-	-	-	5,605,139
8	747,192	763,790	811,235	811,235	821,584	821,584	828,519	828,519	-	-	6,433,658
9	747,192	763,790	811,235	811,235	821,584	821,584	828,519	828,519	845,979	-	7,279,638
10	747,192	763,790	811,235	811,235	821,584	821,584	828,519	828,519	845,979	845,979	8,125,617
11	747,192	763,790	811,235	811,235	821,584	821,584	828,519	828,519	845,979	845,979	8,125,617
12	747,192	763,790	811,235	811,235	821,584	821,584	828,519	828,519	845,979	845,979	8,125,617
13	747,192	763,790	811,235	811,235	821,584	821,584	828,519	828,519	845,979	845,979	8,125,617
14	747,192	763,790	811,235	811,235	821,584	821,584	828,519	828,519	845,979	845,979	8,125,617
15	747,192	763,790	811,235	811,235	821,584	821,584	828,519	828,519	845,979	845,979	8,125,617
16	747,192	763,790	811,235	811,235	821,584	821,584	828,519	828,519	845,979	845,979	8,125,617
17	747,192	763,790	811,235	811,235	821,584	821,584	828,519	828,519	845,979	845,979	8,125,617
18	747,192	763,790	811,235	811,235	821,584	821,584	828,519	828,519	845,979	845,979	8,125,617
19	747,192	763,790	811,235	811,235	821,584	821,584	828,519	828,519	845,979	845,979	8,125,617
20	747,192	763,790	811,235	811,235	821,584	821,584	828,519	828,519	845,979	845,979	8,125,617
21	-	763,790	811,235	811,235	821,584	821,584	828,519	828,519	845,979	845,979	7,378,425
22	-	-	811,235	811,235	821,584	821,584	828,519	828,519	845,979	845,979	6,614,635
23	-	-	-	811,235	821,584	821,584	828,519	828,519	845,979	845,979	5,803,400
24	-	-	-	-	821,584	821,584	828,519	828,519	845,979	845,979	4,992,165
25	-	-	-	-	-	821,584	828,519	828,519	845,979	845,979	4,170,581
26	-	-	-	-	-	-	828,519	828,519	845,979	845,979	3,348,997
27	-	-	-	-	-	-	-	828,519	845,979	845,979	2,520,478
28	-	-	-	-	-	-	-	-	845,979	845,979	1,691,959
29	-	-	-	-	-	-	-	-	-	845,979	845,979
	$ 14,943,846	$ 15,275,800	$ 16,224,692	$ 16,224,692	$ 16,431,684	$ 16,431,684	$ 16,570,385	$ 16,570,385	$ 16,919,586	$ 16,919,586	$ 162,512,338

City of Denton - 2022 Roadway Impact Fee Study

Appendix E - Impact Fee Calculation Assumptions

Debt Service and Expense Summary

Service Area C

II. Summary of Annual Expenses

Year	New Annual Debt Service[1]	Annual Capital Expenditures[2]	Annual Bond Proceeds[2]	Existing Annual Debt Service[3]	Annual Credit[4]	Total Expense
1	$ 747,192	$ 2,531,210	$ (10,109,776)	$ -	$ (3,859)	$ (6,835,233)
2	1,510,982	5,901,135	(10,109,776)	-	(15,528)	(2,713,186)
3	2,322,217	9,271,061	(10,109,776)	-	(35,614)	1,447,888
4	3,133,451	12,640,986	(10,109,776)	-	(63,747)	5,600,914
5	3,955,036	12,640,986	(10,109,776)	-	(100,068)	6,386,177
6	4,776,620	12,640,986	(10,109,776)	-	(144,297)	7,163,533
7	5,605,139	12,640,986	(10,109,776)	-	(196,556)	7,939,793
8	6,433,658	12,640,986	(10,109,776)	-	(256,555)	8,708,313
9	7,279,638	12,640,986	(10,109,776)	-	(324,957)	9,485,891
10	8,125,617	12,640,986	(10,109,776)	-	(401,034)	10,255,793
11	8,125,617	10,109,776	-	-	(401,034)	17,834,359
12	8,125,617	6,739,851	-	-	(401,034)	14,464,434
13	8,125,617	3,369,925	-	-	(401,034)	11,094,509
14	8,125,617	-	-	-	(401,034)	7,724,583
15	8,125,617	-	-	-	(401,034)	7,724,583
16	8,125,617	-	-	-	(401,034)	7,724,583
17	8,125,617	-	-	-	(401,034)	7,724,583
18	8,125,617	-	-	-	(401,034)	7,724,583
19	8,125,617	-	-	-	(401,034)	7,724,583
20	8,125,617	-	-	-	(401,034)	7,724,583
21	7,378,425	-	-	-	(364,156)	7,014,268
22	6,614,635	-	-	-	(326,460)	6,288,174
23	5,803,400	-	-	-	(286,422)	5,516,978
24	4,992,165	-	-	-	(246,384)	4,745,781
25	4,170,581	-	-	-	(205,836)	3,964,745
26	3,348,997	-	-	-	(165,287)	3,183,710
27	2,520,478	-	-	-	(124,396)	2,396,082
28	1,691,959	-	-	-	(83,505)	1,608,453
29	845,979	-	-	-	(41,753)	804,227
PTD	-	-	-	-	-	-
	$ 162,512,338	$ 126,409,861	###########	$ -	$ (7,396,751)	$ 180,427,687

(1) Appendix D - Service Area C, Page 2

(2) Appendix D - Service Area C, Page 1

(3) Eligible outstanding debt funded projects as a percent of total principal times original annual debt service, including Paid-To-Date (PTD) amounts

(4) Appendix D - Service Area C, Page 7

City of Denton - 2022 Roadway Impact Fee Study

Revenue Test

Appendix E - Impact Fee Calculation Assumptions

Service Area C

Year	Impact Fee	Vehicle Miles	Impact Fee Revenue	Annual Expenses	Sub-Total	Accumulated Interest	Estimated Fund Balance
Initial							$ 3,170,473
1	$ 4,695	3,133	$ 14,711,436	$ (6,835,233)	$ 21,546,669	$ 278,876	24,996,019
2	4,695	3,133	14,711,436	(2,713,186)	17,424,622	674,167	43,094,808
3	4,695	3,133	14,711,436	1,447,888	13,263,548	994,532	57,352,888
4	4,695	3,133	14,711,436	5,600,914	9,110,522	1,238,163	67,701,573
5	4,695	3,133	14,711,436	6,386,177	8,325,259	1,437,284	77,464,116
6	4,695	3,133	14,711,436	7,163,533	7,547,903	1,624,761	86,636,780
7	4,695	3,133	14,711,436	7,939,793	6,771,644	1,800,452	95,208,876
8	4,695	3,133	14,711,436	8,708,313	6,003,123	1,964,209	103,176,208
9	4,695	3,133	14,711,436	9,485,891	5,225,545	2,115,780	110,517,533
10	4,695	3,133	14,711,436	10,255,793	4,455,643	2,254,907	117,228,083
11	-	-	-	17,834,359	(17,834,359)	2,166,218	101,559,941
12	-	-	-	14,464,434	(14,464,434)	1,886,554	88,982,062
13	-	-	-	11,094,509	(11,094,509)	1,668,696	79,556,249
14	-	-	-	7,724,583	(7,724,583)	1,513,879	73,345,545
15	-	-	-	7,724,583	(7,724,583)	1,389,665	67,010,627
16	-	-	-	7,724,583	(7,724,583)	1,262,967	60,549,010
17	-	-	-	7,724,583	(7,724,583)	1,133,734	53,958,161
18	-	-	-	7,724,583	(7,724,583)	1,001,917	47,235,495
19	-	-	-	7,724,583	(7,724,583)	867,464	40,378,376
20	-	-	-	7,724,583	(7,724,583)	730,322	33,384,114
21	-	-	-	7,014,268	(7,014,268)	597,540	26,967,386
22	-	-	-	6,288,174	(6,288,174)	476,466	21,155,677
23	-	-	-	5,516,978	(5,516,978)	367,944	16,006,643
24	-	-	-	4,745,781	(4,745,781)	272,675	11,533,537
25	-	-	-	3,964,745	(3,964,745)	191,023	7,759,815
26	-	-	-	3,183,710	(3,183,710)	123,359	4,699,465
27	-	-	-	2,396,082	(2,396,082)	70,028	2,373,412
28	-	-	-	1,608,453	(1,608,453)	31,384	796,342
29	-	-	-	804,227	(804,227)	7,885	-
PTD	-	-	-	-	-	-	-
			$ 147,114,363	$ 180,427,687		$ 30,142,851	

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Calculation

Appendix E - Impact Fee Calculation Assumptions

Service Area C

Year	Number of Years to End of Period	Future Value Escalation: Interest Rate Factor	Future Value Escalation: Recovery Fee Factor	Annual Vehicle Miles: Actual	Annual Vehicle Miles: Escalated	Annual Expense: Actual	Annual Expense: Escalated
1	29	1.7584	1.0000	3,133	5,509	$ (6,835,233)	$ (12,019,309)
2	28	1.7240	1.0000	3,133	5,401	(2,713,186)	(4,677,412)
3	27	1.6902	1.0000	3,133	5,296	1,447,888	2,447,151
4	26	1.6570	1.0000	3,133	5,192	5,600,914	9,280,782
5	25	1.6245	1.0000	3,133	5,090	6,386,177	10,374,483
6	24	1.5927	1.0000	3,133	4,990	7,163,533	11,409,132
7	23	1.5614	1.0000	3,133	4,892	7,939,793	12,397,506
8	22	1.5308	1.0000	3,133	4,796	8,708,313	13,330,886
9	21	1.5008	1.0000	3,133	4,702	9,485,891	14,236,490
10	20	1.4714	1.0000	3,133	4,610	10,255,793	15,090,162
11	19	1.4425	1.0000	-	-	17,834,359	25,726,575
12	18	1.4142	1.0000	-	-	14,464,434	20,456,237
13	17	1.3865	1.0000	-	-	11,094,509	15,382,687
14	16	1.3593	1.0000	-	-	7,724,583	10,500,235
15	15	1.3327	1.0000	-	-	7,724,583	10,294,348
16	14	1.3065	1.0000	-	-	7,724,583	10,092,498
17	13	1.2809	1.0000	-	-	7,724,583	9,894,606
18	12	1.2558	1.0000	-	-	7,724,583	9,700,594
19	11	1.2312	1.0000	-	-	7,724,583	9,510,386
20	10	1.2070	1.0000	-	-	7,724,583	9,323,908
21	9	1.1834	1.0000	-	-	7,014,268	8,300,516
22	8	1.1602	1.0000	-	-	6,288,174	7,295,367
23	7	1.1374	1.0000	-	-	5,516,978	6,275,143
24	6	1.1151	1.0000	-	-	4,745,781	5,292,123
25	5	1.0933	1.0000	-	-	3,964,745	4,334,484
26	4	1.0718	1.0000	-	-	3,183,710	3,412,364
27	3	1.0508	1.0000	-	-	2,396,082	2,517,812
28	2	1.0302	1.0000	-	-	1,608,453	1,657,029
29	1	1.0100	1.0000	-	-	804,227	812,269
PTD		1.0000	1.0000	-	-	-	-
					50,479		$ 242,649,053

Annual Interest Rate:	2.00%
Total Escalated Expense for Entire Period	$ 242,649,053
Less Future Value of Initial Impact Fee Fund Balance	5,630,268
Sub-Total	$ 237,018,784
Total Escalated Vehicle Miles	50,479
Maximum Assessable Impact Fee for Roadway Service Area C	**$ 4,695**

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Project Funding

Appendix E - Impact Fee Calculation Assumptions

Service Area C

Street Name	Cost In Service Area [1]	Impact Fee Recoverable Cost[1]	Debt Funded[2] Existing	Debt Funded[2] Proposed	Non-Debt Funded[2]	Impact Fee Recoverable Cost
BARTHOLD	$ 8,875,000	$ 1,908,981	$ -	$ 1,527,185	$ 381,796	$ 1,908,981
BOBCAT	37,762,000	8,122,474	-	6,497,979	1,624,495	8,122,474
FM 1173	13,401,000	2,882,508	-	2,306,006	576,502	2,882,508
FM 1173	3,852,000	828,552	-	662,841	165,710	828,552
FM 2164-IH 35	37,057,000	7,970,831	-	6,376,665	1,594,166	7,970,831
GANZER	39,748,000	8,549,655	-	6,839,724	1,709,931	8,549,655
GANZER	11,525,000	2,478,987	-	1,983,190	495,797	2,478,987
GANZER	2,854,000	613,885	-	491,108	122,777	613,885
GANZER	4,604,000	990,304	-	792,243	198,061	990,304
JIM CHRISTAL	4,873,000	1,048,165	-	838,532	209,633	1,048,165
JIM CHRISTAL	5,982,000	1,286,707	-	1,029,366	257,341	1,286,707
JIM CHRISTAL	9,251,000	1,989,858	-	1,591,886	397,972	1,989,858
JIM CHRISTAL	6,353,500	1,366,616	-	1,093,292	273,323	1,366,616
JIM CHRISTAL	4,773,500	1,026,763	-	821,410	205,353	1,026,763
JIM CHRISTAL	2,920,500	628,189	-	502,551	125,638	628,189
MARSHALL	5,249,000	1,129,041	-	903,233	225,808	1,129,041
MARSHALL	4,397,000	945,779	-	756,623	189,156	945,779
MASCH BRANCH	10,602,000	2,280,453	-	1,824,362	456,091	2,280,453
WESTWARD	1,672,000	359,641	-	287,713	71,928	359,641
RINEY	3,156,000	678,845	-	543,076	135,769	678,845
RINEY	1,258,000	270,591	-	216,473	54,118	270,591
US 77	1,432,000	308,018	-	246,415	61,604	308,018
US 77	2,819,000	606,357	-	485,086	121,271	606,357
US 77	2,075,000	446,325	-	357,060	89,265	446,325
US 77	3,126,000	672,392	-	537,913	134,478	672,392
US 77	1,859,000	399,864	-	319,892	79,973	399,864
US 77	4,739,000	1,019,342	-	815,474	203,868	1,019,342
MASCH BRANCH-NAIL	2,094,000	450,412	-	360,330	90,082	450,412
MASCH BRANCH-NAIL	4,450,000	957,179	-	765,744	191,436	957,179
MASCH BRANCH-NAIL	4,379,000	941,908	-	753,526	188,382	941,908
MASCH BRANCH-NAIL	1,046,000	224,991	-	179,993	44,998	224,991
MASCH BRANCH-NAIL	4,376,000	941,262	-	753,010	188,252	941,262
WESTGATE	2,336,000	502,465	-	401,972	100,493	502,465
WINDSOR	6,912,000	1,486,747	-	1,189,398	297,349	1,486,747
WINDSOR	6,972,000	1,499,653	-	1,199,722	299,931	1,499,653
WINDSOR	649,000	139,598	-	111,678	27,920	139,598
WINDSOR	1,162,000	249,942	-	199,954	49,988	249,942
WINDSOR	17,606,000	3,786,989	-	3,029,591	757,398	3,786,989
BARTHOLD	7,425,000	1,597,091	-	1,277,673	319,418	1,597,091
BONNIE BRAE	52,065,000	11,198,999	-	8,959,199	2,239,800	11,198,999
BONNIE BRAE	3,008,000	647,010	-	517,608	129,402	647,010
BONNIE BRAE	6,587,000	1,416,841	-	1,133,472	283,368	1,416,841
BONNIE BRAE	10,320,000	2,219,796	-	1,775,837	443,959	2,219,796
BONNIE BRAE	11,981,000	2,577,071	-	2,061,657	515,414	2,577,071
BONNIE BRAE	4,155,000	893,726	-	714,981	178,745	893,726
BONNIE BRAE	1,528,000	328,667	-	262,934	65,733	328,667
BONNIE BRAE	1,685,000	362,438	-	289,950	72,488	362,438
BONNIE BRAE	543,500	116,905	-	93,524	23,381	116,905
BONNIE BRAE	2,035,000	437,721	-	350,177	87,544	437,721
BONNIE BRAE	1,228,500	264,246	-	211,397	52,849	264,246
C WOLFE	8,901,000	1,914,574	-	1,531,659	382,915	1,914,574
FALLMEADOW	1,303,000	280,271	-	224,217	56,054	280,271
FM 2164	24,962,500	5,369,346	-	4,295,477	1,073,869	5,369,346
LOCUST	3,477,000	747,891	-	598,312	149,578	747,891
LOCUST	3,716,500	799,406	-	639,525	159,881	799,406
LOCUST	1,814,000	390,185	-	312,148	78,037	390,185
LOCUST	1,920,500	413,093	-	330,474	82,619	413,093
LOVERS	12,266,000	2,638,374	-	2,110,699	527,675	2,638,374
LOVERS	3,349,000	720,358	-	576,287	144,072	720,358
LOVERS LN CONNECTOR	756,000	162,613	-	130,090	32,523	162,613
LOVERS LN CONNECTOR	972,000	209,074	-	167,259	41,815	209,074
MASCH BRANCH	5,954,000	1,280,685	-	1,024,548	256,137	1,280,685
MASCH BRANCH	11,352,000	2,441,775	-	1,953,420	488,355	2,441,775
MASCH BRANCH	12,137,000	2,610,626	-	2,088,501	522,125	2,610,626
MILAM-LOOP 288	36,182,000	7,782,621	-	6,226,097	1,556,524	7,782,621
MILAM-US 77	20,546,000	4,419,373	-	3,535,498	883,875	4,419,373
MILAM-US 77	11,567,000	2,488,021	-	1,990,417	497,604	2,488,021
MILAM-US 77	7,359,000	1,582,895	-	1,266,316	316,579	1,582,895
NICOSIA	1,169,000	251,448	-	201,158	50,290	251,448
THOMAS J EGAN	12,353,000	2,657,087	-	2,125,670	531,417	2,657,087
WESTERN	14,699,000	3,161,703	-	2,529,363	632,341	3,161,703
	37,660	37,660	-	-	37,660	37,660
	$ 587,551,660	$ 126,409,861	$ -	$ 101,097,761	$ 25,312,100	$ 126,409,861

(1) Per Kimley-Horn Impact Fee Study
(2) Per discussions with City staff and City files

City of Denton - 2022 Roadway Impact Fee Study

Credit Determination

Appendix E - Impact Fee Calculation Assumptions

Service Area C

Year	Eligible Debt Service[1]	Annual Vehicle Miles	Eligible Debt Service per Vehicle Mile	Annual Growth in Vehicle Miles (Cumulative)	Credit for Annual Ad Valorem Rate Revenues
1	$ 747,192	606,634	$ 1.23	3,133	$ 3,859
2	1,510,982	609,767	2.48	6,266	15,528
3	2,322,217	612,901	3.79	9,400	35,614
4	3,133,451	616,034	5.09	12,533	63,747
5	3,955,036	619,167	6.39	15,666	100,068
6	4,776,620	622,300	7.68	18,799	144,297
7	5,605,139	625,433	8.96	21,932	196,556
8	6,433,658	628,566	10.24	25,065	256,555
9	7,279,638	631,700	11.52	28,199	324,957
10	8,125,617	634,833	12.80	31,332	401,034
11	8,125,617	634,833	12.80	31,332	401,034
12	8,125,617	634,833	12.80	31,332	401,034
13	8,125,617	634,833	12.80	31,332	401,034
14	8,125,617	634,833	12.80	31,332	401,034
15	8,125,617	634,833	12.80	31,332	401,034
16	8,125,617	634,833	12.80	31,332	401,034
17	8,125,617	634,833	12.80	31,332	401,034
18	8,125,617	634,833	12.80	31,332	401,034
19	8,125,617	634,833	12.80	31,332	401,034
20	8,125,617	634,833	12.80	31,332	401,034
21	7,378,425	634,833	11.62	31,332	364,156
22	6,614,635	634,833	10.42	31,332	326,460
23	5,803,400	634,833	9.14	31,332	286,422
24	4,992,165	634,833	7.86	31,332	246,384
25	4,170,581	634,833	6.57	31,332	205,836
26	3,348,997	634,833	5.28	31,332	165,287
27	2,520,478	634,833	3.97	31,332	124,396
28	1,691,959	634,833	2.67	31,332	83,505
29	845,979	634,833	1.33	31,332	41,753
Total	$ 162,512,338				$ 7,396,751

2022 Vehicle Miles (All Service Areas) [2]	603,501	
Ten Year Growth in Vehicle Miles (Service Area C) [2]	31,332	
	10	years
Annual Growth in Vehicle Miles	3,133	
Credit Amount	**$ 7,396,751**	

(1) Appendix D - Service Area C, Page 3

(2) Per Kimley-Horn Impact Fee Study

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Calculation Assumptions

Appendix E - Impact Fee Calculation Assumptions

Service Area D

I. General Assumptions

Annual Interest Rate on Deposits (1)	2.00%
Annual Vehicle Mile Growth (2)	1,163
Existing Fund Balance (3)	1,685,562

Portion of Projects Funded by Existing Debt (3)	$ -
Non-debt Funded Project Cost (4)	10,369,489
New Project Cost Funded Through New Debt (5)	41,327,316
Total Recoverable Project Cost (6)	$ 51,696,805

II. New Debt Issues Assumptions

Year	Principal (7)	Interest (8)	Term
1	$ 4,132,732	4.05%	20
2	4,132,732	4.30%	20
3	4,132,732	5.00%	20
4	4,132,732	5.00%	20
5	4,132,732	5.15%	20
6	4,132,732	5.15%	20
7	4,132,732	5.25%	20
8	4,132,732	5.25%	20
9	4,132,732	5.50%	20
10	4,132,732	5.50%	20
Total	$ 41,327,316		

III. Capital Expenditure Assumptions

Year	Annual Capital Expenditures (9)
1	$ 1,036,949
2	2,414,526
3	3,792,103
4	5,169,681
5	5,169,681
6	5,169,681
7	5,169,681
8	5,169,681
9	5,169,681
10	5,169,681
11	4,132,732
12	2,755,154
13	1,377,577
Total	51,696,805

(1) Per discussions with City Staff and City files
(2) Per Kimley-Horn Impact Fee Study
(3) Per discussions with City Staff and City files
(4) Per discussions with City Staff and City files
(5) This assumes 20% of new project costs funded through sources other than debt, unless specified otherwise
(6) This assumes 80% of new project costs funded through new debt issues, unless specified otherwise
(7) Per Kimley-Horn Impact Fee Study
(8) Assumes new debt issued in equal amounts every year
(9) Estimated interest on future debt from City's Financial Advisor October 2022
(10) Assumes new debt proceeds expended over a 3-year timeframe
Non-debt funded capital expenditures allocated per discussions with City Staff

City of Denton - 2022 Roadway Impact Fee Study

Appendix E - Impact Fee Calculation Assumptions

Debt Service and Expense Summary

Service Area D

I. New Debt Service Detail

Year	Series 1	Series 2	Series 3	Series 4	Series 5	Series 6	Series 7	Series 8	Series 9	Series 10	Total Annual New Debt Service
1	$ 305,442	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 305,442
2	305,442	312,226	-	-	-	-	-	-	-	-	617,668
3	305,442	312,226	331,621	-	-	-	-	-	-	-	949,289
4	305,442	312,226	331,621	331,621	-	-	-	-	-	-	1,280,910
5	305,442	312,226	331,621	331,621	335,852	-	-	-	-	-	1,616,762
6	305,442	312,226	331,621	331,621	335,852	335,852	-	-	-	-	1,952,614
7	305,442	312,226	331,621	331,621	335,852	335,852	338,687	-	-	-	2,291,301
8	305,442	312,226	331,621	331,621	335,852	335,852	338,687	338,687	-	-	2,629,987
9	305,442	312,226	331,621	331,621	335,852	335,852	338,687	338,687	345,824	-	2,975,812
10	305,442	312,226	331,621	331,621	335,852	335,852	338,687	338,687	345,824	345,824	3,321,636
11	305,442	312,226	331,621	331,621	335,852	335,852	338,687	338,687	345,824	345,824	3,321,636
12	305,442	312,226	331,621	331,621	335,852	335,852	338,687	338,687	345,824	345,824	3,321,636
13	305,442	312,226	331,621	331,621	335,852	335,852	338,687	338,687	345,824	345,824	3,321,636
14	305,442	312,226	331,621	331,621	335,852	335,852	338,687	338,687	345,824	345,824	3,321,636
15	305,442	312,226	331,621	331,621	335,852	335,852	338,687	338,687	345,824	345,824	3,321,636
16	305,442	312,226	331,621	331,621	335,852	335,852	338,687	338,687	345,824	345,824	3,321,636
17	305,442	312,226	331,621	331,621	335,852	335,852	338,687	338,687	345,824	345,824	3,321,636
18	305,442	312,226	331,621	331,621	335,852	335,852	338,687	338,687	345,824	345,824	3,321,636
19	305,442	312,226	331,621	331,621	335,852	335,852	338,687	338,687	345,824	345,824	3,321,636
20	305,442	312,226	331,621	331,621	335,852	335,852	338,687	338,687	345,824	345,824	3,321,636
21	-	312,226	331,621	331,621	335,852	335,852	338,687	338,687	345,824	345,824	3,016,194
22	-	-	331,621	331,621	335,852	335,852	338,687	338,687	345,824	345,824	2,703,968
23	-	-	-	331,621	335,852	335,852	338,687	338,687	345,824	345,824	2,372,347
24	-	-	-	-	335,852	335,852	338,687	338,687	345,824	345,824	2,040,726
25	-	-	-	-	-	335,852	338,687	338,687	345,824	345,824	1,704,874
26	-	-	-	-	-	-	338,687	338,687	345,824	345,824	1,369,022
27	-	-	-	-	-	-	-	338,687	345,824	345,824	1,030,335
28	-	-	-	-	-	-	-	-	345,824	345,824	691,648
29	-	-	-	-	-	-	-	-	-	345,824	345,824
	$ 6,108,830	$ 6,244,528	$ 6,632,422	$ 6,632,422	$ 6,717,037	$ 6,717,037	$ 6,773,736	$ 6,773,736	$ 6,916,484	$ 6,916,484	$ 66,432,715

City of Denton - 2022 Roadway Impact Fee Study

Appendix E - Impact Fee Calculation Assumptions

Debt Service and Expense Summary

Service Area D

II. Summary of Annual Expenses

Year	New Annual Debt Service[1]	Annual Capital Expenditures[2]	Annual Bond Proceeds[2]	Existing Annual Debt Service[3]	Annual Credit[4]	Total Expense
1	$ 305,442	$ 1,036,949	$ (4,132,732)	$ -	$ (588)	$ (2,790,929)
2	617,668	2,414,526	(4,132,732)	-	(2,372)	(1,102,910)
3	949,289	3,792,103	(4,132,732)	-	(5,458)	603,202
4	1,280,910	5,169,681	(4,132,732)	-	(9,802)	2,308,057
5	1,616,762	5,169,681	(4,132,732)	-	(15,435)	2,638,276
6	1,952,614	5,169,681	(4,132,732)	-	(22,327)	2,967,236
7	2,291,301	5,169,681	(4,132,732)	-	(30,508)	3,297,741
8	2,629,987	5,169,681	(4,132,732)	-	(39,944)	3,626,992
9	2,975,812	5,169,681	(4,132,732)	-	(50,750)	3,962,011
10	3,321,636	5,169,681	(4,132,732)	-	(62,823)	4,295,762
11	3,321,636	4,132,732	-	-	(62,823)	7,391,545
12	3,321,636	2,755,154	-	-	(62,823)	6,013,967
13	3,321,636	1,377,577	-	-	(62,823)	4,636,390
14	3,321,636	-	-	-	(62,823)	3,258,813
15	3,321,636	-	-	-	(62,823)	3,258,813
16	3,321,636	-	-	-	(62,823)	3,258,813
17	3,321,636	-	-	-	(62,823)	3,258,813
18	3,321,636	-	-	-	(62,823)	3,258,813
19	3,321,636	-	-	-	(62,823)	3,258,813
20	3,321,636	-	-	-	(62,823)	3,258,813
21	3,016,194	-	-	-	(57,046)	2,959,148
22	2,703,968	-	-	-	(51,141)	2,652,827
23	2,372,347	-	-	-	(44,869)	2,327,478
24	2,040,726	-	-	-	(38,597)	2,002,129
25	1,704,874	-	-	-	(32,245)	1,672,629
26	1,369,022	-	-	-	(25,893)	1,343,129
27	1,030,335	-	-	-	(19,487)	1,010,848
28	691,648	-	-	-	(13,081)	678,567
29	345,824	-	-	-	(6,541)	339,284
PTD	-	-	-	-	-	-
	$ 66,432,715	$ 51,696,805	$ (41,327,316)	$ -	$ (1,157,132)	$ 75,645,072

(1) Appendix D - Service Area D, Page 2
(2) Appendix D - Service Area D, Page 1
(3) Eligible outstanding debt funded projects as a percent of total principal times original annual debt service, including Paid-To-Date (PTD) amounts
(4) Appendix D - Service Area D, Page 7

City of Denton - 2022 Roadway Impact Fee Study

Revenue Test

Appendix E - Impact Fee Calculation Assumptions

Service Area D

Year	Impact Fee	Vehicle Miles	Impact Fee Revenue	Annual Expenses	Sub-Total	Accumulated Interest	Estimated Fund Balance
Initial							$ 1,685,562
1	$ 5,265	1,163	$ 6,125,714	$ (2,790,929)	$ 8,916,643	$ 122,878	10,725,083
2	5,265	1,163	6,125,714	(1,102,910)	7,228,624	286,788	18,240,495
3	5,265	1,163	6,125,714	603,202	5,522,512	420,035	24,183,041
4	5,265	1,163	6,125,714	2,308,057	3,817,657	521,837	28,522,536
5	5,265	1,163	6,125,714	2,638,276	3,487,438	605,325	32,615,299
6	5,265	1,163	6,125,714	2,967,236	3,158,478	683,891	36,457,668
7	5,265	1,163	6,125,714	3,297,741	2,827,973	757,433	40,043,074
8	5,265	1,163	6,125,714	3,626,992	2,498,722	825,849	43,367,645
9	5,265	1,163	6,125,714	3,962,011	2,163,703	888,990	46,420,338
10	5,265	1,163	6,125,714	4,295,762	1,829,952	946,706	49,196,997
11	-	-	-	7,391,545	(7,391,545)	910,024	42,715,476
12	-	-	-	6,013,967	(6,013,967)	794,170	37,495,679
13	-	-	-	4,636,390	(4,636,390)	703,550	33,562,838
14	-	-	-	3,258,813	(3,258,813)	638,669	30,942,694
15	-	-	-	3,258,813	(3,258,813)	586,266	28,270,147
16	-	-	-	3,258,813	(3,258,813)	532,815	25,544,148
17	-	-	-	3,258,813	(3,258,813)	478,295	22,763,630
18	-	-	-	3,258,813	(3,258,813)	422,684	19,927,502
19	-	-	-	3,258,813	(3,258,813)	365,962	17,034,650
20	-	-	-	3,258,813	(3,258,813)	308,105	14,083,942
21	-	-	-	2,959,148	(2,959,148)	252,087	11,376,881
22	-	-	-	2,652,827	(2,652,827)	201,009	8,925,063
23	-	-	-	2,327,478	(2,327,478)	155,226	6,752,812
24	-	-	-	2,002,129	(2,002,129)	115,035	4,865,718
25	-	-	-	1,672,629	(1,672,629)	80,588	3,273,677
26	-	-	-	1,343,129	(1,343,129)	52,042	1,982,589
27	-	-	-	1,010,848	(1,010,848)	29,543	1,001,284
28	-	-	-	678,567	(678,567)	13,240	335,957
29	-	-	-	339,284	(339,284)	3,326	-
PTD	-	-	-	-	-	-	-
			$ 61,257,141	$ 75,645,072		$ 12,702,369	

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Calculation

Appendix E - Impact Fee Calculation Assumptions

Service Area D

Year	Number of Years to End of Period	Future Value Escalation: Interest Rate Factor	Future Value Escalation: Recovery Fee Factor	Annual Vehicle Miles: Actual	Annual Vehicle Miles: Escalated	Annual Expense: Actual	Annual Expense: Escalated
1	29	1.7584	1.0000	1,163	2,046	$ (2,790,929)	$ (4,907,665)
2	28	1.7240	1.0000	1,163	2,006	(1,102,910)	(1,901,367)
3	27	1.6902	1.0000	1,163	1,966	603,202	1,019,504
4	26	1.6570	1.0000	1,163	1,928	2,308,057	3,824,479
5	25	1.6245	1.0000	1,163	1,890	2,638,276	4,285,936
6	24	1.5927	1.0000	1,163	1,853	2,967,236	4,725,822
7	23	1.5614	1.0000	1,163	1,817	3,297,741	5,149,223
8	22	1.5308	1.0000	1,163	1,781	3,626,992	5,552,283
9	21	1.5008	1.0000	1,163	1,746	3,962,011	5,946,213
10	20	1.4714	1.0000	1,163	1,712	4,295,762	6,320,695
11	19	1.4425	1.0000	-	-	7,391,545	10,662,515
12	18	1.4142	1.0000	-	-	6,013,967	8,505,216
13	17	1.3865	1.0000	-	-	4,636,390	6,428,418
14	16	1.3593	1.0000	-	-	3,258,813	4,429,793
15	15	1.3327	1.0000	-	-	3,258,813	4,342,934
16	14	1.3065	1.0000	-	-	3,258,813	4,257,778
17	13	1.2809	1.0000	-	-	3,258,813	4,174,293
18	12	1.2558	1.0000	-	-	3,258,813	4,092,444
19	11	1.2312	1.0000	-	-	3,258,813	4,012,200
20	10	1.2070	1.0000	-	-	3,258,813	3,933,529
21	9	1.1834	1.0000	-	-	2,959,148	3,501,785
22	8	1.1602	1.0000	-	-	2,652,827	3,077,737
23	7	1.1374	1.0000	-	-	2,327,478	2,647,330
24	6	1.1151	1.0000	-	-	2,002,129	2,232,617
25	5	1.0933	1.0000	-	-	1,672,629	1,828,613
26	4	1.0718	1.0000	-	-	1,343,129	1,439,593
27	3	1.0508	1.0000	-	-	1,010,848	1,062,203
28	2	1.0302	1.0000	-	-	678,567	699,060
29	1	1.0100	1.0000	-	-	339,284	342,676
PTD		1.0000	1.0000	-	-	-	-
					18,744		$ 101,685,856

Annual Interest Rate:	2.00%
Total Escalated Expense for Entire Period	$ 101,685,856
Less Future Value of Initial Impact Fee Fund Balance	2,993,297
Sub-Total	$ 98,692,559
Total Escalated Vehicle Miles	18,744
Maximum Assessable Impact Fee for Roadway Service Area D	**$ 5,265**

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Project Funding

Appendix E - Impact Fee Calculation Assumptions

Service Area D

Street Name	Cost In Service Area [1]	Impact Fee Recoverable Cost[1]	Debt Funded[2] Existing	Debt Funded[2] Proposed	Non-Debt Funded[2]	Impact Fee Recoverable Cost
BOBCAT	$ 800,500	$ 150,012	$ -	$ 120,010	$ 30,002	$ 150,012
FISHTRAP	1,469,500	275,381	-	220,305	55,076	275,381
GANZER	53,936,000	10,107,495	-	8,085,996	2,021,499	10,107,495
GRIBBLE SPRINGS	4,430,500	830,267	-	664,213	166,053	830,267
HARTLEE FIELD	6,025,500	1,129,166	-	903,333	225,833	1,129,166
HARTLEE FIELD	7,382,000	1,383,372	-	1,106,697	276,674	1,383,372
HARTLEE FIELD	427,500	80,113	-	64,090	16,023	80,113
HARTLEE FLD-FM 2164	5,392,000	1,010,450	-	808,360	202,090	1,010,450
HARTLEE FLD-FM 2164	8,386,000	1,571,519	-	1,257,215	314,304	1,571,519
HARTLEE FLD-FM 2164	1,904,500	356,899	-	285,519	71,380	356,899
HARTLEE FLD-FM 2164	1,139,000	213,446	-	170,757	42,689	213,446
LONG	726,000	136,051	-	108,841	27,210	136,051
MINGO	1,315,000	246,428	-	197,143	49,286	246,428
MINGO	6,583,000	1,233,641	-	986,912	246,728	1,233,641
MINGO	7,937,000	1,487,377	-	1,189,902	297,475	1,487,377
KINGS ROW	3,779,000	708,177	-	566,541	141,635	708,177
SILVER DOME	1,558,500	292,060	-	233,648	58,412	292,060
COLLINS	3,409,000	638,840	-	511,072	127,768	638,840
COOPER CREEK	25,554,000	4,788,767	-	3,831,013	957,753	4,788,767
COOPER CREEK	6,226,000	1,166,740	-	933,392	233,348	1,166,740
COOPER CREEK	7,361,000	1,379,436	-	1,103,549	275,887	1,379,436
FM 2164	24,962,500	4,677,921	-	3,742,337	935,584	4,677,921
GREEN VALLEY	24,463,000	4,584,316	-	3,667,453	916,863	4,584,316
GREEN VALLEY	6,234,000	1,168,239	-	934,591	233,648	1,168,239
INDIAN WELLS	10,021,000	1,877,915	-	1,502,332	375,583	1,877,915
INDIAN WELLS	2,426,500	454,721	-	363,777	90,944	454,721
INDIAN WELLS	4,148,000	777,327	-	621,861	155,465	777,327
LOCUST	3,477,000	651,583	-	521,266	130,317	651,583
LOCUST	3,716,500	696,464	-	557,172	139,293	696,464
LOCUST	1,814,000	339,940	-	271,952	67,988	339,940
LOCUST	1,920,500	359,898	-	287,918	71,980	359,898
SHERMAN	4,713,000	883,206	-	706,565	176,641	883,206
SHERMAN	5,455,000	1,022,256	-	817,805	204,451	1,022,256
SHERMAN	7,223,000	1,353,575	-	1,082,860	270,715	1,353,575
SHERMAN	2,856,000	535,208	-	428,167	107,042	535,208
SHERMAN	3,328,000	623,660	-	498,928	124,732	623,660
SHERMAN	4,685,000	877,959	-	702,367	175,592	877,959
SHERMAN	2,357,000	441,697	-	353,358	88,339	441,697
SHERMAN	4,899,000	918,062	-	734,450	183,612	918,062
WINDSOR	1,225,000	229,562	-	183,650	45,912	229,562
	37,660	37,660	-	-	37,660	37,660
	$ 275,703,160	$ 51,696,805	$ -	$ 41,327,316	$ 10,369,489	$ 51,696,805

(1) Per Kimley-Horn Impact Fee Study

(2) Per discussions with City staff and City files

City of Denton - 2022 Roadway Impact Fee Study

Credit Determination

Appendix E - Impact Fee Calculation Assumptions

Service Area D

Year	Eligible Debt Service[1]	Annual Vehicle Miles	Eligible Debt Service per Vehicle Mile	Annual Growth in Vehicle Miles (Cumulative)	Credit for Annual Ad Valorem Rate Revenues
1	$ 305,442	604,664	$ 0.51	1,163	$ 588
2	617,668	605,828	1.02	2,327	2,372
3	949,289	606,991	1.56	3,490	5,458
4	1,280,910	608,155	2.11	4,654	9,802
5	1,616,762	609,318	2.65	5,817	15,435
6	1,952,614	610,482	3.20	6,981	22,327
7	2,291,301	611,645	3.75	8,144	30,508
8	2,629,987	612,808	4.29	9,307	39,944
9	2,975,812	613,972	4.85	10,471	50,750
10	3,321,636	615,135	5.40	11,634	62,823
11	3,321,636	615,135	5.40	11,634	62,823
12	3,321,636	615,135	5.40	11,634	62,823
13	3,321,636	615,135	5.40	11,634	62,823
14	3,321,636	615,135	5.40	11,634	62,823
15	3,321,636	615,135	5.40	11,634	62,823
16	3,321,636	615,135	5.40	11,634	62,823
17	3,321,636	615,135	5.40	11,634	62,823
18	3,321,636	615,135	5.40	11,634	62,823
19	3,321,636	615,135	5.40	11,634	62,823
20	3,321,636	615,135	5.40	11,634	62,823
21	3,016,194	615,135	4.90	11,634	57,046
22	2,703,968	615,135	4.40	11,634	51,141
23	2,372,347	615,135	3.86	11,634	44,869
24	2,040,726	615,135	3.32	11,634	38,597
25	1,704,874	615,135	2.77	11,634	32,245
26	1,369,022	615,135	2.23	11,634	25,893
27	1,030,335	615,135	1.67	11,634	19,487
28	691,648	615,135	1.12	11,634	13,081
29	345,824	615,135	0.56	11,634	6,541
Total	$ 66,432,715				$ 1,157,132

2022 Vehicle Miles (All Service Areas) [2]	603,501	
Ten Year Growth in Vehicle Miles (Service Area D) [2]	11,634	
	10	years
Annual Growth in Vehicle Miles	1,163	
Credit Amount	**$ 1,157,132**	

(1) Appendix D - Service Area D, Page 3

(2) Per Kimley-Horn Impact Fee Study

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Calculation Assumptions

Appendix E - Impact Fee Calculation Assumptions

Service Area E

I. General Assumptions

Annual Interest Rate on Deposits (1)	2.00%
Annual Vehicle Mile Growth (2)	2,415
Existing Fund Balance (3)	4,840,794

Portion of Projects Funded by Existing Debt (3)	$ 299,581
Non-debt Funded Project Cost (4)	15,285,563
New Project Cost Funded Through New Debt (5)	63,584,277
Total Recoverable Project Cost (6)	$ 79,169,421

II. New Debt Issues Assumptions

Year	Principal (7)	Interest (8)	Term
1	$ 6,358,428	4.05%	20
2	6,358,428	4.30%	20
3	6,358,428	5.00%	20
4	6,358,428	5.00%	20
5	6,358,428	5.15%	20
6	6,358,428	5.15%	20
7	6,358,428	5.25%	20
8	6,358,428	5.25%	20
9	6,358,428	5.50%	20
10	6,358,428	5.50%	20
Total	$ 63,584,277		

III. Capital Expenditure Assumptions

Year	Annual Capital Expenditures (9)
1	$ 1,528,556
2	3,648,032
3	5,767,508
4	7,886,984
5	7,886,984
6	7,886,984
7	7,886,984
8	7,886,984
9	7,886,984
10	7,886,984
11	6,358,428
12	4,238,952
13	2,119,476
Total	78,869,840

(1) Per discussions with City Staff and City files
(2) Per Kimley-Horn Impact Fee Study
(3) Per discussions with City Staff and City files
(4) Per discussions with City Staff and City files
(5) This assumes 20% of new project costs funded through sources other than debt, unless specified otherwise
(6) This assumes 80% of new project costs funded through new debt issues, unless specified otherwise
(7) Per Kimley-Horn Impact Fee Study
(8) Assumes new debt issued in equal amounts every year
(9) Estimated interest on future debt from City's Financial Advisor October 2022
(10) Assumes new debt proceeds expended over a 3-year timeframe
Non-debt funded capital expenditures allocated per discussions with City Staff

City of Denton - 2022 Roadway Impact Fee Study

Appendix E - Impact Fee Calculation Assumptions

Debt Service and Expense Summary

Service Area E

I. New Debt Service Detail

Year	Series 1	Series 2	Series 3	Series 4	Series 5	Series 6	Series 7	Series 8	Series 9	Series 10	Total Annual New Debt Service
1	$ 469,938	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 469,938
2	469,938	480,377	-	-	-	-	-	-	-	-	950,315
3	469,938	480,377	510,217	-	-	-	-	-	-	-	1,460,532
4	469,938	480,377	510,217	510,217	-	-	-	-	-	-	1,970,748
5	469,938	480,377	510,217	510,217	516,726	-	-	-	-	-	2,487,474
6	469,938	480,377	510,217	510,217	516,726	516,726	-	-	-	-	3,004,200
7	469,938	480,377	510,217	510,217	516,726	516,726	521,088	-	-	-	3,525,288
8	469,938	480,377	510,217	510,217	516,726	516,726	521,088	521,088	-	-	4,046,376
9	469,938	480,377	510,217	510,217	516,726	516,726	521,088	521,088	532,069	-	4,578,445
10	469,938	480,377	510,217	510,217	516,726	516,726	521,088	521,088	532,069	532,069	5,110,514
11	469,938	480,377	510,217	510,217	516,726	516,726	521,088	521,088	532,069	532,069	5,110,514
12	469,938	480,377	510,217	510,217	516,726	516,726	521,088	521,088	532,069	532,069	5,110,514
13	469,938	480,377	510,217	510,217	516,726	516,726	521,088	521,088	532,069	532,069	5,110,514
14	469,938	480,377	510,217	510,217	516,726	516,726	521,088	521,088	532,069	532,069	5,110,514
15	469,938	480,377	510,217	510,217	516,726	516,726	521,088	521,088	532,069	532,069	5,110,514
16	469,938	480,377	510,217	510,217	516,726	516,726	521,088	521,088	532,069	532,069	5,110,514
17	469,938	480,377	510,217	510,217	516,726	516,726	521,088	521,088	532,069	532,069	5,110,514
18	469,938	480,377	510,217	510,217	516,726	516,726	521,088	521,088	532,069	532,069	5,110,514
19	469,938	480,377	510,217	510,217	516,726	516,726	521,088	521,088	532,069	532,069	5,110,514
20	469,938	480,377	510,217	510,217	516,726	516,726	521,088	521,088	532,069	532,069	5,110,514
21	-	480,377	510,217	510,217	516,726	516,726	521,088	521,088	532,069	532,069	4,640,576
22	-	-	510,217	510,217	516,726	516,726	521,088	521,088	532,069	532,069	4,160,199
23	-	-	-	510,217	516,726	516,726	521,088	521,088	532,069	532,069	3,649,982
24	-	-	-	-	516,726	516,726	521,088	521,088	532,069	532,069	3,139,765
25	-	-	-	-	-	516,726	521,088	521,088	532,069	532,069	2,623,039
26	-	-	-	-	-	-	521,088	521,088	532,069	532,069	2,106,313
27	-	-	-	-	-	-	-	521,088	532,069	532,069	1,585,226
28	-	-	-	-	-	-	-	-	532,069	532,069	1,064,138
29	-	-	-	-	-	-	-	-	-	532,069	532,069
	$ 9,398,761	$ 9,607,539	$ 10,204,334	$ 10,204,334	$ 10,334,519	$ 10,334,519	$ 10,421,753	$ 10,421,753	$ 10,641,379	$ 10,641,379	$ 102,210,271

City of Denton - 2022 Roadway Impact Fee Study

Appendix E - Impact Fee Calculation Assumptions

Debt Service and Expense Summary

Service Area E

II. Summary of Annual Expenses

Year	New Annual Debt Service[1]	Annual Capital Expenditures[2]	Annual Bond Proceeds[2]	Existing Annual Debt Service[3]	Annual Credit[4]	Total Expense
1	$ 469,938	$ 1,528,556	$ (6,358,428)	$ 12,533	$ (1,923)	$ (4,349,323)
2	950,315	3,648,032	(6,358,428)	12,532	(7,644)	(1,755,193)
3	1,460,532	5,767,508	(6,358,428)	12,212	(17,469)	864,355
4	1,970,748	7,886,984	(6,358,428)	12,165	(31,237)	3,480,232
5	2,487,474	7,886,984	(6,358,428)	9,845	(48,983)	3,976,893
6	3,004,200	7,886,984	(6,358,428)	9,792	(70,663)	4,471,885
7	3,525,288	7,886,984	(6,358,428)	9,859	(96,319)	4,967,384
8	4,046,376	7,886,984	(6,358,428)	9,806	(125,814)	5,458,924
9	4,578,445	7,886,984	(6,358,428)	9,896	(159,492)	5,957,406
10	5,110,514	7,886,984	(6,358,428)	9,965	(197,005)	6,452,030
11	5,110,514	6,358,428	-	9,839	(197,000)	11,281,780
12	5,110,514	4,238,952	-	10,053	(197,008)	9,162,510
13	5,110,514	2,119,476	-	9,093	(196,971)	7,042,111
14	5,110,514	-	-	52	(196,623)	4,913,942
15	5,110,514	-	-	-	(196,621)	4,913,892
16	5,110,514	-	-	-	(196,621)	4,913,892
17	5,110,514	-	-	-	(196,621)	4,913,892
18	5,110,514	-	-	-	(196,621)	4,913,892
19	5,110,514	-	-	-	(196,621)	4,913,892
20	5,110,514	-	-	-	(196,621)	4,913,892
21	4,640,576	-	-	-	(178,541)	4,462,035
22	4,160,199	-	-	-	(160,059)	4,000,140
23	3,649,982	-	-	-	(140,429)	3,509,553
24	3,139,765	-	-	-	(120,799)	3,018,966
25	2,623,039	-	-	-	(100,918)	2,522,121
26	2,106,313	-	-	-	(81,038)	2,025,275
27	1,585,226	-	-	-	(60,990)	1,524,236
28	1,064,138	-	-	-	(40,942)	1,023,196
29	532,069	-	-	-	(20,471)	511,598
PTD	-	-	-	250,714	-	250,714
	$ 102,210,271	$ 78,869,840	$ (63,584,277)	$ 388,356	$ (3,628,065)	$ 114,256,125

(1) Appendix D - Service Area E, Page 2

(2) Appendix D - Service Area E, Page 1

(3) Eligible outstanding debt funded projects as a percent of total principal times original annual debt service, including Paid-To-Date (PTD) amounts

(4) Appendix D - Service Area E, Page 7

City of Denton - 2022 Roadway Impact Fee Study

Revenue Test

Appendix E - Impact Fee Calculation Assumptions

Service Area E

Year	Impact Fee	Vehicle Miles	Impact Fee Revenue	Annual Expenses	Sub-Total	Accumulated Interest	Estimated Fund Balance
Initial							$ 4,840,794
1	$ 3,722	2,415	$ 8,988,114	$ (4,349,323)	$ 13,337,437	$ 230,190	18,408,421
2	3,722	2,415	8,988,114	(1,755,193)	10,743,306	475,601	29,627,329
3	3,722	2,415	8,988,114	864,355	8,123,758	673,784	38,424,871
4	3,722	2,415	8,988,114	3,480,232	5,507,881	823,576	44,756,329
5	3,722	2,415	8,988,114	3,976,893	5,011,220	945,239	50,712,788
6	3,722	2,415	8,988,114	4,471,885	4,516,228	1,059,418	56,288,434
7	3,722	2,415	8,988,114	4,967,384	4,020,730	1,165,976	61,475,140
8	3,722	2,415	8,988,114	5,458,924	3,529,189	1,264,795	66,269,124
9	3,722	2,415	8,988,114	5,957,406	3,030,708	1,355,690	70,655,522
10	3,722	2,415	8,988,114	6,452,030	2,536,084	1,438,471	74,630,076
11	-	-	-	11,281,780	(11,281,780)	1,379,784	64,728,080
12	-	-	-	9,162,510	(9,162,510)	1,202,936	56,768,506
13	-	-	-	7,042,111	(7,042,111)	1,064,949	50,791,344
14	-	-	-	4,913,942	(4,913,942)	966,687	46,844,090
15	-	-	-	4,913,892	(4,913,892)	887,743	42,817,941
16	-	-	-	4,913,892	(4,913,892)	807,220	38,711,268
17	-	-	-	4,913,892	(4,913,892)	725,086	34,522,462
18	-	-	-	4,913,892	(4,913,892)	641,310	30,249,880
19	-	-	-	4,913,892	(4,913,892)	555,859	25,891,847
20	-	-	-	4,913,892	(4,913,892)	468,698	21,446,652
21	-	-	-	4,462,035	(4,462,035)	384,313	17,368,931
22	-	-	-	4,000,140	(4,000,140)	307,377	13,676,168
23	-	-	-	3,509,553	(3,509,553)	238,428	10,405,043
24	-	-	-	3,018,966	(3,018,966)	177,911	7,563,988
25	-	-	-	2,522,121	(2,522,121)	126,059	5,167,926
26	-	-	-	2,025,275	(2,025,275)	83,106	3,225,756
27	-	-	-	1,524,236	(1,524,236)	49,273	1,750,793
28	-	-	-	1,023,196	(1,023,196)	24,784	752,381
29	-	-	-	511,598	(511,598)	9,932	250,714
PTD	-	-	-	250,714	(250,714)	-	-
			$ 89,881,135	$ 114,256,125		$ 19,534,195	

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Calculation

Appendix E - Impact Fee Calculation Assumptions

Service Area E

Year	Number of Years to End of Period	Future Value Escalation: Interest Rate Factor	Future Value Escalation: Recovery Fee Factor	Annual Vehicle Miles: Actual	Annual Vehicle Miles: Escalated	Annual Expense: Actual	Annual Expense: Escalated
1	29	1.7584	1.0000	2,415	4,246	$ (4,349,323)	$ (7,648,000)
2	28	1.7240	1.0000	2,415	4,163	(1,755,193)	(3,025,874)
3	27	1.6902	1.0000	2,415	4,081	864,355	1,460,892
4	26	1.6570	1.0000	2,415	4,001	3,480,232	5,766,787
5	25	1.6245	1.0000	2,415	3,923	3,976,893	6,460,549
6	24	1.5927	1.0000	2,415	3,846	4,471,885	7,122,230
7	23	1.5614	1.0000	2,415	3,771	4,967,384	7,756,269
8	22	1.5308	1.0000	2,415	3,697	5,458,924	8,356,647
9	21	1.5008	1.0000	2,415	3,624	5,957,406	8,940,915
10	20	1.4714	1.0000	2,415	3,553	6,452,030	9,493,383
11	19	1.4425	1.0000	-	-	11,281,780	16,274,292
12	18	1.4142	1.0000	-	-	9,162,510	12,958,023
13	17	1.3865	1.0000	-	-	7,042,111	9,763,982
14	16	1.3593	1.0000	-	-	4,913,942	6,679,654
15	15	1.3327	1.0000	-	-	4,913,892	6,548,614
16	14	1.3065	1.0000	-	-	4,913,892	6,420,210
17	13	1.2809	1.0000	-	-	4,913,892	6,294,324
18	12	1.2558	1.0000	-	-	4,913,892	6,170,906
19	11	1.2312	1.0000	-	-	4,913,892	6,049,907
20	10	1.2070	1.0000	-	-	4,913,892	5,931,282
21	9	1.1834	1.0000	-	-	4,462,035	5,280,265
22	8	1.1602	1.0000	-	-	4,000,140	4,640,852
23	7	1.1374	1.0000	-	-	3,509,553	3,991,850
24	6	1.1151	1.0000	-	-	3,018,966	3,366,515
25	5	1.0933	1.0000	-	-	2,522,121	2,757,325
26	4	1.0718	1.0000	-	-	2,025,275	2,170,731
27	3	1.0508	1.0000	-	-	1,524,236	1,601,673
28	2	1.0302	1.0000	-	-	1,023,196	1,054,097
29	1	1.0100	1.0000	-	-	511,598	516,714
PTD		1.0000	1.0000	-	-	250,714	250,714
					38,905		$ 153,405,728

Annual Interest Rate:	2.00%
Total Escalated Expense for Entire Period	$ 153,405,728
Less Future Value of Initial Impact Fee Fund Balance	8,596,499
Sub-Total	$ 144,809,229
Total Escalated Vehicle Miles	38,905
Maximum Assessable Impact Fee for Roadway Service Area E	**$ 3,722**

City of Denton - 2022 Roadway Impact Fee Study

Impact Fee Project Funding

Appendix E - Impact Fee Calculation Assumptions

Service Area E

Street Name	Cost In Service Area [1]	Impact Fee Recoverable Cost[1]	Debt Funded[2] Existing	Debt Funded[2] Proposed	Non-Debt Funded[2]	Impact Fee Recoverable Cost
AUDRA	$ 1,687,000	$ 436,939	$ -	$ 349,552	$ 87,388	$ 436,939
BLAGG	11,181,000	2,895,922	-	2,316,738	579,184	2,895,922
BLAGG	7,651,000	1,981,638	-	1,585,311	396,328	1,981,638
BLAGG	281,500	72,910	-	58,328	14,582	72,910
DALLAS	3,624,000	938,630	-	750,904	187,726	938,630
DUCHESS	5,949,000	1,540,814	-	1,232,651	308,163	1,540,814
FM 426	9,953,000	2,577,865	-	2,062,292	515,573	2,577,865
MCKINNEY	1,551,000	401,715	-	-	401,715	401,715
MCKINNEY	1,914,000	495,733	-	396,587	99,147	495,733
MCKINNEY	3,270,000	846,943	-	677,554	169,389	846,943
MCKINNEY	9,268,000	2,400,448	-	1,920,358	480,090	2,400,448
MCKINNEY	4,399,000	1,139,358	-	911,486	227,872	1,139,358
MILLS	23,115,000	5,986,874	-	4,789,499	1,197,375	5,986,874
MILLS	5,235,000	1,355,885	-	1,084,708	271,177	1,355,885
MINGO	2,172,000	562,556	-	450,045	112,511	562,556
MINGO	7,268,000	1,882,440	-	1,505,952	376,488	1,882,440
MINGO	8,381,000	2,170,711	-	1,736,569	434,142	2,170,711
MINGO	2,700,000	699,310	-	559,448	139,862	699,310
MINGO	1,714,000	443,933	-	355,146	88,787	443,933
MINGO	6,583,000	1,705,022	-	1,364,018	341,004	1,705,022
MINGO	671,000	173,792	-	139,033	34,758	173,792
MINGO	2,813,000	728,578	-	582,862	145,716	728,578
MORSE	1,969,000	509,979	-	407,983	101,996	509,979
SHADY OAKS	9,967,000	2,581,491	-	2,065,193	516,298	2,581,491
SPENCER	6,862,000	1,777,284	-	1,421,828	355,457	1,777,284
TREATMENT PLANT	4,731,000	1,225,347	-	980,278	245,069	1,225,347
TREATMENT PLANT	5,015,000	1,298,904	-	1,039,123	259,781	1,298,904
TREATMENT PLANT	11,310,000	2,929,333	-	2,343,467	585,867	2,929,333
BONNIE BRAE	4,155,000	1,076,161	-	860,929	215,232	1,076,161
BONNIE BRAE	1,528,000	395,758	-	316,606	79,152	395,758
BONNIE BRAE	1,685,000	436,421	-	349,137	87,284	436,421
BONNIE BRAE	543,500	140,769	-	112,615	28,154	140,769
BONNIE BRAE	2,035,000	527,073	-	421,658	105,415	527,073
BONNIE BRAE	1,228,500	318,186	-	254,549	63,637	318,186
CARDINAL	3,167,000	820,265	-	656,212	164,053	820,265
GEESLING	8,237,000	2,133,415	-	1,706,732	426,683	2,133,415
GEESLING	18,210,000	4,716,460	-	3,773,168	943,292	4,716,460
LAKEVIEW	2,294,000	594,155	-	475,324	118,831	594,155
MAYHILL	2,467,000	638,962	35,868	570,030	33,064	638,962
MAYHILL	2,155,000	558,153	31,337	497,930	28,887	558,153
MAYHILL	409,500	106,062	5,952	94,623	5,487	106,062
MAYHILL	243,500	63,067	3,533	56,277	3,257	63,067
MAYHILL	1,142,000	295,782	16,590	263,899	15,293	295,782
MAYHILL	2,066,000	535,102	30,031	477,388	27,683	535,102
MAYHILL	2,161,000	559,707	31,414	499,336	28,958	559,707
MAYHILL	3,717,000	962,717	54,071	858,802	49,844	962,717
MAYHILL	3,864,000	1,000,791	48,925	906,765	45,100	1,000,791
MAYHILL	4,477,000	1,159,560	41,859	1,079,114	38,587	1,159,560
MAYHILL	1,840,000	476,567	-	381,254	95,313	476,567
MAYHILL CONNECTOR	2,071,000	536,397	-	429,118	107,279	536,397
MOCKINGBIRD	1,217,000	315,208	-	252,166	63,042	315,208
MOCKINGBIRD	7,039,000	1,823,128	-	1,458,502	364,626	1,823,128
MOCKINGBIRD	6,721,000	1,740,765	-	1,392,612	348,153	1,740,765
POST OAK	20,228,000	5,239,130	-	4,191,304	1,047,826	5,239,130
POST OAK	21,525,000	5,575,058	-	4,460,046	1,115,012	5,575,058
POST OAK	8,015,000	2,075,916	-	1,660,733	415,183	2,075,916
SWISHER	3,750,000	971,264	-	777,012	194,253	971,264
TEASLEY	2,077,000	537,951	-	430,361	107,590	537,951
N STAR	2,427,000	628,602	-	502,882	125,720	628,602
ROY	1,594,000	412,852	-	330,282	82,570	412,852
	37,660	37,660	-	-	37,660	37,660
	$ 305,561,160	$ 79,169,421	$ 299,581	$ 63,584,277	$ 15,285,563	$ 79,169,421

(1) Per Kimley-Horn Impact Fee Study

(2) Per discussions with City staff and City files

City of Denton - 2022 Roadway Impact Fee Study

Credit Determination

Appendix E - Impact Fee Calculation Assumptions

Service Area E

Year	Eligible Debt Service[1]	Annual Vehicle Miles	Eligible Debt Service per Vehicle Mile	Annual Growth in Vehicle Miles (Cumulative)	Credit for Annual Ad Valorem Rate Revenues
1	$ 482,471	605,916	$ 0.80	2,415	$ 1,923
2	962,847	608,331	1.58	4,830	7,644
3	1,472,744	610,745	2.41	7,244	17,469
4	1,982,913	613,160	3.23	9,659	31,237
5	2,497,320	615,575	4.06	12,074	48,983
6	3,013,992	617,990	4.88	14,489	70,663
7	3,535,147	620,405	5.70	16,904	96,319
8	4,056,182	622,819	6.51	19,318	125,814
9	4,588,341	625,234	7.34	21,733	159,492
10	5,120,478	627,649	8.16	24,148	197,005
11	5,120,353	627,649	8.16	24,148	197,000
12	5,120,566	627,649	8.16	24,148	197,008
13	5,119,606	627,649	8.16	24,148	196,971
14	5,110,565	627,649	8.14	24,148	196,623
15	5,110,514	627,649	8.14	24,148	196,621
16	5,110,514	627,649	8.14	24,148	196,621
17	5,110,514	627,649	8.14	24,148	196,621
18	5,110,514	627,649	8.14	24,148	196,621
19	5,110,514	627,649	8.14	24,148	196,621
20	5,110,514	627,649	8.14	24,148	196,621
21	4,640,576	627,649	7.39	24,148	178,541
22	4,160,199	627,649	6.63	24,148	160,059
23	3,649,982	627,649	5.82	24,148	140,429
24	3,139,765	627,649	5.00	24,148	120,799
25	2,623,039	627,649	4.18	24,148	100,918
26	2,106,313	627,649	3.36	24,148	81,038
27	1,585,226	627,649	2.53	24,148	60,990
28	1,064,138	627,649	1.70	24,148	40,942
29	532,069	627,649	0.85	24,148	20,471
Total	$ 102,347,912				$ 3,628,065

2022 Vehicle Miles (All Service Areas) [2]	603,501	
Ten Year Growth in Vehicle Miles (Service Area E) [2]	24,148	
	10	years
Annual Growth in Vehicle Miles	2,415	
Credit Amount	**$ 3,628,065**	

(1) Appendix D - Service Area E, Page 3

(2) Per Kimley-Horn Impact Fee Study

Appendix F – Consideration for the Hunter Ranch and Cole Ranch Operating Agreements

Consideration for Hunter Ranch and Cole Ranch Operating Agreement

The City of Denton has operating agreements with the Hunter Ranch District and the Cole Ranch District which stipulate certain calculations to be included in the Roadway Impact Fee Study. The purpose of this appendix is to explain what calculations are included as part of the operating agreements, how the calculations were performed, and how they will be used in the administration of both the Impact Fee Program and the operating agreements.

"City Offsites" Facilities

The operating agreements define City Offsites as specific roadways that are to be constructed by the City. City Offsites facilities are impact fee eligible roadways that are anticipated to be constructed with District financial participation in the form of impact fees and a District Tax assessed and paid from properties in the districts. As part of the operating agreements, the Roadway Impact Fee study is to include a capacity analysis which shows the portion of City Offsites facilities that the Hunter Ranch District and Cole Ranch District are responsible for. This analysis is provided in the tables included in this appendix. A map identifying the City Offsite facilities and development Improvement Projects as identified within the context of the 2022 Roadway Impact Fee CIP is provided in **Exhibit F.1**. The original map of the City Off-sites from the operating agreement is included in **Exhibit F.2.**

Administration of the Impact Fee Program

Included in the operating agreements is a stipulation that the revenue collected from the Districts for the construction of City Offsites facilities does not exceed the District Cost for the City Offsites as determined by the capacity analysis. The terms City Offsites, District Cost, District Area Revenue, and District Tax Revenue, are defined in Section 4.11 of the operating agreements.

As impact fee District Area Revenue and District Tax Revenue are collected, the City will keep an accounting of the total amount of revenue collected in addition to keeping an accounting of the District Area Revenue that is spent on the construction of the City Offsites. This is to ensure that the District Area Revenue collected and spent on the construction of City Offsites does not exceed the District Cost as determined by the capacity analysis. Impact fee revenue collected from the Districts and allocated to roadway projects within the same service area but not defined as City Offsites will not be designated as District Cost.

Updates to the Capacity Analysis

The capacity analysis considers only the District Cost attributable to the 10-year demand and not the total district cost beyond the 10-year window. Each time the study is updated, the capacity analysis will be updated to reflect the District Area Revenue and District Tax Revenue collected and spent on City Offsites, in addition to the new 10-year demand and the updated District Cost.

City of Denton - 2022 Roadway Impact Fee Study

Hunter Ranch District Capacity Analysis

Hunter Ranch

5/15/2024

Project ID #	Operating Agreement Project No. #	ROADWAY	LIMITS FROM	LIMITS TO	LENGTH (FT)[4]	LENGTH (MI)	LANES	MTP CLASSIFICATION	IMPACT FEE CLASSIFICATION	ROADWAY STATUS	PEAK HOUR VOLUME	% IN DISTRICT	VEH-MI CAPACITY PK-HR PER LN	VEH-MI SUPPLY PK-HR TOTAL[1]	VEH-MI TOTAL DEMAND PK-HR[2]	EXCESS CAPACITY PK-HR VEH-MI[3]	TOTAL PROJECT COST	TOTAL PROJECT COST IN SERVICE AREA
CITY OFF-SITES (INCLUDED IN IMPACT FEE CIP)																		
A-12	51039	JIM CHRISTAL	IH 35	OLD SH 24	3,110	0.59	4	SECONDARY ARTERIAL	SA	Widening	1,290	100%	750	1770	761	1,009	$ 10,332,000	$ 10,332,000
A-13,C-10	51039	JIM CHRISTAL	OLD SH 24	WESTERN	2,905	0.55	4	SECONDARY ARTERIAL	SA	Widening	1,056	50%	750	825	290	535	$ 9,746,000	$ 4,873,000
A-14,C-11	51039	JIM CHRISTAL	WESTERN	MASCH BRANCH	3,510	0.66	4	SECONDARY ARTERIAL	SA	Widening	910	50%	750	990	300	690	$ 11,964,000	$ 5,982,000
A-15,C-12	51039	JIM CHRISTAL	MASCH BRANCH	THOMAS J EGAN	5,975	1.13	4	SECONDARY ARTERIAL	SA	Widening	239	50%	750	1695	135	1,560	$ 18,502,000	$ 9,251,000
A-18	52758	ROBSON RANCH	IH 35W	5,745' W of IH-35W	*5,745*	*1.09*	6	PRIMARY ARTERIAL	PA	Widening	808	50%	850	2780	441	2,339	$ 20,953,000	$ 10,476,500
A-28	52897	THOMAS J EGAN	JIM CHRISTAL	2915' S OF JIM CRISTAL	2,915	0.55	4	SECONDARY ARTERIAL	SA	New	New	100%	750	1650	0	1,650	$ 6,984,000	$ 6,984,000
A-29	52897	THOMAS J EGAN	1830' N OF FM 1515	FM 1515	1,830	0.35	4	SECONDARY ARTERIAL	SA	New	New	50%	750	525	0	525	$ 4,635,000	$ 2,317,500
A-30	52808	UNDERWOOD	SPRINGSIDE	UNDERWOOD CONNECTOR	4,000	0.76	6	PRIMARY ARTERIAL	PA	Widening	692	100%	850	3876	526	3,350	$ 15,229,000	$ 15,229,000
B-2	52776	ALLRED	BRUSH CREEK	JOHN PAINE	1,610	0.30	6	PRIMARY ARTERIAL	PA	Widening	1,171	50%	850	765	176	589	$ 5,424,000	$ 2,712,000
B-6	52776	BRUSH CREEK	FORT WORTH	590' E OF ALLRED	3,615	0.68	6	PRIMARY ARTERIAL	PA	New	New	100%	850	3468	0	3,468	$ 10,698,000	$ 10,698,000
B-25	45891	VINTAGE	FORT WORTH	BONNIE BRAE	4,605	0.87	6	PRIMARY ARTERIAL	PA (1/3)	Widening	423	100%	850	4437	368	4069	$ 11,721,000	$ 11,721,000
B-27	45891	VINTAGE	BONNIE BRAE	NAPA VALLEY	765	0.14	6	PRIMARY ARTERIAL	PA (1/3)	Widening	1,874	100%	850	714	262	452	$ 1,665,000	$ 1,665,000
B-28	45891	VINTAGE	NAPA VALLEY	IH 35W	3,435	0.65	6	PRIMARY ARTERIAL	PA (1/3)	Widening	1,874	100%	850	3315	1218	2,097	$ 7,975,000	$ 7,975,000
SUBTOTAL														**26,810**	**4,477**	**22,333**	**$ 135,828,000**	**$ 100,216,000**
DEVELOPMENT BUILT FACILITIES (NOT INCLUDED IN IMPACT FEE CIP)																		
A	52773	H LIVELY	I-35W	C WOLFE	14,275	2.70	6	PRIMARY ARTERIAL	PA	New	New	30%	850	4131	0	4,131	$ -	$ -
A	52828	HUNTER ARTERIAL	FM 2449	UNDERWOOD	10,451	1.98	4	SECONDARY ARTERIAL	SA	New	New	50%	750	2970	0	2,970	$ -	$ -
A	52824	HUNTER COLLECTOR	HUNTER ARTERIAL	UNDERWOOD	11,391	2.16	2	COLLECTOR	C	New	New	100%	550	2376	0	2,376	$ -	$ -
A	52756	HUNTER COLLECTOR A	HUNTER ARTERIAL	ROBSON RANCH	13,264	2.51	6	COLLECTOR	C	New	New	100%	550	8283	0	8,283	$ -	$ -
A	52767	HUNTER COLLECTOR C	HUNTER COLLECTOR A	HUNTER COLLECTOR B	2,886	0.55	2	COLLECTOR	C	New	New	100%	550	605	0	605	$ -	$ -
A	52953	UNDERWOOD	1610' N OF H LIVELY	H LIVELY	1,608	0.30	6	PRIMARY ARTERIAL	PA	New	New	100%	850	1530	0	1,530	$ -	$ -
A	52953	UNDERWOOD	H LIVELY	ROBSON RANCH	12,039	2.28	6	SECONDARY ARTERIAL	SA	New	New	100%	750	10260	0	10,260	$ -	$ -
B	52771	ALLRED	JOHN PAINE	365' W OF IH-35W	1,482	0.28	6	PRIMARY ARTERIAL	PA	Widening	1,308	100%	850	1428	366	1,062	$ -	$ -
B	52771	ALLRED	365' W OF IH-35W	IH-35W	365	0.07	6	PRIMARY ARTERIAL	PA	Widening	1,438	100%	850	357	101	256	$ -	$ -
B	52853	JOHN PAINE	VINTAGE	ALLRED	6,370	1.21	4	SECONDARY ARTERIAL	SA	New	New	100%	750	3630	0	3,630	$ -	$ -
B	52777	JOHN PAINE	ALLRED	TEXOMA	2,660	0.50	4	SECONDARY ARTERIAL	SA	New	New	100%	750	1500	0	1,500	$ -	$ -
SUBTOTAL														**37,070**	**467**	**36,603**	**$ -**	**$ -**

1. Veh-Mi Supply Pk-Hr Total = [Length (mi)] * [Exist Lanes] * [Veh-Mi Capacity Pk-Hr Per Ln] * [% in Service Area]
2. Veh-Mi Demand Pk-Hr Total = [Length (mi)] * [PM Peak Hour Vol] * [% In Service Area]
3. Excess Capacity Pk-Hr Veh-Mi = [Veh-Mi Supply Pk-Hr Total] - [Veh-Mi Demand Pk-Hr Total]

Note: Mileage lengths are shown as rounded to the nearest 0.01. Actual calculations were performed using exact mileage length [Length (ft) / 5,280].

4. The length of Robson Ranch shown in operating agreement is less than the length of project A-18.
The reduced length has been shown in this table to align with the operating agreement.

TOTAL VEHICLE-MILES PROVIDED BY HUNTER-COLE RANCH	63,880
TOTAL VEH-MILES OF EXISTING DEMAND	4,944
NET AMOUNT OF CAPACITY ADDED	58,936
TOTAL COST OF OFF-SITE FACILITIES	$ 100,216,000
COST OF NET CAPACITY SUPPLIED	$ 92,459,771
HUNTER RANCH 10-YEAR VEHICLE-MILE DEMAND	9,220
PERCENT OF CAPACITY ADDED ATTRIBUTABLE TO GROWTH	15.6%
COST OF OFF-SITES ATTRIBUTABLE TO 10-YR GROWTH	$ 14,464,488
ESTIMATED COST OF FINANCING (46%)	$ 6,653,665
ESTIMATED INTEREST EARNINGS (24%)	$ (3,471,477)
ESTIMATED CREDIT FOR AD VALOREM TAXES (5.4%)	$ (781,082)
RECOVERABLE COST OF IMPACT FEE CIP AND FINANCING (ATTRIBUTABLE TO OFF-SITE FACILITIES)	**$ 16,865,593**

City of Denton - 2022 Roadway Impact Fee Study

Cole Ranch District Capacity Analysis

Cole Ranch

5/15/2024

Project ID #	Operating Agreement Project No. #	ROADWAY	LIMITS FROM	LIMITS TO	LENGTH (FT)[4]	LENGTH (MI)	LANES	MTP CLASSIFICATION	IMPACT FEE CLASSIFICATION	ROADWAY STATUS	PEAK HOUR VOLUME	% IN DISTRICT	VEH-MI CAPACITY PK-HR PER LN	VEH-MI SUPPLY PK-HR TOTAL[1]	VEH-MI TOTAL DEMAND PK-HR[2]	EXCESS CAPACITY PK-HR VEH-MI[3]	TOTAL PROJECT COST	TOTAL PROJECT COST IN SERVICE AREA
CITY OFF-SITES (INCLUDED IN IMPACT FEE CIP)																		
A-12	51039	JIM CHRISTAL	IH 35	OLD SH 24	3,110	0.59	4	SECONDARY ARTERIAL	SA	Widening	1,290	100%	750	1770	761	1,009	$ 10,332,000	$ 10,332,000
A-13,C-10	51039	JIM CHRISTAL	OLD SH 24	WESTERN	2,905	0.55	4	SECONDARY ARTERIAL	SA	Widening	1,056	50%	750	825	290	535	$ 9,746,000	$ 4,873,000
A-14,C-11	51039	JIM CHRISTAL	WESTERN	MASCH BRANCH	3,510	0.66	4	SECONDARY ARTERIAL	SA	Widening	910	50%	750	990	300	690	$ 11,964,000	$ 5,982,000
A-15,C-12	51039	JIM CHRISTAL	MASCH BRANCH	THOMAS J EGAN	5,975	1.13	4	SECONDARY ARTERIAL	SA	Widening	239	50%	750	1695	135	1,560	$ 18,502,000	$ 9,251,000
A-18	52758	ROBSON RANCH	IH 35W	5,745' W of IH-35W	*5,745*	*1.09*	6	PRIMARY ARTERIAL	PA	Widening	808	50%	850	2780	441	2,339	$ 20,953,000	$ 10,476,500
A-28	52897	THOMAS J EGAN	JIM CHRISTAL	2915' S OF JIM CRISTAL	2,915	0.55	4	SECONDARY ARTERIAL	SA	New	New	100%	750	1650	0	1,650	$ 6,984,000	$ 6,984,000
A-29	52897	THOMAS J EGAN	1830' N OF FM 1515	FM 1515	1,830	0.35	4	SECONDARY ARTERIAL	SA	New	New	50%	750	525	0	525	$ 4,635,000	$ 2,317,500
A-30	52808	UNDERWOOD	SPRINGSIDE	UNDERWOOD CONNECTOR	4,000	0.76	6	PRIMARY ARTERIAL	PA	Widening	692	100%	850	3876	526	3,350	$ 15,229,000	$ 15,229,000
B-2	52776	ALLRED	BRUSH CREEK	JOHN PAINE	1,610	0.30	6	PRIMARY ARTERIAL	PA	Widening	1,171	50%	850	765	176	589	$ 5,424,000	$ 2,712,000
B-6	52776	BRUSH CREEK	FORT WORTH	590' E OF ALLRED	3,615	0.68	6	PRIMARY ARTERIAL	PA	New	New	100%	850	3468	0	3,468	$ 10,698,000	$ 10,698,000
B-25	45891	VINTAGE	FORT WORTH	BONNIE BRAE	4,605	0.87	6	PRIMARY ARTERIAL	PA (1/3)	Widening	423	100%	850	4437	368	4069	$ 11,721,000	$ 11,721,000
B-26	45891	VINTAGE	BONNIE BRAE	NAPA VALLEY	765	0.14	6	PRIMARY ARTERIAL	PA (1/3)	Widening	1,874	100%	850	714	262	452	$ 1,665,000	$ 1,665,000
B-27	45891	VINTAGE	NAPA VALLEY	IH 35W	3,435	0.65	6	PRIMARY ARTERIAL	PA (1/3)	Widening	1,874	100%	850	3315	1218	2,097	$ 7,975,000	$ 7,975,000
SUBTOTAL														**26,810**	**4,477**	**22,333**	**$ 135,828,000**	**$ 100,216,000**
DEVELOPMENT BUILT FACILITIES (NOT INCLUDED IN IMPACT FEE CIP)																		
A	52866	AMYX	LOOP 288	C WOLFE	6,855	1.30	2	SECONDARY ARTERIAL	SA	New	New	100%	750	1950	0	1,950	$ -	$ -
A	52790	FM 2449	LOOP 288	780' W OF LOOP 288	778	0.15	6	PRIMARY ARTERIAL	PA	New	New	100%	850	765	0	765	$ -	$ -
A	52790	FM 2449	780' W OF LOOP 288	4380' E OF C WOLFE	1,904	0.36	6	PRIMARY ARTERIAL	PA	New	New	100%	850	1836	0	1,836	$ -	$ -
A	52790	FM 2449	4380' E OF C WOLFE	C WOLFE	4,382	0.83	6	PRIMARY ARTERIAL	PA	Widening	1,364	100%	850	4233	1132	3,101	$ -	$ -
A	52872	FM 2499	OUTER LOOP	UNDERWOOD	5,687	1.08	2	COLLECTOR	C	New	New	100%	550	1188	0	1,188	$ -	$ -
A	52773	H LIVELY	I-35W	C WOLFE	14,275	2.70	6	PRIMARY ARTERIAL	PA	New	New	70%	850	9639	0	9,639	$ -	$ -
A	52823	AMYX-H LIVELY	AMYX	H LIVELY	9,395	1.78	2	COLLECTOR	C	New	New	100%	550	1958	0	1,958	$ -	$ -
A	52879	FM 1515-H LIVELY	FM 1515	H LIVELY	12,255	2.32	4	SECONDARY ARTERIAL	SA	New	New	100%	750	6960	0	6,960	$ -	$ -
A	52828	HUNTER ARTERIAL	FM 2449	UNDERWOOD	10,451	1.98	4	SECONDARY ARTERIAL	SA	New	New	50%	750	2970	0	2,970	$ -	$ -
A	52953	UNDERWOOD	UNDERWOOD CONNECTOR	FM 2449	2,026	0.38	6	PRIMARY ARTERIAL	PA	New	New	100%	850	1938	0	1,938	$ -	$ -
A	52953	UNDERWOOD	LOOP 288	1610' N OF H LIVELY	5,909	1.12	6	PRIMARY ARTERIAL	PA	Widening	60	100%	850	5712	67	5,645	$ -	$ -
SUBTOTAL														**39,149**	**1,199**	**37,950**	**$ -**	**$ -**

1. Veh-Mi Supply Pk-Hr Total = [Length (mi)] * [Exist Lanes] * [Veh-Mi Capacity Pk-Hr Per Ln] * [% in Service Area]
2. Veh-Mi Demand Pk-Hr Total = [Length (mi)] * [PM Peak Hour Vol] * [% In Service Area]
3. Excess Capacity Pk-Hr Veh-Mi = [Veh-Mi Supply Pk-Hr Total] - [Veh-Mi Demand Pk-Hr Total]

Note: Mileage lengths are shown as rounded to the nearest 0.01. Actual calculations were performed using exact mileage length [Length (ft) / 5,280].

4. The length of Robson Ranch shown in operating agreement is less than the length of project A-18.
The reduced length has been shown in this table to align with the operating agreement.

TOTAL VEHICLE-MILES PROVIDED BY COLE RANCH	65,959
TOTAL VEH-MILES OF EXISTING DEMAND	5,676
NET AMOUNT OF CAPACITY ADDED	60,283
TOTAL COST OF OFF-SITE FACILITIES	$ 100,216,000
COST OF NET CAPACITY SUPPLIED	$ 91,592,067
COLE RANCH 10-YEAR VEHICLE-MILE DEMAND	5,993
PERCENT OF CAPACITY ADDED ATTRIBUTABLE TO GROWTH	9.9%
COST OF OFF-SITES ATTRIBUTABLE TO 10-YR GROWTH	$ 9,105,573
ESTIMATED COST OF FINANCING (46%)	$ 4,188,564
ESTIMATED INTEREST EARNINGS (24%)	$ (2,185,338)
ESTIMATED CREDIT FOR AD VALOREM TAXES (5.4%)	$ (491,701)
RECOVERABLE COST OF IMPACT FEE CIP AND FINANCING (ATTRIBUTABLE TO OFF-SITE FACILITIES)	**$ 9,617,098**

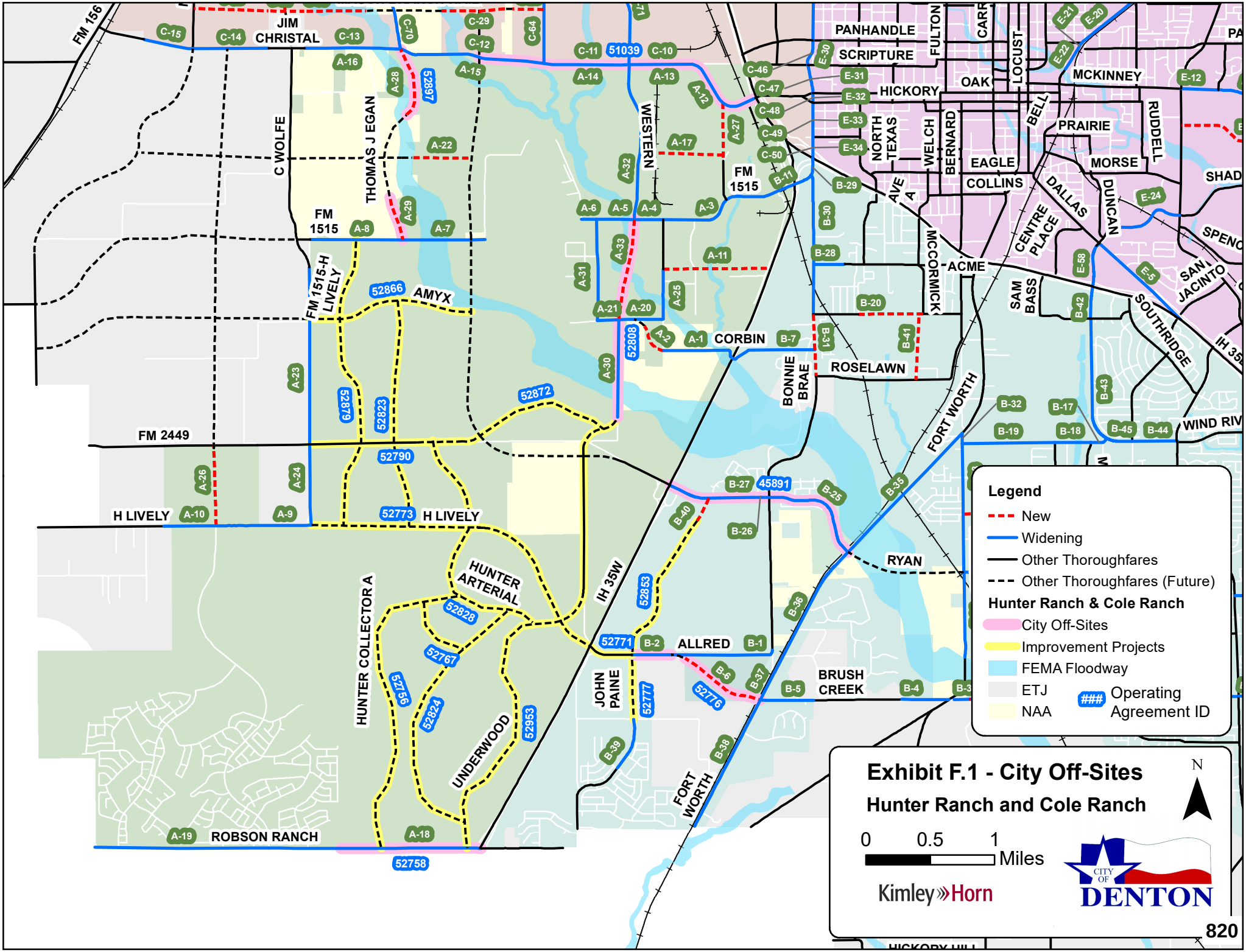
Exhibit F.1 - City Off-Sites
Hunter Ranch and Cole Ranch
Legend
New
Widening
Other Thoroughfares
Other Thoroughfares (Future)
Hunter Ranch & Cole Ranch
City Off-Sites
Improvement Projects
FEMA Floodway
ETJ
NAA
Operating Agreement ID
0 0.5 1 Miles
N
Kimley»Horn
CITY OF DENTON
820
FM 156
JIM CHRISTAL
C WOLFE
THOMAS J EGAN
FM 1515
FM 1515-H LIVELY
AMYX
FM 2449
H LIVELY
HUNTER ARTERIAL
HUNTER COLLECTOR A
UNDERWOOD
ROBSON RANCH
WESTERN
CORBIN
ROSELAWN
BONNIE BRAE
IH 35W
JOHN PAINE
ALLRED
FORT WORTH
RYAN
BRUSH CREEK
PANHANDLE
SCRIPTURE
HICKORY
OAK
MCKINNEY
PRAIRIE
MORSE
EAGLE
COLLINS
DALLAS
DUNCAN
CENTRE PLACE
ACME
MCCORMICK
SAM BASS
SOUTHRIDGE
SAN JACINTO
WIND RIV
FULTON
CARR
LOCUST
BELL
RUDDELL
NORTH TEXAS
WELCH
BERNARD
AVE A
51039
52897
52866
52879
52823
52872
52790
52773
52828
52767
52756
52824
52953
52758
52808
52853
52771
52777
52776
45891

Planning Level Infrastructure Development Phasing Map – Off-site Roadways with Phase Boundaries

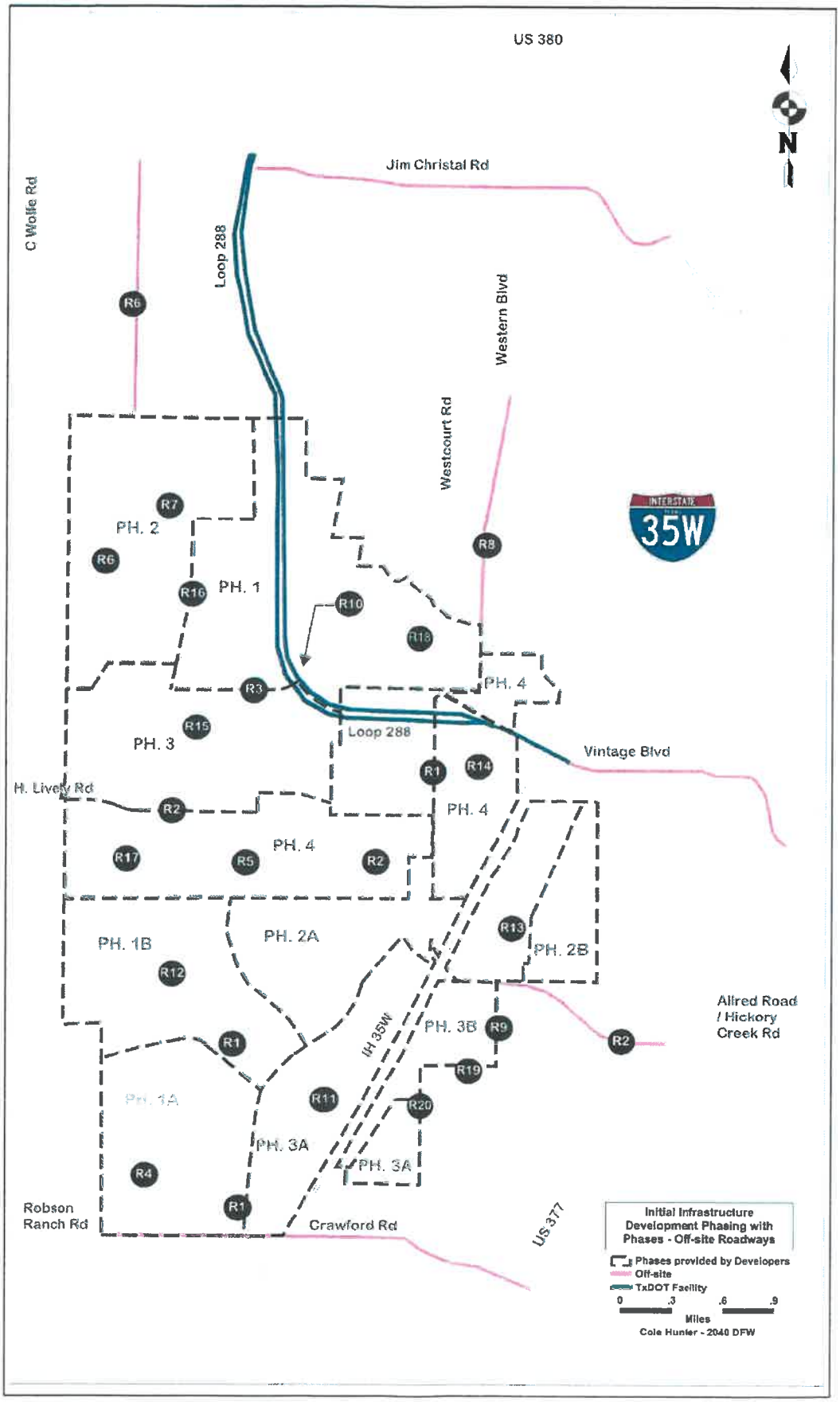

Exhibit F.2 - City Off-sites
Hunter Ranch and Cole Ranch Operating Agreement

Roadway Impact Fee Resolution

Brett Bourgeois, PE
City Engineer
Development Services/Engineering Services
June 4, 2024
ID 24-173

Required Steps for Roadway Impact Fees

- Capital Improvement Advisory Committee (CIAC) to provide written comments to City Council
  - Minimum 5 Business Day Before
- City Council Action to set date of Public Hearing for Land Use Assumptions (LUA), Capital Improvement Plan (CIP), Maximum Allowable Fee, and Collection Rate
- Publish Notice of Public Hearing
  - Minimum 30 Days Before
- Hold Public Hearing for LUA, CIP, Maximum Allowable Fee, and Collection Rate
  - **Maximum** 30 Days After
- City Council Adopt LUA, CIP, Maximum Possible Fee, and Collection Rate

Required Steps for Roadway Impact Fees

- Capital Improvement Advisory Committee (CIAC) to provide written comments to City Council
  - Staff presented to CIAC on March 20, 2024
- City Council Resolution to set date of Public Hearing for Land Use Assumptions (LUA), Capital Improvement Plan (CIP), Maximum Allowable Fee, and Collection Rate
  - Staff presented to City Council on June 4, 2024
- Publish Notice of Public Hearing
  - Proposed notice to be published in Denton Record Chronicle on June 7, 2024
- Hold Public Hearing for LUA, CIP, Maximum Allowable Fee, and Collection Rate
  - Proposed Public Hearing anticipated on July 16, 2024
- City Council Adopt LUA, CIP, Maximum Possible Fee, and Collection Rate
  - Proposed Adoption anticipated on July 16, 2024

Questions?

Brett Bourgeois, PE

City Engineer

Development Services/Engineering Services

File #: ID 24-870, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with International Business Machines Corporation, through the Department of Information Resources (DIR) Cooperative Contract No. DIR-CPO-4942, for cyber security services for the Technology Services Department; providing for the expenditure of funds therefor; and providing an effective date (File 8550 - awarded to International Business Machines Corporation, in the not-to-exceed amount of $90,000.00).

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Procurement

ACM: Cassey Ogden

DATE: June 4, 2024

SUBJECT

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with International Business Machines Corporation, through the Department of Information Resources (DIR) Cooperative Contract No. DIR-CPO-4942, for cyber security services for the Technology Services Department; providing for the expenditure of funds therefor; and providing an effective date (File 8550 – awarded to International Business Machines Corporation, in the not-to-exceed amount of $90,000.00).

STRATEGIC ALIGNMENT

This action supports Key Focus Area: Pursue Organizational Excellence and Collaborative and Respectful Leadership.

INFORMATION/BACKGROUND

The Technology Services (TS) Department utilizes the Incident Response Retainer and Proactive Cyber Security Services from International Business Machines Corporation (IBM) as an integral part of our Cyber Security posture. The Incident Response Retainer ensures that we can call upon leading industry resources in the event of a Cyber Security Incident that goes beyond our capacity to handle or requires a larger number of resources in a short period of time. Having the ability to engage these services and resources can mean crucial time is not wasted during an event and can help contain the event to limit damages to the City of Denton.

Pricing obtained through the Department of Information Resources (DIR) Cooperative Purchasing Network has been competitively bid and meets the statutory requirements of Texas Local Government Code 271.102

PRIOR ACTION/REVIEW (COUNCIL, BOARDS, COMMISSIONS)

On January 28, 2020, City Council approved the interlocal agreement with the Texas Department of Information Resources Purchasing Network (Ordinance 20-196).

RECOMMENDATION

Award a contract with International Business Machines Corporation, for cyber security services for the Technology Services Department, in a not-to-exceed amount of $90,000.

PRINCIPAL PLACE OF BUSINESS

International Business Machines Corporation
Atlanta, GA

ESTIMATED SCHEDULE OF PROJECT

This DIR contract expires on February 7, 2026.

FISCAL INFORMATION

The services will be funded from Technology Services operational account number 830001.7854. Requisition #164528 has been entered into the Purchasing software system in the amount of $90,000. The budgeted amount for this item is $90,000.

EXHIBITS

Exhibit 1: Agenda Information Sheet
Exhibit 2: Proposal
Exhibit 3: Ordinance

Respectfully submitted:
Lori Hewell, 940-349-7100
Purchasing Manager

For information concerning this acquisition, contact: Leisha Meine, 940-349-7823.

Legal point of contact: Marcella Lunn at 940-349-8333.

IBM Security Services

IBM Security Transformation Services Agreement for

CITY OF DENTON DOU Rev Split 4-1-2024

Prepared for

CITY OF DENTON

ACCOUNTS PAYABLE
215 E MCKINNEY ST
Denton, TX 76201
US

02/21/24

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Security Services

This Statement of Work (“SOW”) is governed by the terms and conditions of the agreement specified in the Order Document for IBM Security Services (“Order Document”). If there is a conflict between the terms in the documents, the terms of the Order Document prevail over those of the SOW, and the terms of the SOW prevail over those of the agreement specified in the Order Document ("the Agreement").

Client means and includes the company, its authorized users, or recipients of the IBM Security Services ("Services").

Capitalized terms not otherwise defined in this SOW are defined in the Agreement and have the same meaning in this SOW as ascribed to them therein.

1. Scope of Work

The IBM Security Services are comprised of a dynamic portfolio of offerings designed to provide tools, technology, and expertise to help optimize Client’s existing security programs.

Services consist of the IBM X-Force Incident Response Retainer (IRIS). IRIS helps clients intelligently prepare for, detect & respond to attacks, reducing the timeline for potential impact. Clients have 24x7x365 phone access to our elite team of IR consultants, with 24-48 hour boots on the ground emergency incident support if needed.

1.1 Services Coordination

IBM Responsibilities

IBM will designate an IBM Services specialist who will be IBM’s focal point during performance of the Services who, with Client Point of Contact, will:

a. review the SOW and any associated documents;

b. establish and maintain communications;

c. administer the Project Change Control Procedure described in the Project Procedures appendix; and

d. coordinate the technical activities of IBM’s assigned personnel.

e. have completed Services Coordination when the remaining IBM activities specified in this Statement or Work are complete.

1.2 Client Point of Contact Responsibilities

Prior to the start of the Services, Client will designate a Client Point of Contact to whom all communications relative to the Services will be addressed, and who will have the authority to act on Client's behalf in all matters regarding this SOW, applicable Service Description(s), and Order Document. Client's Point of Contact will:

a. complete and return any questionnaires or checklists within business days of receipt, if applicable;

b. serve as the interface between IBM’s project team and all Client departments participating in the Services;

c. attend status meetings, as required;

d. obtain and provide applicable information, data, consents, decisions, and approvals as required by IBM to perform the Services, within business days of IBM’s request, unless Client and IBM agree in writing to a different response time. As applicable, review deliverables submitted by IBM in accordance with the Deliverable Acceptance Procedure described in the Project Procedures appendix;

e. help resolve and escalate Services issues within Client's organization, as needed; and

f. administer the Project Change Control Procedure with the IBM.

1.3 Client General Responsibilities

IBM's performance is dependent upon Client's fulfillment of its responsibilities at no charge to IBM. Any delay in performance of Client's responsibilities may result in additional charges and/or delay of the completion of the Services and will be handled in accordance with the Project Change Control Procedure.

Client will:

a. make appropriate personnel available to assist IBM in the performance of IBM's responsibilities;

b. provide safe access, suitable office space, supplies, high speed connectivity to the Internet, and other facilities needed by IBM personnel while working at the location specified in the Order Document;

c. provide information and materials IBM requires to provide the Services. IBM will not be responsible for any loss, damage, delay, or deficiencies in the Services arising from inaccurate, incomplete, or otherwise deficient information or materials supplied by or on behalf of Client;

d. provide IBM with relevant information regarding Client's current business environment. Such information is to include:

e. provide IBM with information regarding Client's current environment. Such information is to include:

   (1) current and planned IT and projects and priorities;

   (2) general IT and strategies, policies, and procedures;

   (3) IT and security (physical and logical) policies, procedures, and standards; and

   (4) service level agreements;

f. if making available to IBM any facilities, software, hardware, or other resources in connection with IBM's performance of Services, obtain at no cost to IBM any licenses or approvals related to these resources that may be necessary for IBM to perform the Services. IBM will be relieved of its obligations that are adversely affected by Client's failure to promptly obtain such licenses or approvals. Client agrees to reimburse IBM for any reasonable costs and other amounts, including costs of litigation and settlements, that IBM may incur from Client's failure to obtain these licenses or approvals;

g. obtain all necessary permissions for IBM to use, provide, store and process data to which Client gives IBM access to perform the Services. Client is responsible for the security and privacy of such data. Client will not give IBM access to data subject to governmental regulation or requiring security measures beyond those specified in this SOW unless IBM has first agreed in writing to implement additional required security measures;

h. be responsible for implementing or not implementing IBM's recommendations and for the results achieved;

i. allow IBM to cite Client's company name and the general nature of the Services IBM performed for Client to IBM's other clients and other prospective clients;

j. consent and will obtain any necessary consents for IBM and its subcontractors to process the business contact information of Client, its employees, and contractors worldwide for our business relationship. IBM will comply with requests to access, update, or delete such contact information;

k. acknowledge and agree that IBM does not provide legal services or represent or warrant that the services or products IBM provides or obtains on Client's behalf will ensure Client's compliance with any particular law, including but not limited to any law relating to safety, security, or privacy;

l. obtain any necessary consents and take any other actions required by applicable laws, including but not limited to data privacy laws, prior to disclosing any of Client's employee information to IBM. Client also agrees that with respect to data that is transferred or hosted outside of the country or countries specified in the Order Document(s), Client is responsible for ensuring that all such data transmitted outside of the country or countries specified in the Order Document(s) adheres to the laws and regulations governing such data;

m. be responsible for the content of any database, the selection and implementation of controls on its access and use, backup and recovery, and the security of the stored data. This security will also include any procedures necessary to safeguard the integrity and security of software and data used in the Services from access by unauthorized personnel; be responsible for the identification of interpretation of, and compliance with, any applicable laws, regulations, and statutes that affect Client's existing systems, applications, programs, or data to which IBM will have access during the Services, including applicable data privacy, export, and import laws and regulations. It is Client's responsibility to ensure the systems, applications, programs, and data meet the requirements of those laws, regulations, and statutes; and

n. be responsible, at its expense, for establishing, maintaining, and operating Client's connection to the Internet (the speed of which may have a significant impact on the responsiveness of the Services) including all computer hardware and software, web browsers configured in accordance with industry standards, modems, and access lines.

2. Services

2.1 List of Services

As part of this SOW, IBM will perform the services activities outlined in the following Services Description(s) which can be found in the Services Description appendix:

3. Estimated Schedule

Services will be performed based on the estimated schedule detailed in the Order Document and will be used to establish the contract term.

Both parties agree to make reasonable efforts to carry out our respective responsibilities in order to achieve the estimated schedule.

4. Facilities and Hours of Coverage

a. Services will be performed off-site or on-site at Client's physical location(s) specified in Order Document and may be performed at IBM location(s).

b. IBM may use personnel and resources in locations worldwide and third-party suppliers to support the delivery of products and services.

c. IBM will provide Services during normal business hours specified in Order Document. Client may be required to provide access to its locations outside normal business hours, as mutually agreed between Client and IBM. Client may incur a charge for Services provided outside of normal business hours, as mutually agree between Client and IBM, which may result in additional charges.

5. Deliverables

The deliverable Materials, resulting from completion of the Services, are detailed within the "Deliverable Materials Table", with can be found in the Deliverables Guidelines appendix A.

6. Completion Criteria

IBM will have fulfilled its obligations for the Services when any one of the following first occurs:

a. when the contract end date has passed; or

b. IBM completes the IBM responsibilities described in this SOW and the IBM responsibilities described within the selected Services Description(s) specified in the Order Document, including provision of the deliverables, if any; or

c. IBM has provided the number of hours specified in the Order Document, or in any subsequent change authorization; or

d. this SOW expires; or

e. the Services are terminated in accordance with the provisions of this SOW, or the Agreement identified in the Order Document.

7. Charges

The charges, if applicable for the Services are detailed in the Order Document.

IBM shall not be responsible for delays or additional requirements imposed by any government agencies, labor disputes, fire, unavoidable casualties, or unforeseen conditions.

8. Other Terms and Conditions

8.1 Termination

Refer to the Order Document for any associated termination charges.

8.1.1 Termination for Cause

Either party may terminate this SOW for cause by giving the other party at least 30 days written notice.

8.1.2 Termination of an SOW for Convenience

Either party may terminate this SOW by giving the other party at least written notice.

8.2 Limitation of Services

Client acknowledges and agrees:

a. IBM is not required to perform any work outside the scope described in the SOW

b. to the extent IBM does perform any work outside of scope, IBM may cease to perform such work at any time; and

c. any changes to the scope must be agreed to in accordance with the Project Change Control Procedure specified in this SOW.

8.3 Open-Source Software Disclaimer

Client understands and agrees that Linux and any other Open Source Software ("OSS"), including patches, fixes, and updates, which IBM installs, configures, updates, operates, or otherwise assists in procuring on Client's behalf as a result of providing services under this SOW are licensed and distributed to Client by Linux and OSS distributors and/or respective copyright and other right holders, including Red Hat, Inc. and/or Novell, Inc. ("Right Holders") under such Right Holders' terms and conditions. IBM is not a party to the Right Holders' terms and conditions and installs any OSS 'AS IS'. Client and IBM agree that any modification or creation of derivative works of OSS is outside the scope of this SOW. IBM is not a distributor of OSS and does the work described in this SOW for Client upon Client's specification. Client receives no express or implied patent or other license from IBM with respect to any OSS. IBM makes no representations and disclaims all warranties with respect to any OSS, express or implied, including the implied warranties of merchantability and fitness for a particular purpose. IBM does not indemnify against any claim that OSS infringes a third party's intellectual property rights. UNDER NO CIRCUMSTANCES SHALL IBM BE LIABLE FOR ANY DAMAGES ARISING OUT OF THE USE OF OSS.

8.4 Employment of Assigned Personnel

Client understands and agrees:

a. This SOW will not affect the employment relationship that exists between IBM's assigned personnel and IBM during the applicable contract period. No IBM assigned personnel will be deemed for any purpose to be the agent, servant, employee, or Client's representative in the performance of his or her services hereunder.

b. IBM staffs Services on a national basis with either local or non-local resources based upon resource availability at Services enablement. At the start of Services and on an ongoing basis, our point of contacts will work together to mutually determine any on-site requirements of non-local perform resources. For on-site engagements spanning multiple weeks, the typical 40-hour work week of full time non-local resources normally consists of the resource traveling to Client's site(s) on Monday, returning to their home city at the end of the workday on Thursday and performing Services related activities remotely on Friday, as applicable. During weeks with a national holiday or during periods when a resource is not required to be on-site full time, both parties will work together to define an alternate full-time work schedule. Such alternate work schedule may include the resource performing applicable Services-related activities remotely.

Appendix A: Project Procedures

Project Change Control Procedure

A Project Change Request ("PCR") is used to document a change and the effect the change will have on the Services. Both parties will review the PCR and agree, in writing, to implement it, recommend it for further investigation, or reject it.

IBM will specify any charges for such investigation.

The requesting party will submit the PCR to the other party and Client agrees to notify its IBM Business Partner of any proposed changes. Client's IBM Business Partner will inform Client of any revised charges for proposed changes.

Escalation Procedure

Client and IBM will meet to resolve issues relating to the Services.

a. If an issue is not resolved within three (3) business days, Client's executive sponsor will meet with IBM's Services Specialist to resolve the issue.

b. If the conflict is resolved, the resolution will be addressed through the Project Change Control Procedure.

c. While a conflict is being resolved, IBM will provide Services relating to items not in dispute, to the extent practicable pending resolution of the conflict; Client agrees to pay invoices per this SOW.

Appendix B: Service Descriptions

IBM Security X-Force Incident Response Retainer

The services described herein are governed by the terms and conditions of the agreement specified in the Order Document for IBM Security Services (“Order Document”). If there is a conflict between the terms in the documents, the terms of the Order Document prevail over those of this document, and the terms of this document prevail over those of the agreement specified in the Order Document ("the Agreement").

Capitalized terms not otherwise defined in this document are defined in the Agreement, or any other referenced document, and have the same meaning in this document as ascribed to them therein.

9. IBM Security X-Force Incident Response Retainer

IBM X-Force Incident Response (IR) Retainer (called “Services”) are designed to provide resources to assist Client with computer security incidents or assist with emergency response preparation. IBM will provide resources to assist Client in preparing for, managing, and responding to computer security incidents, including steps for analysis, intelligence gathering, containment, eradication, recovery, and prevention. IBM will use existing, commercially available tools, as well as IBM proprietary tools, to perform Services.

IBM X-Force IR Retainer is sold in tiers, where each tier involves different levels of services commitments. Each tier includes a certain number of support hours (called “Purchased Retainer Hours) available to the Client for emergency incident support or consulting hours included annually for the contract term and depending on tier level selected by Client will also include additional services activities described herein. Services selected by the Client will be specified in the Order Document.

Also, certain tiers contain additional services and service commitments, in the form of Proactive Units. Clients can choose IBM to perform any of the following X-Force IR Retainer Proactive Services from the menu table below, however, each service will utilize a specific number of Proactive Units as reflected in the table below. In order to use X-Force IR Retainer Proactive Services, Clients must have contracted for the applicable number of Proactive Units where the available number of Proactive Units will be specified in the Order Document. Additional terms supporting X-Force IR Retainer Proactive Services will be presented as separate Services Descriptions.

Note: Purchased Retainer Hours and Proactive Units that are not used during the contract annually will expire.

X-Force IR Retainer Proactive Services Menu	Proactive Units	Document #
Incident Response Program Assessment	1	I126-8513
Cyber Threat Intelligence Program Assessment	1	I126-8514
Strategic Threat Assessment	1	I126-8025
Incident Response Playbook Customization	1	I126-8516
Tabletop Exercise	1	I126-8517
Cybersecurity Incident Response Plan – High Level Review	1	I126-8518
Dark Web Search Services	1	I126-8519
Security Incident First Responder Training	1	I126-8520
Cybersecurity Incident Response Plan – Full Development	4	I126-8521
Active Threat Assessment (up to 5000 endpoints)	4	I126-7516

Responsibilities matrix legend

The following responsibilities matrix describes the Services Activities to be provided and the responsibilities of IBM and Client. The below responsibilities are necessary for successful delivery of the Services and are assigned to the contracting parties, as follows:

O = Owner (Solely Responsible For)

P = Primary (Is Responsible, with assistance from Secondary)

S = Secondary (Participates or Assists, but is not responsible for)

9.1 Service Activity – X-Force IR Retainer Project Initiation

The purpose of this services activity is to review the processes for making a declaration for a cybersecurity incident that presents a real or a possible threat to Client's computer system and network environment ("Cybersecurity Incident Declaration"), review the menu of proactive services and to validate the Service schedule.

Responsibilities	IBM	Client
a. Facilitate a remote project initiation workshop, for up to two (2) hours, on a mutually agreed date and time;	P	S
b. Introduce the X-Force IR personnel that will provide Services;	O	
c. Confirm Client contacts authorized to utilize retainer hours (authorized incident declarers);	S	P
d. Define the process for making a Cybersecurity Incident Declaration and for exchanging security incident data in a secure manner;	O	
e. Review processes for responding to a Cybersecurity Incident Declaration and for exchanging security incident data in a secure manner;	O	
f. Review the menu of proactive services and process for scheduling services;	O	
g. Ensure and mandate appropriate Client personnel participation during Services and as required by IBM with responsibility ownership for the following areas: (1) various management levels with representative skills; and (2) identity and access ownership;	S	P
h. Document the Service schedule in a document entitled "Service Calendar".	O	

Completion Criteria: This service activity has been completed when IBM has conducted the project initiation workshop and delivered the Service Calendar to Client's Point of Contact.

9.1.2 Service Activity – Cybersecurity Incident Support

The purpose of this services activity is to provide cybersecurity response for each Cybersecurity Incident Declaration, based on the level of support (Tier1, Tier 2 or Tier 3) contracted by Client, with the corresponding response time and as specified in the Order Document. The following responsibilities are provided upon Client's request and for the charges specified in the Order Document.

Responsibilities	IBM	Client
a. Provide cybersecurity incident response 24 hours/day, 7 days/week for Cybersecurity Incident Declarations per the term of the Client's contract;	O	
b. Agree and acknowledge, that if additional physical location coverage is required outside of the country where the contract originates, a separate contract may be required;		O
c. Provide the IBM Services specialist with the names and telephone numbers (including after-hours contact information) of client's lead investigator, technical and management contact personnel (including backup personnel) who have authority to make Cybersecurity Incident Declarations and act upon suggestions and recommendations made by IBM;		O
d. Respond after receiving Client's call or e-mail for a Cybersecurity Incident Declaration, by: (1) schedule and host a triage conference call with Client's designated personnel to discuss the symptoms;	O	

	(2) if determined during the triage conference call, Client requires IBM to engage in on-site support of the incident, provide an estimate of the Purchased Retainer Hours and travel costs, if applicable, needed for response;	O	
	(3) help and advice for handling the Cybersecurity Incident Declaration, including:	O	
	(a) analysis of computer security incident data to determine the source of the incident, its cause, and effects; and	O	
	(b) analysis of volatile and non-volatile electronic evidence including, but not limited to computer disk images, memory images, log data, malware, or other system artifacts;	O	
	(4) provide advice and short-term recommendations to contain an incident and eradicate the threat actor from the impacted environment(s), including:	O	
	(a) short-term containment and eradication measures tailored to the incident and Client's environment based on findings gathered from analysis;	O	
	(b) guidance regarding benefits and operational risks associated with the recommended measures; and	O	
	(c) guidance on incident remediation planning and execution;	O	
	(5) provide advice and long-term recommendations for establishing broader security controls aimed at increasing cyber resiliency, incident response program efficiency, and preventing or mitigating the risk of similar attacks in the future; and	O	
	(6) prepare and provide an incident analysis report ("Incident Analysis Report") to Client's Point of Contact describing the cybersecurity incident, causes and effects, actions taken by IBM, and recommended future actions to mitigate risk;	O	
e.	Make appropriate personnel available during IBM's response to a Cybersecurity Incident Declaration to answer questions, obtain requested data, perform suggested actions, and similar items;		O
f.	Be responsible for executing and enforcing containment and remediation controls recommended by IBM;		O
g.	Provide copies of all configuration information, log files, intrusion detection events, and other data related to a Cybersecurity Incident Declaration and its analysis;		O
h.	Manage the collection and dissemination of information regarding a Cybersecurity Incident Declaration with Client's technical and managerial personnel, legal and public relations departments, others within Client's organization, and other companies, as applicable;		O
i.	Be responsible for, and facilitate all communications between IBM and any third-party vendors, including internet service providers and content-hosting firms used by Client to implement Client's internet presence;		O
j.	Provide supervised access to Client's computer systems and computer networks during the agreed upon times and days; and		O
k.	Provide an executive sponsor for Services to communicate management commitment to the project.		O

Completion Criteria: This service activity has is considered complete when IBM has delivered applicable Incident Analysis Reports to the Client Point of Contact.

9.1.3 Service Activity – Quarterly Incident Response (IR) Related Support and Status Update

The purpose of this services activity is to provide Client with ongoing IR related support, up-to-date threat trends, and status updates.

Responsibilities	IBM	Client
a. Provide a quarterly email to Client's Point of contact to review quarterly status, relevant events, service hours used and remaining, update service schedule, provide update on threat trends, and provide recommendations, if applicable; and	O	
b. Designate a Point of Contact, to whom all communications relative to the Quarterly Incident Related Support and Status Update will be addressed and who will have the authority to act on Client's behalf in all matters regarding this activity.		O

Completion Criteria: This service activity is considered complete when IBM has delivered the quarterly email to Client's Point of Contact.

9.1.4 Service Activity – Additional Retainer Hourly Support

The purpose of this services activity is to provide client ability to request additional hourly support as needed.

Responsibilities	IBM	Client
a. Submit a written request to IBM for Additional Retainer Hourly Support during a cybersecurity incident and/or as required for a proactive service;		O
b. In response to Client's written request, provide a recommendation as to how many additional retainer hours may be required to fulfill Client's written request;	O	
c. Provide additional cybersecurity incident and/or proactive services support beyond Client's contracted annual subscription hours limitation at the usage charge specified in the Order Document; and	O	
d. Be responsible for all charges associated with any additional cybersecurity incident and/or proactive services hourly support beyond the number of Purchased Retainer Hours specified in the Order Document.		O

9.2 Other Terms and Conditions – Limitation of IBM X-Force Incident Response Retainer

Client acknowledges and agrees that the following are not included as part of Services described herein:

a. services involving incidents of violence, injury to persons, or damage to or theft of tangible personal property;

b. services to identify a perpetrator, however, determining the source of network traffic or specific digital activity may be included in the Services;

c. investigatory interrogation;

d. communication on Client's behalf with any entity, such as law enforcement, the news media, or its customers;

e. any services requiring professional licensing of the service provider;

f. evidentiary chain of custody control or management, but IBM may adhere to Client's chain of custody procedures in performing its obligations hereunder, provided these are reviewed and agreed to by IBM prior to starting work;

g. legal counsel of any kind;

h. opinions as to the credibility of any person; or

i. any other related services which IBM, at its reasonable discretion, may at any time decline.

Consulting & System Integration – X-Force Incident Response and Intelligence Services – Vision Retainer

This Service Description describes the Service IBM provides to Client.

10 Service

IBM X-Force Incident Response and Intelligence Services (IRIS) Vision Retainer (called “Services”) are designed to provide resources to assist Client with computer security incidents or assist with emergency response preparation. IBM will provide resources to assist Client in preparing for, managing, and responding to computer security incidents, including steps for analysis, intelligence gathering, containment, eradication, recovery, and prevention. IBM will use existing, commercially available tools, as well as IBM proprietary tools, to perform Services.

IBM X-Force IRIS Vision Retainer is sold in tiers, where each tier involves different levels of services commitments. Each tier includes a certain number of support hours (called “Purchased Retainer Hours) available to the Client for emergency incident support or consulting hours included annually for the contract term and depending on tier level selected by Client will also include additional services activities described herein. Services selected by the Client will be specified in the Order Document.

Note: Purchased Retainer Hours that are not used during the Estimated Start and End dates specified in the Order Document will expire.

10.1 Service Activities – X-Force IRIS Project Initiation

The purpose of this activity is to review the processes for making a declaration for a computer security incident that presents a real or a possible threat to Client's computer system and network environment (“Emergency Incident Declaration”), and to validate the schedule.

IBM Responsibilities

IBM will:

a. facilitate an on-site or remote project initiation workshop, for up to one day (eight business hours), on a mutually agreed date and time;

b. introduce the X-Force IRIS management personnel that will be providing Services;

c. confirm Client's locations to be included for Services;

d. define the process for making an Emergency Incident Declaration, including establishing the designated telephone number(s) and e-mail address(es);

e. review processes for responding to an Emergency Incident Declaration and for exchanging security incident data in a secure manner;

f. document the Service schedule in a document entitled "Service Calendar"; and

g. have completed X-Force IRIS Project Initiation when IBM has conducted the project kickoff workshop and delivered the Service Calendar to Client's Point of Contact.

Client Responsibilities

Client will:

a. assign internal resources with appropriate level of skill and responsibility to act on Client’s behalf and to represent Client’s business interest as it pertains to security group, information technology, audit, risk, and operations management at Client’s facility during Services; and

b. ensure and mandate appropriate Client personnel participation during Services and as required by IBM with responsibility ownership for the following areas:

   (1) various management levels with representative skills; and

   (2) identity and access ownership.

10.2 Service Activities – Incident Program Assessment

Incident Program Assessment services are provided, if selected by the Client and specified in the Order Document.

IBM Responsibilities

At Client's request, and for the charges specified in the Order Document, IBM will:

a. conduct a review of existing Incident Response program documentation;

b. identify five critical stakeholders to conduct a one-hour telephonic interview to provide greater depth on the existing IR program documentation;

c. collate the interview and written documentation and map into a written deliverable (called the "Incident Program Assessment final presentation") containing a one-year roadmap mapped to maturing the program by identifying milestones to serve as future goals; and

d. have completed Incident Program Assessment when IBM has delivered the Incident Program Assessment final presentation to Client's Point of Contact.

Client Responsibilities

Client will:

a. provide IBM the documentation requested for review within five (5) business days from the initial request;

b. work with IBM to identify stakeholders needed for interview requests;

c. ensure stakeholders respond within a timely manner to schedule interviews at earliest possible request; and

d. ensure executive stakeholders are available to participate in the final briefing for IR Program Assessment deliverable.

10.3 Service Activities – Incident Response (IR) Playbook Customization

IR Playbook Customization services are provided, if selected by the Client and specified in the Order Document.

IBM Responsibilities

At Client's request, and for the charges specified in the Order Document, IBM will:

a. provide Client with number of IR Playbook Customizations identified in the Order Document for the contract term;

b. conduct a review of existing documented Incident Response playbooks;

c. upon review, work closely with Client to determine whether the existing playbooks represent the five highest priority incidents to potentially occur within the environment;

d. edit the existing playbooks and/or create new playbooks targeted towards the top five highest priority incidents to potentially occur within the environment; and

e. have completed IR Playbook Customization when IBM has delivered the number of IR Playbooks as specified in the Order Document to Client's Point of Contact.

Client Responsibilities

Client will:

a. provide IBM the documentation requested within five business days of the initial request; and

b. for subsequent requests, provide IBM the documentation requested within a twenty-four (24) hour timeframe.

10.4 Service Activities – Incident Response Tabletop Exercise

Incident Response Tabletop Exercise services are provided, if selected by the Client and specified in the Order Document.

IBM Responsibilities

At Client's request, and for the charges specified in the Order Document, IBM will:

a. provide Client with number of Incident Response Tabletop Exercises identified in the Order Document for the contract term;

b. conduct a targeted attack simulation for up to six (6) hours to provide first responder and executive training, for up to twenty (20) attendees;

c. work remotely and/or onsite with Client's key members to develop a computer security incident simulation exercise that will test Client's computer security incident response plan and procedures, with focus on the areas that may need to be updated or improved;

d. conduct and supervise the incident simulation exercise on-site for up to six (6) hours at Client's location, paying particular attention to:

   (1) how Client's team properly triage the incident;

   (2) how well the members of Client's computer security incident response teamwork with each other;

   (3) how well Client's computer security incident response team performs in the five phases of incident response (analysis, containment, eradication, recovery, and prevention);

   (4) how well Client's team interfaces with external entities (Internet service providers, administrators of other sites, other response teams, law enforcement entities, etc.); and

   (5) how well Client's team communicates with customers, external users, employees, and the public media;

e. document findings and recommendations in a written deliverable (called "Incident Response Tabletop Exercise Report");

f. discuss findings, for up to two (2) hours, via conference call with Client's computer security incident response team; and

g. have completed Incident Response Tabletop Exercise when IBM has conducted the conference call and delivered the Incident Response Tabletop Exercise Report to Client's Point of Contact.

Client Responsibilities

Client will:

a. provide IBM the documentation requested for review within five (5) business days from the initial request;

b. work with IBM to identify stakeholders needed for interview requests and workshop attendance;

c. ensure stakeholders respond within a timely manner to schedule interviews at earliest possible request; and

d. ensure executive stakeholders and security incident response team are available to participate in the final briefing.

10.5 Service Activities - Emergency Incident Support

The purpose of this activity is to provide emergency response for each Emergency Incident Declaration.

IBM Responsibilities

At Client's request, and for the charges specified in the Order Document, IBM will:

a. provide emergency response 24 hours/day, 7 days/week for Emergency Incident Declarations per the term of Client's contract. Such response will utilize included subscription hours for on-site and/or remote support for the designated physical locations as specified in the Order Document. If additional physical location coverage is required in response to an incident, additional charges may apply;

b. host a conference call with Client's designated personnel to discuss the symptoms Client is observing, actions taken and similar items within approximately 4 hours after receiving Client's call or e-mail for an Emergency Incident Declaration;

c. provide an estimate of hours and costs with ‘best efforts’ availability for response, if it is determined from the call that Client requires IBM to engage in support of the incident;

d. help and advice, if possible, for handling the Emergency Incident Declaration including:

   (1) analysis of computer security incident data to determine the source of the incident, its cause, and its effects;

   (2) preventing the effects of the computer security incident from spreading to other computer systems and networks;

   (3) stopping the computer security incident at its source and/or protecting Client's computer systems and networks from the effects of the computer security incident;

   (4) recommendations for restoration of the affected computer systems and networks to normal operation; and

   (5) suggesting protection methods for Client's computer systems and networks from future occurrences of the computer security incident.

e. prepare and provide an incident analysis report (“Incident Analysis Report”) to Client's Point of Contact describing the computer security incident, causes and effects, actions taken by IBM, and recommended future actions to mitigate risk; and

f. have completed Emergency Incident Support when IBM has delivered any Incident Analysis Reports, as applicable and provided the Purchased Subscription Hours or the contract end date has been reached.

Client Responsibilities

Client will:

a. agree and acknowledge:

   (1) that Client may not make an Emergency Incident Declaration until after the project kickoff session has been conducted;

   (2) that Client's additional locations, or locations not specified in the Order Document, must be contracted for separately;

   (3) that one IBM consultant will be assigned for remote and/or on-site Emergency Incident Declaration response to the declared physical location. Additional IBM consultants must be contracted for separately and are subject to availability; and

   (4) that if IBM discovers what it considers, in its sole discretion, to be inappropriate content during the performance of Services, IBM has the authority to report such information to law enforcement. Examples of what IBM would consider inappropriate content includes, but is not limited to, content or activity that involves obscene, pornographic, or violent material.

b. provide the IBM Services specialist with the names and telephone numbers (including after-hours telephone or pager numbers) of Client's lead investigator, technical and management contact personnel (including backup personnel) who have the authority to make Emergency Incident Declarations and act upon suggestions and recommendations made by IBM;

c. make appropriate personnel available during IBM’s response to an Emergency Incident Declaration to answer questions, obtain requested data, perform suggested actions, and similar items;

d. provide copies of all configuration information, log files, intrusion detection events, and other data related to an Emergency Incident Declaration and its analysis;

e. manage the collection and dissemination of information regarding an Emergency Incident Declaration with Client's technical and managerial personnel, legal and public relations departments, others within Client's organization, and other companies as applicable;

f. be responsible for and facilitate all communications between IBM and any third-party vendors, including Internet service providers and content-hosting firms used by Client to implement Client's Internet presence;

g. provide supervised access to Client's computer systems and computer networks during the agreed upon times and days;

h. provide an executive sponsor for Services to communicate management commitment to the project; and

i. be responsible for all charges associated with any additional Emergency Incident Declarations Client makes during the term of Client's contract.

10.6 Service Activities - Quarterly Incident Response (IR) Related Support and Status Update

The purpose of this activity is to provide Client with ongoing IR related support, up-to-date threat trends, and status updates.

IBM Responsibilities

IBM will:

a. provide a checkup via remote teleconference for up to two (2) hours to review quarterly status, relevant events, service hours utilized and remaining, update service schedule, provide update on threat trends, ensure Client's incident response readiness, and provide recommendations if appropriate;

b. document result of each telephone support and discussion of the checkup teleconference in a quarterly status report ("Quarterly Status Report"); and

c. have completed Quarterly Incident Response Related Support and Status Update when IBM has, per the service calendar, delivered the Quarterly Status Report to Client's Point of Contact and provided the Purchased Subscription Hours or the contract end date has been reached.

Client Responsibilities

Client will designate a Point of Contact, to whom all communications relative to the Quarterly Incident Related Support and Status Update will be addressed and who will have the authority to act on Client's behalf in all matters regarding this activity.

10.7 Service Activities - IBM X-Force® Hosted Threat Analysis Service

IBM X-Force Hosted® Threat Analysis Services are provided, if selected by the Client and specified in the Order Document.

The IBM X-Force® Hosted Threat Analysis Service is a security intelligence service that is designed to deliver customized information about a variety of threats that could affect Client's network security.

The managed security services portal (called "Portal") provides Client with access to an environment (and associated tools) designed to monitor and manage Client's security posture by merging technology and service data from multiple vendors and geographies into a common, Web-based interface.

The Portal may also be used to deliver Education Materials. All such Education Materials are licensed not sold and remain the exclusive property of IBM. IBM grants Client a license in accordance with the terms provided in the Portal. EDUCATION MATERIALS ARE PROVIDED "AS IS" AND WITHOUT WARRANTY OR INDEMNITY OF ANY KIND BY IBM, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT OF PROPRIETARY AND INTELLECTUAL PROPERTY RIGHTS.

IBM Responsibilities

At Client's request, and for the charges specified in the Order Document, IBM will:

a. provide Client with number of X-Force Hosted Threat Analysis Service seats identified in the Order Document for the contract term;

b. enable Client to access the Portal, and will work with Client to activate Services during deployment and initiation;

c. provide access to the Portal 24 hours/day, 7 days/week;

d. request one name and e-mail address for each seat purchased;

e. enable Services access for each seat purchased;

f. provide access to Education Materials in accordance with the terms provided in the Portal;

g. send each licensed Services user a welcome e-mail with a user ID and temporary password to the Portal;

h. provide Client with access to the X-Force® Hosted Threat Analysis Service;

i. provide Client with a username, password, URL, and appropriate permissions to access the Portal;

j. display security information on the Portal as it becomes available;

k. if configured by Client, provide security intelligence specific to Client's defined vulnerability watch list, via the Portal;

l. if configured by Client, provide an Internet security assessment e-mail each business day;

m. publish an Internet AlertCon via the Portal;

n. provide Portal feature functionality for Client to create and maintain a vulnerability watch list;

o. provide additional information about an alert, advisory, or other significant security issue as IBM deems necessary;

p. provide access to the Threat IQ via the Portal; and

q. have completed IBM X-Force® Hosted Threat Analysis Service when IBM has provided Client with the number of X-Force Hosted Threat Analysis Service seats specified and provided the Purchased Subscription Hours or the contract end date has been reached.

Client Responsibilities

Client will:

a. utilize the Portal to perform daily operational Services activities;

b. ensure Client's employees accessing the Portal on Client's behalf comply with the terms of use, provided therein including, but not limited to, the terms associated with educational materials;

c. appropriately safeguard Client's login credentials to the Portal (including not disclosing such credentials to any unauthorized individuals);

d. promptly notify IBM if a compromise of Client's login credentials is suspected;

e. indemnify and hold IBM harmless for any losses incurred by Client or other parties resulting from Client's failure to safeguard Client's login credentials;

f. provide IBM with one name and e-mail address for each subscription purchased;

g. change Client's temporary password upon first login to the Portal;

h. agree to adhere to an individual license which entitles a single person in an organization to login to the IBM Managed Security Services (“IBM MSS”) portal (called “Portal”) and customize the delivery of Services content. This person is entitled to view information in the Portal and to receive e-mail notifications configured in the Portal. The individual is not authorized to share or distribute Services information. Although an organization can transfer an individual license from one person to another if needed, an individual license cannot be shared with other individuals who do not have a proper license; and

i. use the Portal to:

   (1) subscribe to the daily Internet security assessment e-mail, if desired;

   (2) create a vulnerability watch list, if desired; and

   (3) access the Threat IQ.

10.8 Other Terms and Conditions – Limitation of IBM X-Force IRIS Vision Retainer

Client acknowledges and agrees that the following are not included as part of Services described herein:

a. Services involving incidents of violence, injury to persons, or damage to or theft of tangible personal property;

b. Services to identify a perpetrator; however, determining the source of network traffic or specific digital activity may be included in Services;

c. investigatory interrogation;

d. testifying in judicial or administrative proceedings;

e. communication on Client's behalf with any entity, such as law enforcement, the news media, or its customers;

f. any services requiring professional licensing of the service provider;

g. evidentiary chain of custody control or management, but IBM may adhere to Client's chain of custody procedures in performing its obligations hereunder, provided these are reviewed and agreed to by IBM prior to starting work;

h. legal counsel of any kind;

i. opinions as to the credibility of any person; or

j. any other related services which IBM, at its reasonable discretion, may at any time decline.

Supported Locations (US)

Supported Location for Incident Response (US State or Country)	Comments
Massachusetts	Services performed on systems located in Massachusetts will be performed by IBM personnel. Per the Certification Unit, Massachusetts State Police, applicable state law may be interpreted to require computer forensics identifying a specific party to be performed by a licensed party. Additional rates for IBM managed Subcontractor may apply.
Maryland	Services performed on systems located in Maryland will be performed by IBM personnel. Please note that as of date of this SOW, applicable state law may be interpreted to require computer forensics identifying a specific party to be performed by a licensed party. Additional rates for IBM managed Subcontractor may apply.
Texas	As of the date of this SOW, the Texas Private Security Bureau interprets applicable state law, and state law explicitly requires, computer forensics to be performed by a licensed investigator. Services performed on systems located in Texas will be performed by a licensed subcontractor. Additional rates for IBM managed Subcontractor may apply.
Michigan	As of the date of this SOW, applicable state law explicitly requires computer forensics to be performed by a licensed investigator, where such forensics are to be used as evidence before a court, board, officer, or investigating committee. Services performed on systems located in Michigan will be performed by licensed IBM personnel, as required.
South Carolina	As of the date of this SOW, the Office of the Attorney General and the South Carolina Law Enforcement Division interpret applicable state law to require computer forensics to be performed by a licensed investigator. Services performed on systems located in South Carolina will be performed by licensed subcontractor. Additional rates for IBM managed Subcontractor may apply.
Nevada	As of the date of this SOW, applicable state law explicitly requires computer forensics to be performed by a licensed investigator. Services performed on systems located in Nevada will be performed by a licensed subcontractor. Additional rates for IBM managed Subcontractor may apply.
Kentucky	As of the date of this SOW, the Kentucky Board of Licensure for Private Investigators interprets applicable state law to require computer forensics to be performed by a licensed investigator. Services performed on systems located in Kentucky will be

	performed by a licensed subcontractor Additional rates for IBM managed Subcontractor may apply.
Georgia	As of the date of this SOW, the Office of the Secretary of State and the Georgia Board of Private Detective and Security Agencies interpret applicable state law to require computer forensics to be performed by a licensed investigator. Services performed on systems located in Georgia will be performed by a licensed subcontractor. Additional rates for IBM managed Subcontractor may apply.
All other US States	Onsite Incident Response

Appendix C: Deliverable Guidelines

C – 1: Terms

a. Any deliverables marked with an asterisk (*) are exempt from the Deliverable Acceptance Procedure and will be considered accepted by Client upon delivery to the Client Point of Contact.

b. In the event a deliverable is inadvertently omitted from the list above, IBM will notify Client of the identity and the appropriate designation of the deliverable through the Project Change Control Procedure.

C – 2: Definitions

Project Materials - works of authorship IBM develops for Client under this document and Client will own the copyright in Project Materials. IBM retains an irrevocable, nonexclusive, worldwide, paid-up license to use, execute, reproduce, display, perform, sublicense, distribute, and prepare derivative works of Project Materials.

Existing Works - works of authorship delivered to Client, but not created under this document, and any modifications or enhancements of such works. IBM grants Client an irrevocable (subject to Client's payment obligations), nonexclusive, worldwide license to use, execute, reproduce, display, perform and prepare derivatives of Existing Works.

Order Document

Security Services

This Statement of Work ("SOW") is governed by the terms and conditions of the Texas Department of Information Resources Contract Number DIR-CPO-4942 ("Agreement"), effective through January 04, 2026 (the "Contract Expiration Date"), between the State of Texas, on behalf of itself and its Affiliates, and International Business Machines Corporation a New York corporation, with offices at 1 New Orchard Road, Armonk, New York 10504 ("Vendor").

By signing this Order Document, Client is ordering the Services as specified in this Order Document, the applicable Service Description(s) and Agreement between the Client and IBM.

Capitalized terms not otherwise defined in this document are defined in the Agreement or any other referenced document and have the same meaning in this document as ascribed to them therein.

Client Information: Company Name: CITY OF DENTON Company Address: ACCOUNTS PAYABLE 215 E MCKINNEY ST Denton, TX 76201 US	**IBM Information:** Address: IBM Corporation 6303 Barfield Road Atlanta, GA 30328
Client's Point of Contact: Contact Name: Leisha Meine Telephone: 940-349-7823 E-mail: leisha.meine@cityofdenton.com	**IBM Contact:** Contact Name: Rob Koehler Telephone: (505) 417-7689 E-mail: rob.koehler@ibm.com
Client's delivery location (if different from above): Company Name: City of Denton Company Address: 601 E Hickory Street, Suite A Denton, TX 76205-4303 , Telephone: 940-349-7823 Contact E-mail: leisha.meine@cityofdenton.com	**Invoicing Information (if different from Client):** Company Name: Invoicing Address: ACCOUNTS PAYABLE 215 E MCKINNEY ST Denton, TX 76201 US Invoice Contact Person: Leisha Meine Invoice Contact E-mail: leisha.meine@cityofdenton.com Client identification number: DC3Y4QBP Contract Number: CFTK0LS
Agreement: IBM Client Relationship Agreement Document number: Z126-6548-US-XX	**Confidentiality Agreement: Agreement for Exchange of Confidential Information ("AECI")** Document number: Z125-4322-XX
The above agreement document(s) can be found at: IBM Terms Select region and the applicable country to access documents. If any documents are not accessible, please request a copy from Client's IBM sales contact.	
Offer Expiration Date: 05/31/24	**Order Document Effective Date:** 04/01/24 The date on this Order Document when signed by the last party. Revised Order Document: (Yes or No): ____ Order Document Transaction number: (if applicable)

Offer Expiration Date is defined as the date after which the terms and conditions offered in this Order Document are no longer valid.

Services will be provided to Client in accordance with the terms and conditions of this Order Document and its incorporated documents, including the Services Descriptions.

Unless otherwise expressly stated in this Order Document or in a document incorporated by reference, Services do not include hardware or software content, or maintenance subscriptions.

Client understands and acknowledges that IBM is permitted to use global resources (non-permanent residents used locally and personnel in locations worldwide) for delivery of Services.

1. Consulting and System Integration Services

Consulting and System Integration Services ("C&SI") are comprised of two parts; 1) the terms and conditions detailed in the selected Services Descriptions, and 2) the Security Services Statement of Work for Services ("SOW") document number: I126-6954. The SOW is an integral part of each Services Description.

The terms of the SOW prevail over those of the Agreement; the terms of the applicable Services Description(s) prevail over those of the SOW; and the terms of this Order Document prevail over all documents.

Normal business hours are defined as 8:00 a.m. to 5:00 p.m. through in Client's time zone, except national holidays, unless otherwise specified.

1.1 C&SI Estimated Schedule

C&SI Services will begin on the start date of the first service activity and continue through the end date of the last service activity specified in the Consulting & System Integration - Selectable Feature Summary table, above ("the Estimated Schedule").

If the Order Document signature date is beyond Estimated Start Date(s), Estimated Start Date(s) will automatically be extended to the date of the last signature on this Order Document and Estimated End Date(s) will automatically be extended by the same number of days.

1.2 C&SI Payment Terms

1.2.1 Fixed Price

The charges for the C&SI Services, exclusive of applicable taxes and travel expenses, are detailed above. Unless otherwise stated herein, Services charges are based upon a contiguous work schedule. Delays in the work schedule are subject to the Project Change Control Procedure detailed in the SOW and may result in an increase in charges.

1.3 C&SI Summary of Charges

1.3.1 SKU Based C&SI Table

SKU #	Product Description	Quantity	Selling Frequency	Selling Term	Total Charge
XF-RETAINER-T2-S	X-Force Incident Response Retainer - Tier 2	1.00	Monthly	12.00	90,000.00

Client will be invoiced monthly in advance for C&SI Charges.

1.4 Ongoing Support Services Transition

Ongoing support (called "Steady State") is initiated once is complete and IBM has the necessary environment details, tools, access, processes, and procedures to provide Managed Security Services ("MSS"). MSS will begin on the day following completion of the "Transition to Managed Security Services" event listed on the C&SI Payment Schedule, above ("the Contract Period Start Date").

2. Security Service Summary of Charges

Total Security Services Charges	
C&SI Total Services Charges	90,000.00
Security Services Grand Total	90,000.00

3. Additional Terms and Conditions

3.1 Regulatory Services

IBM does not operate as a provider of services regulated by the Federal Communications Commission ("FCC") or state regulatory authorities ("State Regulators") and does not intend to provide any services which are regulated by the FCC or State Regulators. If the FCC or any State Regulator imposes regulatory requirements or obligations on any services provided by IBM hereunder, IBM may: (a) modify, replace, or substitute products at Customer's expense, and/or (b) change the way in which such services are provided to Client to avoid the application of such requirements or obligations to IBM (for example, by acting as Client's agent for acquiring such services from a third party common carrier).

3.2 Disclaimer

Client understands and agrees:

a. that Products and Services are not warranted to operate uninterrupted or error free;

b. that Products and Services are not fault tolerant and are not designed or intended for use in hazardous environments requiring fail-safe operation, including without limitation aircraft navigation, air traffic control systems, weapon systems, life support systems, nuclear facilities, or any other applications in which Product or Services failure could lead to death, personal injury, or property damage;

c. that it is solely within Client's discretion to use or not use any of the information provided pursuant to the Services hereunder. Accordingly, IBM will not be liable for any actions that Client takes or chooses not to take based on the Services performed and/or deliverables provided hereunder;

d. that it is Client's sole responsibility to provide appropriate and adequate security for the company, its assets, systems, and employees;

e. that it is Client's responsibility to add the IP addresses associated with the testers to any filtering devices, thereby permitting unfiltered network access to the target systems;

f. not to modify the configurations of any in-scope systems and infrastructure devices during the period of testing; and

g. that new technology, configuration changes, software upgrades and routine maintenance, among other items, can create new and unknown security exposures. Moreover, computer "hackers" and other third parties continue to employ increasingly sophisticated techniques and tools, resulting in ever-growing challenges to individual computer system security. IBM's performance of the Services does not constitute any representation or warranty by IBM about the security of Client's computer systems including, but not limited to, any representation that Client's computer systems are safe from intrusions, viruses, or any other security exposures. IBM does not make any warranty, express or implied, or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information provided as part of the Services.

3.3 Permission to Perform Testing

Certain laws prohibit any unauthorized attempt to penetrate or access computer systems. Client authorizes IBM to perform the Services as described herein and acknowledge that the Services constitute authorized access to Client's computer systems. IBM may disclose this grant of authority to a third party if deemed necessary to perform the Services.

The Services that IBM performs entail certain risks and Client agrees to accept all risks associated with such Services; provided, however, that this does not limit IBM's obligation to perform the Services. Client acknowledges and agrees to the following:

a. excessive amounts of log messages may be generated, resulting in excessive log file disk space consumption;

b. the performance and throughput of Client's systems, as well as the performance and throughput of associated routers and firewalls, may be temporarily degraded;

c. some data may be changed temporarily as a result of probing vulnerabilities;

d. Client's computer systems may hang or crash, resulting in system failure or temporary system unavailability;

e. any service level agreement rights or remedies will be waived during any testing activity;

f. a scan may trigger alarms by intrusion detection systems;

g. some aspects of the Services may involve intercepting the traffic of the monitored network for the purpose of looking for events; and

h. new security threats are constantly evolving, and no service designed to provide protection from security threats will be able to make network resources invulnerable from such security threats or ensure that such service has identified all risks, exposures, and vulnerabilities.

3.4 Systems owned by a Third Party

For systems (which for purposes of this provision includes but is not limited to applications and IP addresses) owned by a third party that will be the subject of testing hereunder, Client agrees:

a. that prior to IBM initiating testing on a third-party system, Client will obtain a signed letter from the owner of each system authorizing IBM to provide the Services on that system, and indicating the owner's acceptance of the conditions set forth in the section entitled “Permission to Perform Testing” and to provide IBM with a copy of such authorization;

b. to be solely responsible for communicating any risks, exposures, and vulnerabilities identified on these systems by IBM’s remote testing to the system owner, and

c. to arrange for and facilitate the exchange of information between the system owner and IBM as deemed necessary by IBM.

Client agrees:

d. to inform IBM immediately whenever there is a change in ownership of any system that is the subject of the testing hereunder;

e. not to disclose the deliverables, or the fact that IBM performed the Services, outside Client's Enterprise without IBM’s prior written consent; and

f. to indemnify IBM in full for any losses or liability IBM incurs due to third party claims arising out of Client's failure to comply with the requirements of this section entitled, "Systems Owned by a Third Party" and for any third party subpoenas or claims brought against IBM or IBM’s subcontractors or agents arising out of (a) testing the security risks, exposures or vulnerabilities of the systems that are the subject of testing hereunder, (b) providing the results of such testing to Client, or (c) Client's use or disclosure of such results.

3.5 Security Data

As part of Service, that includes reporting activities, IBM will prepare and maintain de-identified and/or aggregate information collected from Services (called "Security Data"). The Security Data will not identify the Client, or an individual except as provided in (d) below. Client herein additionally agrees that IBM may use and/or copy the Security Data only for the following purposes:

a. publishing and/or distributing the Security Data (e.g., in compilations and/or analyses related to cybersecurity);

b. developing or enhancing products or services;

c. conducting research internally or with third parties; and

d. lawful sharing of confirmed third party perpetrator information.

4. Travel and Living Expenses

If travel is required, Client is responsible for all reasonable travel and living expenses, which would include actual transportation and lodging, per diem meal expenses and other reasonable and necessary charges associated with such travel and living expenses (e.g., luggage charges) incurred by IBM’s personnel during the performance of the Services. Travel and living expenses are in addition to the

above charges and are currently estimated at 20-25% of the total Services charge. Travel and living expenses will be invoiced monthly after they are incurred.

5. Taxes and Payment

Client agrees to adhere to the taxes and payment terms of the Agreement.

Amounts are due upon receipt of the invoice and payable within 30.00 days of the invoice date to an account specified by IBM.

Late payment fees may apply.

6. Billing for Online Orders

Based upon Client's selected payment method, IBM will bill such charges each month by sending Client an invoice or, where available bill Client's credit card on file. IBM will add any custom, duty, tax (including withholding tax), levy or fee imposed by any authority resulting from Client's purchase or use of this Service.

Where applicable, taxes are based upon the location(s) Client identifies as receiving benefit of the Services. IBM will apply taxes based upon the business address listed for the account as the primary benefit location unless Client provides additional information to IBM. Client is responsible for keeping such information current and providing any changes to IBM.

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, A TEXAS HOME-RULE MUNICIPAL CORPORATION, AUTHORIZING THE CITY MANAGER TO EXECUTE A CONTRACT WITH INTERNATIONAL BUSINESS MACHINES CORPORATION, THROUGH THE DEPARTMENT OF INFORMATION RESOURCES (DIR) COOPERATIVE CONTRACT NO. DIR-CPO-4942, FOR CYBER SECURITY SERVICES FOR THE TECHNOLOGY SERVICES DEPARTMENT; PROVIDING FOR THE EXPENDITURE OF FUNDS THEREFOR; AND PROVIDING AN EFFECTIVE DATE (FILE 8550 – AWARDED TO INTERNATIONAL BUSINESS MACHINES CORPORATION, IN THE NOT-TO-EXCEED AMOUNT OF $90,000.00).

WHEREAS, pursuant to Ordinance 20-196, the Texas Department of Information Resources Cooperative Contracts Program has solicited, received, and tabulated competitive bids for the purchase of necessary materials, equipment, supplies, or services in accordance with the procedures of state law and city ordinances; and

WHEREAS, the City Manager, or a designated employee, has reviewed and recommended that the herein described materials, equipment, supplies or services can be purchased by the City through the Texas Department of Information Resources Cooperative Contracts Program at less cost than the City would expend if bidding these items individually; and

WHEREAS, this procurement was undertaken as part of the City's governmental function; and

WHEREAS, the City Council has provided in the City Budget for the appropriation of funds to be used for the purchase of the materials, equipment, supplies, or services approved and accepted herein; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The numbered items in the following numbered purchase order for materials, equipment, supplies, or services, shown in the "File Number" listed hereon, and on file in the office of the Purchasing Agent, are hereby approved:

FILE NUMBER	VENDOR	AMOUNT
8550	International Business Machines Corporation	$90,000.00

SECTION 2. By the acceptance and approval of the above numbered items set forth in the referenced file number, the City accepts the offer of the persons submitting the bids to the Texas Department of Information Resources Cooperative Contracts Program for such items and agrees to purchase the materials, equipment, supplies, or services in accordance with the terms, conditions, specifications, standards, quantities, and for the specified sums contained in the bid documents, and related documents filed with the Texas Department of Information Resources Cooperative

Contracts Program, and the purchase orders issued by the City.

SECTION 3. Should the City and persons submitting approved and accepted items set forth in the referenced file number wish to enter into a formal written agreement as a result of the City's ratification of bids awarded by Texas Department of Information Resources Cooperative Contracts Program, the City Manager, or their designated representative, is hereby authorized to execute the written contract which shall be referenced herein; provided that the written contract is in accordance with the terms, conditions, specifications, and standards contained in the Proposal submitted to the Texas Department of Information Resources Cooperative Contracts Program and related documents herein approved and accepted.

SECTION 4. By the acceptance and approval of the above enumerated bids, the City Council hereby authorizes the expenditure of funds therefor in the amount and in accordance with the approved bids.

SECTION 5. This ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____. The ordinance was passed and approved by the following vote [___ - ___]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: _ Marcella Lunn

Digitally signed by Marcella Lunn
DN: dc=com, dc=cityofdenton, dc=codad, ou=Department Users and Groups, ou=General Government, ou=Legal, cn=Marcella Lunn, email=Marcella.Lunn@cityofdenton.com
Date: 2024.04.02 16:00:32 -05'00'

File #: ID 24-1075, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a Professional Services Agreement with Binkley & Barfield, Inc., for design services for Neighborhood 5A for the Capital Projects Department as set forth in the contract; providing for the expenditure of funds therefor; and providing an effective date (RFQ 7599-019 - Professional Services Agreement for design services awarded to Binkley & Barfield, Inc., in the not-to-exceed amount of $1,355,840.00). The Public Utilities Board recommends approval (4 - 0).

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Procurement

ACM: Cassey Ogden

DATE: June 4, 2024

SUBJECT

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a Professional Services Agreement with Binkley & Barfield, Inc., for design services for Neighborhood 5A for the Capital Projects Department as set forth in the contract; providing for the expenditure of funds therefor; and providing an effective date (RFQ 7599-019 – Professional Services Agreement for design services awarded to Binkley & Barfield, Inc., in the not-to-exceed amount of $1,355,840.00). The Public Utilities Board recommends approval (4 - 0).

STRATEGIC ALIGNMENT

This action supports Key Focus Area: Enhance Infrastructure and Mobility.

INFORMATION/BACKGROUND

Neighborhood 5A contains 48 street segments associated with the 2019 Street Reconstruction Bond Program. The project scope includes approximately 21,000 linear feet of street reconstruction, 11,000 linear feet of water distribution main replacement, 15,400 linear feet of wastewater collection main replacement, various sidewalk improvements, and a photometric study. The Capital Projects Department is using a comprehensive approach aimed at limiting future construction disruptions by replacing other aging public infrastructure within the limits of the project area and enhancing coordination during the delivery of the 2019 Bond Program. Neighborhood 5A will be advertised as a competitive sealed proposal to consider the price and qualifications when selecting prospective contractors.

Statements of qualifications, including current availability and workload, were evaluated from the City's prequalified list of engineers to select a design firm for the project. Upon ranking the received information, staff found Binkley & Barfield, Inc. was the most qualified and had available staff to fulfill the project. Based on Binkley & Barfield, Inc.'s knowledge, project team experience, and availability, staff has selected Binkley & Barfield, Inc. as the best choice for Neighborhood 5A.

Request for Qualifications for professional engineering services was solicited using the City's formal solicitation process. City Council approved a pre-qualified list of engineering firms on May 18, 2021 (Ordinance 21-894).

PRIOR ACTION/REVIEW (COUNCIL, BOARDS, COMMISSIONS)

On May 18, 2021, City Council approved RFQ 7599 for a prequalified list of professional engineering firms (Ordinance 21-894).

On May 20, 2024, the Public Utilities Board (PUB) recommended this item to the City Council for consideration.

RECOMMENDATION

Award a contract with Binkley & Barfield, Inc., for design services for Neighborhood 5A for the Capital Projects Department, in a not-to-exceed amount of $1,355,840.

PRINCIPAL PLACE OF BUSINESS

Binkley & Barfield, Inc.
Richardson, TX

ESTIMATED SCHEDULE OF PROJECT

This project will be started upon approval with an estimated design schedule of nine (9) months.

FISCAL INFORMATION

These services will be funded from a combination of the following accounts:

2019 Bond Neighborhood 5A - Bond	350558473	$736,997.75
2019 Bond Neighborhood 5A - Water	630535523	214,227.26
2019 Bond Neighborhood 5A - Wastewater	640517545	304,614.99
2019 Bond Neighborhood 5A - Sidewalks	350561473	10,000.00
DME	605494500	90,000.00
Total:		**$1,355,840.00**

Requisition #164615 has been entered into the Purchasing software system in the amount of $1,355,840. The budgeted amount for this item is $1,355,840.

EXHIBITS

Exhibit 1: Agenda Information Sheet
Exhibit 2: Ordinance and Contract

Respectfully submitted:
Lori Hewell, 940-349-7100
Purchasing Manager

For information concerning this acquisition, contact: Taylor Holt, 940-349-7324.

Legal point of contact: Marcella Lunn at 940-349-8333.

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, A TEXAS HOME-RULE MUNICIPAL CORPORATION, AUTHORIZING THE CITY MANAGER TO EXECUTE A PROFESSIONAL SERVICES AGREEMENT WITH BINKLEY & BARFIELD, INC., FOR DESIGN SERVICES FOR NEIGHBORHOOD 5A FOR THE CAPITAL PROJECTS DEPARTMENT AS SET FORTH IN THE CONTRACT; PROVIDING FOR THE EXPENDITURE OF FUNDS THEREFOR; AND PROVIDING AN EFFECTIVE DATE (RFQ 7599-019 – PROFESSIONAL SERVICES AGREEMENT FOR DESIGN SERVICES AWARDED TO BINKLEY & BARFIELD, INC., IN THE NOT-TO-EXCEED AMOUNT OF $1,355,840.00).

WHEREAS, on May 18, 2021, the City Council approved a pre-qualified professional engineering list (Ordinance 21-894); and

WHEREAS, the professional services provider (the "Provider) mentioned in this ordinance is being selected as the most highly qualified on the basis of its demonstrated competence and qualifications to perform the proposed professional services; and

WHEREAS, this procurement was undertaken as part of the City's governmental function; and

WHEREAS, the fees under the proposed contract are fair and reasonable and are consistent with, and not higher than, the recommended practices and fees published by the professional associations applicable to the Provider's profession, and such fees do not exceed the maximum provided by law; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The City Manager, or their designee, is hereby authorized to enter into an agreement with Binkley & Barfield, Inc., for design services for Neighborhood 5A for the Capital Projects Department, a copy of which is attached hereto and incorporated by reference herein.

SECTION 2. The City Manager, or their designee, is authorized to expend funds as required by the attached contract.

SECTION 3. The City Council of the City of Denton hereby expressly delegates the authority to take any actions that may be required or permitted to be performed by the City of Denton under this ordinance to the City Manager of the City of Denton, or their designee.

SECTION 4. The findings in the preamble of this ordinance are incorporated herein by reference.

SECTION 5. This ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____. This ordinance was passed and approved by the following vote [___ - ___]:

	Aye	Nay	Abstain	Absent
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Marcella Lunn

Digitally signed by Marcella Lunn
DN: dc=com, dc=cityofdenton, dc=codad, ou=Department Users and Groups, ou=General Government, ou=Legal, cn=Marcella Lunn, email=Marcella.Lunn@cityofdenton.com
Date: 2024.04.26 18:38:44 -05'00'

Docusign City Council Transmittal Coversheet

PSA	7599-019
File Name	Neighborhood 5A Design
Purchasing Contact	Cori Power
City Council Target Date	
Piggy Back Option	Not Applicable
Contract Expiration	
Ordinance	

CITY OF DENTON, TEXAS

STANDARD AGREEMENT FOR ENGINEERING RELATED PROFESSIONAL SERVICES

This AGREEMENT is between the City of Denton, a Texas home-rule municipality ("CITY"), and Binkley & Barfield, Inc., with its corporate office at 1801 Gateway Boulevard, Suite 101, Richardson, TX 75080 and authorized to do business in Texas, ("ENGINEER"), for a PROJECT generally described as: Neighborhood 5A Design (the "PROJECT").

SECTION 1
Scope of Services

A. The CITY hereby agrees to retain the ENGINEER, and the ENGINEER hereby agrees to perform, professional engineering services set forth in the Scope of Services attached hereto as Exhibit A. These services shall be performed in connection with the PROJECT.

B. Additional services, if any, will be requested in writing by the CITY. CITY shall not pay for any work performed by ENGINEER or its consultants, subcontractors and/or suppliers that has not been ordered in advance and in writing. It is specifically agreed that ENGINEER shall not be compensated for any additional work resulting from oral orders of any person.

SECTION 2
Compensation and Term of Agreement

A. The ENGINEER shall be compensated for all services provided pursuant to this AGREEMENT in an amount not to exceed **$1,355,840.00** in the manner and in accordance with the fee schedule as set forth in Exhibit C. Payment shall be considered full compensation for all labor, materials, supplies, and equipment necessary to complete the services described in Exhibit A.

B. Unless otherwise terminated pursuant to Section 6. D. herein, this AGREEMENT shall be for a term beginning upon the effective date, as described below, and shall continue for a period which may reasonably be required for the completion of the PROJECT, until the expiration of the funds, or completion of the PROJECT and acceptance by the CITY, whichever occurs first. ENGINEER shall proceed diligently with the PROJECT to completion as described in the PROJECT schedule as set forth in Exhibit B.

SECTION 3
Terms of Payment

Payments to the ENGINEER will be made as follows:

A. Invoice and Payment

(1) The Engineer shall provide the City sufficient documentation, including but not limited to meeting the requirements set forth in the PROJECT schedule as set forth in Exhibit B to reasonably substantiate the invoices.

(2) The ENGINEER will issue monthly invoices for all work performed under this AGREEMENT. Invoices for the uncontested performance of the particular services are due and payable within 30 days of receipt by City.

(3) Upon completion of services enumerated in Section 1, the final payment of any balance for the uncontested performance of the services will be due within 30 days of receipt of the final invoice.

(4) In the event of a disputed or contested billing, only that portion so contested will be withheld from payment, and the undisputed portion will be paid. The CITY will exercise reasonableness in contesting any bill or portion thereof. No interest will accrue on any contested portion of the billing until mutually resolved.

(5) If the CITY fails to make payment in full to ENGINEER for billings contested in good faith within 60 days of the amount due, the ENGINEER may, after giving 7 days' written notice to CITY, suspend services under this AGREEMENT until paid in full. In the event of suspension of services, the ENGINEER shall have no liability to CITY for delays or damages caused the CITY because of such suspension of services.

SECTION 4
Obligations of the Engineer

A. General

The ENGINEER will serve as the CITY's professional engineering representative under this AGREEMENT, providing professional engineering consultation and advice and furnishing customary services incidental thereto.

B. Standard of Care

The ENGINEER shall perform its services:

(1) with the professional skill and care ordinarily provided by competent engineers practicing in the same or similar locality and under the same or similar circumstances and professional license; and

(2) as expeditiously as is prudent considering the ordinary professional skill and care of a competent engineer.

C. Subsurface Investigations

(1) The ENGINEER shall advise the CITY with regard to the necessity for subcontract work such as special surveys, tests, test borings, or other subsurface investigations in connection with design and engineering work to be performed hereunder. The ENGINEER shall also advise the CITY concerning the results of same. Such surveys, tests, and investigations shall be furnished by the CITY, unless otherwise specified in Exhibit A.

(2) In soils, foundation, groundwater, and other subsurface investigations, the actual characteristics may vary significantly between successive test points and sample intervals and at locations other than where observations, exploration, and investigations have been made. Because of the inherent uncertainties in subsurface evaluations, changed or unanticipated underground conditions may occur that could affect the total PROJECT cost and/or execution. These conditions and cost/execution effects are not the responsibility of the ENGINEER.

D. Preparation of Engineering Drawings

The ENGINEER will provide to the CITY the original drawings of all plans in ink on reproducible mylar sheets and electronic files in .pdf format, or as otherwise approved by CITY, which shall become the property of the CITY. CITY may use such drawings in any manner it desires; provided, however, that the ENGINEER shall not be liable for the use of such drawings for any project other than the PROJECT described herein.

E. Engineer's Personnel at Construction Site

(1) The presence or duties of the ENGINEER's personnel at a construction site, whether as on-site representatives or otherwise, do not make the ENGINEER or its personnel in any way responsible for those duties that belong to the CITY and/or the CITY's construction contractors or other entities, and do not relieve the construction contractors or any other entity of their obligations, duties, and responsibilities, including, but not limited to, all construction methods, means, techniques, sequences, and procedures necessary for coordinating and completing all portions of the construction work in accordance with the AGREEMENT Documents and any health or safety precautions required by such construction work. The ENGINEER and its personnel have no authority to exercise any control over any construction contractor or other entity or their employees in connection with their work or any health or safety precautions.

(2) Except to the extent of specific site visits expressly detailed and set forth in Exhibit A, the ENGINEER or its personnel shall have no obligation or responsibility to visit the construction site to become familiar with the progress

or quality of the completed work on the PROJECT or to determine, in general, if the work on the PROJECT is being performed in a manner indicating that the PROJECT, when completed, will be in accordance with the AGREEMENT Documents, nor shall anything in the AGREEMENT Documents or this AGREEMENT between CITY and ENGINEER be construed as requiring ENGINEER to make exhaustive or continuous on-site inspections to discover latent defects in the work or otherwise check the quality or quantity of the work on the PROJECT. If the ENGINEER makes on-site observation(s) of a deviation from the AGREEMENT Documents, the ENGINEER shall inform the CITY.

(3) When professional certification of performance or characteristics of materials, systems or equipment is reasonably required to perform the services set forth in the Scope of Services, the ENGINEER shall be entitled to rely upon such certification to establish materials, systems or equipment and performance criteria to be required in the AGREEMENT Documents.

F. Opinions of Probable Cost, Financial Considerations, and Schedules

(1) The ENGINEER shall provide opinions of probable costs based on the current available information at the time of preparation, in accordance with Exhibit A.

(2) In providing opinions of cost, financial analyses, economic feasibility projections, and schedules for the PROJECT, the ENGINEER has no control over cost or price of labor and materials; unknown or latent conditions of existing equipment or structures that may affect operation or maintenance costs; competitive bidding procedures and market conditions; time or quality of performance by third parties; quality, type, management, or direction of operating personnel; and other economic and operational factors that may materially affect the ultimate PROJECT cost or schedule. Therefore, the ENGINEER makes no warranty that the CITY's actual PROJECT costs, financial aspects, economic feasibility, or schedules will not vary from the ENGINEER's opinions, analyses, projections, or estimates.

G. Construction Progress Payments

Recommendations by the ENGINEER to the CITY for periodic construction progress payments to the construction contractor will be based on the ENGINEER's knowledge, information, and belief from selective sampling and observation that the work has progressed to the point indicated. Such recommendations do not represent that continuous or detailed examinations have been made by the ENGINEER to ascertain that the construction contractor has completed the work in exact accordance with the AGREEMENT Documents; that the final work will be acceptable in all respects; that the ENGINEER has made an examination to ascertain how or for what purpose the construction contractor has used the moneys paid; that title to any of the work, materials, or equipment has passed to the CITY free and clear of liens, claims, security interests, or

encumbrances; or that there are not other matters at issue between the CITY and the construction contractor that affect the amount that should be paid.

H. Record Drawings

Record drawings, if required, will be prepared, in part, on the basis of information compiled and furnished by others, and may not always represent the exact location, type of various components, or exact manner in which the PROJECT was finally constructed. The ENGINEER is not responsible for any errors or omissions in the information from others that is incorporated into the record drawings.

I. Right to Audit

(1) ENGINEER agrees that the CITY shall, until the expiration of five (5) years after final payment under this AGREEMENT, have access to and the right to examine and photocopy any directly pertinent books, documents, papers and records of the ENGINEER involving transactions relating to this AGREEMENT. ENGINEER agrees that the CITY shall have access during normal working hours to all necessary ENGINEER facilities and shall be provided adequate and appropriate work space in order to conduct audits in compliance with the provisions of this section. The CITY shall give ENGINEER reasonable advance notice of intended audits.

(2) ENGINEER further agrees to include in all its subconsultant agreements hereunder a provision to the effect that the subconsultant agrees that the CITY shall, until the expiration of five (5) years after final payment under the subcontract, have access to and the right to examine and photocopy any directly pertinent books, documents, papers and records of such subconsultant, involving transactions to the subcontract, and further, that the CITY shall have access during normal working hours to all subconsultant facilities, and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with the provisions of this section together with subsection (3) hereof. CITY shall give subconsultant reasonable advance notice of intended audits.

(3) ENGINEER and subconsultant agree to photocopy such documents as may be requested by the CITY. The CITY agrees to reimburse ENGINEER for the cost of copies at the rate published in the Texas Administrative Code in effect as of the time copying is performed.

J. INSURANCE

(1) ENGINEER'S INSURANCE

a. Commercial General Liability – the ENGINEER shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella insurance with a limit of not less than $1,000,000.00 per each occurrence with a $2,000,000.00 aggregate. If such Commercial General Liability insurance contains a general aggregate limit, it shall apply separately to this PROJECT or location.

   i. The CITY shall be included as an additional insured with all rights of defense under the CGL, using ISO additional insured endorsement or a substitute providing equivalent coverage, and under the commercial umbrella, if any. This insurance shall apply as primary insurance with respect to any other insurance or self-insurance programs afforded to the CITY. The Commercial General Liability insurance policy shall have no exclusions or endorsements that would alter or nullify: premises/operations, products/completed operations, contractual, personal injury, or advertising injury, which are normally contained within the policy, unless the CITY specifically approves such exclusions in writing.

   ii. ENGINEER waives all rights against the CITY and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the commercial general liability or commercial umbrella liability insurance maintained in accordance with this AGREEMENT.

b. Business Auto – the ENGINEER shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit of not less than $1,000,000 each accident. Such insurance shall cover liability arising out of "any auto", including owned, hired, and non-owned autos, when said vehicle is used in the course of the PROJECT. If the engineer owns no vehicles, coverage for hired or non-owned is acceptable.

   i. ENGINEER waives all rights against the CITY and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the business auto liability or commercial umbrella liability insurance obtained by ENGINEER pursuant to this AGREEMENT or under any applicable auto physical damage coverage.

c. Workers' Compensation – ENGINEER shall maintain workers

compensation and employers liability insurance and, if necessary, commercial umbrella liability insurance with a limit of not less than $100,000.00 each accident for bodily injury by accident or $100,000.00 each employee for bodily injury by disease, with $500,000.00 policy limit.

i. ENGINEER waives all rights against the CITY and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by workers compensation and employer's liability or commercial umbrella insurance obtained by ENGINEER pursuant to this AGREEMENT.

d. Professional Liability – ENGINEER shall maintain professional liability, a claims-made policy, with a minimum of $1,000,000.00 per claim and aggregate. The policy shall contain a retroactive date prior to the date of the AGREEMENT or the first date of services to be performed, whichever is earlier. Coverage shall be maintained for a period of 5 years following the completion of the AGREEMENT. An annual certificate of insurance specifically referencing this PROJECT shall be submitted to the CITY for each year following completion of the AGREEMENT.

(2) GENERAL INSURANCE REQUIREMENTS

a. Certificates of insurance evidencing that the ENGINEER has obtained all required insurance shall be attached to this AGREEMENT prior to its execution.

b. Applicable policies shall be endorsed to name the CITY an Additional Insured thereon, subject to any defense provided by the policy, as its interests may appear. The term CITY shall include its employees, officers, officials, agents, and volunteers as respects the contracted services.

c. Certificate(s) of insurance shall document that insurance coverage specified in this AGREEMENT are provided under applicable policies documented thereon.

d. Any failure on part of the CITY to attach the required insurance documentation hereto shall not constitute a waiver of the insurance requirements.

e. A minimum of thirty (30) days notice of cancellation or material change in coverage shall be provided to the CITY. A ten (10) days notice shall be acceptable in the event of non-payment of premium. Notice shall be sent to the respective Department Director (by name), City of Denton, 901 Texas Street, Denton, Texas 76209.

f. Insurers for all policies must be authorized to do business in the State of Texas and have a minimum rating of A:V or greater, in the current A.M. Best Key Rating Guide or have reasonably equivalent financial strength and solvency to the satisfaction of Risk Management.

g. Any deductible or self insured retention in excess of $25,000.00 that would change or alter the requirements herein is subject to approval by the CITY in writing, if coverage is not provided on a first-dollar basis. The CITY, at it sole discretion, may consent to alternative coverage maintained through insurance pools or risk retention groups. Dedicated financial resources or letters of credit may also be acceptable to the CITY.

h. Applicable policies shall each be endorsed with a waiver of subrogation in favor of the CITY as respects the PROJECT.

i. The CITY shall be entitled, upon its request and without incurring expense, to review the ENGINEER's insurance policies including endorsements thereto and, at the CITY's discretion; the ENGINEER may be required to provide proof of insurance premium payments.

j. Lines of coverage, other than Professional Liability, underwritten on a claims-made basis, shall contain a retroactive date coincident with or prior to the date of the AGREEMENT. The certificate of insurance shall state both the retroactive date and that the coverage is claims-made.

k. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption nor restrictive modification or changes from date of commencement of the PROJECT until final payment and termination of any coverage required to be maintained after final payments.

l. The CITY shall not be responsible for the direct payment of any insurance premiums required by this AGREEMENT.

m. Sub consultants and subcontractors to/of the ENGINEER shall be required by the ENGINEER to maintain the same or reasonably equivalent insurance coverage as required for the ENGINEER. When sub consultants/subcontractors maintain insurance coverage, ENGINEER shall provide CITY with documentation thereof on a certificate of insurance.

K. Independent Consultant

The ENGINEER agrees to perform all services as an independent consultant and not as a subcontractor, agent, or employee of the CITY. The doctrine of *respondeat superior* shall not apply.

L. Disclosure

The ENGINEER acknowledges to the CITY that it has made full disclosure in writing of any existing conflicts of interest or potential conflicts of interest, including personal financial interest, direct or indirect, in property abutting the proposed PROJECT and business relationships with abutting property cities. The ENGINEER further acknowledges that it will make disclosure in writing of any conflicts of interest that develop subsequent to the signing of this AGREEMENT and prior to final payment under the AGREEMENT.

M. Asbestos or Hazardous Substances

(1) If asbestos or hazardous substances in any form are encountered or suspected, the ENGINEER will stop its own work in the affected portions of the PROJECT to permit testing and evaluation.

(2) If asbestos or other hazardous substances are suspected, the CITY may request the ENGINEER to assist in obtaining the services of a qualified subcontractor to manage the remediation activities of the PROJECT.

N. Permitting Authorities - Design Changes

If permitting authorities require design changes so as to comply with published design criteria and/or current engineering practice standards which the ENGINEER should have been aware of at the time this AGREEMENT was executed, the ENGINEER shall revise plans and specifications, as required, at its own cost and expense. However, if design changes are required due to the changes in the permitting authorities' published design criteria and/or practice standards criteria which are published after the date of this AGREEMENT which the ENGINEER could not have been reasonably aware of, the ENGINEER shall notify the CITY of such changes and an adjustment in compensation will be made through an amendment to this AGREEMENT.

O. Schedule

ENGINEER shall manage the PROJECT in accordance with the schedule developed per Exhibit B to this AGREEMENT.

P. Equal Opportunity

(1) **Equal Employment Opportunity:** ENGINEER and ENGINEER's agents shall engage in any discriminatory employment practice. No person shall, on the grounds of race, sex, sexual orientation, age, disability, creed, color, genetic

testing, or national origin, be refused the benefits of, or be otherwise subjected to discrimination under any activities resulting from this AGREEMENT.

(2) **Americans with Disabilities Act (ADA) Compliance:** ENGINEER and ENGINEER's agents shall not engage in any discriminatory employment practice against individuals with disabilities as defined in the ADA.

SECTION 5
Obligations of the City

A. City-Furnished Data

ENGINEER may rely upon the accuracy, timeliness, and completeness of the information provided by the CITY.

B. Access to Facilities and Property

The CITY will make its facilities accessible to the ENGINEER as required for the ENGINEER's performance of its services. The CITY will perform, at no cost to the ENGINEER, such tests of equipment, machinery, pipelines, and other components of the CITY's facilities as may be required in connection with the ENGINEER's services. The CITY will be responsible for all acts of the CITY's personnel.

C. Advertisements, Permits, and Access

Unless otherwise agreed to in the Scope of Services, the CITY will obtain, arrange, and pay for all advertisements for bids; permits and licenses required by local, state, or federal authorities; and land, easements, rights-of-way, and access necessary for the ENGINEER's services or PROJECT construction.

D. Timely Review

The CITY will examine the ENGINEER's studies, reports, sketches, drawings, specifications, proposals, and other documents; obtain advice of an attorney, insurance counselor, accountant, auditor, bond and financial advisors, and other consultants as the CITY deems appropriate; and render in writing decisions required by the CITY in a timely manner in accordance with the PROJECT schedule prepared in accordance with Exhibit B.

E. Prompt Notice

The CITY will give prompt written notice to the ENGINEER whenever CITY observes or becomes aware of any development that affects the scope or timing of the ENGINEER's services or of any defect in the work of the ENGINEER or construction contractors.

F. Asbestos or Hazardous Substances Release.

(1) CITY acknowledges ENGINEER will perform part of the work at CITY's facilities that may contain hazardous materials, including asbestos containing materials, or conditions, and that ENGINEER had no prior role in the generation, treatment, storage, or disposition of such materials. In consideration of the associated risks that may give rise to claims by third parties or employees of City, City hereby releases ENGINEER from any damage or liability related to the presence of such materials.

(2) The release required above shall not apply in the event the discharge, release or escape of hazardous substances, contaminants, or asbestos is a result of ENGINEER's negligence or if ENGINEER brings such hazardous substance, contaminant or asbestos onto the PROJECT.

G. Contractor Indemnification and Claims

The CITY agrees to include in all construction contracts the provisions of Article IV.E. regarding the ENGINEER's Personnel at Construction Site, and provisions providing for contractor indemnification of the CITY and the ENGINEER for contractor's negligence.

H. Contractor Claims and Third-Party Beneficiaries

(1) The CITY agrees to include the following clause in all contracts with construction contractors and equipment or materials suppliers:

> "Contractors, subcontractors and equipment and materials suppliers on the PROJECT, or their sureties, shall maintain no direct action against the ENGINEER, its officers, employees, and subcontractors, for any claim arising out of, in connection with, or resulting from the engineering services performed. Only the CITY will be the beneficiary of any undertaking by the ENGINEER."

(2) This AGREEMENT gives no rights or benefits to anyone other than the CITY and the ENGINEER and there are no third-party beneficiaries.

(3) The CITY will include in each agreement it enters into with any other entity or person regarding the PROJECT a provision that such entity or person shall have no third-party beneficiary rights under this AGREEMENT.

(4) Nothing contained in this Section H. shall be construed as a waiver of any right the CITY has to bring a claim against ENGINEER.

I. CITY's Insurance

(1) The CITY may maintain property insurance on certain pre-existing structures associated with the PROJECT.

(2) The CITY may secure Builders Risk/Installation insurance at the replacement cost value of the PROJECT. The CITY may provide ENGINEER a copy of the policy or documentation of such on a certificate of insurance.

J. Litigation Assistance

The Scope of Services does not include costs of the ENGINEER for required or requested assistance to support, prepare, document, bring, defend, or assist in litigation undertaken or defended by the CITY. In the event CITY requests such services of the ENGINEER, this AGREEMENT shall be amended or a separate agreement will be negotiated between the parties.

K. Changes

The CITY may make or approve changes within the general Scope of Services in this AGREEMENT. If such changes affect the ENGINEER's cost of or time required for performance of the services, an equitable adjustment will be made through an amendment to this AGREEMENT with appropriate CITY approval.

SECTION 6
General Legal Provisions

A. Authorization to Proceed

ENGINEER shall be authorized to proceed with this AGREEMENT upon receipt of a written Notice to Proceed from the CITY.

B. Reuse of Project Documents

All designs, drawings, specifications, documents, and other work products of the ENGINEER, whether in hard copy or in electronic form, are instruments of service for this PROJECT, whether the PROJECT is completed or not. Reuse, change, or alteration by the CITY or by others acting through or on behalf of the CITY of any such instruments of service without the written permission of the ENGINEER will be at the CITY's sole risk. The CITY shall own the final designs, drawings, specifications and documents.

C. Force Majeure

The ENGINEER is not responsible for damages or delay in performance caused by acts of God, strikes, lockouts, accidents, or other events beyond the control of the ENGINEER that prevent ENGINEER’s performance of its obligations hereunder.

D. Termination

(1) This AGREEMENT may be terminated:

a. by the City for its convenience upon 30 days' written notice to ENGINEER.

b. by either the CITY or the ENGINEER for cause if either party fails substantially to perform through no fault of the other and the nonperforming party does not commence correction of such nonperformance within 5 days' written notice or thereafter fails to diligently complete the correction.

(2) If this AGREEMENT is terminated for the convenience of the City, the ENGINEER will be paid for termination expenses as follows:

a. Cost of reproduction of partial or complete studies, plans, specifications or other forms of ENGINEER'S work product;

b. Out-of-pocket expenses for purchasing electronic data files and other data storage supplies or services;

c. The time requirements for the ENGINEER'S personnel to document the work underway at the time of the CITY'S termination for convenience so that the work effort is suitable for long time storage.

(3) Prior to proceeding with termination services, the ENGINEER will submit to the CITY an itemized statement of all termination expenses. The CITY'S approval will be obtained in writing prior to proceeding with termination services.

E. Suspension, Delay, or Interruption to Work

The CITY may suspend, delay, or interrupt the services of the ENGINEER for the convenience of the CITY. In the event of such suspension, delay, or interruption, an equitable adjustment in the PROJECT's schedule, commitment and cost of the ENGINEER's personnel and subcontractors, and ENGINEER's compensation will be made.

F. Indemnification

IN ACCORDANCE WITH TEXAS LOCAL GOVERNMENT CODE SECTION 271.904, THE ENGINEER SHALL INDEMNIFY OR HOLD HARMLESS THE CITY AGAINST LIABILITY FOR ANY DAMAGE COMMITTED BY THE ENGINEER OR ENGINEER'S AGENT, CONSULTANT UNDER CONTRACT, OR ANOTHER ENTITY OVER WHICH THE ENGINEER EXERCISES CONTROL TO THE EXTENT THAT THE DAMAGE IS

CAUSED BY OR RESULTING FROM AN ACT OF NEGLIGENCE, INTENTIONAL TORT, INTELLECTUAL PROPERTY INFRINGEMENT, OR FAILURE TO PAY A SUBCONTRACTOR OR SUPPLIER. CITY IS ENTITLED TO RECOVER ITS REASONABLE ATTORNEY'S FEES IN PROPORTION TO THE ENGINEER'S LIABILITY.

G. Assignment

Neither party shall assign all or any part of this AGREEMENT without the prior written consent of the other party.

H. Jurisdiction

The law of the State of Texas shall govern the validity of this AGREEMENT, its interpretation and performance, and any other claims related to it. The venue for any litigation related to this AGREEMENT shall be Denton County, Texas.

I. Severability and Survival

If any of the provisions contained in this AGREEMENT are held for any reason to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability will not affect any other provision, and this AGREEMENT shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein. Sections 5.F., 6.B., 6.D., 6.F., 6.H., and 6.I. shall survive termination of this AGREEMENT for any cause.

J. Observe and Comply

ENGINEER shall at all times observe and comply with all federal and State laws and regulations and with all City ordinances and regulations which in any way affect this AGREEMENT and the work hereunder, and shall observe and comply with all orders, laws ordinances and regulations which may exist or may be enacted later by governing bodies having jurisdiction or authority for such enactment. No plea of misunderstanding or ignorance thereof shall be considered. **ENGINEER AGREES TO DEFEND, INDEMNIFY AND HOLD HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS OR LIABILITY ARISING OUT OF THE VIOLATION OF ANY SUCH ORDER, LAW, ORDINANCE, OR REGULATION, WHETHER IT BE BY ITSELF OR ITS EMPLOYEES**.

K. Immigration Nationality Act

ENGINEER shall verify the identity and employment eligibility of its employees who perform work under this AGREEMENT, including completing the Employment Eligibility Verification Form (I-9). Upon request by CITY, ENGINEER shall provide CITY with copies of all I-9 forms and supporting eligibility documentation for each employee who performs work under this AGREEMENT. ENGINEER shall adhere to all Federal and

State laws as well as establish appropriate procedures and controls so that no services will be performed by any ENGINEER employee who is not legally eligible to perform such services. **ENGINEER SHALL INDEMNIFY CITY AND HOLD CITY HARMLESS FROM ANY PENALTIES, LIABILITIES, OR LOSSES DUE TO VIOLATIONS OF THIS PARAGRAPH BY ENGINEER, ENGINEER'S EMPLOYEES, SUBCONTRACTORS, AGENTS, OR LICENSEES.** CITY, upon written notice to ENGINEER, shall have the right to immediately terminate this AGREEMENT for violations of this provision by ENGINEER.

L. Prohibition on Contracts with Companies Boycotting Israel

Engineer acknowledges that in accordance with Chapter 2271 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains a written verification from the company that it: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract. The terms "boycott Israel" and "company" shall have the meanings ascribed to those terms in Section 808.001 of the Texas Government Code. ***By signing this agreement, Engineer certifies that Engineer's signature provides written verification to the City that Engineer: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

M. Prohibition on Contracts with Companies Doing Business with Iran, Sudan, or a Foreign Terrorist Organization

Sections 2252 and 2270 of the Texas Government Code restricts CITY from contracting with companies that do business with Iran, Sudan, or a foreign terrorist organization. ***By signing this agreement, Engineer certifies that Engineer's signature provides written verification to the City that Engineer, pursuant to Chapters 2252 and 2270, is not ineligible to enter into this agreement and will not become ineligible to receive payments under this agreement by doing business with Iran, Sudan, or a foreign terrorist organization***. Failure to meet or maintain the requirements under this provision will be considered a material breach.

N. Prohibition on Contracts with Companies Boycotting Certain Energy Companies

Engineer acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the contract. The terms "boycott energy company" and "company" shall have the meanings ascribed to those terms in Section 809.001 of the Texas Government Code. ***By signing this agreement, Engineer certifies that***

Engineer's signature provides written verification to the City that Engineer: (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the agreement. Failure to meet or maintain the requirements under this provision will be considered a material breach.

O. Prohibition on Contracts with Companies Boycotting Certain Firearm Entities and Firearm Trade Associations

Engineer acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association. The terms "discriminate against a firearm entity or firearm trade association," "firearm entity" and "firearm trade association" shall have the meanings ascribed to those terms in Chapter 2274 of the Texas Government Code. ***By signing this agreement, Engineer certifies that Engineer's signature provides written verification to the City that Engineer: (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

P. Termination Right for Contracts with Companies Doing Business with Certain Foreign-Owned Companies

The City of Denton may terminate this Contract immediately without any further liability if the City of Denton determines, in its sole judgment, that this Contract meets the requirements under Chapter 2274, and Engineer is, or will be in the future, (i) owned by or the majority of stock or other ownership interest of the company is held or controlled by individuals who are citizens of China, Iran, North Korea, Russia, or other designated country (ii) directly controlled by the Government of China, Iran, North Korea, Russia, or other designated country, or (iii) is headquartered in China, Iran, North Korea, Russia, or other designated country.

Q. Prohibition Against Personal Interest in Contracts

No officer, employee, independent consultant, or elected official of the City who is involved in the development, evaluation, or decision-making process of the performance of any solicitation shall have a financial interest, direct or indirect, in the Contract resulting from that solicitation as defined in the City's Ethic Ordinance 23-1165 and in the City Charter chapter 2 article XI(Ethics). Any willful violation of this section shall constitute impropriety in office, and any officer or employee guilty thereof shall be subject to disciplinary action up to and including dismissal. Any violation of this

provision, with the knowledge, expressed or implied, of the Contractor shall render the Contract voidable by the City. The Contractor shall complete and submit the City's Conflict of Interest Questionnaire.

R. Certificate of Interested Parties Electronic Filing

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that the City may not enter into this contract unless the Contractor submits a disclosure of interested parties (Form 1295) to the City at the time the Contractor submits the signed contract. The Texas Ethics Commission has adopted rules requiring the business entity to file Form 1295 electronically with the Commission.

Contractor will be required to furnish a Certificate of Interest Parties before the contract is awarded, in accordance with Government Code 2252.908.

The contractor shall:

1. Log onto the State Ethics Commission Website at: https://www.ethics.state.tx.us/filinginfo/1295/
2. Register utilizing the tutorial provided by the State
3. Print a copy of the completed Form 1295
4. Enter the Certificate Number on page 2 of this contract.
5. Complete and sign the Form 1295
6. Email the form to purchasing@cityofdenton.com with the contract number in the subject line. (EX: Contract 1234 – Form 1295)

The City must acknowledge the receipt of the filed Form 1295 not later than the 30th day after Council award. Once a Form 1295 is acknowledged, it will be posted to the Texas Ethics Commission's website within seven business days.

S. Agreement Documents

This AGREEMENT, including its attachments and schedules, constitutes the entire AGREEMENT, which supersedes all prior written or oral understandings, and may only be changed by a written amendment executed by both parties. This AGREEMENT may be executed in one or more counterparts and each counterpart shall, for all purposes, be deemed an original, but all such counterparts shall together constitute but one and the same instrument. The following attachments and schedules are hereby made a part of this AGREEMENT:

Exhibit A - Scope of Services
Exhibit B - Project Schedule
Exhibit C - Compensation

These documents make up the AGREEMENT documents and what is called for by one shall be as binding as if called for by all. In the event of an inconsistency or conflict in any of the provisions of the AGREEMENT documents, the inconsistency or conflict shall be resolved by giving precedence first to the written AGREEMENT then to the AGREEMENT documents in the order in which they are listed above.

The parties agree to transact business electronically. Any statutory requirements that certain terms be in writing will be satisfied using electronic documents and signing. Electronic signing of this document will be deemed an original for all legal purposes.

Duly executed by each party's designated representative to be effective on _____.

ENGINEER
BINKLEY & BARFIELD, INC.

DocuSigned by:
BY: Richard Arvizu
A9B9B5AB05EE400...
Authorized Signature

Title: Corporate Vice President

2024-1146655
Texas Ethics Commission
1295 Certificate Number

THIS AGREEMENT HAS BEEN BOTH REVIEWED AND APPROVED as to financial and operational obligations and business terms.

DocuSigned by:
Trevor Crain
7B46EE4B41BC4F2...
Signature

Director of Capital Projects
Title

Capital Projects
Department

CITY
CITY OF DENTON, TEXAS

BY: _____
SARA HENSLEY, CITY MANAGER

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

DocuSigned by:
BY: Marcella Lunn
4B070831B4AA438...

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EXHIBIT "A"

SCOPE OF SERVICES

2019 STREET RECONSTRUCTION BOND PROGRAM

NEIGHBOORHOOD 5A

PROJECT DESCRIPTION:

The project is part of the 2019 Street Reconstruction Bond Program and designated as Neighborhood 5A. The project includes street reconstruction and replacement of water and wastewater lines for various streets within the City of Denton. A list of approximate lengths of street reconstruction and water/wastewater replacements are listed in the table below and shown in Exhibit "A-1". Street reconstruction will typically consist of replacing existing streets at their current widths with asphalt and concrete curb and gutter. There are some existing roadways without concrete curb and gutter with roadside drainage ditches. The reconstruction of these roadways will not include curb and gutter, to avoid additional drainage infrastructure. Street reconstruction will also include select driveway replacement and sidewalk replacement as identified by the Engineer and City. Paving plans will also include replacing pavement at adjoining streets at intersections up to 50 feet into connecting street alignment. Water and wastewater replacement will consist of 8-inch water and wastewater lines. Plan and profile sheets for wastewater replacement will be prepared. Water plans will only consist of plan views and will not be profiled.

The scope will also include the necessary topographic survey, geotechnical borings and report, select sidewalk replacement and photometric analysis. Photometric analysis is included in Basic Services and will consist of analyzing the existing system to identify areas for upgrade in lighting. A report will be prepared providing the City with lighting recommendations. If required, lighting construction plans will prepared and billed under Special Services on an hourly as needed basis.

A list of street reconstruction segments along with anticipated length of street, water, and wastewater replacements are shown on the next page.

Street Name	Limit 1	Limit 2	Street Length (FT)	Water (FT)	Wastewater (FT)	**Storm (FT)
AUTUMN OAK DR	MAY ST	LATTIMORE ST	1461	*	1169	482
LATTIMORE ST	ALLEY NORTH OF OAK TREE DR	PIN OAK DR	1661	1329	1246	2658
PERTAIN ST	LATTIMORE ST	MINGO RD	714	536	357	1428
WAYNE ST	PERTAIN ST	BOYD ST	734	734	734	50
BOYD ST	WAYNE ST	TYLER ST	1074	1074	806	0
TYLER ST	BOYD ST	MOZINGO ST	746	*	746	0
SNYDER ST	WAYNE ST	TYLER ST	798	*	798	0
MOZINGO ST/MULKEY LN	OAK TREE DR	TYLER ST	2050	2050	339	677
POST OAK CT	MULKEY LN	DEAD END/CUL DE SAC	463	463	*	50
BOYD ST	SEMINOLE AVE	CREEK AVE	737	737	737	0
CREEK AVE	BOYD ST	REDWOOD PL	325	*	325	0
N BRADSHAW ST	E MCKINNEY ST	PAISLEY ST	1543	1543	1543	50
DAVIS ST	N BRADSHAW ST	N CRAWDORD ST	349	349	*	0
DAVIS ST	N RUDDELL ST	JANNINNE ST	748	*	561	0
JANNIE ST	E MCKINNEY ST	PAISLEY ST	1591	*	1193	0
CAMPBELL LN	E MCKINNEY ST	WOODFORD LN	580	*	0	0
WOODFORD LN	CAMPBELL LN	PAISLEY ST	1148	*	*	0
BROCK CIR	PAISLEY ST	DEAD END/CUL DE SAC	211	211	211	0
N WOOD ST	PAISLEY ST	TEXAS ST	882	*	882	50
N RUDDELL ST	PAISLEY ST	WILLIS ST	1451	1451	1451	1088
MAY ST	N RUDDELL ST	DEAD END/CUL DE SAC	400	400	400	132
BOB-O-LINK LN	BELLAIRE DR	MOCKINGBEIRD LN	713	713	*	50
***Water & Wastewater Replacment assumed not required**		**Totals**	**20,379**	**11,126**	**13,497**	
**** Storm shown for informational purposes**						

BASIC SERVICES:

A. Project Coordination and Data Collection

1. Meet with CITY representatives for a kickoff meeting to discuss the details of the project and obtain design criteria, standard details, pertinent utility plans, record drawings, plats and right-of-way maps, existing easement information and other information available for the project area
2. Perform site visits to verify existing conditions and document with site photos and field notes, as necessary.
3. Prepare written progress reports to be submitted with monthly pay requests. The Engineer's written progress report shall describe activities during the reporting period, activities planned for the following period, information needed from the City and overall status of the project.
4. Develop and maintain a detailed project schedule.
5. Attend meetings with stakeholders as necessary to coordinate the project design
6. Use of Procore software throughout design, bidding, and construction of the project.

B. Conceptual Design (30% Complete)

1. Prepare conceptual plans illustrating the following:
    a. Existing surveyed features (right-of-way, easements, pavement, curbs, walls, fences, fire hydrants, trees, sidewalks, water meters, valves, utility boxes, manholes, street lights, inlets, and all other visible surface features).

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   b. Existing utility locations (water, sanitary sewer, and storm sewer)
   c. Proposed typical section
   d. Proposed horizontal street and sidewalk alignments
   e. Proposed water and wastewater horizontal alignments
   f. Photometric Analysis Sheets and Reports
   g. Proposed right-of-way or easement acquisition (if required).
   h. Overall drainage area map
2. Prepare an estimate of construction quantities and develop the conceptual statement of probable construction cost.
3. Submit conceptual plans and Opinion of Probable Construction Cost (OPCC) to the City for review.
4. Provide an electronic PDF format set of plans to the City for distribution to the franchise utility companies affected by construction
5. Meet with City to discuss 30% plan set review.

C. Preliminary Design (60% Complete)

1. Incorporate City's review comments from conceptual design submittal.
2. Prepare preliminary construction plans. Prepare the following drawings to an approved scale:
   a. Cover Sheet
   b. General Notes Sheet
   c. Quantity Sheet
   d. Project Layout and Control Sheets
   e. Demolition Plan & Plan Sheets
   f. Typical Sections
   g. Roadway Plan & Profile Sheets
   h. Water Plan Sheets
   i. Wastewater Plan Profile Sheets
   j. Proposed lighting layout
   k. Pavement Marking Sheets
   l. Erosion Control Sheets
   m. Cross Sections at 50' intervals and driveways
   n. Detail Sheets
3. Photometric Report
4. Provide an updated electronic PDF format set of plans to the City for distribution to the franchise utility companies affected by the construction.
5. Prepare an estimate of construction quantities and develop the preliminary statement of probable construction cost.
6. Submit preliminary plans and cost estimate to the City for review.
7. Incorporate standard details into the construction plans and prepare additional details as required.
8. Meet with City staff to discuss comments regarding 60% submittal review.

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D. Pre-Final Design (90% Complete)

1. Adjust proposed street grades as needed and adjust limits of driveway and sidewalk replacements as needed.
2. Revise plans incorporating comments from preliminary submittal.
3. Incorporate comments from franchise utility companies.
4. Revise estimate of construction quantities and preliminary statement of probable construction cost.
5. Prepare list of bid item descriptions.
6. Submit pre-final plans, opinion of probable construction costs, and list of bid item descriptions.
7. Provide an electronic PDF format set of plans to the City for distribution to the franchise utility companies affected by the construction.
8. Meet with City to discuss 90% submittal review.

E. Final Design (100% Complete)

1. Revise plans incorporating comments from the pre-final submittal.
2. Incorporate comments from franchise utility companies.
3. Prepare plans for Final submittal.
4. Update standard details in the construction plans and prepare additional details as required.
5. Prepare final construction quantity take-offs and final construction cost estimates.
6. Finalize list of bid item descriptions.
7. Submit final plans, opinion of probable construction costs, bid schedule, and bid item descriptions.
8. Incorporate City final comments into the plans and bid documents.
9. Prepare construction plans and specifications to be issued for bidding.

F. Bid Phase Services

1. Assist City staff in advertising for bids
2. Provide responses to questions submitted during bidding process.
3. Assist City in interpreting bid documents.
4. Attend pre-bid meeting.
5. Prepare and provide the City with addenda to bid documents, if necessary.

G. Construction Phase Services

1. Attend and assist City in holding a pre-construction conference and a public meeting.
2. Review shop drawings and material submittals.
3. Review proposed construction schedules, if requested by City Staff.
4. Review and provide written responses to Requests for Information (RFIs).
5. Assist City PM with construction change orders, if necessary.

6. Site visits by the design Engineer, as required during construction and attendance of one (1) construction meeting per month.
7. Assist City Staff in conducting final inspection.
8. Recommend final acceptance of completed work.
9. Prepare construction "Record Drawings" updating the project plans to reflect any field changes or plan revisions. Record drawings shall be delivered in a digital format. The drawings shall be 24" x 36" in size and shall bear "Record Drawing" stamp and the seal and signature of the Engineer along with the date.
10. Construction Phase Services will be billed on an hourly not to exceed basis and includes the following estimated time:
    - 40 hours of a Sr. Project Manager at $314/hr
    - 75 hours of a Project Engineer at $174/hr
    - 140 hours of EIT II at $157/hr

SPECIAL SERVICES:

A. Survey Services

1. Survey Control

a. Establish horizontal and vertical control points along in project areas and place the points where they will be unlikely to be disturbed during the construction phase of the project.
b. Prepare Survey Control and Index sheet(s) for the PS&E plan set
c. Control will be established based on City of Denton GPS Benchmarks or other as required.

2. Topographic and Existing ROW Survey

The survey limits shall extend from ROW to ROW for all streets. Services shall include:

a. Perform abstracting (deed/plat research)
b. Locate and tie boundary corners and intersecting streets.
c. Determine the existing ROW streets, intersecting streets and adjacent land boundaries. The existing ROW will be shown on the topographic survey.
d. Obtaining elevations and locations of existing paving, improvements, driveways, signs, natural ground, ditches, irregularities in the natural ground and other visible features within and adjacent to the project. Full topo will include cross sections of roadway at approximate 50-foot intervals. "Texas 811" will be notified to have utilities marked and flagged prior to beginning the fieldwork. Utilities within and adjacent to the limits shall be located and tied based on visual evidence and provided plans and maps. The flow line elevations and pipe sizes shall be obtained on storm sewer lines, sanitary sewer lines and culverts. The top and flow line elevations will be obtained on

inlets, manholes, and drainage structures. Trees with a trunk diameter of 4-inches or greater will be tied.

e. Existing utility information shall be based on visible evidence and as-built or other information provided by the City.

3. Parcels for Acquisition – Survey Legal Description (If Required)

Prepare surveys of parcels for acquisition or easement purposes to support construction. The requirements of parcels are unknown, and it is assumed four parcels for the purposes of this proposal. Services shall include preparing signed and sealed survey drawings and metes and bounds descriptions for each tract of land. The proposed easement/ROW will be staked on the ground and the surveys will be signed and sealed by a Texas Registered Professional Land Surveyor.

4. Right-of-Way Staking (If Required)

Staking of ROW can be provided if required by the City. The ROW can be staked at every 50-foot station. This task will be charged daily if needed (minimum 0.5 days). It has been determined a total of 13.5 days will be required to stake the ROW for the entire project.

B. Geotechnical

1. Field Exploration

a. Field location of borings using a handheld GPS device. Ground surface elevations at the boring locations will be interpolated from survey data.
b. Boring will be drilled along the roadway within ROW. ROW permit will be obtained from City of Denton
c. Mobilization of a truck-mounted drilling rig to the site.
d. Completion of 34 borings (spaced approximately 500 to 600 feet). The borings will be performed within the existing roadways to a depth of 10 feet below pavement surface.
e. Representative soil samples obtained by means of the split-barrel and/or Shelby tube sampling procedures in general accordance with ASTM D1586 and D1587, respectively.
f. Texas Cone Penetrometer test performed to evaluate the bearing capacity of the bedrock, if encountered in the borings, in general accordance with TxDOT method Tex-132-E.
g. Groundwater depth measurements at each boring during drilling and prior to backfilling.

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2. Laboratory Testing – Laboratory Testing of representative soil samples will be performed to determine physical and engineering properties of the soil. The laboratory testing will include the following:

Moisture Content	Atterberg limits	Passing No. 200 sieve
Swell Test	Soluble sulfates	Lime / pH series
Standard Proctor	California Bearing Ratio	

3. Engineering Report – Upon completion of the field exploration, laboratory testing, and engineering analyses, a written engineering report will be prepared by a licensed professional engineer that will include:

a. A review of published soils mapping and/or geologic information.
b. Observations from our site reconnaissance and field personnel, including current site conditions, surface drainage features, topography, and available satellite imagery.
c. A description of the field exploration and laboratory test procedures.
d. Computer generated soil boring logs prepared in accordance with industry standard practices for geotechnical engineering.
e. A boring location diagram.
f. Laboratory tests results plotted on the boring logs and/or included on separate report pages.
g. Discussion of the subsurface materials and groundwater conditions encountered.
h. Subsurface cross sections/profiles that graphically represent the general subsurface conditions.
i. Recommendations for subgrade preparation.
j. Concrete and asphalt pavement design recommendations according to the City of Denton Transportation Design Criteria Manual, 2023 specification requirements, and based on site-specific traffic data (ADT, % truck type, growth rate, and/or ESALS) and roadway classification.
k. Discussion of earthwork considerations for compaction, reuse of soils, groundwater, expansive soils, shallow rock, drainage, or other applicable considerations.

C. Roadway Illumination Coordination/Design (If Required)- This task scope is undefined at this point and has been included for budgetary purposes. This task will be billed on an as needed hourly basis. The task will include coordination with Denton Municipal Electric (DME) and the City to provide street light construction plans. The design would include street lighting, conduits layout, light pole foundations and details. This task does not include electrical design elements. A contingency fee of $40,000 has been added for this task.

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E. TDLR Registration, Review, and Inspection

1. TDLR Services

a. Register the project with TDLR Texas Architectural Barriers System.
b. Provide a PROWAG compliance review of the construction plans. The compliance review shall be performed by a licensed RAS.
c. Provide a post construction inspection and final report. The inspection and report to be performed by a licensed RAS.
d. Provide follow up inspections following corrective action by the Contractor, to confirm compliance.
e. Complete all necessary documentation and submit to TDLR.

Reimbursable Expenses:

Costs for any required mailing, printing, and mileage.

Client Provided Services:

The Client shall provide to Binkley & Barfield, Inc. the following:

1. Available record drawings
2. Available planimetric data
3. Available aerial imagery
4. Contract Documents boiler plate
5. Standard details
6. Design criteria
7. Other information pertinent to the project
8. Right-of-entry coordination with property owners for surveyor to access yards and driveways (if needed)
9. Direction concerning extent of lighting elements an storm drain upgrades.

Exclusions:

- Right-of-entry coordination for surveying and construction
- Construction staking
- SWPPP
- Preparation of bid tabulations
- Evaluation of bidders
- Providing recommendation of contract award
- Preparation of construction change orders
- Environmental studies or reports
- Traffic signalization or traffic studies
- Wastewater flow determinations
- Computer modeling of water system
- Franchise utility design or plans

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- Storm drain design or analysis
- Floodplain reclamation plans or floodplain analysis
- Drainage studies or hydrologic analysis
- Construction inspection
- Desing for trench safety
- Consulting services by others not included in this proposal
- Quality control and testing services during construction
- Alternate additions not included in the original scope
- Improvements outside the project limits
- Preparation of technical specifications
- Items listed as CITY responsibilities.

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2019 Bond Program

Neighboorhood 5A

EXHIBIT "A-1"

LEGEND

RECONSTRUCTION/REPACEMENT LIMITS

- STREETS
- STREETS AND WASTEWATER
- STREETS AND WATER
- STREETS, WATER & WASTWATER

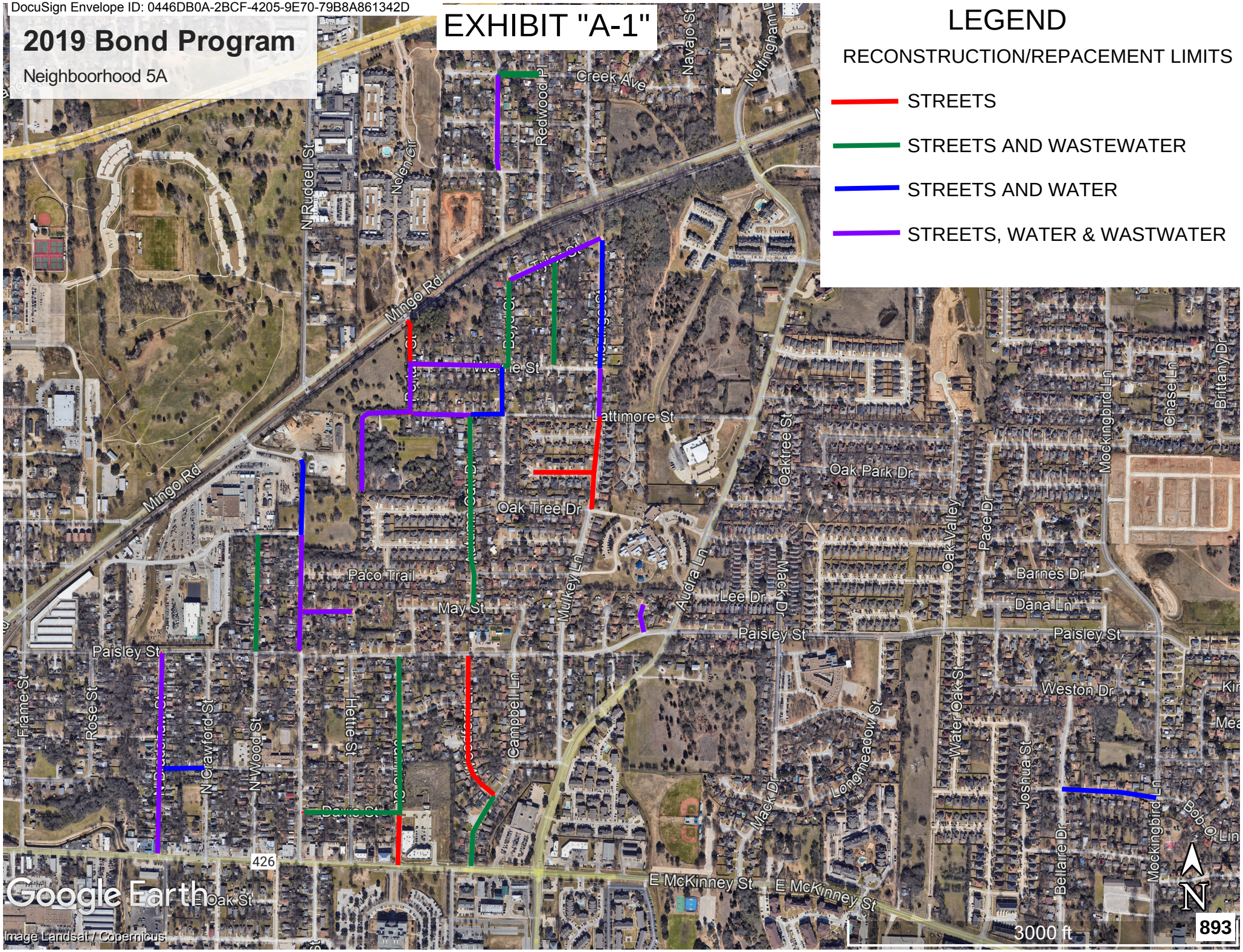

EXHIBIT "B"

SCHEDULE OF WORK

City of Denton 2019 Street Reconstruction Bond Program Neighborhood 5A Esitmated Schedule Feb 2024				
Activity		**Estimated Start Date**	**Completion Time (Calendar Days)**	**Estimated End Date**
1	Notice to Proceed (Professional Services)	25-Mar-24	1	25-Mar-24
2	Design Survey	26-Mar-24	50	15-May-24
3	Conceptual Design (30%)	15-May-24	50	4-Jul-24
4	City Review (30%)	4-Jul-24	15	19-Jul-24
6	Preliminary Design (60%)	19-Jul-24	75	2-Oct-24
7	City Review	2-Oct-24	15	17-Oct-24
8	Pre-Final Design (90%)	17-Oct-24	40	26-Nov-24
9	City Review	26-Nov-24	15	11-Dec-24
10	Final Design (100% Review Set)	11-Dec-24	30	10-Jan-25
11	City Review	10-Jan-25	15	25-Jan-25
12	Signed & Sealed Submittal	25-Jan-25	5	30-Jan-25
13	Bid Phase	30-Jan-25	30	1-Mar-25
15	Construction	1-Mar-25	500	14-Jul-26

EXHIBIT "C"

FEE PROPOSAL

DESCRIPTION	AMOUNT
BASIC SERVICES	
A. Project Coordination and Data Collection *(Lump Sum)*	**$16,000.00**
B. Conceptual Design - 30% Plans *(Lump Sum)*	**$273,500.00**
C. Preliminary Design - 60% Plans *(Lump Sum)*	**$400,000.00**
D. Pre-final Design 90% Plans *(Lump Sum)*	**$193,500.00**
E. Final Design 100% Plans *(Lump Sum)*	**$81,500.00**
F. Bid Phase Services *(Lump Sum)*	**$5,000.00**
G. Construction Phase Services *(Est. Hourly)**	**$47,590.00**
Total Basic Services Fee:	**$1,017,090.00**
Reimbursable Expenses:	**$2,000**
Costs for any required mailing, printing, and mileage**.**	
Total Reimbursable Fee:	**$2,000**
SPECIAL SERVICES	
A. Design Survey *(Lump Sum)*	
1. Survey Control	**$15,000.00**
2. Topographic and Exist. ROW Survey	**$167,500.00**
3. Parcels for Acquisition *(4 @ $3,000 Ea.)*	**$12,000.00**
4. Right-of-Way Staking (If Required $3,300/day)	**$44,550.00**
B. Geotechnical *(Lump Sum)*	**$52,700.00**
C. Roadway Illumination *(If Required Est. Hourly)*	**$40,000.00**
D. TDLR Registration, Review, Inspection *(Lump Sum)*	**$5,000.00**
Total Special Services Fee:	**$336,750.00**
Total Fee:	**$1,355,840.00**

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Binkley & Barfield
DCCM

Binkley & Barfield, Inc.
2024 Billable Rates by Classification

Classification	Unit	Billable Rate
Principal	Hour	$344.00
Sr. Project Manager	Hour	$314.00
Project Manager	Hour	$243.00
Structural Engineer	Hour	$243.00
Construction Manager	Hour	$243.00
Sr. Project Engineer	Hour	$206.00
Project Engineer	Hour	$174.00
Field Engineer	Hour	$189.00
Electrical & Instrumentation Engineer	Hour	$206.00
Engineer Technician	Hour	$171.00
EIT II	Hour	$157.00
Graduate Engineer/EIT I	Hour	$138.00
Structural Inspector	Hour	$157.00
Construction Observer/Sr. Inspector III	Hour	$157.00
Construction Observer/Inspector II	Hour	$146.00
Construction Observer/Inspector I	Hour	$119.00
Sr. Designator	Hour	$132.00
Designator	Hour	$114.00
Sr. Utility Coordinator	Hour	$191.00
Utility Coordinator	Hour	$167.00
Production Manager	Hour	$256.00
Production Technician	Hour	$107.00
Sr. Electrical Designer	Hour	$179.00
Sr. CADD/Designer	Hour	$170.00
CADD/Designer	Hour	$154.00
CADD Technician	Hour	$127.00
GIS Manager	Hour	$162.00
GIS Analyst	Hour	$116.00
Sr. Clerical/Administrator/Document Specialist/Recordkeeper	Hour	$108.00
Clerical/Administrator	Hour	$100.00
3D Modeling	Day	$1,032.00

**These rates are subject to a Consumer Price Index (CPI) adjustment.*

Direct Expenses

1. Subconsultant, reproduction, delivery, and other associated expenses shall be reimbursed at cost plus 10%.

2. Mileage shall be reimbursed at the current federal rate as published by the IRS.

CONFLICT OF INTEREST QUESTIONNAIRE - FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a) and by City of Denton Ethics Code, Ordinance 18-757.
By law this questionnaire must be filed with the records administrator of the local government entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

1 **Name of vendor who has a business relationship with local governmental entity.**

Binkley & Barfield, Inc.

2

[X] **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

_____
Name of Officer

Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relations hip with the local government officer. This section, (item 3 including subparts A, B, C & D), must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

[ ] Yes [X] No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

[ ] Yes [X] No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of one percent or more?

[ ] Yes [X] No

D. Describe each employment or business and family relationship with the local government officer named in this section.

None

4 [X] **I have no Conflict of Interest to disclose.**

5

DocuSigned by:
Richard Arrizu
A9B9B5AB05FE400...

Signature of vendor doing business with the governmental entity

4/23/2024
Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/ Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
(B) a transaction conducted at a price and subject to terms available to the public; or
(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(A) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:
(2) the vendor:
(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that
(i) a contract between the local governmental entity and vendor has been executed; or
(ii) the local governmental entity is considering entering into a contract with the vendor;
(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:
(i) a contract between the local governmental entity and vendor has been executed; or
(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:
(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);
(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or
(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:
(1) the date that the vendor:
(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or
(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or
(2) the date the vendor becomes aware:
(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);
(B) that the vendor has given one or more gifts described by Subsection (a); or
(C) of a family relationship with a local government officer.

City of Denton Ethics Code Ordinance Number 18-757

Definitions:

Relative: a family member related to a City Official within the third 3rd degree of affinity (marriage) or consanguinity (blood or adoption)

City Official: for purpose of this article, the term consists of the Council Members, Department Heads, or member of the Board of Ethics, Planning and zoning Commission Members, Board of Adjustment, Historic Landmark Commission, or Public Utilities Board

Vendor: a person who provides or seeks to provide goods, services, and/or real property to the City in exchange for compensation. This definition does not include those property owners from whom the City acquires public right-of-way or other real property interests for public use.

Per the City of Denton Ethics Code, Section 2-273. – Prohibitions

(3) It shall be a violation of this Article for a Vendor to offer or give a Gift to City Official exceeding fifty dollars ($50.00) per gift, or multiple gifts cumulatively valued at more than two hundred dollars ($200.00) per a single fiscal year.

Per the City of Denton Ethics Code, Section 2-282. – Disposition (b), (5) Ineligibility

If the Board of Ethics finds that a Vendor has violated this Article, the Board may recommend to the City Manager that the Vendor be deemed ineligible to enter into a City contract or other arrangement for goods, services, or real property, for a period of one (1) year.

DocuSign

Certificate Of Completion

Envelope Id: 0446DB0A2BCF42059E7079B8A861342D

Status: Sent

Subject: Please DocuSign: City Council Contract 7599-019 Neighborhood 5A Design PSA

Source Envelope:

Document Pages: 34

Signatures: 4

Certificate Pages: 6

Initials: 1

AutoNav: Enabled

EnvelopeId Stamping: Enabled

Time Zone: (UTC-06:00) Central Time (US & Canada)

Envelope Originator:
Cori Power
901B Texas Street
Denton, TX 76209
cori.power@cityofdenton.com
IP Address: 198.49.140.10

Record Tracking

Status: Original
4/15/2024 1:12:17 PM

Holder: Cori Power
cori.power@cityofdenton.com

Location: DocuSign

Signer Events	Signature	Timestamp
Cori Power cori.power@cityofdenton.com Purchasing Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	**Completed** Using IP Address: 198.49.140.10	Sent: 4/15/2024 1:26:20 PM Viewed: 4/15/2024 1:26:29 PM Signed: 4/15/2024 1:26:52 PM
Lori Hewell lori.hewell@cityofdenton.com Purchasing Manager City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DS LH Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 4/15/2024 1:26:56 PM Viewed: 4/15/2024 2:00:35 PM Signed: 4/15/2024 2:01:10 PM
Marcella Lunn marcella.lunn@cityofdenton.com Senior Deputy City Attorney City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DocuSigned by: Marcella Lunn 4B070831B4AA438... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 4/15/2024 2:01:15 PM Viewed: 4/16/2024 1:13:18 PM Signed: 4/16/2024 1:15:43 PM
Richard Arvizu rarvizu@binkleybarfield.com Corporate Vice President Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 4/23/2024 3:46:19 PM ID: 95dc1f22-c719-4cf9-b81b-1b7226645e8c	DocuSigned by: Richard Arvizu A9B9B5AB05FE400... Signature Adoption: Pre-selected Style Using IP Address: 47.185.198.35	Sent: 4/16/2024 1:15:48 PM Resent: 4/23/2024 3:27:05 PM Viewed: 4/23/2024 3:46:19 PM Signed: 4/23/2024 3:50:30 PM

Signer Events	Signature	Timestamp
Trevor Crain Trevor.Crain@cityofdenton.com Director of Capital Projects City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 4/23/2024 3:58:22 PM ID: 06986bf3-6b96-4b2b-9afc-e5f211de99b7	DocuSigned by: Trevor Crain 7B46EEAB11BC4F2... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 4/23/2024 3:50:35 PM Viewed: 4/23/2024 3:58:22 PM Signed: 4/23/2024 3:58:47 PM
Cori Power cori.power@cityofdenton.com Purchasing Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	**Completed** Using IP Address: 198.49.140.104	Sent: 4/23/2024 3:58:53 PM Viewed: 4/23/2024 4:04:06 PM Signed: 4/23/2024 4:04:22 PM
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		Sent: 4/23/2024 4:04:26 PM
Sara Hensley sara.hensley@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Lauren Thoden lauren.thoden@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		

In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None)	COPIED	Sent: 4/15/2024 1:26:57 PM

Carbon Copy Events	Status	Timestamp
Electronic Record and Signature Disclosure: Not Offered via DocuSign		
Gretna Jones gretna.jones@cityofdenton.com Legal Secretary City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 4/23/2024 3:58:52 PM Viewed: 4/23/2024 4:26:36 PM
City Secretary Office citysecretary@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Taylor Holt Taylor.Holt@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 4/18/2024 4:58:22 PM ID: 7604a9ce-964f-4ab9-b4ad-8b61eeaddd64		

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	4/15/2024 1:26:20 PM

Payment Events	Status	Timestamps

Electronic Record and Signature Disclosure

ELECTRONIC RECORD AND SIGNATURE DISCLOSURE

From time to time, City of Denton (we, us or Company) may be required by law to provide to you certain written notices or disclosures. Described below are the terms and conditions for providing to you such notices and disclosures electronically through your DocuSign, Inc. (DocuSign) Express user account. Please read the information below carefully and thoroughly, and if you can access this information electronically to your satisfaction and agree to these terms and conditions, please confirm your agreement by clicking the 'I agree' button at the bottom of this document.

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At any time, you may request from us a paper copy of any record provided or made available electronically to you by us. For such copies, as long as you are an authorized user of the DocuSign system you will have the ability to download and print any documents we send to you through your DocuSign user account for a limited period of time (usually 30 days) after such documents are first sent to you. After such time, if you wish for us to send you paper copies of any such documents from our office to you, you will be charged a $0.00 per-page fee. You may request delivery of such paper copies from us by following the procedure described below.

Withdrawing your consent

If you decide to receive notices and disclosures from us electronically, you may at any time change your mind and tell us that thereafter you want to receive required notices and disclosures only in paper format. How you must inform us of your decision to receive future notices and disclosure in paper format and withdraw your consent to receive notices and disclosures electronically is described below.

Consequences of changing your mind

If you elect to receive required notices and disclosures only in paper format, it will slow the speed at which we can complete certain steps in transactions with you and delivering services to you because we will need first to send the required notices or disclosures to you in paper format, and then wait until we receive back from you your acknowledgment of your receipt of such paper notices or disclosures. To indicate to us that you are changing your mind, you must withdraw your consent using the DocuSign 'Withdraw Consent' form on the signing page of your DocuSign account. This will indicate to us that you have withdrawn your consent to receive required notices and disclosures electronically from us and you will no longer be able to use your DocuSign Express user account to receive required notices and consents electronically from us or to sign electronically documents from us.

All notices and disclosures will be sent to you electronically

Unless you tell us otherwise in accordance with the procedures described herein, we will provide electronically to you through your DocuSign user account all required notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you during the course of our relationship with you. To reduce the chance of you inadvertently not receiving any notice or disclosure, we prefer to provide all of the required notices and disclosures to you by the same method and to the same address that you have given us. Thus, you can receive all the disclosures and notices electronically or in paper format through the paper mail delivery system. If you do not agree with this process, please let us know as described below. Please also see the paragraph immediately above that describes the consequences of your electing not to receive delivery of the notices and disclosures electronically from us.

How to contact City of Denton:
You may contact us to let us know of your changes as to how we may contact you electronically, to request paper copies of certain information from us, and to withdraw your prior consent to receive notices and disclosures electronically as follows:
To contact us by email send messages to: purchasing@cityofdenton.com

To advise City of Denton of your new e-mail address
To let us know of a change in your e-mail address where we should send notices and disclosures electronically to you, you must send an email message to us at melissa.kraft@cityofdenton.com and in the body of such request you must state: your previous e-mail address, your new e-mail address. We do not require any other information from you to change your email address..
In addition, you must notify DocuSign, Inc to arrange for your new email address to be reflected in your DocuSign account by following the process for changing e-mail in DocuSign.
To request paper copies from City of Denton
To request delivery from us of paper copies of the notices and disclosures previously provided by us to you electronically, you must send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail address, full name, US Postal address, and telephone number. We will bill you for any fees at that time, if any.
To withdraw your consent with City of Denton
To inform us that you no longer want to receive future notices and disclosures in electronic format you may:

i. decline to sign a document from within your DocuSign account, and on the subsequent page, select the check-box indicating you wish to withdraw your consent, or you may;
ii. send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail, full name, IS Postal Address, telephone number, and account number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

Required hardware and software

Operating Systems:	Windows2000? or WindowsXP?
Browsers (for SENDERS):	Internet Explorer 6.0? or above
Browsers (for SIGNERS):	Internet Explorer 6.0?, Mozilla FireFox 1.0, NetScape 7.2 (or above)
Email:	Access to a valid email account
Screen Resolution:	800 x 600 minimum
Enabled Security Settings:	•Allow per session cookies •Users accessing the internet behind a Proxy Server must enable HTTP 1.1 settings via proxy connection

** These minimum requirements are subject to change. If these requirements change, we will provide you with an email message at the email address we have on file for you at that time providing you with the revised hardware and software requirements, at which time you will have the right to withdraw your consent.

Acknowledging your access and consent to receive materials electronically
To confirm to us that you can access this information electronically, which will be similar to other electronic notices and disclosures that we will provide to you, please verify that you were able to read this electronic disclosure and that you also were able to print on paper or electronically save this page for your future reference and access or that you were able to e-mail this disclosure and consent to an address where you will be able to print on paper or save it for your future reference and access. Further, if you consent to receiving notices and disclosures exclusively in electronic format on the terms and conditions described above, please let us know by clicking the 'I agree' button below.
By checking the 'I Agree' box, I confirm that:

- I can access and read this Electronic CONSENT TO ELECTRONIC RECEIPT OF ELECTRONIC RECORD AND SIGNATURE DISCLOSURES document; and

- I can print on paper the disclosure or save or send the disclosure to a place where I can print it, for future reference and access; and

- Until or unless I notify City of Denton as described above, I consent to receive from exclusively through electronic means all notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to me by City of Denton during the course of my relationship with you.

File #: ID 24-1076, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a Professional Services Agreement with Kimley-Horn and Associates, Inc., for engineering services for the conceptual design and due diligence items for the Clear Creek Interceptor project for the Wastewater Department as set forth in the contract; providing for the expenditure of funds therefor; and providing an effective date (RFQ 8213-001 - Professional Services Agreement for engineering services awarded to Kimley-Horn and Associates, Inc., in the not-to-exceed amount of $1,259,400.00). The Public Utilities Board recommends approval (4 - 0).

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Procurement

ACM: Cassey Ogden

DATE: June 4, 2024

SUBJECT

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a Professional Services Agreement with Kimley-Horn and Associates, Inc., for engineering services for the conceptual design and due diligence items for the Clear Creek Interceptor project for the Wastewater Department as set forth in the contract; providing for the expenditure of funds therefor; and providing an effective date (RFQ 8213-001 - Professional Services Agreement for engineering services awarded to Kimley-Horn and Associates, Inc., in the not-to-exceed amount of $1,259,400.00). The Public Utilities Board recommends approval (4 - 0).

STRATEGIC ALIGNMENT

This action supports Key Focus Area: Enhance Infrastructure and Mobility.

INFORMATION/BACKGROUND

Following the City of Denton Wastewater Master Plan, approximately 7.5 miles of 27-inch through 42-inch sanitary sewer pipeline will be designed to be installed beginning at the future Clear Creek Water Reclamation Plant Site (~5,500 LF north of the Hartlee Field Road and Collins Street intersection) and extending to the west along Clear Creek to Milam Creek confluence, and connecting to the influent gravity piping at Ganzer Road Lift Station (at the southeast corner of Ganzer Road and IH-35) which is currently under design. The scope of services includes conceptual design and due diligence items necessary to permit the City to begin purchasing easements to construct the interceptor.

The scope of service tasks are as follows: Design Management, Alignment Study, Topographic Survey, Nationwide Permitting, Archeological Services, ESA Field Assessments and Tree Survey, Alignment Revisions, Easement Preparation, TxDOT RULIS, and Gas Pipeline Encroachments.

Request for Qualifications for an engineering services list for various water and wastewater utilities projects for the Water Utilities Department was solicited using the City's formal solicitation process. City Council approved a pre-qualified list of professional service firms on March 5, 2024 (Ordinance 24-390).

PRIOR ACTION/REVIEW (COUNCIL, BOARDS, COMMISSIONS)

On March 5, 2024, City Council approved RFQ 8213 for a prequalified list of firms for engineering services for various water and wastewater utilities projects for the Water Utilities Department (Ordinance 24-290).

On May 20, 2024, the Public Utilities Board (PUB) recommended this item to the City Council for consideration.

RECOMMENDATION

Award a contract with Kimley-Horn and Associates Inc., for engineering services for the conceptual design and due diligence items for the Clear Creek Interceptor project for the Wastewater Department, in a not-to-exceed amount of $1,259,400.

PRINCIPAL PLACE OF BUSINESS

Kimley-Horn and Associates Inc.
Fort Worth, TX

SUSTAINABILITY MEASURES

The contract will help the City of Denton in the conceptual design and due diligence items necessary to permit the City to begin purchasing easements necessary to construct the Clear Creek Interceptor. The new additional infrastructure will increase wastewater capacity throughout the Northern part of the City. The facilities are essential to the safe treatment and discharge of effluent to the sensitive accepting streams.

ESTIMATED SCHEDULE OF PROJECT

The Clear Creek Water Reclamation Plant anticipates completion by 2028, the interceptor will need to be completed by the completion date. Construction plans anticipated completion is July 2025.

FISCAL INFORMATION

These services will be funded from the Wastewater Utilities account 640516545.1360.20100. Requisition #164553 has been entered into the Purchasing software system in the amount of $900,000 for FY 24/25 and $359,400 will be funded from funds in FY 25/26. The budgeted amount for this item is $1,259,400.

EXHIBITS

Exhibit 1: Agenda Information Sheet
Exhibit 2: Ordinance and Contract

Respectfully submitted:
Lori Hewell, 940-349-7100
Purchasing Manager

For information concerning this acquisition, contact: Nicholas Dampf, 940-349-8030.

Legal point of contact: Marcella Lunn at 940-349-8333.

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, A TEXAS HOME-RULE MUNICIPAL CORPORATION, AUTHORIZING THE CITY MANAGER TO EXECUTE A PROFESSIONAL SERVICES AGREEMENT WITH KIMLEY-HORN AND ASSOCIATES, INC., FOR ENGINEERING SERVICES FOR THE CONCEPTUAL DESIGN AND DUE DILIGENCE ITEMS FOR THE CLEAR CREEK INTERCEPTOR PROJECT FOR THE WASTEWATER DEPARTMENT AS SET FORTH IN THE CONTRACT; PROVIDING FOR THE EXPENDITURE OF FUNDS THEREFOR; AND PROVIDING AN EFFECTIVE DATE (RFQ 8213-001 - PROFESSIONAL SERVICES AGREEMENT FOR ENGINEERING SERVICES AWARDED TO KIMLEY-HORN AND ASSOCIATES, INC., IN THE NOT-TO-EXCEED AMOUNT OF $1,259,400.00).

WHEREAS, on March 5, 2024, the City Council approved a pre-qualified engineer list for the Water and Wastewater Utilities Department (Ordinance 24-390), and the professional services provider (the "Provider") mentioned in this ordinance is being selected as the most highly qualified on the basis of its demonstrated competence and qualifications to perform the proposed professional services; and

WHEREAS, this procurement was undertaken as part of the City's governmental function [Water and sewer service]; and

WHEREAS, the fees under the proposed contract are fair and reasonable and are consistent with, and not higher than, the recommended practices and fees published by the professional associations applicable to the Provider's profession, and such fees do not exceed the maximum provided by law; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The City Manager, or their designee, is hereby authorized to enter into an agreement with Kimley-Horn and Associates, Inc., for engineering services for the conceptual design and due diligence items for the Clear Creek Interceptor project for the Wastewater Department, a copy of which is attached hereto and incorporated by reference herein.

SECTION 2. The City Manager, or their designee, is authorized to expend funds as required by the attached contract.

SECTION 3. The City Council of the City of Denton, hereby expressly delegates the authority to take any actions that may be required or permitted to be performed by the City of Denton under this ordinance to the City Manager of the City of Denton, or their designee.

SECTION 4. The findings in the preamble of this ordinance are incorporated herein by reference.

SECTION 5. This ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____. This ordinance was passed and approved by the following vote [___ - ___]:

	Aye	Nay	Abstain	Absent
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: _____

Marcella Lunn

Digitally signed by Marcella Lunn
DN: dc=com, dc=cityofdenton, dc=codad, ou=Department Users and Groups, ou=General Government, ou=Legal, cn=Marcella Lunn, email=Marcella.Lunn@cityofdenton.com
Date: 2024.05.03 13:23:43 -05'00'

DocuSign Envelope ID: 3B4B9F3B-1EFE-41A0-8B37-A86322CA968B

Docusign City Council Transmittal Coversheet

PSA	8213-001
File Name	Clear Creek Interceptor PSA
Purchasing Contact	Erica Garcia
City Council Target Date	
Piggy Back Option	Not Applicable
Contract Expiration	
Ordinance	

CITY OF DENTON, TEXAS

STANDARD AGREEMENT FOR ENGINEERING RELATED PROFESSIONAL SERVICES 8213-001

This AGREEMENT is between the City of Denton, a Texas home-rule municipality ("CITY"), and Kimley-Horn and Associates, Inc., with its corporate office at 801 Cherry Street, Suite 1300, Unit 11, Fort Worth, TX 76102, and authorized to do business in Texas, ("ENGINEER"), for a PROJECT generally described as: Clear Creek Interceptor (the "PROJECT").

SECTION 1
Scope of Services

A. The CITY hereby agrees to retain the ENGINEER, and the ENGINEER hereby agrees to perform, professional engineering services set forth in the Scope of Services attached hereto as Attachment A. These services shall be performed in connection with the PROJECT.

B. Additional services, if any, will be requested in writing by the CITY. CITY shall not pay for any work performed by ENGINEER or its consultants, subcontractors and/or suppliers that has not been ordered in advance and in writing. It is specifically agreed that ENGINEER shall not be compensated for any additional work resulting from oral orders of any person.

SECTION 2
Compensation and Term of Agreement

A. The ENGINEER shall be compensated for all services provided pursuant to this AGREEMENT in an amount not to exceed **$1,259,400** in the manner and in accordance with the fee schedule as set forth in Attachment B. Payment shall be considered full compensation for all labor, materials, supplies, and equipment necessary to complete the services described in Attachment A.

B. Unless otherwise terminated pursuant to Section 6. D. herein, this AGREEMENT shall be for a term beginning upon the effective date, as described below, and shall continue for a period which may reasonably be required for the completion of the PROJECT, until the expiration of the funds, or completion of the PROJECT and acceptance by the CITY, whichever occurs first. ENGINEER shall proceed diligently with the PROJECT to completion as described in the PROJECT schedule as set forth in Attachment A.

SECTION 3
Terms of Payment

Payments to the ENGINEER will be made as follows:

A. Invoice and Payment

(1) The Engineer shall provide the City sufficient documentation, including but not limited to meeting the requirements set forth in the PROJECT schedule as set forth in Attachment A to reasonably substantiate the invoices.

(2) The ENGINEER will issue monthly invoices for all work performed under this AGREEMENT. Invoices for the uncontested performance of the particular services are due and payable within 30 days of receipt by City.

(3) Upon completion of services enumerated in Section 1, the final payment of any balance for the uncontested performance of the services will be due within 30 days of receipt of the final invoice.

(4) In the event of a disputed or contested billing, only that portion so contested will be withheld from payment, and the undisputed portion will be paid. The CITY will exercise reasonableness in contesting any bill or portion thereof. No interest will accrue on any contested portion of the billing until mutually resolved.

(5) If the CITY fails to make payment in full to ENGINEER for billings contested in good faith within 60 days of the amount due, the ENGINEER may, after giving 7 days' written notice to CITY, suspend services under this AGREEMENT until paid in full. In the event of suspension of services, the ENGINEER shall have no liability to CITY for delays or damages caused the CITY because of such suspension of services.

SECTION 4
Obligations of the Engineer

A. General

The ENGINEER will serve as the CITY's professional engineering representative under this AGREEMENT, providing professional engineering consultation and advice and furnishing customary services incidental thereto.

B. Standard of Care

The ENGINEER shall perform its services:

(1) with the professional skill and care ordinarily provided by competent engineers practicing in the same or similar locality and under the same or similar circumstances and professional license; and

(2) as expeditiously as is prudent considering the ordinary professional skill and care of a competent engineer.

C. Subsurface Investigations

(1) The ENGINEER shall advise the CITY with regard to the necessity for subcontract work such as special surveys, tests, test borings, or other subsurface investigations in connection with design and engineering work to be performed hereunder. The ENGINEER shall also advise the CITY concerning the results of same. Such surveys, tests, and investigations shall be furnished by the CITY, unless otherwise specified in Attachment A.

(2) In soils, foundation, groundwater, and other subsurface investigations, the actual characteristics may vary significantly between successive test points and sample intervals and at locations other than where observations, exploration, and investigations have been made. Because of the inherent uncertainties in subsurface evaluations, changed or unanticipated underground conditions may occur that could affect the total PROJECT cost and/or execution. These conditions and cost/execution effects are not the responsibility of the ENGINEER.

D. Preparation of Engineering Drawings

The ENGINEER will provide to the CITY the original drawings of all plans in ink on reproducible mylar sheets and electronic files in .pdf format, or as otherwise approved by CITY, which shall become the property of the CITY. CITY may use such drawings in any manner it desires; provided, however, that the ENGINEER shall not be liable for the use of such drawings for any project other than the PROJECT described herein.

E. Engineer's Personnel at Construction Site

(1) The presence or duties of the ENGINEER's personnel at a construction site, whether as on-site representatives or otherwise, do not make the ENGINEER or its personnel in any way responsible for those duties that belong to the CITY and/or the CITY's construction contractors or other entities, and do not relieve the construction contractors or any other entity of their obligations, duties, and responsibilities, including, but not limited to, all construction methods, means, techniques, sequences, and procedures necessary for coordinating and completing all portions of the construction work in accordance with the AGREEMENT Documents and any health or safety precautions required by such construction work. The ENGINEER and its personnel have no authority to exercise any control over any construction contractor or other entity or their employees in connection with their work or any health or safety precautions.

(2) Except to the extent of specific site visits expressly detailed and set forth in Attachment A, the ENGINEER or its personnel shall have no obligation or responsibility to visit the construction site to become familiar with the progress or quality of the completed work on the PROJECT or to determine, in general, if the work on the PROJECT is being performed in a manner indicating that the

PROJECT, when completed, will be in accordance with the AGREEMENT Documents, nor shall anything in the AGREEMENT Documents or this AGREEMENT between CITY and ENGINEER be construed as requiring ENGINEER to make exhaustive or continuous on-site inspections to discover latent defects in the work or otherwise check the quality or quantity of the work on the PROJECT. If the ENGINEER makes on-site observation(s) of a deviation from the AGREEMENT Documents, the ENGINEER shall inform the CITY.

(3) When professional certification of performance or characteristics of materials, systems or equipment is reasonably required to perform the services set forth in the Scope of Services, the ENGINEER shall be entitled to rely upon such certification to establish materials, systems or equipment and performance criteria to be required in the AGREEMENT Documents.

F. Opinions of Probable Cost, Financial Considerations, and Schedules

(1) The ENGINEER shall provide opinions of probable costs based on the current available information at the time of preparation, in accordance with Attachment A.

(2) In providing opinions of cost, financial analyses, economic feasibility projections, and schedules for the PROJECT, the ENGINEER has no control over cost or price of labor and materials; unknown or latent conditions of existing equipment or structures that may affect operation or maintenance costs; competitive bidding procedures and market conditions; time or quality of performance by third parties; quality, type, management, or direction of operating personnel; and other economic and operational factors that may materially affect the ultimate PROJECT cost or schedule. Therefore, the ENGINEER makes no warranty that the CITY's actual PROJECT costs, financial aspects, economic feasibility, or schedules will not vary from the ENGINEER's opinions, analyses, projections, or estimates.

G. Construction Progress Payments

Recommendations by the ENGINEER to the CITY for periodic construction progress payments to the construction contractor will be based on the ENGINEER's knowledge, information, and belief from selective sampling and observation that the work has progressed to the point indicated. Such recommendations do not represent that continuous or detailed examinations have been made by the ENGINEER to ascertain that the construction contractor has completed the work in exact accordance with the AGREEMENT Documents; that the final work will be acceptable in all respects; that the ENGINEER has made an examination to ascertain how or for what purpose the construction contractor has used the moneys paid; that title to any of the work, materials, or equipment has passed to the CITY free and clear of liens, claims, security interests, or encumbrances; or that there are not other matters at issue between the CITY and the construction contractor that affect the amount that should be paid.

H. Record Drawings

Record drawings, if required, will be prepared, in part, on the basis of information compiled and furnished by others, and may not always represent the exact location, type of various components, or exact manner in which the PROJECT was finally constructed. The ENGINEER is not responsible for any errors or omissions in the information from others that is incorporated into the record drawings.

I. Right to Audit

(1) ENGINEER agrees that the CITY shall, until the expiration of five (5) years after final payment under this AGREEMENT, have access to and the right to examine and photocopy any directly pertinent books, documents, papers and records of the ENGINEER involving transactions relating to this AGREEMENT. ENGINEER agrees that the CITY shall have access during normal working hours to all necessary ENGINEER facilities and shall be provided adequate and appropriate work space in order to conduct audits in compliance with the provisions of this section. The CITY shall give ENGINEER reasonable advance notice of intended audits.

(2) ENGINEER further agrees to include in all its subconsultant agreements hereunder a provision to the effect that the subconsultant agrees that the CITY shall, until the expiration of five (5) years after final payment under the subcontract, have access to and the right to examine and photocopy any directly pertinent books, documents, papers and records of such subconsultant, involving transactions to the subcontract, and further, that the CITY shall have access during normal working hours to all subconsultant facilities, and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with the provisions of this section together with subsection (3) hereof. CITY shall give subconsultant reasonable advance notice of intended audits.

(3) ENGINEER and subconsultant agree to photocopy such documents as may be requested by the CITY. The CITY agrees to reimburse ENGINEER for the cost of copies at the rate published in the Texas Administrative Code in effect as of the time copying is performed.

J. INSURANCE

(1) ENGINEER'S INSURANCE

a. Commercial General Liability – the ENGINEER shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella insurance with a limit of not less than $1,000,000.00 per each occurrence with a $2,000,000.00 aggregate. If such Commercial General Liability insurance contains a general aggregate limit, it shall apply separately to this PROJECT or location.

   i. The CITY shall be included as an additional insured with all rights of defense under the CGL, using ISO additional insured endorsement or a substitute providing equivalent coverage, and under the commercial umbrella, if any. This insurance shall apply as primary insurance with respect to any other insurance or self-insurance programs afforded to the CITY. The Commercial General Liability insurance policy shall have no exclusions or endorsements that would alter or nullify: premises/operations, products/completed operations, contractual, personal injury, or advertising injury, which are normally contained within the policy, unless the CITY specifically approves such exclusions in writing.

   ii. ENGINEER waives all rights against the CITY and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the commercial general liability or commercial umbrella liability insurance maintained in accordance with this AGREEMENT.

b. Business Auto – the ENGINEER shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit of not less than $1,000,000 each accident. Such insurance shall cover liability arising out of "any auto", including owned, hired, and non-owned autos, when said vehicle is used in the course of the PROJECT. If the engineer owns no vehicles, coverage for hired or non-owned is acceptable.

   i. ENGINEER waives all rights against the CITY and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the business auto liability or commercial umbrella liability insurance obtained by ENGINEER pursuant to this AGREEMENT or under any applicable auto physical damage coverage.

c. Workers' Compensation – ENGINEER shall maintain workers compensation and employers liability insurance and, if necessary,

commercial umbrella liability insurance with a limit of not less than $100,000.00 each accident for bodily injury by accident or $100,000.00 each employee for bodily injury by disease, with $500,000.00 policy limit.

i. ENGINEER waives all rights against the CITY and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by workers compensation and employer's liability or commercial umbrella insurance obtained by ENGINEER pursuant to this AGREEMENT.

d. Professional Liability – ENGINEER shall maintain professional liability, a claims-made policy, with a minimum of $1,000,000.00 per claim and aggregate. The policy shall contain a retroactive date prior to the date of the AGREEMENT or the first date of services to be performed, whichever is earlier. Coverage shall be maintained for a period of 5 years following the completion of the AGREEMENT. An annual certificate of insurance specifically referencing this PROJECT shall be submitted to the CITY for each year following completion of the AGREEMENT.

(2) GENERAL INSURANCE REQUIREMENTS

a. Certificates of insurance evidencing that the ENGINEER has obtained all required insurance shall be attached to this AGREEMENT prior to its execution.

b. Applicable policies shall be endorsed to name the CITY an Additional Insured thereon, subject to any defense provided by the policy, as its interests may appear. The term CITY shall include its employees, officers, officials, agents, and volunteers as respects the contracted services.

c. Certificate(s) of insurance shall document that insurance coverage specified in this AGREEMENT are provided under applicable policies documented thereon.

d. Any failure on part of the CITY to attach the required insurance documentation hereto shall not constitute a waiver of the insurance requirements.

e. A minimum of thirty (30) days notice of cancellation or material change in coverage shall be provided to the CITY. A ten (10) days notice shall be acceptable in the event of non-payment of premium. Notice shall be sent to the respective Department Director (by name), City of Denton, 901 Texas Street, Denton, Texas 76209.

f. Insurers for all policies must be authorized to do business in the State of

Texas and have a minimum rating of A:V or greater, in the current A.M. Best Key Rating Guide or have reasonably equivalent financial strength and solvency to the satisfaction of Risk Management.

g. Any deductible or self insured retention in excess of $25,000.00 that would change or alter the requirements herein is subject to approval by the CITY in writing, if coverage is not provided on a first-dollar basis. The CITY, at it sole discretion, may consent to alternative coverage maintained through insurance pools or risk retention groups. Dedicated financial resources or letters of credit may also be acceptable to the CITY.

h. Applicable policies shall each be endorsed with a waiver of subrogation in favor of the CITY as respects the PROJECT.

i. The CITY shall be entitled, upon its request and without incurring expense, to review the ENGINEER's insurance policies including endorsements thereto and, at the CITY's discretion; the ENGINEER may be required to provide proof of insurance premium payments.

j. Lines of coverage, other than Professional Liability, underwritten on a claims-made basis, shall contain a retroactive date coincident with or prior to the date of the AGREEMENT. The certificate of insurance shall state both the retroactive date and that the coverage is claims-made.

k. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption nor restrictive modification or changes from date of commencement of the PROJECT until final payment and termination of any coverage required to be maintained after final payments.

l. The CITY shall not be responsible for the direct payment of any insurance premiums required by this AGREEMENT.

m. Sub consultants and subcontractors to/of the ENGINEER shall be required by the ENGINEER to maintain the same or reasonably equivalent insurance coverage as required for the ENGINEER. When sub consultants/subcontractors maintain insurance coverage, ENGINEER shall provide CITY with documentation thereof on a certificate of insurance.

K. Independent Consultant

The ENGINEER agrees to perform all services as an independent consultant and not as a subcontractor, agent, or employee of the CITY. The doctrine of *respondeat superior* shall not apply.

L. Disclosure

The ENGINEER acknowledges to the CITY that it has made full disclosure in writing of any existing conflicts of interest or potential conflicts of interest, including personal financial interest, direct or indirect, in property abutting the proposed PROJECT and business relationships with abutting property cities. The ENGINEER further acknowledges that it will make disclosure in writing of any conflicts of interest that develop subsequent to the signing of this AGREEMENT and prior to final payment under the AGREEMENT.

M. Asbestos or Hazardous Substances

(1) If asbestos or hazardous substances in any form are encountered or suspected, the ENGINEER will stop its own work in the affected portions of the PROJECT to permit testing and evaluation.

(2) If asbestos or other hazardous substances are suspected, the CITY may request the ENGINEER to assist in obtaining the services of a qualified subcontractor to manage the remediation activities of the PROJECT.

N. Permitting Authorities - Design Changes

If permitting authorities require design changes so as to comply with published design criteria and/or current engineering practice standards which the ENGINEER should have been aware of at the time this AGREEMENT was executed, the ENGINEER shall revise plans and specifications, as required, at its own cost and expense. However, if design changes are required due to the changes in the permitting authorities' published design criteria and/or practice standards criteria which are published after the date of this AGREEMENT which the ENGINEER could not have been reasonably aware of, the ENGINEER shall notify the CITY of such changes and an adjustment in compensation will be made through an amendment to this AGREEMENT.

O. Schedule

ENGINEER shall manage the PROJECT in accordance with the schedule developed per Attachment A to this AGREEMENT.

P. Equal Opportunity

(1) **Equal Employment Opportunity:** ENGINEER and ENGINEER's agents shall engage in any discriminatory employment practice. No person shall, on the grounds of race, sex, sexual orientation, age, disability, creed, color, genetic testing, or national origin, be refused the benefits of, or be otherwise subjected to discrimination under any activities resulting from this AGREEMENT.

(2) **Americans with Disabilities Act (ADA) Compliance:** ENGINEER and

ENGINEER's agents shall not engage in any discriminatory employment practice against individuals with disabilities as defined in the ADA.

SECTION 5
Obligations of the City

A. City-Furnished Data

ENGINEER may rely upon the accuracy, timeliness, and completeness of the information provided by the CITY.

B. Access to Facilities and Property

The CITY will make its facilities accessible to the ENGINEER as required for the ENGINEER's performance of its services. The CITY will perform, at no cost to the ENGINEER, such tests of equipment, machinery, pipelines, and other components of the CITY's facilities as may be required in connection with the ENGINEER's services. The CITY will be responsible for all acts of the CITY's personnel.

C. Advertisements, Permits, and Access

Unless otherwise agreed to in the Scope of Services, the CITY will obtain, arrange, and pay for all advertisements for bids; permits and licenses required by local, state, or federal authorities; and land, easements, rights-of-way, and access necessary for the ENGINEER's services or PROJECT construction.

D. Timely Review

The CITY will examine the ENGINEER's studies, reports, sketches, drawings, specifications, proposals, and other documents; obtain advice of an attorney, insurance counselor, accountant, auditor, bond and financial advisors, and other consultants as the CITY deems appropriate; and render in writing decisions required by the CITY in a timely manner in accordance with the PROJECT schedule prepared in accordance with Attachment A.

E. Prompt Notice

The CITY will give prompt written notice to the ENGINEER whenever CITY observes or becomes aware of any development that affects the scope or timing of the ENGINEER's services or of any defect in the work of the ENGINEER or construction contractors.

F. Asbestos or Hazardous Substances Release.

(1) CITY acknowledges ENGINEER will perform part of the work at CITY's

facilities that may contain hazardous materials, including asbestos containing materials, or conditions, and that ENGINEER had no prior role in the generation, treatment, storage, or disposition of such materials. In consideration of the associated risks that may give rise to claims by third parties or employees of City, City hereby releases ENGINEER from any damage or liability related to the presence of such materials.

(2) The release required above shall not apply in the event the discharge, release or escape of hazardous substances, contaminants, or asbestos is a result of ENGINEER's negligence or if ENGINEER brings such hazardous substance, contaminant or asbestos onto the PROJECT.

G. Contractor Indemnification and Claims

The CITY agrees to include in all construction contracts the provisions of Article IV.E. regarding the ENGINEER's Personnel at Construction Site, and provisions providing for contractor indemnification of the CITY and the ENGINEER for contractor's negligence.

H. Contractor Claims and Third-Party Beneficiaries

(1) The CITY agrees to include the following clause in all contracts with construction contractors and equipment or materials suppliers:

> "Contractors, subcontractors and equipment and materials suppliers on the PROJECT, or their sureties, shall maintain no direct action against the ENGINEER, its officers, employees, and subcontractors, for any claim arising out of, in connection with, or resulting from the engineering services performed. Only the CITY will be the beneficiary of any undertaking by the ENGINEER."

(2) This AGREEMENT gives no rights or benefits to anyone other than the CITY and the ENGINEER and there are no third-party beneficiaries.

(3) The CITY will include in each agreement it enters into with any other entity or person regarding the PROJECT a provision that such entity or person shall have no third-party beneficiary rights under this AGREEMENT.

(4) Nothing contained in this Section H. shall be construed as a waiver of any right the CITY has to bring a claim against ENGINEER.

I. CITY's Insurance

(1) The CITY may maintain property insurance on certain pre-existing structures associated with the PROJECT.

(2) The CITY may secure Builders Risk/Installation insurance at the replacement

cost value of the PROJECT. The CITY may provide ENGINEER a copy of the policy or documentation of such on a certificate of insurance.

J. Litigation Assistance

The Scope of Services does not include costs of the ENGINEER for required or requested assistance to support, prepare, document, bring, defend, or assist in litigation undertaken or defended by the CITY. In the event CITY requests such services of the ENGINEER, this AGREEMENT shall be amended or a separate agreement will be negotiated between the parties.

K. Changes

The CITY may make or approve changes within the general Scope of Services in this AGREEMENT. If such changes affect the ENGINEER's cost of or time required for performance of the services, an equitable adjustment will be made through an amendment to this AGREEMENT with appropriate CITY approval.

SECTION 6
General Legal Provisions

A. Authorization to Proceed

ENGINEER shall be authorized to proceed with this AGREEMENT upon receipt of a written Notice to Proceed from the CITY.

B. Reuse of Project Documents

All designs, drawings, specifications, documents, and other work products of the ENGINEER, whether in hard copy or in electronic form, are instruments of service for this PROJECT, whether the PROJECT is completed or not. Reuse, change, or alteration by the CITY or by others acting through or on behalf of the CITY of any such instruments of service without the written permission of the ENGINEER will be at the CITY's sole risk. The CITY shall own the final designs, drawings, specifications and documents.

C. Force Majeure

The ENGINEER is not responsible for damages or delay in performance caused by acts of God, strikes, lockouts, accidents, or other events beyond the control of the ENGINEER that prevent ENGINEER’s performance of its obligations hereunder.

D. Termination

(1) This AGREEMENT may be terminated:

a. by the City for its convenience upon 30 days' written notice to

ENGINEER.

b. by either the CITY or the ENGINEER for cause if either party fails substantially to perform through no fault of the other and the nonperforming party does not commence correction of such nonperformance within 5 days' written notice or thereafter fails to diligently complete the correction.

(2) If this AGREEMENT is terminated for the convenience of the City, the ENGINEER will be paid for termination expenses as follows:

a. Cost of reproduction of partial or complete studies, plans, specifications or other forms of ENGINEER'S work product;

b. Out-of-pocket expenses for purchasing electronic data files and other data storage supplies or services;

c. The time requirements for the ENGINEER'S personnel to document the work underway at the time of the CITY'S termination for convenience so that the work effort is suitable for long time storage.

(3) Prior to proceeding with termination services, the ENGINEER will submit to the CITY an itemized statement of all termination expenses. The CITY'S approval will be obtained in writing prior to proceeding with termination services.

E. Suspension, Delay, or Interruption to Work

The CITY may suspend, delay, or interrupt the services of the ENGINEER for the convenience of the CITY. In the event of such suspension, delay, or interruption, an equitable adjustment in the PROJECT's schedule, commitment and cost of the ENGINEER's personnel and subcontractors, and ENGINEER's compensation will be made.

F. Indemnification

IN ACCORDANCE WITH TEXAS LOCAL GOVERNMENT CODE SECTION 271.904, THE ENGINEER SHALL INDEMNIFY OR HOLD HARMLESS THE CITY AGAINST LIABILITY FOR ANY DAMAGE COMMITTED BY THE ENGINEER OR ENGINEER'S AGENT, CONSULTANT UNDER CONTRACT, OR ANOTHER ENTITY OVER WHICH THE ENGINEER EXERCISES CONTROL TO THE EXTENT THAT THE DAMAGE IS CAUSED BY OR RESULTING FROM AN ACT OF NEGLIGENCE, INTENTIONAL TORT, INTELLECTUAL PROPERTY INFRINGEMENT, OR FAILURE TO PAY A SUBCONTRACTOR OR SUPPLIER. CITY IS ENTITLED TO RECOVER ITS REASONABLE ATTORNEY'S FEES IN PROPORTION TO THE ENGINEER'S LIABILITY.

G. Assignment

Neither party shall assign all or any part of this AGREEMENT without the prior written consent of the other party.

H. Jurisdiction

The law of the State of Texas shall govern the validity of this AGREEMENT, its interpretation and performance, and any other claims related to it. The venue for any litigation related to this AGREEMENT shall be Denton County, Texas.

I. Severability and Survival

If any of the provisions contained in this AGREEMENT are held for any reason to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability will not affect any other provision, and this AGREEMENT shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein. Sections 5.F., 6.B., 6.D., 6.F., 6.H., and 6.I. shall survive termination of this AGREEMENT for any cause.

J. Observe and Comply

ENGINEER shall at all times observe and comply with all federal and State laws and regulations and with all City ordinances and regulations which in any way affect this AGREEMENT and the work hereunder, and shall observe and comply with all orders, laws ordinances and regulations which may exist or may be enacted later by governing bodies having jurisdiction or authority for such enactment. No plea of misunderstanding or ignorance thereof shall be considered. **ENGINEER AGREES TO DEFEND, INDEMNIFY AND HOLD HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS OR LIABILITY ARISING OUT OF THE VIOLATION OF ANY SUCH ORDER, LAW, ORDINANCE, OR REGULATION, WHETHER IT BE BY ITSELF OR ITS EMPLOYEES**.

K. Immigration Nationality Act

ENGINEER shall verify the identity and employment eligibility of its employees who perform work under this AGREEMENT, including completing the Employment Eligibility Verification Form (I-9). Upon request by CITY, ENGINEER shall provide CITY with copies of all I-9 forms and supporting eligibility documentation for each employee who performs work under this AGREEMENT. ENGINEER shall adhere to all Federal and State laws as well as establish appropriate procedures and controls so that no services will be performed by any ENGINEER employee who is not legally eligible to perform such services. **ENGINEER SHALL INDEMNIFY CITY AND HOLD CITY HARMLESS FROM ANY PENALTIES, LIABILITIES, OR LOSSES DUE TO VIOLATIONS OF THIS PARAGRAPH BY ENGINEER, ENGINEER'S EMPLOYEES, SUBCONTRACTORS, AGENTS, OR LICENSEES.** CITY, upon written notice to ENGINEER, shall have the right to immediately terminate this AGREEMENT for violations of this provision by

ENGINEER.

L. Prohibition on Contracts with Companies Boycotting Israel

Engineer acknowledges that in accordance with Chapter 2271 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains a written verification from the company that it: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract. The terms "boycott Israel" and "company" shall have the meanings ascribed to those terms in Section 808.001 of the Texas Government Code. ***By signing this agreement, Engineer certifies that Engineer's signature provides written verification to the City that Engineer: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

M. Prohibition on Contracts with Companies Doing Business with Iran, Sudan, or a Foreign Terrorist Organization

Sections 2252 and 2270 of the Texas Government Code restricts CITY from contracting with companies that do business with Iran, Sudan, or a foreign terrorist organization. ***By signing this agreement, Engineer certifies that Engineer's signature provides written verification to the City that Engineer, pursuant to Chapters 2252 and 2270, is not ineligible to enter into this agreement and will not become ineligible to receive payments under this agreement by doing business with Iran, Sudan, or a foreign terrorist organization***. Failure to meet or maintain the requirements under this provision will be considered a material breach.

N. Prohibition on Contracts with Companies Boycotting Certain Energy Companies

Engineer acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the contract. The terms "boycott energy company" and "company" shall have the meanings ascribed to those terms in Section 809.001 of the Texas Government Code. ***By signing this agreement, Engineer certifies that Engineer's signature provides written verification to the City that Engineer: (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

O. Prohibition on Contracts with Companies Boycotting Certain Firearm Entities and Firearm Trade Associations

Engineer acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association. The terms "discriminate against a firearm entity or firearm trade association," "firearm entity" and "firearm trade association" shall have the meanings ascribed to those terms in Chapter 2274 of the Texas Government Code. ***By signing this agreement, Engineer certifies that Engineer's signature provides written verification to the City that Engineer: (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

P. Termination Right for Contracts with Companies Doing Business with Certain Foreign-Owned Companies

The City of Denton may terminate this Contract immediately without any further liability if the City of Denton determines, in its sole judgment, that this Contract meets the requirements under Chapter 2274, and Engineer is, or will be in the future, (i) owned by or the majority of stock or other ownership interest of the company is held or controlled by individuals who are citizens of China, Iran, North Korea, Russia, or other designated country (ii) directly controlled by the Government of China, Iran, North Korea, Russia, or other designated country, or (iii) is headquartered in China, Iran, North Korea, Russia, or other designated country.

Q. Prohibition Against Personal Interest in Contracts

No officer, employee, independent consultant, or elected official of the City who is involved in the development, evaluation, or decision-making process of the performance of any solicitation shall have a financial interest, direct or indirect, in the Contract resulting from that solicitation as defined in the City's Ethic Ordinance 23-1165 and in the City Charter chapter 2 article XI(Ethics). Any willful violation of this section shall constitute impropriety in office, and any officer or employee guilty thereof shall be subject to disciplinary action up to and including dismissal. Any violation of this provision, with the knowledge, expressed or implied, of the Contractor shall render the Contract voidable by the City. The Contractor shall complete and submit the City's Conflict of Interest Questionnaire.

R. Certificate of Interested Parties Electronic Filing

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that the City may not enter into this contract unless the Contractor submits a disclosure of interested parties (Form 1295) to the City

at the time the Contractor submits the signed contract. The Texas Ethics Commission has adopted rules requiring the business entity to file Form 1295 electronically with the Commission.

Contractor will be required to furnish a Certificate of Interest Parties before the contract is awarded, in accordance with Government Code 2252.908.

The contractor shall:

1. Log onto the State Ethics Commission Website at : https://www.ethics.state.tx.us/filinginfo/1295/
2. Register utilizing the tutorial provided by the State
3. Print a copy of the completed Form 1295
4. Enter the Certificate Number on page 2 of this contract.
5. Complete and sign the Form 1295
6. Email the form to purchasing@cityofdenton.com with the contract number in the subject line. (EX: Contract 1234 – Form 1295)

The City must acknowledge the receipt of the filed Form 1295 not later than the 30th day after Council award. Once a Form 1295 is acknowledged, it will be posted to the Texas Ethics Commission's website within seven business days.

S. Agreement Documents

This AGREEMENT, including its attachments and schedules, constitutes the entire AGREEMENT, which supersedes all prior written or oral understandings, and may only be changed by a written amendment executed by both parties. This AGREEMENT may be executed in one or more counterparts and each counterpart shall, for all purposes, be deemed an original, but all such counterparts shall together constitute but one and the same instrument. The following attachments and schedules are hereby made a part of this AGREEMENT:

Attachment A - Scope of Services
Attachment B - Compensation

These documents make up the AGREEMENT documents and what is called for by one shall be as binding as if called for by all. In the event of an inconsistency or conflict in any of the provisions of the AGREEMENT documents, the inconsistency or conflict shall be resolved by giving precedence first to the written AGREEMENT then to the AGREEMENT documents in the order in which they are listed above.

The parties agree to transact business electronically. Any statutory requirements that certain terms be in writing will be satisfied using electronic documents and signing. Electronic signing of this document will be deemed an original for all legal purposes.

Duly executed by each party's designated representative to be effective on _____.

BY:
CITY OF DENTON, TEXAS

_____
Sara Hensley, City Manager

BY:
ENGINEER
KIMLEY-HORN AND ASSOCIATES, INC

DocuSigned by:
John Atkins
25D7303EA77F421...
Authorized Agent, Title

Full Name: John Atkins

2024-1149688
TEXAS ETHICS COMMISSION
CERTIFICATE NUMBER

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

THIS AGREEMENT HAS BEEN BOTH REVIEWED AND APPROVED as to financial and operational obligations and business terms.

DocuSigned by:
Steven Gay
9EBFF5658E56492...
Signature

Director,
Title

Water Utilities
Department

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: DocuSigned by:
Marcella Lunn
4B070831B4AA438...

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ATTACHMENT "A"

Scope for Engineering Design Related Services for:

CLEAR CREEK INTERCEPTOR

The ENGINEER will perform its services pursuant to the requirements delineated below. Services under this attachment include engineering services for the conceptual design and due diligence items for the CLEAR CREEK INTERCEPTOR project.

Project Understanding

The City of Denton water and wastewater utility has determined that a major wastewater interceptor will be necessary in the near future in the Clear Creek Basin. In accordance with the City of Denton Wastewater Master Plan approximately 7.5 miles of 27-inch through 42-inch sanitary sewer pipeline will be designed to be installed beginning at the future Clear Creek Water Reclamation Plant Site (~5,500 LF north of the Hartlee Field Road and Collins Street intersection) and extending to the west along the Clear Creek to the Milam Creek confluence, and connecting to the influent gravity piping at the Ganzer Road Lift State (at the southeast corner of Ganzer Road and IH-35) which is currently under design.

This scope of services includes conceptual design and due diligence items necessary to permit the City to begin purchasing easements necessary to construct the interceptor.

Final design is not included in this scope of services and is anticipated to be added by amendment in fiscal year 2025.

ENGINEER's scope of services is as follows:

- Task 1 – Design Management
- Task 2 – Alignment Study
- Task 3 – Topographic Survey
- Task 4 – Nationwide Permitting
- Task 5 – Archeological Services
- Task 6 – ESA Field Assessments and Tree Survey
- Task 7 – Alignment Revisions
- Task 8 – Easement Preparation
- Task 9 – TxDOT RULIS
- Task 10 – Gas Pipeline Encroachments

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Task 1 – DESIGN MANAGEMENT

A. Project Management

1. Develop project communication plan.
   a. Develop project contact list.
   b. Prepare and e-mail progress reports to the project team once a month to be included with invoices. 12 months is assumed.
   c. Prepare project schedule and provide schedule updates if the schedule changes.
2. Meetings
   a. Prepare for and attend kickoff meeting.
   b. Prepare meeting notes and distribute to the City.
3. Sub-consultant Agreement Preparation
   a. Prepare and execute up to two (2) subconsultant agreements.

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Task 2 – ALIGNMENT STUDY

This task is for considering alternative alignments of the proposed Clear Creek Interceptor and obtaining City concurrence of a single option for the proposed alignment prior to performing and preparing design surveys, special studies and permitting, construction plans, and easement documents. This task will also verify sizing for the interceptor based upon the existing City wastewater hydraulic model.

A. Preliminary Investigation

1. Data collection and record research
2. Site investigation
3. Hydraulic verification and sizing utilizing City provided wastewater model
4. Data review with City

B. Schematic property and right-of-way investigation

1. Obtain and organizing publicly available parcel, easement, and ownership data.
2. Import obtained data into CAD format for use in alignment determination.

C. Aquatic Resources Delineation

1. Delineation will be performed in general accordance with the U.S. Army Corps of Engineers (USACE) 1987 Wetlands Delineation Manual and appropriate USACE Regional Supplement (Great Plains Region) as detailed below:
    a. Locate readily available resource documents and perform a desktop review of site conditions.
    b. Perform one site visit to evaluate the existence and approximate locations of aquatic resources on the site.
    c. Prepare exhibits showing the boundaries (polygons) and acreage and/or linear footage (if applicable) of aquatic resources identified onsite during the site visit. Appropriate feature data, locations, and extents will be collected with a GPS with sub-meter accuracy as required by the USACE. This scope of work does not include flagging.
    d. Prepare a report for the project documenting the results of the aquatic resources delineation performed onsite providing recommendations pertaining to compliance with Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act.
2. Official authority to make a determination defining applicable jurisdictional limits rests with the EPA; however, authority has been delegated to the USACE. Jurisdictional determinations are made by the USACE, upon specific written request, on a case-by-case basis and may make use of certain information at its disposal (such as other permits in the local area) that may not be readily available to the public. The aquatic resources delineation should not be considered authoritative, and it may not wholly eliminate uncertainty regarding the USACE's jurisdictional limits.

D. Alternate Alignment Technical Memorandum

1. Easement requirements

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2. Pavement impacts
3. Environmentally sensitive area identification
4. Permitting requirements
5. Property ownership impacts
6. Field review of alignment alternatives
7. Opinion of Probable Construction Cost (OPCC)
8. Alternative alignments mapping
9. Draft memorandum, including presentation to City
10. Final memorandum, including alignment recommendations

The workflow anticipated will require certain investigations to commence after this task is underway or nearly complete, e.g., the archeological survey (by others). If the archeological survey findings or findings of other investigations dictate changes to the already established alignment and other work performed in this task, then the revisions will be performed as part of Task 7 – Alignment Revisions.

E. Deliverables

1. Digital .PDF copy of draft and final alignment study.

F. Meetings

1. Conduct up to six (6) status update and review meetings with City.

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Task 3 – TOPOGRAPHIC SURVEY

A. Design Survey

1. Utility and Property Owner Coordination
   a. Coordinate with DIG TESS and City of Denton to locate and mark existing franchise and public utilities prior to performing the field survey.
   b. Right-of-Entry coordination with property owners to obtain permission to access private property to perform the design survey.
2. Design Survey
   a. The limits of the topographic survey shall be approximately 100-feet wide and 7.5 miles long, centered on the final recommended alignment as dictated by Task 2 – Alignment Study.

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Task 4 – NATIONWIDE PERMITTING

This task will include either the preparation of a USACE Nationwide Permit (NWP) 58 Non-Notifying Memorandum or a USACE NWP 58 Pre-Construction Notification but not both, as follows:

A. USACE NWP 58 Non-Notifying Memorandum:

1. If it appears that the proposed project could be authorized by Nationwide Permit (NWP) 58 for Utility Line Activities for Water and Other Substances without notification to the USACE Fort Worth District, ENGINEER will add to the aquatic resources delineation report to document compliance with the applicable NWP. This scope assumes that formal USACE notification and authorization is not required; therefore, ENGINEER will document specific project information and details and how to use the perceived applicable NWP. The report will include regulatory language for the applicable NWP with discussion of selected noteworthy General Conditions. The report will include the following information:
   a. Brief project description of proposed impacts to aquatic features;
   b. NWP 58 permit language with General Conditions;
   c. State Water Quality Certifications and Conditions; and
   d. NWP Regional Conditions for Texas.
2. Though no coordination with the USACE is proposed as part of this Task, the use of the applicable NWP constitutes compliance with appropriate Federal regulations. All NWP General and Regional Conditions and NWP terms must be met by the Client.

B. USACE NWP 58 Pre-Construction Notification (PCN):

1. If it appears that the proposed project could be authorized by Nationwide Permit (NWP) 58 for Utility Line Activities for Water and Other Substances with notification to the USACE Fort Worth District, ENGINEER will prepare a pre-construction notification (PCN) package for the proposed project requiring the NWP authorization. Under this scenario, ENGINEER anticipates providing, at a minimum, the following information in the PCN document:
   a. Aquatic Resources Delineation Report (prepared as part of Task 2)
   b. Project Description
   c. Purpose and Need
   d. Plan, Profile, and other CAD Drawings
   e. Threatened and Endangered Species information from readily available databases
   f. Cultural Resources information from readily available databases.
2. Although not anticipated, the USACE may require species specific studies for threatened and endangered species and/or cultural resources.
3. This option is based on the ability to receive authorization under the current NWP Program (2021-2026); however, receiving authorization from the USACE is not guaranteed. This option is based on the assumption that compensatory mitigation will not be required; therefore, compensatory mitigation evaluation and assistance is

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not included in this scope of work. This option does not include pursuing authorization under an Individual Permit.

C. USACE Field Verification Site Visit:

1. It is anticipated, that the USACE may require a site visit to verify conditions in the field. ENGINEER will attend this site visit with the USACE. The USACE may modify the aquatic feature classifications or may request additional information about aquatic features. ENGINEER will update the NWP 58 PCN package based on this field site visit and provide the modifications to the USACE. This task includes one (1) site visit with the USACE and one (1) set of an additional information request from the USACE.

D. Deliverables

1. Non-notifying memorandum in digital PDF for City records; or
2. USACE Pre-construction notification packet in digital PDF.

E. Meetings

1. Attend up to two (2) meetings with the USACE and City to discuss the PCN packet and/or meet in the field for verification.

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Task 5 – ARCHEOLOGICAL SERVICES

A Phase I intensive pedestrian archeological survey of the proposed project limits to identify cultural resources in the project area and to make recommendations based upon their significance with regard to eligibility for listing on the National Register of Historic Places (NRHP) and designation as a Texas State Antiquities Landmark (SAL). In the event that a recommendation for NRHP or SAL eligibility cannot be made for a site found during the Phase I survey, Phase II testing may be recommended and subsequently required by the Texas Historical Commission (THC), if the stie cannot be avoided. This scope does not include any Phase II testing or Phase III mitigation tasks. The Phase I survey will include the following tasks:

A. Desktop Cultural Resources Evaluation:

1. Compile information from publicly available records/databases
2. Produce a letter report detailing the results of the records search and presents a review of the natural environment and cultural history of the project area, along with conclusions and recommendations of our findings.

B. Phase I Intensive Pedestrian Survey:

1. Perform shovel testing every 100m along the entire route.
2. In floodplain settings, excavate trenches a maximum of every 200 meters to test for deeply buried cultural resources.
3. Survey standards will meet the minimum requirements adopted by the THC (Council of Texas Archeologists 2020).
4. If archeological sites are found during the survey, they will be recorded.

C. Technical Report

1. Report will be prepared meeting the standards of the THC (Council of Texas Archeologists 2018) and presents a review of the natural environment and cultural history of the project area, research design and methodology, and the results of field investigations, as well as conclusions and recommendations of findings.

D. Curation

1. Records and collected artifacts must be curated in perpetuity with an approved curatorial facility, in order to fulfill requirements in the Texas Antiquities Permit (TAP). A representative of the City must sign the required curatorial paperwork. Though curation cannot be completed until the THC has approved the report, this task will not prevent the City from proceeding with construction of the project. If any artifacts are collected on private land, they will be returned to the landowner at their request.

E. Deliverables:

1. Desktop Cultural Resources Evaluation in digital .PDF format.
2. Cultural Resources THC Application in digital .PDF format.
3. Cultural Resources Technical Report in digital .PDF format.

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Task 6 – ESA Field Assessments and Tree Survey

In accordance with the Denton Development Code Sections 2.5.5 and 7.7.4, a field assessment will be performed along the entire alignment to determine the limits of existing or unknown Environmentally Sensitive Areas (ESAs), and to prepare a tree inventory within the proposed pipeline corridor.

A. ESA Field Assessments

1. Schedule and attend a pre-application conference with City staff.
2. Perform a field assessment to determine whether the official ESA map requires modifications based upon actual riparian buffer locations, water related habitat boundaries, or cross timbers upland habitat. Obtain field locations of ESA boundaries with a GPS data logger.
3. Complete applications for each parcel to refine ESA boundaries based upon field assessment and submit to City for review and comment. Prepare CAD and GIS shapefiles of proposed ESA boundaries for utilization in design drawings.
4. Respond to up to two rounds of comments from City.

B. Tree Survey

1. Compile previous tree inventories (if provided by City), aerial photos, and ROW limits for use in GPS data logger. Create a Data Dictionary for GPS data logger for data collection and print paper maps and CAD drawings for field work.
2. Utilize GPS to collect tree data along a 100’ wide easement based upon the alignment established in Task 2. The data will be collected by a handheld GPS unit and will therefore be mapping grade, not survey grade. For each 6-inch and larger tree, measured in accordance with the City of Denton Tree Ordinance, the collected data will include:
   a. GPS coordinates (latitude and longitude in decimal degrees);
   b. Diameter of trunk – City of Denton standard for multiple stemmed trees;
   c. Species name (scientific and common);
   d. Tag number - Each tree with recorded data above will be physically tagged with a pre-numbered aluminum circular tag; and
   e. General health assessment (healthy, declining, or hazard).
3. Map and quantify existing trees in CAD drawings and shapefiles for incorporation in design drawings.
4. While Engineer will endeavor to tag and locate all trees, as described above, it may not be practicable to do so and some trees may be missed in areas of heavy tree coverage or limited access.

C. Deliverables

1. ESA exhibits and application.
2. Tree inventory spreadsheet, and exhibits.

D. Meetings

1. One (1) ESA Pre-application meeting.

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Task 7 – ALIGNMENT REVISIONS

Findings and data collected from Tasks 3, 4, 5, and 6 will be incorporated into the overall alignment to refine the proposed alignment.

A. Alignment Revisions

1. Incorporate findings and data collected from Tasks 3, 4, 5, and 6 into alignment exhibits created as part of Task 2.
2. Prepare Final alignment recommendation letter.
3. Prepare final alignment recommendation exhibits including proposed easement boundaries.

B. Deliverables

1. Final alignment recommendation letter and exhibits in digital .PDF format.

C. Meetings

1. One (1) meeting to review final alignment recommendation submittal.

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Task 8 – EASEMENT PREPARATION

A. Separate Instrument Easement Descriptions

1. Based on the final alignment recommendation and property research prepared and performed as part of Tasks 2 and 3, Engineer will prepare legal descriptions and accompanying exhibits to be attached to easement documents provided by the City for easements required to construct and maintain the proposed interceptor.

   a. Twenty-Five (25) extra wide (50 – 100 feet) permanent easements are assumed to accommodate the construction of the proposed facilities.

   b. Five (5) temporary construction and/or access easements are assumed to provide access or lay-down/storage areas to construct the proposed interceptor.

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Task 9 – TxDOT RULIS

A. TxDOT RULIS Application

1. Prepare plan and profile Drawings of proposed Texas Department of Transportation (TxDOT) right of way crossings for the following TxDOT facilities:
    a. FM 428 (E Sherman Drive)
    b. FM 2164 (N Locust Street)
2. Prepare TxDOT Right of Way Utility and Leasing Information System (RULIS) applications for proposed crossings.
3. Respond to up to two rounds of comments on application.

B. Deliverables

1. Submit RULIS applications to City or to TxDOT on behalf of the City.

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Task 10 – GAS PIPELINE ENCROACHMENTS

A. LONO Exhibits

1. Prepare plan and profile sheets indicating proposed gas pipeline crossings with proposed interceptor to obtain letters of no objection (LONOs) for up to six (6) gas pipeline crossings. The following crossings are assumed to be required:
   a. Atmos Energy (3 Crossings)
   b. Explorer Pipeline Company (1 Crossing)
   c. Enterprise Products (1 Crossing)
   d. Energy Transfer Company (1 Crossing)
2. Respond to up to two rounds of comments on submittals.

B. Deliverables

1. LONO drawings in digital .PDF format.

C. Meetings

1. Up to four (4) meetings/calls with pipeline owners.

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ADDITIONAL SERVICES NOT INCLUDED IN THE EXISTING SCOPE OF SERVICES

City and ENGINEER agree that the following services are beyond the Scope of Services described in the tasks above. However, ENGINEER can provide these services, if needed, upon the City's written request. Any additional amounts paid to ENGINEER as a result of any material change to the Scope of the Project shall be agreed upon in writing by both parties before the services are performed. These additional services include, but are not limited to the following:

- Geotechnical Investigations
- Subsurface Utility Engineering
- Right-of-Way Acquisition Services
- Final design services
- Bidding phase services
- Preparation of a conditional letter of map revision (CLOMR) and letter of map revision (LOMR) and associated submittals to the City and FEMA.
- Revisions associated with development services comments beyond those indicated in the Scope of Services.
- Redesign to reflect project scope changes requested by the CITY, required to address changed conditions or change in direction previously approved by the CITY, mandated by changing governmental laws, or necessitated by the CITY's acceptance of substitutions proposed by the contractor.
- Traffic Control Plan Details
- Traffic signal design
- Sidewalk design
- Preparation for and attendance at public meetings beyond those identified in the scope
- Construction management and resident project representative services.
- Performance of materials or specialty testing services.
- Performance of miscellaneous and supplemental services related to the project as requested by the CITY.
- Retaining wall design
- Traffic studies or reports
- Any services not listed in the Scope of Services

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ATTACHMENT "B"

Compensation for Engineering Design Related Services for:

CLEAR CREEK INTERCEPTOR

Total compensation for the ENGINEER contemplated under the terms of this agreement **shall be on a lump sum basis not-to-exceed $1,259,400** for all services including reimbursable expenses.

Progress payments for shall be paid monthly based on the actual work satisfactorily completed per month in each phase, with the following amounts of the total compensation for each phase of the Project:

• Task 1 – Design Management	$ 33,900
• Task 2 – Alignment Study	$336,000
• Task 3 – Topographic Survey	$319,200
• Task 4 – Nationwide Permitting	$ 40,100
• Task 5 – Archeological Services	$191,200
• Task 6 – ESA Field Assessments and Tree Survey	$ 99,800
• Task 7 – Alignment Revisions	$ 73,300
• Task 8 – Easement Preparation	$ 60,900
• Task 9 – TxDOT RULIS	$ 30,000
• Task 10 – Gas Pipeline Encroachments	$ 75,000
Grand Total	**$ 1,259,400**

ENGINEER will not exceed the total maximum fee shown without authorization from the CITY. Individual task amounts are provided for budgeting purposes only. ENGINEER reserves the right to reallocate amounts among tasks as necessary.

All permitting, application, and similar project fees will be paid directly by the CITY.

Payment will be due within 25 days of your receipt of the invoice and should include the invoice number and Kimley-Horn project number.

CONFLICT OF INTEREST QUESTIONNAIRE - FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a) and by City of Denton Ethics Code, Ordinance 18-757.
By law this questionnaire must be filed with the records administrator of the local government entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

1 **Name of vendor who has a business relationship with local governmental entity.**

Kimley-Horn and Associates, Inc

2 [X] **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

John Atkins

Name of Officer

Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relations hip with the local government officer. This section, (item 3 including subparts A, B, C & D), must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

[ ] Yes [X] No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

[ ] Yes [X] No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of one percent or more?

[ ] Yes [X] No

D. Describe each employment or business and family relationship with the local government officer named in this section.

N/A

4 [X] **I have no Conflict of Interest to disclose.**

5

DocuSigned by:
John Atkins
25D7303EA77F421...

Signature of vendor doing business with the governmental entity

4/30/2024

Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/ Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(A) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

City of Denton Ethics Code Ordinance Number 18-757

Definitions:

Relative: a family member related to a City Official within the third 3rd degree of affinity (marriage) or consanguinity (blood or adoption)

City Official: for purpose of this article, the term consists of the Council Members, Department Heads, or member of the Board of Ethics, Planning and zoning Commission Members, Board of Adjustment, Historic Landmark Commission, or Public Utilities Board

Vendor: a person who provides or seeks to provide goods, services, and/or real property to the City in exchange for compensation. This definition does not include those property owners from whom the City acquires public right-of-way or other real property interests for public use.

Per the City of Denton Ethics Code, Section 2-273. – Prohibitions

(3) It shall be a violation of this Article for a Vendor to offer or give a Gift to City Official exceeding fifty dollars ($50.00) per gift, or multiple gifts cumulatively valued at more than two hundred dollars ($200.00) per a single fiscal year.

Per the City of Denton Ethics Code, Section 2-282. – Disposition (b), (5) Ineligibility

If the Board of Ethics finds that a Vendor has violated this Article, the Board may recommend to the City Manager that the Vendor be deemed ineligible to enter into a City contract or other arrangement for goods, services, or real property, for a period of one (1) year.

DocuSign

Certificate Of Completion

Envelope Id: 3B4B9F3B1EFE41A08B37A86322CA968B

Status: Sent

Subject: Please DocuSign: City Council Contract 8213-001 Clear Creek Interceptor PSA

Source Envelope:

Document Pages: 36
Certificate Pages: 6
AutoNav: Enabled
EnvelopeId Stamping: Enabled
Time Zone: (UTC-06:00) Central Time (US & Canada)

Signatures: 4
Initials: 1

Envelope Originator:
Erica Garcia
901B Texas Street
Denton, TX 76209
erica.garcia@cityofdenton.com
IP Address: 198.49.140.104

Record Tracking

Status: Original
4/29/2024 8:31:03 AM

Holder: Erica Garcia
erica.garcia@cityofdenton.com

Location: DocuSign

Signer Events	Signature	Timestamp
Erica Garcia erica.garcia@cityofdenton.com Senior Buyer City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	**Completed** Using IP Address: 198.49.140.104	Sent: 4/29/2024 8:35:28 AM Viewed: 4/29/2024 8:35:48 AM Signed: 4/29/2024 8:36:53 AM
Lori Hewell lori.hewell@cityofdenton.com Purchasing Manager City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DS LH Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 4/29/2024 8:36:57 AM Viewed: 4/29/2024 9:54:29 AM Signed: 4/29/2024 9:55:26 AM
Marcella Lunn marcella.lunn@cityofdenton.com Senior Deputy City Attorney City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DocuSigned by: Marcella Lunn 4B070831B4AA438... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 4/29/2024 9:55:30 AM Viewed: 4/29/2024 1:19:08 PM Signed: 4/29/2024 1:27:18 PM
John Atkins john.atkins@kimley-horn.com Vice President Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 4/30/2024 7:45:35 AM ID: 38888f8d-9274-4adf-9271-abe59dc77708	DocuSigned by: John Atkins 25D7303EA77F421... Signature Adoption: Pre-selected Style Using IP Address: 130.41.174.193	Sent: 4/29/2024 1:27:21 PM Viewed: 4/30/2024 7:45:35 AM Signed: 4/30/2024 7:46:41 AM

Signer Events	Signature	Timestamp
Steven Gay stephen.gay@cityofdenton.com Director, Water Utlilities Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 4/30/2024 8:19:21 AM ID: 26e61aa8-81f3-4c6f-ada1-47a47cf5147e	DocuSigned by: Steven Gay 9EBFF5658E56492... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 4/30/2024 7:46:44 AM Viewed: 4/30/2024 8:19:21 AM Signed: 4/30/2024 8:40:40 AM
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		Sent: 4/30/2024 8:40:43 AM
Sara Hensley sara.hensley@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Lauren Thoden lauren.thoden@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		

In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 4/29/2024 8:36:57 AM
Gretna Jones gretna.jones@cityofdenton.com Legal Secretary City of Denton Security Level: Email, Account Authentication (None)	COPIED	Sent: 4/30/2024 8:40:44 AM Viewed: 5/2/2024 10:51:24 AM

Carbon Copy Events	Status	Timestamp
Electronic Record and Signature Disclosure: Not Offered via DocuSign		
City Secretary Office citysecretary@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	4/29/2024 8:35:28 AM

Payment Events	Status	Timestamps

Electronic Record and Signature Disclosure

ELECTRONIC RECORD AND SIGNATURE DISCLOSURE

From time to time, City of Denton (we, us or Company) may be required by law to provide to you certain written notices or disclosures. Described below are the terms and conditions for providing to you such notices and disclosures electronically through your DocuSign, Inc. (DocuSign) Express user account. Please read the information below carefully and thoroughly, and if you can access this information electronically to your satisfaction and agree to these terms and conditions, please confirm your agreement by clicking the 'I agree' button at the bottom of this document.

Getting paper copies

At any time, you may request from us a paper copy of any record provided or made available electronically to you by us. For such copies, as long as you are an authorized user of the DocuSign system you will have the ability to download and print any documents we send to you through your DocuSign user account for a limited period of time (usually 30 days) after such documents are first sent to you. After such time, if you wish for us to send you paper copies of any such documents from our office to you, you will be charged a $0.00 per-page fee. You may request delivery of such paper copies from us by following the procedure described below.

Withdrawing your consent

If you decide to receive notices and disclosures from us electronically, you may at any time change your mind and tell us that thereafter you want to receive required notices and disclosures only in paper format. How you must inform us of your decision to receive future notices and disclosure in paper format and withdraw your consent to receive notices and disclosures electronically is described below.

Consequences of changing your mind

If you elect to receive required notices and disclosures only in paper format, it will slow the speed at which we can complete certain steps in transactions with you and delivering services to you because we will need first to send the required notices or disclosures to you in paper format, and then wait until we receive back from you your acknowledgment of your receipt of such paper notices or disclosures. To indicate to us that you are changing your mind, you must withdraw your consent using the DocuSign 'Withdraw Consent' form on the signing page of your DocuSign account. This will indicate to us that you have withdrawn your consent to receive required notices and disclosures electronically from us and you will no longer be able to use your DocuSign Express user account to receive required notices and consents electronically from us or to sign electronically documents from us.

All notices and disclosures will be sent to you electronically

Unless you tell us otherwise in accordance with the procedures described herein, we will provide electronically to you through your DocuSign user account all required notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you during the course of our relationship with you. To reduce the chance of you inadvertently not receiving any notice or disclosure, we prefer to provide all of the required notices and disclosures to you by the same method and to the same address that you have given us. Thus, you can receive all the disclosures and notices electronically or in paper format through the paper mail delivery system. If you do not agree with this process, please let us know as described below. Please also see the paragraph immediately above that describes the consequences of your electing not to receive delivery of the notices and disclosures electronically from us.

How to contact City of Denton:
You may contact us to let us know of your changes as to how we may contact you electronically, to request paper copies of certain information from us, and to withdraw your prior consent to receive notices and disclosures electronically as follows:
To contact us by email send messages to: purchasing@cityofdenton.com

To advise City of Denton of your new e-mail address
To let us know of a change in your e-mail address where we should send notices and disclosures electronically to you, you must send an email message to us at melissa.kraft@cityofdenton.com and in the body of such request you must state: your previous e-mail address, your new e-mail address. We do not require any other information from you to change your email address..
In addition, you must notify DocuSign, Inc to arrange for your new email address to be reflected in your DocuSign account by following the process for changing e-mail in DocuSign.
To request paper copies from City of Denton
To request delivery from us of paper copies of the notices and disclosures previously provided by us to you electronically, you must send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail address, full name, US Postal address, and telephone number. We will bill you for any fees at that time, if any.
To withdraw your consent with City of Denton
To inform us that you no longer want to receive future notices and disclosures in electronic format you may:

i. decline to sign a document from within your DocuSign account, and on the subsequent page, select the check-box indicating you wish to withdraw your consent, or you may;
ii. send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail, full name, IS Postal Address, telephone number, and account number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

Required hardware and software

Operating Systems:	Windows2000? or WindowsXP?
Browsers (for SENDERS):	Internet Explorer 6.0? or above
Browsers (for SIGNERS):	Internet Explorer 6.0?, Mozilla FireFox 1.0, NetScape 7.2 (or above)
Email:	Access to a valid email account
Screen Resolution:	800 x 600 minimum
Enabled Security Settings:	•Allow per session cookies •Users accessing the internet behind a Proxy Server must enable HTTP 1.1 settings via proxy connection

** These minimum requirements are subject to change. If these requirements change, we will provide you with an email message at the email address we have on file for you at that time providing you with the revised hardware and software requirements, at which time you will have the right to withdraw your consent.

Acknowledging your access and consent to receive materials electronically
To confirm to us that you can access this information electronically, which will be similar to other electronic notices and disclosures that we will provide to you, please verify that you were able to read this electronic disclosure and that you also were able to print on paper or electronically save this page for your future reference and access or that you were able to e-mail this disclosure and consent to an address where you will be able to print on paper or save it for your future reference and access. Further, if you consent to receiving notices and disclosures exclusively in electronic format on the terms and conditions described above, please let us know by clicking the 'I agree' button below.
By checking the 'I Agree' box, I confirm that:

- I can access and read this Electronic CONSENT TO ELECTRONIC RECEIPT OF ELECTRONIC RECORD AND SIGNATURE DISCLOSURES document; and

- I can print on paper the disclosure or save or send the disclosure to a place where I can print it, for future reference and access; and

- Until or unless I notify City of Denton as described above, I consent to receive from exclusively through electronic means all notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to me by City of Denton during the course of my relationship with you.

File #: ID 24-1077, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Keasler Sales, LLC, for the purchase of protective relay panels for the Brinker Substation Phase II for Denton Municipal Electric; providing for the expenditure of funds therefor; and providing an effective date (RFP 8473 - awarded to Keasler Sales, LLC, in the not-to-exceed amount of $82,578.00). The Public Utilities Board recommends approval (4 - 0).

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Procurement

ACM: Cassey Ogden

DATE: June 4, 2024

SUBJECT

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Keasler Sales, LLC, for the purchase of protective relay panels for the Brinker Substation Phase II for Denton Municipal Electric; providing for the expenditure of funds therefor; and providing an effective date (RFP 8473 – awarded to Keasler Sales, LLC, in the not-to-exceed amount of $82,578.00). The Public Utilities Board recommends approval (4 - 0).

STRATEGIC ALIGNMENT

This action supports Key Focus Area: Enhance Infrastructure and Mobility.

INFORMATION/BACKGROUND

Brinker Substation Phase II is an approved project in Denton Municipal Electric's (DME) five (5) year Capital Improvement Plan. It requires the purchase of protective relay panels, that house microprocessor-based protective relays, control switches, test switches, and other devices necessary to operate and protect transmission lines, distribution lines, and substation equipment.

Protective relays are the "brains" of the protection systems that continuously monitor currents, voltages, and other inputs, and initiate actions including opening circuit breakers when abnormal conditions are sensed and performing other protective actions. Relays also provide metering functions, remote terminal unit functions (RTU), and control output functions. Relay panels are fabricated from steel to provide a sturdy framework for mounting protective relays and other equipment required for protection and control inside the substation. Relay panel construction includes wiring installation, mounting all hardware, testing, and delivery to Denton Municipal Electric.

Brinker Substation Phase II is a planned project to extend the distribution circuits from the existing Industrial Substation to the Brinker Substation. The project includes relocating the Industrial Substation's power transformers and purchasing new switchgear buildings. Relay panels are necessary to protect the new equipment and personnel. The Industrial Substation will be retired as its transmission equipment does not meet the future load capacity needs and the switchgear buildings do not have arc protection safety systems.

This contract costs only for the manufacture and delivery of the relay panels. DME has a separate contract with Schweitzer Engineering Laboratories, Inc. (SEL) to purchase the protective relays housed in the relay

panels. The SEL protective relays are shipped directly from SEL to the panel manufacturer for installation into the relay panels.

Project Description	Contract Estimate
HMI Panels – Quantity 2	$21,268
Meter Panels – Quantity 2	23,954
Differential Panels – Quantity 2	33,424
Contingency – 5%	3,932
Total	**$82,578**

Request for Proposals was sent to 505 prospective suppliers, including 13 Denton firms. In addition, specifications were placed on the Procurement website for prospective suppliers to download and advertised in the local newspaper. Five (5) proposals were received, references were checked, and proposals were evaluated based upon published criteria including delivery, compliance with specifications, probable performance, and price. Best and Final Offers (BAFO) were requested from the top firm. Based upon this evaluation, Keasler Sales, LLC was ranked the highest and determined to be the best value for the City.

NIGP Code Used for Solicitation:	285, 287, and 691
Notifications sent for Solicitation sent in IonWave:	505
Number of Suppliers that viewed Solicitation in IonWave:	23
HUB-Historically Underutilized Business Invitations sent out:	48
SBE-Small Business Enterprise Invitations sent out:	199
Responses from Solicitation:	5

PRIOR ACTION/REVIEW (COUNCIL, BOARDS, COMMISSIONS)

On May 20, 2024, the Public Utilities Board (PUB) recommended this item to the City Council for consideration.

RECOMMENDATION

Award a contract with Keasler Sales, LLC, for the purchase of protective relay panels for the Brinker Substation Phase II for Denton Municipal Electric, in a not-to-exceed amount of $82,578.

PRINCIPAL PLACE OF BUSINESS

Keasler Sales, LLC
McKinney, TX

ESTIMATED SCHEDULE OF PROJECT

Delivery of the items will occur within 20 weeks after receipt of order.

FISCAL INFORMATION

These relay panels will be funded from Brinker Substation Phase II account 605250500.1350.3530. Requisition #164635 has been entered into the Purchasing software system in the amount of $82,578. The budgeted amount for this item is $82,578.

EXHIBITS

Exhibit 1: Agenda Information Sheet
Exhibit 2: Pricing Evaluation
Exhibit 3: Ordinance and Contract

Respectfully submitted:
Lori Hewell, 940-349-7100
Purchasing Manager

For information concerning this acquisition, contact: Mark Zimmerer, 940-349-7169.

Legal point of contact: Marcella Lunn at 940-349-8333.

Exhibit 2
RFP 8473 - Pricing Evaluation for Protective Relay Panels for Brinker Substation

		Respondent's Business Name:	**Keasler Sales, LLC**	Technology International, Inc.	KD Johnson	Texas Electric Cooperatives	Crown Technical Systems
		Principal Place of Business (City and State):	**McKinney, TX**	Lake Mary, FL	Leonard, TX	Georgetown, TX	Fontana, CA
Line #	**Description**	**UOM**	**Unit**	**Unit**	**Unit**	**Unit**	**Unit**
1	SWITCHGEAR BUILDING #1 HMI PANEL	EA	**$10,634.00**	$12,211.00	$14,055.00	$15,455.00	$27,019.34
2	TRANSFORMER #1 METER PANEL	EA	**$11,977.00**	$13,767.00	$18,305.00	$19,976.00	$23,788.33
3	BUS/TRANSFORMER #1 DIFFERENTIAL PANEL	EA	**$16,712.00**	$19,223.00	$19,265.00	$20,998.00	$39,026.33
4	SWITCHGEAR BUILDING #2 HMI PANEL	EA	**$10,634.00**	$12,211.00	$14,055.00	$15,455.00	$27,019.34
5	TRANSFORMER #2 METER PANEL	EA	**$11,977.00**	$13,767.00	$18,305.00	$19,976.00	$23,788.33
6	BUS/TRANSFORMER #2 DIFFERENTIAL PANEL	EA	**$16,712.00**	$19,223.00	$19,265.00	$20,998.00	$39,026.33

Evaluation

Item #	**Scoring Criteria**	**Keasler Sales LLC**	Technology International, Inc.	KD Johnson	Texas Electric Cooperatives	Crown Technical Systems
1	Delivery/Project Schedule - 15%	**12.00**	7.00	9.00	9.00	9.00
2	Compliance with Specifications - 25%	**15.00**	15.00	16.67	15.00	15.00
3	Probable Performance - 10%	**8.67**	7.33	8.67	8.00	6.67
4	Price, Total Cost of Ownership - 50%	**50.00**	43.50	38.09	34.84	21.89
	Total Score:	**85.67**	72.83	72.43	66.84	52.56

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, A TEXAS HOME-RULE MUNICIPAL CORPORATION, AUTHORIZING THE CITY MANAGER TO EXECUTE A CONTRACT WITH KEASLER SALES, LLC, FOR THE PURCHASE OF PROTECTIVE RELAY PANELS FOR THE BRINKER SUBSTATION PHASE II FOR DENTON MUNICIPAL ELECTRIC; PROVIDING FOR THE EXPENDITURE OF FUNDS THEREFOR; AND PROVIDING AN EFFECTIVE DATE (RFP 8473 – AWARDED TO KEASLER SALES, LLC, IN THE NOT-TO-EXCEED AMOUNT OF $82,578.00).

WHEREAS, the City has solicited, received, and evaluated competitive proposals for the purchase of protective relay panels for the Brinker Substation Phase II for Denton Municipal Electric; and

WHEREAS, the City Manager, or a designated employee, has received, reviewed, and recommended that the herein described proposals are the most advantageous to the City considering the relative importance of price and the other evaluation factors included in the request for proposals; and

WHEREAS, this procurement was undertaken as part of the City's governmental function [Water and sewer service]; and

WHEREAS, the City Council has provided in the City Budget for the appropriation of funds to be used for the purchase of the materials, equipment, supplies, or services approved and accepted herein; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The items in the following numbered request for proposal for materials, equipment, supplies, or services shown in the "Request Proposals" on file in the office of the Purchasing Agent, are hereby accepted and approved as being the most advantageous to the City considering the relative importance of price and the other evaluation factors included in the request for proposals.

RFP NUMBER	CONTRACTOR	AMOUNT
8473	Keasler Sales, LLC	$82,578.00

SECTION 2. That by the acceptance and approval of the above numbered items of the submitted proposals, the City accepts the offer of the persons submitting the proposals for such items and agrees to purchase the materials, equipment, supplies, or services in accordance with the terms, specifications, standards, quantities, and for the specified sums contained in the Proposal Invitations, Proposals, and related documents.

SECTION 3. That should the City and person submitting approved and accepted items wish to enter into a formal written agreement as a result of the acceptance, approval, and awarding of the proposals, the City Manager, or their designated representative, is hereby authorized to execute the written contract which shall be attached hereto; provided that the written contract is in accordance with the terms, conditions, specifications, standards, quantities, and specified sums contained in the Proposal and related documents herein approved and accepted.

SECTION 4. The City Council of the City of Denton hereby expressly delegates the authority to take any actions that may be required or permitted to be performed by the City of Denton under this ordinance to the City Manager of the City of Denton, or their designee.

SECTION 5. By the acceptance and approval of the above enumerated bids, the City Council hereby authorizes the expenditure of funds therefor in the amount and in accordance with the approved bids.

SECTION 6. This ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____. This ordinance was passed and approved by the following vote [___ - ___]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: _ Marcella Lunn _____

Digitally signed by Marcella Lunn
DN: dc=com, dc=cityofdenton, dc=codad, ou=Department Users and Groups, ou=General Government, ou=Legal, cn=Marcella Lunn, email=Marcella.Lunn@cityofdenton.com
Date: 2024.04.30 15:53:30 -05'00'

DocuSign Envelope ID: 54F09273-25A0-406F-AD36-887BC39402FC

Docusign City Council Transmittal Coversheet

RFP	8473
File Name	KEASLER SALES, LLC
Purchasing Contact	Crystal Westbrook
City Council Target Date	
Piggy Back Option	No
Contract Expiration	
Ordinance	

DocuSign Envelope ID: 54F09273-25A0-406F-AD36-887BC39402FC

CONTRACT BY AND BETWEEN
CITY OF DENTON, TEXAS AND KEASLER SALES, LLC
(Contract #8473)

THIS CONTRACT is made and entered into this date _____, by and between KEASLER SALES, LLC a Texas limited liability company whose address is 2530 WHITE AVE., STE 300, MCKINNEY, TX 75071, hereinafter referred to as "Contractor," and the **CITY OF DENTON, TEXAS**, a home rule municipal corporation, hereinafter referred to as "City," to be effective upon approval of the Denton City Council and subsequent execution of this Contract by the Denton City Manager or his duly authorized designee.

For and in consideration of the covenants and agreements contained herein, and for the mutual benefits to be obtained hereby, the parties agree as follows:

SCOPE OF SERVICES

Contractor shall provide products in accordance with the City's RFP #8473 Protective Relay Panels for Brinker Substation, a copy of which is on file at the office of Purchasing Agent and incorporated herein for all purposes. The Contract consists of this written agreement and the following items which are attached hereto, or on file, and incorporated herein by reference:

(a) Special Terms and Conditions **(Exhibit "A");**
(b) City of Denton's RFP 8473 **(Exhibit "B" on file at the office of the Purchasing Agent**);
(c) City of Denton Standard Terms and Conditions **(Exhibit "C");**
(d) Certificate of Interested Parties Electronic Filing **(Exhibit "D");**
(e) Contractor's Proposal. **(Exhibit "E")**;
(f) Form CIQ – Conflict of Interest Questionnaire **(Exhibit "F")**

These documents make up the Contract documents and what is called for by one shall be as binding as if called for by all. In the event of an inconsistency or conflict in any of the provisions of the Contract documents, the inconsistency or conflict shall be resolved by giving precedence first to the written agreement then to the contract documents in the order in which they are listed above. These documents shall be referred to collectively as "Contract Documents."

Prohibition on Contracts with Companies Boycotting Israel
Contractor acknowledges that in accordance with Chapter 2271 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains a written verification from the company that it: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract. The terms "boycott Israel" and "company" shall have the meanings ascribed to those terms in Section 808.001 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Boycotting Certain Energy Companies
Contractor acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not boycott energy companies; and (2) will not boycott

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energy companies during the term of the contract. The terms "boycott energy company" and "company" shall have the meanings ascribed to those terms in Section 809.001 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Boycotting Certain Firearm Entities and Firearm Trade Associations

Contractor acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association. The terms "discriminate against a firearm entity or firearm trade association," "firearm entity" and "firearm trade association" shall have the meanings ascribed to those terms in Chapter 2274 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition On Contracts With Companies Doing Business with Iran, Sudan, or a Foreign Terrorist Organization

Sections 2252 and 2270 of the Texas Government Code restricts CITY from contracting with companies that do business with Iran, Sudan, or a foreign terrorist organization. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor, pursuant to Chapters 2252 and 2270, is not ineligible to enter into this agreement and will not become ineligible to receive payments under this agreement by doing business with Iran, Sudan, or a foreign terrorist organization***. Failure to meet or maintain the requirements under this provision will be considered a material breach.

Termination Right for Contracts with Companies Doing Business with Certain Foreign-Owned Companies

The City of Denton may terminate this Contract immediately without any further liability if the City of Denton determines, in its sole judgment, that this Contract meets the requirements under Chapter 2274, and Contractor is, or will be in the future, (i) owned by or the majority of stock or other ownership interest of the company is held or controlled by individuals who are citizens of China, Iran, North Korea, Russia, or other designated country (ii) directly controlled by the Government of China, Iran, North Korea, Russia, or other designated country, or (iii) is headquartered in China, Iran, North Korea, Russia, or other designated country.

The parties agree to transact business electronically. Any statutory requirements that certain terms be in writing will be satisfied using electronic documents and signing. Electronic signing of this document will be deemed an original for all legal purposes.

IN WITNESS WHEREOF, the parties of these presents have executed this agreement in the year and day first above written.

CONTRACTOR

DocuSigned by:
BY: James De La Cruz
C30FBD321B3C4A8...
AUTHORIZED SIGNATURE

Printed Name: James De La Cruz

Title: President

9725697084
PHONE NUMBER

james@keasler.com
EMAIL ADDRESS

2024- James@keasler.com
TEXAS ETHICS COMMISSION
1295 CERTIFICATE NUMBER

CITY OF DENTON, TEXAS

BY: _____
SARA HENSLEY, CITY MANAGER

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

DocuSigned by:
BY: Marcella Lunn
4B070831B4AA438...

THIS AGREEMENT HAS BEEN
BOTH REVIEWED AND APPROVED
as to financial and operational obligations
and business terms.

DocuSigned by:
Antonio Puente, Jr Antonio Puente, Jr.
E3760944C2BF4B5...
SIGNATURE PRINTED NAME

DME General Manager
TITLE

Electric
DEPARTMENT

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Exhibit A
Special Terms and Conditions

1. The Quantities

The quantities indicated on Exhibit E are estimates based upon the best available information. The City reserves the right to increase or decrease the quantities to meet its actual needs without any adjustments in the bid price. Individual purchase orders will be issued on an as needed basis.

2. Product Changes During Contract Term

The Contractor shall not change specifications during the contract term without prior approval. Any deviation in the specifications or change in the product must be approved in advance by the City of Denton. Notice of a change shall be submitted in writing to purchasing@cityofdenton.com, with the above file number in the subject line, for review. Products found to have changed specifications without notification, and acceptance, will be returned at the contractor's expense. Products that have been installed will be replaced at the contractor's expense.

3. Authorized Distributor

The Contractor shall be the manufacturer or authorized distributor of the proposed products. The distributor shall be authorized to sell to the City of Denton, and make available the manufacturer's representative as needed by the City.

4. Contract Terms

The contract will be effective from date of award or notice to proceed with a purchase order as determined by the City of Denton Purchasing Department.

5. Total Contract Amount

The contract total shall not exceed $82,578.00. Pricing shall be per Exhibit E attached.

6. Delivery Lead Time

Products or services will be delivered 20 weeks after the receipt of order from the City.

7. Performance Liquidated Damages

The Contractor shall incur contractual payment losses, as initiated by the City for performance that falls short of specified performance standards as outlined below:

- Delivery beyond contracted lead times
- Performance below contracted levels (services only)

The Contractor shall be assessed a one (1%) percent fee each month when any one of the performance standards outlined above are not met in full. The Contractor shall be assessed a two

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(2%) percent profit fee each month when any two (2) or more performance standards outlined above are not met in full. At the end of each month, the City will review the monthly reports and determine the percentage of penalty to be assessed to the Contractor's monthly profit margin. Liquidated damage charges shall not exceed 10% of the annual total contract amount.

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Exhibit C
City of Denton
Standard Purchase Terms and Conditions

These standard Terms and Conditions and the Terms and Conditions, Specifications, Drawings and other requirements included in the City of Denton's contract are applicable to contracts/purchase orders issued by the City of Denton hereinafter referred to as the City or Buyer and the Seller or respondent herein after referred to as Contractor or Supplier. Any deviations must be in writing and signed by a representative of the City's Procurement Department and the Supplier. No Terms and Conditions contained in the seller's proposal response, invoice or statement shall serve to modify the terms set forth herein. If there is a conflict between the provisions on the face of the contract/purchase order these written provisions will take precedence.

The Contractor agrees that the contract shall be governed by the following terms and conditions, unless exceptions are duly noted and fully negotiated. Unless otherwise specified in the contract, Sections 3, 4, 5, 6, 7, 8, 20, 21, and 36 shall apply only to a solicitation to purchase goods, and sections 9, 10, 11, 22 and 32 shall apply only to a solicitation to purchase services to be performed principally at the City's premises or on public rights-of-way.

1. **CONTRACTOR'S OBLIGATIONS**. The Contractor shall fully and timely provide all deliverables described in the Solicitation and in the Contractor's Offer in strict accordance with the terms, covenants, and conditions of the Contract and all applicable Federal, State, and local laws, rules, and regulations.

2. **EFFECTIVE DATE/TERM**. Unless otherwise specified in the Solicitation, this Contract shall be effective as of the date the contract is signed by the City, and shall continue in effect until all obligations are performed in accordance with the Contract.

3. **CONTRACTOR TO PACKAGE DELIVERABLES**: The Contractor will package deliverables in accordance with good commercial practice and shall include a packing list showing the description of each item, the quantity and unit price unless otherwise provided in the Specifications or Supplemental Terms and Conditions, each shipping container shall be clearly and permanently marked as follows: (a) The Contractor's name and address, (b) the City's name, address and purchase order or purchase release number and the price agreement number if applicable, (c) Container number and total number of containers, e.g. box 1 of 4 boxes, and (d) the number of the container bearing the packing list. The Contractor shall bear cost of packaging. Deliverables shall be suitably packed to secure lowest transportation costs and to conform to all the requirements of common carriers and any applicable specification. The City's count or weight shall be final and conclusive on shipments not accompanied by packing lists.

4. **SHIPMENT UNDER RESERVATION PROHIBITED**: The Contractor is not authorized to ship the deliverables under reservation and no tender of a bill of lading will operate as a tender of deliverables.

5. **TITLE & RISK OF LOSS**: Title to and risk of loss of the deliverables shall pass to the City only when the City actually receives and accepts the deliverables.

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6. **DELIVERY TERMS AND TRANSPORTATION CHARGES**: Deliverables shall be shipped F.O.B. point of delivery unless otherwise specified in the Supplemental Terms and Conditions. Unless otherwise stated in the Offer, the Contractor's price shall be deemed to include all delivery and transportation charges. The City shall have the right to designate what method of transportation shall be used to ship the deliverables. The place of delivery shall be that set forth the purchase order.

7. **RIGHT OF INSPECTION AND REJECTION**: The City expressly reserves all rights under law, including, but not limited to the Uniform Commercial Code, to inspect the deliverables at delivery before accepting them, and to reject defective or non-conforming deliverables. If the City has the right to inspect the Contractor's, or the Contractor's Subcontractor's, facilities, or the deliverables at the Contractor's, or the Contractor's Subcontractor's, premises, the Contractor shall furnish, or cause to be furnished, without additional charge, all reasonable facilities and assistance to the City to facilitate such inspection.

8. **NO REPLACEMENT OF DEFECTIVE TENDER**: Every tender or delivery of deliverables must fully comply with all provisions of the Contract as to time of delivery, quality, and quantity. Any non-complying tender shall constitute a breach and the Contractor shall not have the right to substitute a conforming tender; provided, where the time for performance has not yet expired, the Contractor may notify the City of the intention to cure and may then make a conforming tender within the time allotted in the contract.

9. **PLACE AND CONDITION OF WORK**: The City shall provide the Contractor access to the sites where the Contractor is to perform the services as required in order for the Contractor to perform the services in a timely and efficient manner, in accordance with and subject to the applicable security laws, rules, and regulations. The Contractor acknowledges that it has satisfied itself as to the nature of the City's service requirements and specifications, the location and essential characteristics of the work sites, the quality and quantity of materials, equipment, labor and facilities necessary to perform the services, and any other condition or state of fact which could in any way affect performance of the Contractor's obligations under the contract. The Contractor hereby releases and holds the City harmless from and against any liability or claim for damages of any kind or nature if the actual site or service conditions differ from expected conditions.

The contractor shall, at all times, exercise reasonable precautions for the safety of their employees, City Staff, participants and others on or near the City's facilities.

10. **WORKFORCE**

A. The Contractor shall employ only orderly and competent workers, skilled in the performance of the services which they will perform under the Contract.

B. The Contractor, its employees, subcontractors, and subcontractor's employees may not while engaged in participating or responding to a solicitation or while in the course and scope of delivering goods or services under a City of Denton contract or on the City's property .

i. use or possess a firearm, including a concealed handgun that is licensed under state law, except as required by the terms of the contract; or

ii. use or possess alcoholic or other intoxicating beverages, illegal drugs or controlled substances, nor may such workers be intoxicated, or under the influence of alcohol or drugs, on the job.

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C. If the City or the City's representative notifies the Contractor that any worker is incompetent, disorderly or disobedient, has knowingly or repeatedly violated safety regulations, has possessed any firearms, or has possessed or was under the influence of alcohol or drugs on the job, the Contractor shall immediately remove such worker from Contract services, and may not employ such worker again on Contract services without the City's prior written consent.
Immigration: The Contractor represents and warrants that it shall comply with the requirements of the Immigration Reform and Control Act of 1986 and 1990 regarding employment verification and retention of verification forms for any individuals hired on or after November 6, 1986, who will perform any labor or services under the Contract and the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 ("IIRIRA) enacted on September 30, 1996.

11. **COMPLIANCE WITH HEALTH, SAFETY, AND ENVIRONMENTAL REGULATIONS**: The Contractor, it's Subcontractors, and their respective employees, shall comply fully with all applicable federal, state, and local health, safety, and environmental laws, ordinances, rules and regulations in the performance of the services, including but not limited to those promulgated by the City and by the Occupational Safety and Health Administration (OSHA). In case of conflict, the most stringent safety requirement shall govern. The Contractor shall indemnify and hold the City harmless from and against all claims, demands, suits, actions, judgments, fines, penalties and liability of every kind arising from the breach of the Contractor's obligations under this paragraph.

Environmental Protection: The Respondent shall be in compliance with all applicable standards, orders, or regulations issued pursuant to the mandates of the Clean Air Act (42 U.S.C. §7401 *et seq*.) and the Federal Water Pollution Control Act, as amended, (33 U.S.C. §1251 *et seq*.).

12. **INVOICES**:
A. The Contractor shall submit separate invoices in duplicate on each purchase order or purchase release after each delivery. If partial shipments or deliveries are authorized by the City, a separate invoice must be sent for each shipment or delivery made.
B. **Proper Invoices must include a unique invoice number, the purchase order or delivery order number and the master agreement number if applicable, the Department's Name, and the name of the point of contact for the Department**. Invoices shall be itemized and transportation charges, if any, shall be listed separately. A copy of the bill of lading and the freight waybill, when applicable, shall be attached to the invoice. The Contractor's name, remittance address and, if applicable, the tax identification number on the invoice must exactly match the information in the Vendor's registration with the City. Unless otherwise instructed in writing, the City may rely on the remittance address specified on the Contractor's invoice.
C. Invoices for labor shall include a copy of all time-sheets with trade labor rate and deliverables order number clearly identified. Invoices shall also include a tabulation of work-hours at the appropriate rates and grouped by work order number. Time billed for labor shall be limited to hours actually worked at the work site.
D. Unless otherwise expressly authorized in the Contract, the Contractor shall pass through all Subcontract and other authorized expenses at actual cost without markup.
E. Federal excise taxes, State taxes, or City sales taxes must not be included in the invoiced amount.
The City will furnish a tax exemption certificate upon request.

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13. **PAYMENT**:
A. All proper invoices need to be sent to Accounts Payable. Approved invoices will be paid within thirty (30) calendar days of the City's receipt of the deliverables or of the invoice being received in Accounts Payable, whichever is later.
B. **If payment is not timely made, (per paragraph A); interest shall accrue on the unpaid balance at the lesser of the rate specified in Texas Government Code Section 2251.025 or the maximum lawful rate; except, if payment is not timely made for a reason for which the City may withhold payment hereunder, interest shall not accrue until ten (10) calendar days after the grounds for withholding payment have been resolved.**
C. If partial shipments or deliveries are authorized by the City, the Contractor will be paid for the partial shipment or delivery, as stated above, provided that the invoice matches the shipment or delivery.
D. The City may withhold or set off the entire payment or part of any payment otherwise due the Contractor to such extent as may be necessary on account of:

i. delivery of defective or non-conforming deliverables by the Contractor;
ii. third party claims, which are not covered by the insurance which the Contractor is required to provide, are filed or reasonable evidence indicating probable filing of such claims;
iii. failure of the Contractor to pay Subcontractors, or for labor, materials or equipment;
iv. damage to the property of the City or the City's agents, employees or contractors, which is not covered by insurance required to be provided by the Contractor;
v. reasonable evidence that the Contractor's obligations will not be completed within the time specified in the Contract, and that the unpaid balance would not be adequate to cover actual or damages for the anticipated delay;
vi. failure of the Contractor to submit proper invoices with purchase order number, with all required attachments and supporting documentation; or
vii. failure of the Contractor to comply with any material provision of the Contract Documents.

E. Notice is hereby given that any awarded firm who is in arrears to the City of Denton for delinquent taxes, the City may offset indebtedness owed the City through payment withholding.
F. Payment will be made by check unless the parties mutually agree to payment by credit card or electronic transfer of funds. The Contractor agrees that there shall be no additional charges, surcharges, or penalties to the City for payments made by credit card or electronic funds transfer.
G. The awarding or continuation of this contract is dependent upon the availability of funding. The City's payment obligations are payable only and solely from funds Appropriated and available for this contract. The absence of Appropriated or other lawfully available funds shall render the Contract null and void to the extent funds are not Appropriated or available and any deliverables delivered but unpaid shall be returned to the Contractor. The City shall provide the Contractor written notice of the failure of the City to make an adequate Appropriation for any fiscal year to pay the amounts due under the Contract, or the reduction of any Appropriation to an amount insufficient to permit the City to pay its obligations under the Contract. In the event of none or inadequate appropriation of funds, there will be no penalty nor removal fees charged to the City.

14. **TRAVEL EXPENSES**: All travel, lodging and per diem expenses in connection with the Contract shall be paid by the Contractor, unless otherwise stated in the contract terms. During the term of this contract, the contractor shall bill and the City shall reimburse contractor for all reasonable and approved out of pocket expenses which are incurred in the connection with the performance of duties hereunder. Notwithstanding the foregoing, expenses for the time spent by

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the contractor in traveling to and from City facilities shall not be reimbursed, unless otherwise negotiated.

15. **FINAL PAYMENT AND CLOSE-OUT**:
A. If a DBE/MBE/WBE Program Plan is agreed to and the Contractor has identified Subcontractors, the Contractor is required to submit a Contract Close-Out MBE/WBE Compliance Report to the Purchasing Manager no later than the 15th calendar day after completion of all work under the contract. Final payment, retainage, or both may be withheld if the Contractor is not in compliance with the requirements as accepted by the City.
B. The making and acceptance of final payment will constitute:
i. a waiver of all claims by the City against the Contractor, except claims (1) which have been previously asserted in writing and not yet settled, (2) arising from defective work appearing after final inspection, (3) arising from failure of the Contractor to comply with the Contract or the terms of any warranty specified herein, (4) arising from the Contractor's continuing obligations under the Contract, including but not limited to indemnity and warranty obligations, or (5) arising under the City's right to audit; and ii. a waiver of all claims by the Contractor against the City other than those previously asserted in writing and not yet settled.

16. **SPECIAL TOOLS & TEST EQUIPMENT**: If the price stated on the Offer includes the cost of any special tooling or special test equipment fabricated or required by the Contractor for the purpose of filling this order, such special tooling equipment and any process sheets related thereto shall become the property of the City and shall be identified by the Contractor as such.

17. **RIGHT TO AUDIT**:
A. The City shall have the right to audit and make copies of the books, records and computations pertaining to the Contract. The Contractor shall retain such books, records, documents and other evidence pertaining to the Contract period and five years thereafter, except if an audit is in progress or audit findings are yet unresolved, in which case records shall be kept until all audit tasks are completed and resolved. These books, records, documents and other evidence shall be available, within ten (10) business days of written request. Further, the Contractor shall also require all Subcontractors, material suppliers, and other payees to retain all books, records, documents and other evidence pertaining to the Contract, and to allow the City similar access to those documents. All books and records will be made available within a 50 mile radius of the City of Denton. The cost of the audit will be borne by the City unless the audit reveals an overpayment of 1% or greater. If an overpayment of 1% or greater occurs, the reasonable cost of the audit, including any travel costs, must be borne by the Contractor which must be payable within five (5) business days of receipt of an invoice.
B. Failure to comply with the provisions of this section shall be a material breach of the Contract and shall constitute, in the City's sole discretion, grounds for termination thereof. Each of the terms "books", "records", "documents" and "other evidence", as used above, shall be construed to include drafts and electronic files, even if such drafts or electronic files are subsequently used to generate or prepare a final printed document.

18. **SUBCONTRACTORS**:
A. If the Contractor identified Subcontractors in a DBE/MBE/WBE agreed to Plan, the Contractor shall comply with all requirements approved by the City. The Contractor shall not initially employ any Subcontractor except as provided in the Contractor's Plan. The Contractor shall not substitute any Subcontractor identified in the Plan, unless the substitute has been accepted by the City in

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writing. No acceptance by the City of any Subcontractor shall constitute a waiver of any rights or remedies of the City with respect to defective deliverables provided by a Subcontractor. If a Plan has been approved, the Contractor is additionally required to submit a monthly Subcontract Awards and Expenditures Report to the Procurement Manager, no later than the tenth calendar day of each month.

B. Work performed for the Contractor by a Subcontractor shall be pursuant to a written contract between the Contractor and Subcontractor. The terms of the subcontract may not conflict with the terms of the
Contract, and shall contain provisions that:

i. require that all deliverables to be provided by the Subcontractor be provided in strict accordance with the provisions, specifications and terms of the Contract;

ii. prohibit the Subcontractor from further subcontracting any portion of the Contract without the prior written consent of the City and the Contractor. The City may require, as a condition to such further subcontracting, that the Subcontractor post a payment bond in form, substance and amount acceptable to the City;

iii. require Subcontractors to submit all invoices and applications for payments, including any claims for additional payments, damages or otherwise, to the Contractor in sufficient time to enable the Contractor to include same with its invoice or application for payment to the City in accordance with the terms of the Contract;

iv. require that all Subcontractors obtain and maintain, throughout the term of their contract, insurance in the type and amounts specified for the Contractor, with the City being a named insured as its interest shall appear; and

v. require that the Subcontractor indemnify and hold the City harmless to the same extent as the Contractor is required to indemnify the City.

C. The Contractor shall be fully responsible to the City for all acts and omissions of the Subcontractors just as the Contractor is responsible for the Contractor's own acts and omissions. Nothing in the Contract shall create for the benefit of any such Subcontractor any contractual relationship between the City and any such Subcontractor, nor shall it create any obligation on the part of the City to pay or to see to the payment of any moneys due any such Subcontractor except as may otherwise be required by law.

D. The Contractor shall pay each Subcontractor its appropriate share of payments made to the Contractor not later than ten (10) calendar days after receipt of payment from the City.

19. **WARRANTY-PRICE**:

A. The Contractor warrants the prices quoted in the Offer are no higher than the Contractor's current prices on orders by others for like deliverables under similar terms of purchase.

B. The Contractor certifies that the prices in the Offer have been arrived at independently without consultation, communication, or agreement for the purpose of restricting competition, as to any matter relating to such fees with any other firm or with any competitor.

C. In addition to any other remedy available, the City may deduct from any amounts owed to the Contractor, or otherwise recover, any amounts paid for items in excess of the Contractor's current prices on orders by others for like deliverables under similar terms of purchase.

20. **WARRANTY – TITLE**: The Contractor warrants that it has good and indefeasible title to all deliverables furnished under the Contract, and that the deliverables are free and clear of all liens, claims, security interests and encumbrances. The Contractor shall indemnify and hold the City harmless from and against all adverse title claims to the deliverables.

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21. **WARRANTY – DELIVERABLES**: The Contractor warrants and represents that all deliverables sold the City under the Contract shall be free from defects in design, workmanship or manufacture, and conform in all material respects to the specifications, drawings, and descriptions in the Solicitation, to any samples furnished by the Contractor, to the terms, covenants and conditions of the Contract, and to all applicable State, Federal or local laws, rules, and regulations, and industry codes and standards. Unless otherwise stated in the Solicitation, the deliverables shall be new or recycled merchandise, and not used or reconditioned.

A. Recycled deliverables shall be clearly identified as such.

B. The Contractor may not limit, exclude or disclaim the foregoing warranty or any warranty implied by law; and any attempt to do so shall be without force or effect.

C. Unless otherwise specified in the Contract, the warranty period shall be at least one year from the date of acceptance of the deliverables or from the date of acceptance of any replacement deliverables. If during the warranty period, one or more of the above warranties are breached, the Contractor shall promptly upon receipt of demand either repair the non-conforming deliverables, or replace the non-conforming deliverables with fully conforming deliverables, at the City's option and at no additional cost to the City. All costs incidental to such repair or replacement, including but not limited to, any packaging and shipping costs shall be borne exclusively by the Contractor. The City shall endeavor to give the Contractor written notice of the breach of warranty within thirty (30) calendar days of discovery of the breach of warranty, but failure to give timely notice shall not impair the City's rights under this section.

D. If the Contractor is unable or unwilling to repair or replace defective or non-conforming deliverables as required by the City, then in addition to any other available remedy, the City may reduce the quantity of deliverables it may be required to purchase under the Contract from the Contractor, and purchase conforming deliverables from other sources. In such event, the Contractor shall pay to the City upon demand the increased cost, if any, incurred by the City to procure such deliverables from another source.

E. If the Contractor is not the manufacturer, and the deliverables are covered by a separate manufacturer's warranty, the Contractor shall transfer and assign such manufacturer's warranty to the City. If for any reason the manufacturer's warranty cannot be fully transferred to the City, the Contractor shall assist and cooperate with the City to the fullest extent to enforce such manufacturer's warranty for the benefit of the City.

22. **WARRANTY – SERVICES**: The Contractor warrants and represents that all services to be provided the City under the Contract will be fully and timely performed in a good and workmanlike manner in accordance with generally accepted industry standards and practices, the terms, conditions, and covenants of the Contract, and all applicable Federal, State and local laws, rules or regulations.

A. The Contractor may not limit, exclude or disclaim the foregoing warranty or any warranty implied by law, and any attempt to do so shall be without force or effect.

B. Unless otherwise specified in the Contract, the warranty period shall be at least one year from the Acceptance Date. If during the warranty period, one or more of the above warranties are breached, the Contractor shall promptly upon receipt of demand perform the services again in accordance with above standard at no additional cost to the City. All costs incidental to such additional performance shall be borne by the Contractor. The City shall endeavor to give the Contractor written notice of the breach of warranty within thirty (30) calendar days of discovery of the breach warranty, but failure to give timely notice shall not impair the City's rights under this section.

C. If the Contractor is unable or unwilling to perform its services in accordance with the above

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standard as required by the City, then in addition to any other available remedy, the City may reduce the amount of services it may be required to purchase under the Contract from the Contractor, and purchase conforming services from other sources. In such event, the Contractor shall pay to the City upon demand the increased cost, if any, incurred by the City to procure such services from another source.

23. **ACCEPTANCE OF INCOMPLETE OR NON-CONFORMING DELIVERABLES**: If, instead of requiring immediate correction or removal and replacement of defective or non-conforming deliverables, the City prefers to accept it, the City may do so. The Contractor shall pay all claims, costs, losses and damages attributable to the City's evaluation of and determination to accept such defective or non-conforming deliverables. If any such acceptance occurs prior to final payment, the City may deduct such amounts as are necessary to compensate the City for the diminished value of the defective or non-conforming deliverables. If the acceptance occurs after final payment, such amount will be refunded to the City by the Contractor.

24. **RIGHT TO ASSURANCE**: Whenever one party to the Contract in good faith has reason to question the other party's intent to perform, demand may be made to the other party for written assurance of the intent to perform. In the event that no assurance is given within the time specified after demand is made, the demanding party may treat this failure as an anticipatory repudiation of the Contract.

25. **STOP WORK NOTICE**: The City may issue an immediate Stop Work Notice in the event the Contractor is observed performing in a manner that is in violation of Federal, State, or local guidelines, or in a manner that is determined by the City to be unsafe to either life or property. Upon notification, the Contractor will cease all work until notified by the City that the violation or unsafe condition has been corrected. The Contractor shall be liable for all costs incurred by the City as a result of the issuance of such Stop Work Notice.

26. **DEFAULT**: The Contractor shall be in default under the Contract if the Contractor (a) fails to fully, timely and faithfully perform any of its material obligations under the Contract, (b) fails to provide adequate assurance of performance under Paragraph 24, (c) becomes insolvent or seeks relief under the bankruptcy laws of the United States or (d) makes a material misrepresentation in Contractor's Offer, or in any report or deliverable required to be submitted by the Contractor to the City.

27. **TERMINATION FOR CAUSE:** In the event of a default by the Contractor, the City shall have the right to terminate the Contract for cause, by written notice effective ten (10) calendar days, unless otherwise specified, after the date of such notice, unless the Contractor, within such ten (10) day period, cures such default, or provides evidence sufficient to prove to the City's reasonable satisfaction that such default does not, in fact, exist. In addition to any other remedy available under law or in equity, the City shall be entitled to recover all actual damages, costs, losses and expenses, incurred by the City as a result of the Contractor's default, including, without limitation, cost of cover, reasonable attorneys' fees, court costs, and prejudgment and post-judgment interest at the maximum lawful rate. Additionally, in the event of a default by the Contractor, the City may remove the Contractor from the City's vendor list for three (3) years and any Offer submitted by the Contractor may be disqualified for up to three (3) years. All rights and remedies under the Contract are cumulative and are not exclusive of any other right or remedy provided by law.

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28. **TERMINATION WITHOUT CAUSE**: The City shall have the right to terminate the Contract, in whole or in part, without cause any time upon thirty (30) calendar days' prior written notice. Upon receipt of a notice of termination, the Contractor shall promptly cease all further work pursuant to the Contract, with such exceptions, if any, specified in the notice of termination. The City shall pay the Contractor, to the extent of funds Appropriated or otherwise legally available for such purposes, for all goods delivered and services performed and obligations incurred prior to the date of termination in accordance with the terms hereof.

29. **FRAUD**: Fraudulent statements by the Contractor on any Offer or in any report or deliverable required to be submitted by the Contractor to the City shall be grounds for the termination of the Contract for cause by the City and may result in legal action.

30. **DELAYS**:
A. The City may delay scheduled delivery or other due dates by written notice to the Contractor if the City deems it is in its best interest. If such delay causes an increase in the cost of the work under the Contract, the City and the Contractor shall negotiate an equitable adjustment for costs incurred by the Contractor in the Contract price and execute an amendment to the Contract. The Contractor must assert its right to an adjustment within thirty (30) calendar days from the date of receipt of the notice of delay. Failure to agree on any adjusted price shall be handled under the Dispute Resolution process specified in paragraph 49. However, nothing in this provision shall excuse the Contractor from delaying the delivery as notified.
B. Neither party shall be liable for any default or delay in the performance of its obligations under this Contract if, while and to the extent such default or delay is caused by acts of God, fire, riots, civil commotion, labor disruptions, sabotage, sovereign conduct, or any other cause beyond the reasonable control of such Party. In the event of default or delay in contract performance due to any of the foregoing causes, then the time for completion of the services will be extended; provided, however, in such an event, a conference will be held within three (3) business days to establish a mutually agreeable period of time reasonably necessary to overcome the effect of such failure to perform.

31. **INDEMNITY**:
A. Definitions:

i. "Indemnified Claims" shall include any and all claims, demands, suits, causes of action, judgments and liability of every character, type or description, including all reasonable costs and expenses of litigation, mediation or other alternate dispute resolution mechanism, including attorney and other professional fees for: (1) damage to or loss of the property of any person (including, but not limited to the City, the Contractor, their respective agents, officers, employees and subcontractors; the officers, agents, and employees of such subcontractors; and third parties); and/or (2) death, bodily injury, illness, disease, worker's compensation, loss of services, or loss of income or wages to any person (including but not limited to the agents, officers and employees of the City, the Contractor, the Contractor's subcontractors, and third parties), ii. "Fault" shall include the sale of defective or non-conforming deliverables, negligence, willful misconduct or a breach of any legally imposed strict liability standard.

B. **THE CONTRACTOR SHALL DEFEND (AT THE OPTION OF THE CITY), INDEMNIFY, AND HOLD THE CITY, ITS SUCCESSORS, ASSIGNS, OFFICERS,**

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EMPLOYEES AND ELECTED OFFICIALS HARMLESS FROM AND AGAINST ALL INDEMNIFIED CLAIMS DIRECTLY ARISING OUT OF, INCIDENT TO, CONCERNING OR RESULTING FROM THE FAULT OF THE CONTRACTOR, OR THE CONTRACTOR'S AGENTS, EMPLOYEES OR SUBCONTRACTORS, IN THE PERFORMANCE OF THE CONTRACTOR'S OBLIGATIONS UNDER THE CONTRACT. NOTHING HEREIN SHALL BE DEEMED TO LIMIT THE RIGHTS OF THE CITY OR THE CONTRACTOR (INCLUDING, BUT NOT LIMITED TO, THE RIGHT TO SEEK CONTRIBUTION) AGAINST ANY THIRD PARTY WHO MAY BE LIABLE FOR AN INDEMNIFIED CLAIM.

32. **INSURANCE**: The following insurance requirements are applicable, in addition to the specific insurance requirements detailed in **Appendix A** for services only**.** The successful firm shall procure and maintain insurance of the types and in the minimum amounts acceptable to the City of Denton. The insurance shall be written by a company licensed to do business in the State of Texas and satisfactory to the City of Denton.

A. General Requirements:

i. The Contractor shall at a minimum carry insurance in the types and amounts indicated and agreed to, as submitted to the City and approved by the City within the procurement process, for the duration of the Contract, including extension options and hold over periods, and during any warranty period.

ii. The Contractor shall provide Certificates of Insurance with the coverage's and endorsements required to the City as verification of coverage prior to contract execution and within fourteen (14) calendar days after written request from the City. Failure to provide the required Certificate of Insurance may subject the Offer to disqualification from consideration for award. The Contractor must also forward a Certificate of Insurance to the City whenever a previously identified policy period has expired, or an extension option or hold over period is exercised, as verification of continuing coverage.

iii. The Contractor shall not commence work until the required insurance is obtained and until such insurance has been reviewed by the City. Approval of insurance by the City shall not relieve or decrease the liability of the Contractor hereunder and shall not be construed to be a limitation of liability on the part of the Contractor.

iv. The Contractor must submit certificates of insurance to the City for all subcontractors prior to the subcontractors commencing work on the project.

v. The Contractor's and all subcontractors' insurance coverage shall be written by companies licensed to do business in the State of Texas at the time the policies are issued and shall be written by companies with A.M. Best ratings of **A- VII or better**. The City will accept workers' compensation coverage written by the Texas Workers' Compensation Insurance Fund.

vi. All endorsements naming the City as additional insured, waivers, and notices of cancellation endorsements as well as the Certificate of Insurance shall contain the solicitation number and the following information:

City of Denton
Materials Management Department
901B Texas Street
Denton, Texas 76209

vii. The "other" insurance clause shall not apply to the City where the City is an additional insured shown on any policy. It is intended that policies required in the Contract, covering both the City and the Contractor, shall be considered primary coverage as applicable.

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viii. If insurance policies are not written for amounts agreed to with the City, the Contractor shall carry Umbrella or Excess Liability Insurance for any differences in amounts specified. If Excess Liability Insurance is provided, it shall follow the form of the primary coverage.
ix. The City shall be entitled, upon request, at an agreed upon location, and without expense, to review certified copies of policies and endorsements thereto and may make any reasonable requests for deletion or revision or modification of particular policy terms, conditions, limitations, or exclusions except where policy provisions are established by law or regulations binding upon either of the parties hereto or the underwriter on any such policies.
x. The City reserves the right to review the insurance requirements set forth during the effective period of the Contract and to make reasonable adjustments to insurance coverage, limits, and exclusions when deemed necessary and prudent by the City based upon changes in statutory law, court decisions, the claims history of the industry or financial condition of the insurance company as well as the Contractor.
xi. The Contractor shall not cause any insurance to be canceled nor permit any insurance to lapse during the term of the Contract or as required in the Contract.
xii. The Contractor shall be responsible for premiums, deductibles and self-insured retentions, if any, stated in policies. All deductibles or self-insured retentions shall be disclosed on the Certificate of Insurance.
xiii. The Contractor shall endeavor to provide the City thirty (30) calendar days' written notice of erosion of the aggregate limits below occurrence limits for all applicable coverage's indicated within the Contract.
xiv. The insurance coverage's specified in within the solicitation and requirements are required minimums and are not intended to limit the responsibility or liability of the Contractor.

B. Specific Coverage Requirements: Specific insurance requirements are contained in the solicitation instrument.

33. **CLAIMS**: If any claim, demand, suit, or other action is asserted against the Contractor which arises under or concerns the Contract, or which could have a material adverse effect on the Contractor's ability to perform thereunder, the Contractor shall give written notice thereof to the City within ten (10) calendar days after receipt of notice by the Contractor. Such notice to the City shall state the date of notification of any such claim, demand, suit, or other action; the names and addresses of the claimant(s); the basis thereof; and the name of each person against whom such claim is being asserted. Such notice shall be delivered personally or by mail and shall be sent to the City and to the Denton City Attorney. Personal delivery to the City Attorney shall be to City Hall, 215 East McKinney Street, Denton, Texas 76201.

34. **NOTICES**: Unless otherwise specified, all notices, requests, or other communications required or appropriate to be given under the Contract shall be in writing and shall be deemed delivered three (3) business days after postmarked if sent by U.S. Postal Service Certified or Registered Mail, Return Receipt Requested. Notices delivered by other means shall be deemed delivered upon receipt by the addressee. Routine communications may be made by first class mail, telefax, or other commercially accepted means. Notices to the Contractor shall be sent to the address specified in the Contractor's Offer, or at such other address as a party may notify the other in writing. Notices to the City shall be addressed to the City at 901B Texas Street, Denton, Texas 76209 and marked to the attention of the Purchasing Manager.

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35. **RIGHTS TO BID, PROPOSAL AND CONTRACTUAL MATERIAL**: All material submitted by the Contractor to the City shall become property of the City upon receipt. Any portions of such material claimed by the Contractor to be proprietary must be clearly marked as such. Determination of the public nature of the material is subject to the Texas Public Information Act, Chapter 552, and Texas Government Code.

36. **NO WARRANTY BY CITY AGAINST INFRINGEMENTS**: The Contractor represents and warrants to the City that: (i) the Contractor shall provide the City good and indefeasible title to the deliverables and (ii) the deliverables supplied by the Contractor in accordance with the specifications in the Contract will not infringe, directly or contributorily, any patent, trademark, copyright, trade secret, or any other intellectual property right of any kind of any third party; that no claims have been made by any person or entity with respect to the ownership or operation of the deliverables and the Contractor does not know of any valid basis for any such claims. The Contractor shall, at its sole expense, defend, indemnify, and hold the City harmless from and against all liability, damages, and costs (including court costs and reasonable fees of attorneys and other professionals) arising out of or resulting from: (i) any claim that the City's exercise anywhere in the world of the rights associated with the City's' ownership, and if applicable, license rights, and its use of the deliverables infringes the intellectual property rights of any third party; or (ii) the Contractor's breach of any of Contractor's representations or warranties stated in this Contract. In the event of any such claim, the City shall have the right to monitor such claim or at its option engage its own separate counsel to act as co-counsel on the City's behalf. Further, Contractor agrees that the City's specifications regarding the deliverables shall in no way diminish Contractor's warranties or obligations under this paragraph and the City makes no warranty that the production, development, or delivery of such deliverables will not impact such warranties of Contractor.

37. **CONFIDENTIALITY**: In order to provide the deliverables to the City, Contractor may require access to certain of the City's and/or its licensors' confidential information (including inventions, employee information, trade secrets, confidential know-how, confidential business information, and other information which the City or its licensors consider confidential) (collectively, "Confidential Information"). Contractor acknowledges and agrees that the Confidential Information is the valuable property of the City and/or its licensors and any unauthorized use, disclosure, dissemination, or other release of the Confidential Information will substantially injure the City and/or its licensors. The Contractor (including its employees, subcontractors, agents, or representatives) agrees that it will maintain the Confidential Information in strict confidence and shall not disclose, disseminate, copy, divulge, recreate, or otherwise use the Confidential Information without the prior written consent of the City or in a manner not expressly permitted under this Agreement, unless the Confidential Information is required to be disclosed by law or an order of any court or other governmental authority with proper jurisdiction, provided the Contractor promptly notifies the City before disclosing such information so as to permit the City reasonable time to seek an appropriate protective order. The Contractor agrees to use protective measures no less stringent than the Contractor uses within its own business to protect its own most valuable information, which protective measures shall under all circumstances be at least reasonable measures to ensure the continued confidentiality of the Confidential Information.

38. **OWNERSHIP AND USE OF DELIVERABLES**: The City shall own all rights, titles, and interests throughout the world in and to the deliverables.
A. Patents. As to any patentable subject matter contained in the deliverables, the Contractor agrees

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to disclose such patentable subject matter to the City. Further, if requested by the City, the Contractor agrees to assign and, if necessary, cause each of its employees to assign the entire right, title, and interest to specific inventions under such patentable subject matter to the City and to execute, acknowledge, and deliver and, if necessary, cause each of its employees to execute, acknowledge, and deliver an assignment of letters patent, in a form to be reasonably approved by the City, to the City upon request by the City.

B. Copyrights. As to any deliverables containing copyrightable subject matter, the Contractor agrees that upon their creation, such deliverables shall be considered as work made-for-hire by the Contractor for the City and the City shall own all copyrights in and to such deliverables, provided however, that nothing in this Paragraph 38 shall negate the City's sole or joint ownership of any such deliverables arising by virtue of the City's sole or joint authorship of such deliverables. Should by operation of law, such deliverables not be considered works made-for-hire, the Contractor hereby assigns to the City (and agrees to cause each of its employees providing services to the City hereunder to execute, acknowledge, and deliver an assignment to the City of) all worldwide right, title, and interest in and to such deliverables. With respect to such work made-for-hire, the Contractor agrees to execute, acknowledge, and deliver and cause each of its employees providing services to the City hereunder to execute, acknowledge, and deliver a work-made-for-hire agreement, in a form to be reasonably approved by the City, to the City upon delivery of such deliverables to the City or at such other time as the City may request.

C. Additional Assignments. The Contractor further agrees to, and if applicable, cause each of its employees to, execute, acknowledge, and deliver all applications, specifications, oaths, assignments, and all other instruments which the City might reasonably deem necessary in order to apply for and obtain copyright protection, mask work registration, trademark registration and/or protection, letters patent, or any similar rights in any and all countries and in order to assign and convey to the City, its successors, assigns and nominees, the sole and exclusive right, title, and interest in and to the deliverables. The Contractor's obligations to execute, acknowledge, and deliver (or cause to be executed, acknowledged, and delivered) instruments or papers such as those described in this Paragraph 38 a., b., and c. shall continue after the termination of this Contract with respect to such deliverables. In the event the City should not seek to obtain copyright protection, mask work registration or patent protection for any of the deliverables, but should desire to keep the same secret, the Contractor agrees to treat the same as Confidential Information under the terms of Paragraph 37 above.

39. **PUBLICATIONS**: All published material and written reports submitted under the Contract must be originally developed material unless otherwise specifically provided in the Contract. When material not originally developed is included in a report in any form, the source shall be identified.

40. **ADVERTISING**: The Contractor shall not advertise or publish, without the City's prior consent, the fact that the City has entered into the Contract, except to the extent required by law.

41. **NO CONTINGENT FEES**: The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure the Contract upon any agreement or understanding for commission, percentage, brokerage, or contingent fee, excepting bona fide employees of bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, the City shall have the right, in addition to any other remedy available, to cancel the Contract without liability and to deduct from any amounts owed to the Contractor, or otherwise recover, the full amount of such commission,

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percentage, brokerage or contingent fee.

42. **GRATUITIES**: The City may, by written notice to the Contractor, cancel the Contract without liability if it is determined by the City that gratuities were offered or given by the Contractor or any agent or representative of the Contractor to any officer or employee of the City of Denton with a view toward securing the Contract or securing favorable treatment with respect to the awarding or amending or the making of any determinations with respect to the performing of such contract. In the event the Contract is canceled by the City pursuant to this provision, the City shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by the Contractor in providing such gratuities.

43. **PROHIBITION AGAINST PERSONAL INTEREST IN CONTRACTS**: No officer, employee, independent consultant, or elected official of the City who is involved in the development, evaluation, or decision-making process of the performance of any solicitation shall have a financial interest, direct or indirect, in the Contract resulting from that solicitation as defined in the City's Ethic Ordinance 18-757 and in the City Charter chapter 2 article XI(Ethics). Any willful violation of this section shall constitute impropriety in office, and any officer or employee guilty thereof shall be subject to disciplinary action up to and including dismissal. Any violation of this provision, with the knowledge, expressed or implied, of the Contractor shall render the Contract voidable by the City. The Contractor shall complete and submit the City's Conflict of Interest Questionnaire.

44. **INDEPENDENT CONTRACTOR**: The Contract shall not be construed as creating an employer/employee relationship, a partnership, or a joint venture. The Contractor's services shall be those of an independent contractor. The Contractor agrees and understands that the Contract does not grant any rights or privileges established for employees of the City of Denton, Texas for the purposes of income tax, withholding, social security taxes, vacation or sick leave benefits, worker's compensation, or any other City employee benefit. The City shall not have supervision and control of the Contractor or any employee of the Contractor, and it is expressly understood that Contractor shall perform the services hereunder according to the attached specifications at the general direction of the City Manager of the City of Denton, Texas, or his designee under this agreement. The contractor is expressly free to advertise and perform services for other parties while performing services for the City.

45. **ASSIGNMENT-DELEGATION**: The Contract shall be binding upon and ensure to the benefit of the City and the Contractor and their respective successors and assigns, provided however, that no right or interest in the Contract shall be assigned and no obligation shall be delegated by the Contractor without the prior written consent of the City. Any attempted assignment or delegation by the Contractor shall be void unless made in conformity with this paragraph. The Contract is not intended to confer rights or benefits on any person, firm or entity not a party hereto; it being the intention of the parties that there are no third party beneficiaries to the Contract.

The Vendor shall notify the City's Purchasing Manager, in writing, of a company name, ownership, or address change for the purpose of maintaining updated City records. The president of the company or authorized official must sign the letter. A letter indicating changes in a company name or ownership must be accompanied with supporting legal documentation such as an updated W-9, documents filed with the state indicating such change, copy of the board of director's resolution approving the action, or an executed

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merger or acquisition agreement. Failure to do so may adversely impact future invoice payments.

46. **WAIVER**: No claim or right arising out of a breach of the Contract can be discharged in whole or in part by a waiver or renunciation of the claim or right unless the waiver or renunciation is supported by consideration and is in writing signed by the aggrieved party. No waiver by either the Contractor or the City of any one or more events of default by the other party shall operate as, or be construed to be, a permanent waiver of any rights or obligations under the Contract, or an express or implied acceptance of any other existing or future default or defaults, whether of a similar or different character.

47. **MODIFICATIONS**: The Contract can be modified or amended only by a writing signed by both parties. No pre-printed or similar terms on any the Contractor invoice, order or other document shall have any force or effect to change the terms, covenants, and conditions of the Contract.

48. **INTERPRETATION**: The Contract is intended by the parties as a final, complete and exclusive statement of the terms of their agreement. No course of prior dealing between the parties or course of performance or usage of the trade shall be relevant to supplement or explain any term used in the Contract. Although the Contract may have been substantially drafted by one party, it is the intent of the parties that all provisions be construed in a manner to be fair to both parties, reading no provisions more strictly against one party or the other. Whenever a term defined by the Uniform Commercial Code, as enacted by the State of Texas, is used in the Contract, the UCC definition shall control, unless otherwise defined in the Contract.

49. **DISPUTE RESOLUTION**:
A. If a dispute arises out of or relates to the Contract, or the breach thereof, the parties agree to negotiate prior to prosecuting a suit for damages. However, this section does not prohibit the filing of a lawsuit to toll the running of a statute of limitations or to seek injunctive relief. Either party may make a written request for a meeting between representatives of each party within fourteen (14) calendar days after receipt of the request or such later period as agreed by the parties. Each party shall include, at a minimum, one (1) senior level individual with decision-making authority regarding the dispute. The purpose of this and any subsequent meeting is to attempt in good faith to negotiate a resolution of the dispute. If, within thirty (30) calendar days after such meeting, the parties have not succeeded in negotiating a resolution of the dispute, they will proceed directly to mediation as described below. Negotiation may be waived by a written agreement signed by both parties, in which event the parties may proceed directly to mediation as described below.
B. If the efforts to resolve the dispute through negotiation fail, or the parties waive the negotiation process, the parties may select, within thirty (30) calendar days, a mediator trained in mediation skills to assist with resolution of the dispute. Should they choose this option; the City and the Contractor agree to act in good faith in the selection of the mediator and to give consideration to qualified individuals nominated to act as mediator. Nothing in the Contract prevents the parties from relying on the skills of a person who is trained in the subject matter of the dispute or a contract interpretation expert. If the parties fail to agree on a mediator within thirty (30) calendar days of initiation of the mediation process, the mediator shall be selected by the Denton County Alternative Dispute Resolution Program (DCAP). The parties agree to participate in mediation in good faith for up to thirty (30) calendar days from the date of the first mediation session. The City and the Contractor will share the mediator's fees equally and the parties will bear their own costs of

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participation such as fees for any consultants or attorneys they may utilize to represent them or otherwise assist them in the mediation.

50. **JURISDICTION AND VENUE**: The Contract is made under and shall be governed by the laws of the State of Texas, including, when applicable, the Uniform Commercial Code as adopted in Texas, V.T.C.A., Bus. & Comm. Code, Chapter 1, excluding any rule or principle that would refer to and apply the substantive law of another state or jurisdiction. All issues arising from this Contract shall be resolved in the courts of Denton County, Texas and the parties agree to submit to the exclusive personal jurisdiction of such courts. The foregoing, however, shall not be construed or interpreted to limit or restrict the right or ability of the City to seek and secure injunctive relief from any competent authority as contemplated herein.

51. **INVALIDITY**: The invalidity, illegality, or unenforceability of any provision of the Contract shall in no way affect the validity or enforceability of any other portion or provision of the Contract. Any void provision shall be deemed severed from the Contract and the balance of the Contract shall be construed and enforced as if the Contract did not contain the particular portion or provision held to be void. The parties further agree to reform the Contract to replace any stricken provision with a valid provision that comes as close as possible to the intent of the stricken provision. The provisions of this section shall not prevent this entire Contract from being void should a provision which is the essence of the Contract be determined to be void.

52. **HOLIDAYS:** The following holidays are observed by the City:

New Year's Day (observed)
Martin Luther King, Jr. Day
Memorial Day
Juneteenth
Independence Day
Labor Day
Veterans Day
Thanksgiving
Friday After Thanksgiving
Christmas Eve (observed)
Christmas Day (observed)

If a Legal Holiday falls on Saturday, it will be observed on the preceding Friday. If a Legal Holiday falls on Sunday, it will be observed on the following Monday. Normal hours of operation shall be between 8:00 am and 4:00 pm, Monday through Friday, excluding City of Denton Holidays. Any scheduled deliveries or work performance not within the normal hours of operation **must be approved** by the City Manager of Denton, Texas or his authorized designee.

53. **SURVIVABILITY OF OBLIGATIONS:** All provisions of the Contract that impose continuing obligations on the parties, including but not limited to the warranty, indemnity, and confidentiality obligations of the parties, shall survive the expiration or termination of the Contract.

54. **NON-SUSPENSION OR DEBARMENT CERTIFICATION:**
The City of Denton is prohibited from contracting with or making prime or sub-awards to parties that are suspended or debarred or whose principals are suspended or debarred from Federal, State,

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or City of Denton Contracts. By accepting a Contract with the City, the Vendor certifies that its firm and its principals are not currently suspended or debarred from doing business with the Federal Government, as indicated by the General Services Administration List of Parties Excluded from Federal Procurement and Non-Procurement Programs, the State of Texas, or the City of Denton.

55. **EQUAL OPPORTUNITY**

A. **Equal Employment Opportunity:** No Offeror, or Offeror's agent, shall engage in any discriminatory employment practice. No person shall, on the grounds of race, sex, sexual orientation, age, disability, creed, color, genetic testing, or national origin, be refused the benefits of, or be otherwise subjected to discrimination under any activities resulting from this RFQ.

B. **Americans with Disabilities Act (ADA) Compliance:** No Offeror, or Offeror's agent, shall engage in any discriminatory employment practice against individuals with disabilities as defined in the ADA.

56. **BUY AMERICAN ACT-SUPPLIES (Applicable to certain federally funded requirements)**

The following federally funded requirements are applicable. A. Definitions. As used in this paragraph –

i. "Component" means an article, material, or supply incorporated directly into an end product.

ii. "Cost of components" means -

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the end product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

iii. "Domestic end product" means-

(1) An unmanufactured end product mined or produced in the United States; or

(2) An end product manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind as those that the agency determines are not mined, produced, or manufactured in sufficient and reasonably available commercial quantities of a satisfactory quality are treated as domestic. Scrap generated, collected, and prepared for processing in the United States is considered domestic.

iv. "End product" means those articles, materials, and supplies to be acquired under the contract for public use.

v. "Foreign end product" means an end product other than a domestic end product.

vi. "United States" means the 50 States, the District of Columbia, and outlying areas.

B. The Buy American Act (41 U.S.C. 10a - 10d) provides a preference for domestic end products for supplies acquired for use in the United States.

C. The City does not maintain a list of foreign articles that will be treated as domestic for this Contract; but will consider for approval foreign articles as domestic for this product if the articles are on a list approved by another Governmental Agency. The Offeror shall submit documentation with their Offer demonstrating that the article is on an approved Governmental list.

D. The Contractor shall deliver only domestic end products except to the extent that it specified delivery of foreign end products in the provision of the Solicitation entitled "Buy American Act

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Certificate".

57. **RIGHT TO INFORMATION:** The City of Denton reserves the right to use any and all information presented in any response to this contract, whether amended or not, except as prohibited by law. Selection of rejection of the submittal does not affect this right.

58. **LICENSE FEES OR TAXES:** Provided the solicitation requires an awarded contractor or supplier to be licensed by the State of Texas, any and all fees and taxes are the responsibility of the respondent.

59. **PREVAILING WAGE RATES:** The contractor shall comply with prevailing wage rates as defined by the United States Department of Labor Davis-Bacon Wage Determination at http://www.dol.gov/whd/contracts/dbra.htm and at the Wage Determinations website www.wdol.gov for Denton County, Texas (WD-2509).

60. **COMPLIANCE WITH ALL STATE, FEDERAL, AND LOCAL LAWS:** The contractor or supplier shall comply with all State, Federal, and Local laws and requirements. The Respondent must comply with all applicable laws at all times, including, without limitation, the following: (i) §36.02 of the Texas Penal Code, which prohibits bribery; (ii) §36.09 of the Texas Penal Code, which prohibits the offering or conferring of benefits to public servants. The Respondent shall give all notices and comply with all laws and regulations applicable to furnishing and performance of the Contract.

61. **FEDERAL, STATE, AND LOCAL REQUIREMENTS:** Respondent shall demonstrate on-site compliance with the Federal Tax Reform Act of 1986, Section 1706, amending Section 530 of the Revenue Act of 1978, dealing with issuance of Form W-2's to common law employees. Respondent is responsible for both federal and State unemployment insurance coverage and standard Workers' Compensation insurance coverage. Respondent shall ensure compliance with all federal and State tax laws and withholding requirements. The City of Denton shall not be liable to Respondent or its employees for any Unemployment or Workers' Compensation coverage, or federal or State withholding requirements. Contractor shall indemnify the City of Denton and shall pay all costs, penalties, or losses resulting from Respondent's omission or breach of this Section.

62. **DRUG FREE WORKPLACE:** The contractor shall comply with the applicable provisions of the Drug-Free Work Place Act of 1988 (Public Law 100-690, Title V, Subtitle D; 41 U.S.C. 701 ET SEQ.) and maintain a drug-free work environment; and the final rule, government-wide requirements for drug-free work place (grants), issued by the Office of Management and Budget and the Department of Defense (32 CFR Part 280, Subpart F) to implement the provisions of the Drug-Free Work Place Act of 1988 is incorporated by reference and the contractor shall comply with the relevant provisions thereof, including any amendments to the final rule that may hereafter be issued.

63. **RESPONDENT LIABILITY FOR DAMAGE TO GOVERNMENT PROPERTY:** The Respondent shall be liable for all damages to government-owned, leased, or occupied property and equipment caused by the Respondent and its employees, agents, subcontractors, and suppliers, including any delivery or cartage company, in connection with any performance pursuant to the Contract. The Respondent shall notify the City of Denton Procurement Manager in writing of any such damage within one (1) calendar day.

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64. **FORCE MAJEURE:** The City of Denton, any Customer, and the Respondent shall not be responsible for performance under the Contract should it be prevented from performance by an act of war, order of legal authority, act of God, or other unavoidable cause not attributable to the fault or negligence of the City of Denton. In the event of an occurrence under this Section, the Respondent will be excused from any further performance or observance of the requirements so affected for as long as such circumstances prevail and the Respondent continues to use commercially reasonable efforts to recommence performance or observance whenever and to whatever extent possible without delay. The Respondent shall immediately notify the City of Denton Procurement Manager by telephone (to be confirmed in writing within five (5) calendar days of the inception of such occurrence) and describe at a reasonable level of detail the circumstances causing the non-performance or delay in performance.

65. **NON-WAIVER OF RIGHTS:** Failure of a Party to require performance by another Party under the Contract will not affect the right of such Party to require performance in the future. No delay, failure, or waiver of either Party's exercise or partial exercise of any right or remedy under the Contract shall operate to limit, impair, preclude, cancel, waive or otherwise affect such right or remedy. A waiver by a Party of any breach of any term of the Contract will not be construed as a waiver of any continuing or succeeding breach.

66. **NO WAIVER OF SOVEREIGN IMMUNITY:** The Parties expressly agree that no provision of the Contract is in any way intended to constitute a waiver by the City of Denton of any immunities from suit or from liability that the City of Denton may have by operation of law.

67. **RECORDS RETENTION:** The Respondent shall retain all financial records, supporting documents, statistical records, and any other records or books relating to the performances called for in the Contract. The Respondent shall retain all such records for a period of four (4) years after the expiration of the Contract, or until the CPA or State Auditor's Office is satisfied that all audit and litigation matters are resolved, whichever period is longer. The Respondent shall grant access to all books, records and documents pertinent to the Contract to the CPA, the State Auditor of Texas, and any federal governmental entity that has authority to review records due to federal funds being spent under the Contract.

Should a conflict arise between any of the contract documents, it shall be resolved with the following order of precedence (if applicable). In any event, the final negotiated contract shall take precedence over any and all contract documents to the extent of such conflict.

1. **Final negotiated contract**
2. **RFP/Bid documents**
3. **City's standard terms and conditions**
4. **Purchase order**
5. **Contractor terms and conditions**

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Exhibit D
Certificate of Interested Parties Electronic Filing

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that the City may not enter into this contract unless the Contractor submits a disclosure of interested parties (Form 1295) to the City at the time the Contractor submits the signed contract. The Texas Ethics Commission has adopted rules requiring the business entity to file Form 1295 electronically with the Commission.

Contractor will be required to furnish a Certificate of Interest Parties before the contract is awarded, in accordance with Government Code 2252.908.

The contractor shall:

1. Log onto the State Ethics Commission Website at : https://www.ethics.state.tx.us/filinginfo/1295/
2. Register utilizing the tutorial provided by the State
3. Print a copy of the completed Form 1295
4. Enter the Certificate Number on page 2 of this contract.
5. Complete and sign the Form 1295
6. Email the form to purchasing@cityofdenton.com with the contract number in the subject line. (EX: Contract 1234 – Form 1295)

The City must acknowledge the receipt of the filed Form 1295 not later than the 30th day after Council award. Once a Form 1295 is acknowledged, it will be posted to the Texas Ethics Commission's website within seven business days.

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EXHIBIT E

Line #	Description	QTY	UOM	Keasler Sales, LLC Unit Pricing
1	SWITCHGEAR BUILDING #1 HMI PANEL	1	EA	**$10,634.00**
2	TRANSFORMER #1 METER PANEL	1	EA	**$11,977.00**
3	BUS/TRANSFORMER #1 DIFFERENTIAL PANEL	1	EA	**$16,712.00**
4	SWITCHGEAR BUILDING #2 HMI PANEL	1	EA	**$10,634.00**
5	TRANSFORMER #2 METER PANEL	1	EA	**$11,977.00**
6	BUS/TRANSFORMER #2 DIFFERENTIAL PANEL	1	EA	**$16,712.00**

EXHIBIT F

CONFLICT OF INTEREST QUESTIONNAIRE - FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a) and by City of Denton Ethics Code, Ordinance 18-757.
By law this questionnaire must be filed with the records administrator of the local government entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

1 **Name of vendor who has a business relationship with local governmental entity.**

KEASLER SALES, LLC

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

_____
Name of Officer

Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relations hip with the local government officer. This section, (item 3 including subparts A, B, C & D), must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☒ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☒ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of one percent or more?

☐ Yes ☒ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4 ☒ **I have no Conflict of Interest to disclose.**

5

DocuSigned by:
James De La Cruz
C30FBD321B3C4A8...
Signature of vendor doing business with the governmental entity

4/29/2024
Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/ Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(A) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

City of Denton Ethics Code Ordinance Number 18-757

Definitions:

Relative: a family member related to a City Official within the third 3rd degree of affinity (marriage) or consanguinity (blood or adoption)

City Official: for purpose of this article, the term consists of the Council Members, Department Heads, or member of the Board of Ethics, Planning and zoning Commission Members, Board of Adjustment, Historic Landmark Commission, or Public Utilities Board

Vendor: a person who provides or seeks to provide goods, services, and/or real property to the City in exchange for compensation. This definition does not include those property owners from whom the City acquires public right-of-way or other real property interests for public use.

Per the City of Denton Ethics Code, Section 2-273. – Prohibitions

(3) It shall be a violation of this Article for a Vendor to offer or give a Gift to City Official exceeding fifty dollars ($50.00) per gift, or multiple gifts cumulatively valued at more than two hundred dollars ($200.00) per a single fiscal year.

Per the City of Denton Ethics Code, Section 2-282. – Disposition (b), (5) Ineligibility

If the Board of Ethics finds that a Vendor has violated this Article, the Board may recommend to the City Manager that the Vendor be deemed ineligible to enter into a City contract or other arrangement for goods, services, or real property, for a period of one (1) year.

DocuSign

Certificate Of Completion

Envelope Id: 54F0927325A0406FAD36887BC39402FC

Status: Sent

Subject: Please DocuSign: City Council Contract 8473 Protective Relay Panels for Brinker Substation

Source Envelope:

Document Pages: 29

Signatures: 4

Initials: 1

Certificate Pages: 6

AutoNav: Enabled

EnvelopeId Stamping: Enabled

Time Zone: (UTC-06:00) Central Time (US & Canada)

Envelope Originator:
Crystal Westbrook
901B Texas Street
Denton, TX 76209
crystal.westbrook@cityofdenton.com
IP Address: 198.49.140.10

Record Tracking

Status: Original
4/23/2024 10:24:48 AM

Holder: Crystal Westbrook
crystal.westbrook@cityofdenton.com

Location: DocuSign

Signer Events	Signature	Timestamp
Crystal Westbrook crystal.westbrook@cityofdenton.com Senior Buyer City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	**Completed** Using IP Address: 198.49.140.10	Sent: 4/23/2024 10:25:56 AM Viewed: 4/23/2024 10:26:06 AM Signed: 4/23/2024 10:27:40 AM
Lori Hewell lori.hewell@cityofdenton.com Purchasing Manager City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DS LH Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 4/23/2024 10:27:44 AM Viewed: 4/23/2024 10:30:52 AM Signed: 4/23/2024 10:31:21 AM
Marcella Lunn marcella.lunn@cityofdenton.com Senior Deputy City Attorney City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DocuSigned by: Marcella Lunn 4B070831B4AA438... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 4/23/2024 10:31:24 AM Viewed: 4/24/2024 8:59:21 AM Signed: 4/24/2024 9:00:31 AM
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	**Completed** Using IP Address: 198.49.140.10	Sent: 4/29/2024 8:58:11 AM Viewed: 4/29/2024 8:58:52 AM Signed: 4/29/2024 8:59:27 AM

Signer Events	Signature	Timestamp
James De La Cruz james@keasler.com President Keasler Associates, Inc Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 4/24/2024 9:48:27 AM ID: 279cb471-405d-4d4c-be46-6249c0412f64	DocuSigned by: James De La Cruz C30FBD321B3C4A8... Signature Adoption: Pre-selected Style Using IP Address: 71.40.77.18	Sent: 4/24/2024 9:00:34 AM Viewed: 4/24/2024 9:48:27 AM Signed: 4/29/2024 5:41:17 PM
Antonio Puente, Jr. antonio.puente@cityofdenton.com DME General Manager Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 4/29/2024 5:56:31 PM ID: 5c3483fd-dd3c-4e0c-8aac-31b2f32ba56d	DocuSigned by: Antonio Puente, Jr. E3760944C2BF4B5... Signature Adoption: Pre-selected Style Using IP Address: 174.246.138.172 Signed using mobile	Sent: 4/29/2024 5:41:20 PM Viewed: 4/29/2024 5:56:31 PM Signed: 4/29/2024 5:57:12 PM
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		Sent: 4/29/2024 5:57:15 PM
Sara Hensley sara.hensley@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Lauren Thoden lauren.thoden@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		

In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 4/23/2024 10:27:44 AM
Gretna Jones gretna.jones@cityofdenton.com Legal Secretary City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 4/29/2024 5:57:14 PM Viewed: 4/30/2024 10:15:56 AM
City Secretary Office citysecretary@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Mark Zimmerer mark.zimmerer@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 4/15/2024 2:17:37 PM ID: 3313cd87-634a-4e95-b2f7-a78e514cf021		

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	4/23/2024 10:25:56 AM
Envelope Updated	Security Checked	4/29/2024 8:58:10 AM

Payment Events	Status	Timestamps

Electronic Record and Signature Disclosure

ELECTRONIC RECORD AND SIGNATURE DISCLOSURE

From time to time, City of Denton (we, us or Company) may be required by law to provide to you certain written notices or disclosures. Described below are the terms and conditions for providing to you such notices and disclosures electronically through your DocuSign, Inc. (DocuSign) Express user account. Please read the information below carefully and thoroughly, and if you can access this information electronically to your satisfaction and agree to these terms and conditions, please confirm your agreement by clicking the 'I agree' button at the bottom of this document.

Getting paper copies

At any time, you may request from us a paper copy of any record provided or made available electronically to you by us. For such copies, as long as you are an authorized user of the DocuSign system you will have the ability to download and print any documents we send to you through your DocuSign user account for a limited period of time (usually 30 days) after such documents are first sent to you. After such time, if you wish for us to send you paper copies of any such documents from our office to you, you will be charged a $0.00 per-page fee. You may request delivery of such paper copies from us by following the procedure described below.

Withdrawing your consent

If you decide to receive notices and disclosures from us electronically, you may at any time change your mind and tell us that thereafter you want to receive required notices and disclosures only in paper format. How you must inform us of your decision to receive future notices and disclosure in paper format and withdraw your consent to receive notices and disclosures electronically is described below.

Consequences of changing your mind

If you elect to receive required notices and disclosures only in paper format, it will slow the speed at which we can complete certain steps in transactions with you and delivering services to you because we will need first to send the required notices or disclosures to you in paper format, and then wait until we receive back from you your acknowledgment of your receipt of such paper notices or disclosures. To indicate to us that you are changing your mind, you must withdraw your consent using the DocuSign 'Withdraw Consent' form on the signing page of your DocuSign account. This will indicate to us that you have withdrawn your consent to receive required notices and disclosures electronically from us and you will no longer be able to use your DocuSign Express user account to receive required notices and consents electronically from us or to sign electronically documents from us.

All notices and disclosures will be sent to you electronically

Unless you tell us otherwise in accordance with the procedures described herein, we will provide electronically to you through your DocuSign user account all required notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you during the course of our relationship with you. To reduce the chance of you inadvertently not receiving any notice or disclosure, we prefer to provide all of the required notices and disclosures to you by the same method and to the same address that you have given us. Thus, you can receive all the disclosures and notices electronically or in paper format through the paper mail delivery system. If you do not agree with this process, please let us know as described below. Please also see the paragraph immediately above that describes the consequences of your electing not to receive delivery of the notices and disclosures electronically from us.

How to contact City of Denton:
You may contact us to let us know of your changes as to how we may contact you electronically, to request paper copies of certain information from us, and to withdraw your prior consent to receive notices and disclosures electronically as follows:
To contact us by email send messages to: purchasing@cityofdenton.com

To advise City of Denton of your new e-mail address
To let us know of a change in your e-mail address where we should send notices and disclosures electronically to you, you must send an email message to us at melissa.kraft@cityofdenton.com and in the body of such request you must state: your previous e-mail address, your new e-mail address. We do not require any other information from you to change your email address..
In addition, you must notify DocuSign, Inc to arrange for your new email address to be reflected in your DocuSign account by following the process for changing e-mail in DocuSign.
To request paper copies from City of Denton
To request delivery from us of paper copies of the notices and disclosures previously provided by us to you electronically, you must send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail address, full name, US Postal address, and telephone number. We will bill you for any fees at that time, if any.
To withdraw your consent with City of Denton
To inform us that you no longer want to receive future notices and disclosures in electronic format you may:

i. decline to sign a document from within your DocuSign account, and on the subsequent page, select the check-box indicating you wish to withdraw your consent, or you may;
ii. send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail, full name, IS Postal Address, telephone number, and account number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

Required hardware and software

Operating Systems:	Windows2000? or WindowsXP?
Browsers (for SENDERS):	Internet Explorer 6.0? or above
Browsers (for SIGNERS):	Internet Explorer 6.0?, Mozilla FireFox 1.0, NetScape 7.2 (or above)
Email:	Access to a valid email account
Screen Resolution:	800 x 600 minimum
Enabled Security Settings:	•Allow per session cookies •Users accessing the internet behind a Proxy Server must enable HTTP 1.1 settings via proxy connection

** These minimum requirements are subject to change. If these requirements change, we will provide you with an email message at the email address we have on file for you at that time providing you with the revised hardware and software requirements, at which time you will have the right to withdraw your consent.

Acknowledging your access and consent to receive materials electronically
To confirm to us that you can access this information electronically, which will be similar to other electronic notices and disclosures that we will provide to you, please verify that you were able to read this electronic disclosure and that you also were able to print on paper or electronically save this page for your future reference and access or that you were able to e-mail this disclosure and consent to an address where you will be able to print on paper or save it for your future reference and access. Further, if you consent to receiving notices and disclosures exclusively in electronic format on the terms and conditions described above, please let us know by clicking the 'I agree' button below.
By checking the 'I Agree' box, I confirm that:

- I can access and read this Electronic CONSENT TO ELECTRONIC RECEIPT OF ELECTRONIC RECORD AND SIGNATURE DISCLOSURES document; and

- I can print on paper the disclosure or save or send the disclosure to a place where I can print it, for future reference and access; and

- Until or unless I notify City of Denton as described above, I consent to receive from exclusively through electronic means all notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to me by City of Denton during the course of my relationship with you.

File #: ID 24-1078, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with SewerAI Corporation, for sewer pipe and manhole rating services for the Drainage and Wastewater Departments; providing for the expenditure of funds therefor; and providing an effective date (RFP 8488 - awarded to SewerAI Corporation, for one (1) year, with the option for four (4) additional one (1) year extensions, in the total five (5) year not-to-exceed amount of $875,000.00). The Public Utilities Board recommends approval (4 - 0).

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Procurement

ACM: Cassey Ogden

DATE: June 4, 2024

SUBJECT

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with SewerAI Corporation, for sewer pipe and manhole rating services for the Drainage and Wastewater Departments; providing for the expenditure of funds therefor; and providing an effective date (RFP 8488 – awarded to SewerAI Corporation, for one (1) year, with the option for four (4) additional one (1) year extensions, in the total five (5) year not-to-exceed amount of $875,000.00). The Public Utilities Board recommends approval (4 - 0).

STRATEGIC ALIGNMENT

This action supports Key Focus Area: Promote Sustainability and the Environment.

INFORMATION/BACKGROUND

The City of Denton issued a Request for Proposal (RFP) for contracting services for the rating of lateral lines, main lines, and manholes of the City of Denton's stormwater and wastewater systems. The contractor will complete the ratings by the National Association of Sewer Service Companies (NASSCO) standards submitted by the City of Denton. The contractor will use a web-based asset program that will be accessible by the City of Denton and will follow the current City of Denton Standard Construction Specification and Details. This contract will be utilized by the Drainage and Wastewater Departments.

SewerAI will use artificial intelligence (AI) technology to evaluate pipe asset conditions and defects that are not easily identified by the human eye. Proactive identification of pipe defects allows staff to initiate preventative maintenance or to effectively plan for asset replacement as part of the capital improvement plan. In addition to improved defect detection, the use of AI technology will reduce staff and vendor efforts to manually identify and categorize asset defects. This will improve the staff's ability to perform inspections and obtain asset condition information more quickly.

Project Description	Estimated 5-Year Expenditure
Year 1 Maintenance	$175,000
Year 2 Maintenance	175,000
Year 3 Maintenance	175,000
Year 4 Maintenance	175,000
Year 5 Maintenance	175,000
Total:	**$875,000**

Request for Proposals was sent to 234 prospective suppliers of this item, including two (2) Denton firms. In addition, specifications were placed on the Procurement website for prospective suppliers to download and advertised in the local newspaper. Two (2) proposals were received, references were checked, and proposals were evaluated based upon published criteria including delivery, compliance with specifications, probable performance, and price. Based upon this evaluation, SewerAI Corporation was ranked the highest and determined to be the best value for the City.

NIGP Code Used for Solicitation:	**890** - Water Supply, Groundwater, Sewage Treatment, & Related Equipment (Not for Air Conditioning, Steam Boiler, or Laboratory Reagent Water)
Notifications sent for Solicitation sent in IonWave:	234
Number of Suppliers that viewed Solicitation in IonWave:	16
HUB-Historically Underutilized Business Invitations sent out:	13
SBE-Small Business Enterprise Invitations sent out:	76
Responses from Solicitation:	2

PRIOR ACTION/REVIEW (COUNCIL, BOARDS, COMMISSIONS)

On May 20, 2024, the Public Utilities Board (PUB) recommended this item to the City Council for consideration.

RECOMMENDATION

Award a contract with SewerAI Corporation, for sewer pipe and manhole rating services for the Drainage and Wastewater Departments, in a one (1) year, with the option for four (4) additional one (1) year extensions, in the total five (5) year not-to-exceed amount of $875,000.

PRINCIPAL PLACE OF BUSINESS

SewerAI Corporation
Walnut Creek, CA

ESTIMATED SCHEDULE OF PROJECT

This is an initial one (1) year contract with options to extend the contract for four (4) additional one (1) year periods, with all terms and conditions remaining the same.

FISCAL INFORMATION

These services will be funded from a combination of Wastewater-Drainage account 655051561.1360.40100 and Wastewater account 640200.6545. Requisitions will be entered on an as-needed basis. The City will only pay for services rendered and is not obligated to pay the full contract amount unless needed.

EXHIBITS

Exhibit 1: Agenda Information Sheet
Exhibit 2: Pricing Evaluation
Exhibit 3: Ordinance and Contract

Respectfully submitted:
Lori Hewell, 940-349-7100
Purchasing Manager

For information concerning this acquisition, contact: Stephen Bonner, 940-349-7179.

Legal point of contact: Marcella Lunn at 940-349-8333.

Exhibit 2
RFP 8488 - Pricing Evaluation for Sewer Pipe and Manhole Rating Services

			Respondent's Business Name:	**SewerAI Corporation**		BCAC Underground	
			Principal Place of Business (City and State)	**Walnut Creek, CA**		Haltom City, TX	
Line #	**Description**	**QTY**	**UOM**	**Unit**	**Extended**	**Unit**	**Extended**
1	Service Work - Rates						
2	PACP/LACP condition assessment of Storm sewer and sanitary sewer mainlines and lateral lines.*Estimated Annual Quantity - 500,000 Linear Feet*	500,000	LF	**$0.22**	**$110,000.00**	$2.00	$1,000,000.00
3	MACP Level 2 condition assessment of Storm sewer and sanitary sewer manholes and junction boxes.*Estimated Annual Quantity - 500 Each*	500	EA	**$35.00**	**$17,500.00**	$325.00	$162,500.00
4	3D Modeling of Storm sewer and sanitary sewer manholes and junction boxes.*Estimated Annual Quantity - 100 Each*	100	EA	**$5.00**	**$500.00**	$325.00	$32,500.00
5	Annual Subscription Fee	1	EA	**$12,000.00**			
			Total Score:	**$140,000.00**		$1,195,000.00	

Evaluation			
Item #	**Scoring Criteria**	**SewerAI Corpoartion**	BCAC Underground
1	Delivery/Project Schedule - 20%	**16.00**	12.00
2	Compliance with Specifications - 20%	**17.33**	9.33
3	Probable Performance - 20%	**17.33**	14.67
4	Price, Total Cost of Ownership - 40%	**40.00**	4.68
	Total Score:	**90.66**	40.68

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, A TEXAS HOME-RULE MUNICIPAL CORPORATION, AUTHORIZING THE CITY MANAGER TO EXECUTE A CONTRACT WITH SEWERAI CORPORATION, FOR SEWER PIPE AND MANHOLE RATING SERVICES FOR THE DRAINAGE AND WASTEWATER DEPARTMENTS; PROVIDING FOR THE EXPENDITURE OF FUNDS THEREFOR; AND PROVIDING AN EFFECTIVE DATE (RFP 8488 – AWARDED TO SEWERAI CORPORATION, FOR ONE (1) YEAR, WITH THE OPTION FOR FOUR (4) ADDITIONAL ONE (1) YEAR EXTENSIONS, IN THE TOTAL FIVE (5) YEAR NOT-TO-EXCEED AMOUNT OF $875,000.00).

WHEREAS, the City has solicited, received, and evaluated competitive proposals for sewer pipe and manhole rating services for the Drainage and Wastewater Departments; and

WHEREAS, the City Manager, or a designated employee, has received, reviewed, and recommended that the herein described proposals are the most advantageous to the City considering the relative importance of price and the other evaluation factors included in the request for proposals; and

WHEREAS, this procurement was undertaken as part of the City's governmental function [Sanitary and storm sewers]; and

WHEREAS, the City Council has provided in the City Budget for the appropriation of funds to be used for the purchase of the materials, equipment, supplies, or services approved and accepted herein; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The items in the following numbered request for proposal for materials, equipment, supplies, or services shown in the "Request Proposals" on file in the office of the Purchasing Agent, are hereby accepted and approved as being the most advantageous to the City considering the relative importance of price and the other evaluation factors included in the request for proposals.

RFP NUMBER	CONTRACTOR	AMOUNT
8488	SewerAI Corporation	$875,000.00

SECTION 2. That by the acceptance and approval of the above numbered items of the submitted proposals, the City accepts the offer of the persons submitting the proposals for such items and agrees to purchase the materials, equipment, supplies, or services in accordance with the terms, specifications, standards, quantities, and for the specified sums contained in the Proposal Invitations, Proposals, and related documents.

SECTION 3. That should the City and person submitting approved and accepted items wish to enter into a formal written agreement as a result of the acceptance, approval, and awarding of the proposals, the City Manager, or their designated representative, is hereby authorized to execute the written contract which shall be attached hereto; provided that the written contract is in accordance with the terms, conditions, specifications, standards, quantities, and specified sums contained in the Proposal and related documents herein approved and accepted.

SECTION 4. The City Council of the City of Denton hereby expressly delegates the authority to take any actions that may be required or permitted to be performed by the City of Denton under this ordinance to the City Manager of the City of Denton, or their designee.

SECTION 5. By the acceptance and approval of the above enumerated bids, the City Council hereby authorizes the expenditure of funds therefor in the amount and in accordance with the approved bids.

SECTION 6. This ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____. This ordinance was passed and approved by the following vote [___ - ___]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: _____

Marcella Lunn

Digitally signed by Marcella Lunn
DN: dc=com, dc=cityofdenton, dc=codad, ou=Department Users and Groups, ou=General Government, ou=Legal, cn=Marcella Lunn, email=Marcella.Lunn@cityofdenton.com
Date: 2024.04.26 18:32:21 -05'00'

Docusign City Council Transmittal Coversheet

RFP	8488
File Name	Sewer Pipe and Manhole Rating Services
Purchasing Contact	Christina Dormady
City Council Target Date	
Piggy Back Option	Yes
Contract Expiration	
Ordinance	

DS
LH

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CONTRACT BY AND BETWEEN
CITY OF DENTON, TEXAS AND SEWERAI CORPORATION
(CONTRACT 8488)

THIS CONTRACT is made and entered into this date _____, by and between SEWERAI CORPORTATION a Delaware corporation, whose address is _2815 Mitchell Drive, Suite 215, Walnut Creek, CA 94598 hereinafter referred to as "Contractor," and the **CITY OF DENTON, TEXAS**, a home rule municipal corporation, hereinafter referred to as "City," to be effective upon approval of the Denton City Council and subsequent execution of this Contract by the Denton City Manager or their duly authorized designee.

For and in consideration of the covenants and agreements contained herein, and for the mutual benefits to be obtained hereby, the parties agree as follows:

SCOPE OF SERVICES

Contractor shall provide products and/or services in accordance with the City's document RFP 8488- Sewer Pipe and Manhole Rating Services, a copy of which is on file at the office of Purchasing Agent and incorporated herein for all purposes. The Contract consists of this written agreement and the following items which are attached hereto and incorporated herein by reference:

(a) Special Terms and Conditions **(Exhibit "A");**
(b) City of Denton's RFP 8488 **(Exhibit "B" on File at the Office of the Purchasing Agent);**
(c) City of Denton Standard Terms and Conditions **(Exhibit "C");**
(d) Certificate of Interested Parties Electronic Filing **(Exhibit "D");**
(e) Contractor's Pricing (**Exhibit "E"**);
(f) Form CIQ – Conflict of Interest Questionnaire **(Exhibit "F");**

These documents make up the Contract documents and what is called for by one shall be as binding as if called for by all. In the event of an inconsistency or conflict in any of the provisions of the Contract documents, the inconsistency or conflict shall be resolved by giving precedence first to the written agreement then to the contract documents in the order in which they are listed above. These documents shall be referred to collectively as "Contract Documents."

Prohibition on Contracts with Companies Boycotting Israel
Contractor acknowledges that in accordance with Chapter 2271 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains a written verification from the company that it: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract. The terms "boycott Israel" and "company" shall have the meanings ascribed to those terms in Section 808.001 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Boycotting Certain Energy Companies
Contractor acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains

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written verification from the company that it (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the contract. The terms "boycott energy company" and "company" shall have the meanings ascribed to those terms in Section 809.001 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Boycotting Certain Firearm Entities and Firearm Trade Associations

Contractor acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association. The terms "discriminate against a firearm entity or firearm trade association," "firearm entity" and "firearm trade association" shall have the meanings ascribed to those terms in Chapter 2274 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Doing Business with Iran, Sudan, or a Foreign Terrorist Organization

Sections 2252 and 2270 of the Texas Government Code restricts CITY from contracting with companies that do business with Iran, Sudan, or a foreign terrorist organization. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor, pursuant to Chapters 2252 and 2270, is not ineligible to enter into this agreement and will not become ineligible to receive payments under this agreement by doing business with Iran, Sudan, or a foreign terrorist organization***. Failure to meet or maintain the requirements under this provision will be considered a material breach.

Termination Right for Contracts with Companies Doing Business with Certain Foreign-Owned Companies

The City of Denton may terminate this Contract immediately without any further liability if the City of Denton determines, in its sole judgment, that this Contract meets the requirements under Chapter 2274, and Contractor is, or will be in the future, (i) owned by or the majority of stock or other ownership interest of the company is held or controlled by individuals who are citizens of China, Iran, North Korea, Russia, or other designated country (ii) directly controlled by the Government of China, Iran, North Korea, Russia, or other designated country, or (iii) is headquartered in China, Iran, North Korea, Russia, or other designated country.

The parties agree to transact business electronically. Any statutory requirements that certain terms be in writing will be satisfied using electronic documents and signing. Electronic signing of this document will be deemed an original for all legal purposes.

IN WITNESS WHEREOF, the parties of these presents have executed this agreement in the year and day first above written.

Contract # 8488

CONTRACTOR

DocuSigned by:
BY: William Gilmartin IV
1FCCA70504DD4EF...
AUTHORIZED SIGNATURE

Printed Name: William Gilmartin IV

Title: CRO

855.952.2200
PHONE NUMBER

bgilmartin@sewerai.com
EMAIL ADDRESS

2024-1121608
TEXAS ETHICS COMMISSION
1295 CERTIFICATE NUMBER

CITY OF DENTON, TEXAS

BY: _____
SARA HENSLEY, CITY MANAGER

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

DocuSigned by:
BY: Marcella Lunn
4B070831B4AA438...

THIS AGREEMENT HAS BEEN
BOTH REVIEWED AND APPROVED
as to financial and operational obligations
and business terms.

DocuSigned by:
ethan cox
A88AA619E7314D7...
SIGNATURE

ethan cox
PRINTED NAME

Director of Streets
TITLE

Streets
DEPARTMENT

Contract # 8488

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Exhibit A
Special Terms and Conditions

1. Total Contract Amount
The contract total for services shall not exceed $875,000. Pricing shall be per Exhibit E attached.

2. The Quantities

The quantities indicated on Exhibit E are estimates based upon the best available information. The City reserves the right to increase or decrease the quantities to meet its actual needs without any adjustments in the bid price. Individual purchase orders will be issued on an as needed basis.

3. Contract Terms

The contract term will be one (1) year, effective from date of award. The City and the Supplier shall have the option to renew this contract for an additional four (4) one-year periods.

The Contract shall commence upon the issuance of a Notice of Award by the City of Denton and shall automatically renew each year, from the date of award by City Council. The Supplier's request to not renew the contract must be submitted in writing to the Purchasing Manager at least 60 days prior to the contract renewal date for each year. At the sole option of the City of Denton, the Contract may be further extended as needed, not to exceed a total of six (6) months.

4. Price Escalation and De-escalation

On Supplier's request in the form stated herein, the City will implement an escalation/de-escalation price adjustment annually based on these special terms. Any request for price adjustment must be based on the, U.S Department of Labor, Bureau of Labor Statistics, Producer Price Index (PPI) or the manufacturer published pricing list. The maximum escalation will not exceed +/- 8% for any individual year. The escalation will be determined annually at the renewal date. The price will be increased or decreased based upon the annual percentage change in the PPI or the percentage change in the manufacturer's price list. Should the PPI or manufacturer price list change exceed a minimum threshold value of +/-1%, then the stated eligible bid prices shall be adjusted in accordance with the percent change not to exceed the 8% limit per year. The supplier should provide documentation as percentage of each cost associated with the unit prices quoted for consideration.

Request must be submitted in writing with supporting evidence for need of such increase to the Purchasing Manager at least 60 days prior to contract expiration of each year. Respondent must also provide supporting documentation as justification for the request. If no request is made, then it will be assumed that the current contract price will be in effect.

Upon receipt of such request, the City of Denton reserves the right to either: accept the escalation as competitive with the general market price at the time, and become effective upon the renewal date of the contract award or reject the increases within 30 calendar days after receipt of a properly submitted request. If a properly submitted increase is rejected, the Contractor may

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request cancellation of such items from the Contract by giving the City of Denton written notice. Cancellation will not go into effect for 15 calendar days after a determination has been issued. Pre-price increase prices must be honored on orders dated up to the official date of the City of Denton approval and/or cancellation.

The request can be sent by e-mail to: purchasing@cityofdenton.com noting the solicitation number.

The City of Denton reserves the right to accept, reject, or negotiate the proposed price changes.

5. Performance Liquidated Damages

The Contractor shall incur contractual payment losses, as initiated by the City for performance that falls short of specified performance standards as outlined below:

- Delivery beyond contracted lead times
- Performance below contracted levels (services only)

The Contractor shall be assessed a one (1%) percent fee each month when any one of the performance standards outlined above are not met in full. The Contractor shall be assessed a two (2%) percent profit fee each month when any two (2) or more performance standards outlined above are not met in full. At the end of each month, the City will review the monthly reports and determine the percentage of penalty to be assessed to the Contractor's monthly profit margin.

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Exhibit C
Standard Purchase Terms and Conditions

These standard Terms and Conditions and the Terms and Conditions, Specifications, Drawings and other requirements included in the City of Denton's contract are applicable to contracts/purchase orders issued by the City of Denton hereinafter referred to as the City or Buyer and the Seller or respondent herein after referred to as Contractor or Supplier. Any deviations must be in writing and signed by a representative of the City's Procurement Department and the Supplier. No Terms and Conditions contained in the seller's proposal response, invoice or statement shall serve to modify the terms set forth herein. If there is a conflict between the provisions on the face of the contract/purchase order these written provisions will take precedence.

The Contractor agrees that the contract shall be governed by the following terms and conditions, unless exceptions are duly noted and fully negotiated. Unless otherwise specified in the contract, Sections 3, 4, 5, 6, 7, 8, 20, 21, and 36 shall apply only to a solicitation to purchase goods, and sections 9, 10, 11, 22 and 32 shall apply only to a solicitation to purchase services to be performed principally at the City's premises or on public rights-of-way.

1. **CONTRACTOR'S OBLIGATIONS**. The Contractor shall fully and timely provide all deliverables described in the Solicitation and in the Contractor's Offer in strict accordance with the terms, covenants, and conditions of the Contract and all applicable Federal, State, and local laws, rules, and regulations.

2. **EFFECTIVE DATE/TERM**. Unless otherwise specified in the Solicitation, this Contract shall be effective as of the date the contract is signed by the City, and shall continue in effect until all obligations are performed in accordance with the Contract.

3. **CONTRACTOR TO PACKAGE DELIVERABLES**: The Contractor will package deliverables in accordance with good commercial practice and shall include a packing list showing the description of each item, the quantity and unit price unless otherwise provided in the Specifications or Supplemental Terms and Conditions, each shipping container shall be clearly and permanently marked as follows: (a) The Contractor's name and address, (b) the City's name, address and purchase order or purchase release number and the price agreement number if applicable, (c) Container number and total number of containers, e.g. box 1 of 4 boxes, and (d) the number of the container bearing the packing list. The Contractor shall bear cost of packaging. Deliverables shall be suitably packed to secure lowest transportation costs and to conform to all the requirements of common carriers and any applicable specification. The City's count or weight shall be final and conclusive on shipments not accompanied by packing lists.

4. **SHIPMENT UNDER RESERVATION PROHIBITED**: The Contractor is not authorized to ship the deliverables under reservation and no tender of a bill of lading will operate as a tender of deliverables.

5. **TITLE & RISK OF LOSS**: Title to and risk of loss of the deliverables shall pass to the City only when the City actually receives and accepts the deliverables.

6. **DELIVERY TERMS AND TRANSPORTATION CHARGES**: Deliverables shall be

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shipped F.O.B. point of delivery unless otherwise specified in the Supplemental Terms and Conditions. Unless otherwise stated in the Offer, the Contractor's price shall be deemed to include all delivery and transportation charges. The City shall have the right to designate what method of transportation shall be used to ship the deliverables. The place of delivery shall be that set forth the purchase order.

7. **RIGHT OF INSPECTION AND REJECTION**: The City expressly reserves all rights under law, including, but not limited to the Uniform Commercial Code, to inspect the deliverables at delivery before accepting them, and to reject defective or non-conforming deliverables. If the City has the right to inspect the Contractor's, or the Contractor's Subcontractor's, facilities, or the deliverables at the Contractor's, or the Contractor's Subcontractor's, premises, the Contractor shall furnish, or cause to be furnished, without additional charge, all reasonable facilities and assistance to the City to facilitate such inspection.

8. **NO REPLACEMENT OF DEFECTIVE TENDER**: Every tender or delivery of deliverables must fully comply with all provisions of the Contract as to time of delivery, quality, and quantity. Any non-complying tender shall constitute a breach and the Contractor shall not have the right to substitute a conforming tender; provided, where the time for performance has not yet expired, the Contractor may notify the City of the intention to cure and may then make a conforming tender within the time allotted in the contract.

9. **PLACE AND CONDITION OF WORK**: The City shall provide the Contractor access to the sites where the Contractor is to perform the services as required in order for the Contractor to perform the services in a timely and efficient manner, in accordance with and subject to the applicable security laws, rules, and regulations. The Contractor acknowledges that it has satisfied itself as to the nature of the City's service requirements and specifications, the location and essential characteristics of the work sites, the quality and quantity of materials, equipment, labor and facilities necessary to perform the services, and any other condition or state of fact which could in any way affect performance of the Contractor's obligations under the contract. The Contractor hereby releases and holds the City harmless from and against any liability or claim for damages of any kind or nature if the actual site or service conditions differ from expected conditions.

The contractor shall, at all times, exercise reasonable precautions for the safety of their employees, City Staff, participants and others on or near the City's facilities.

10. **WORKFORCE**

A. The Contractor shall employ only orderly and competent workers, skilled in the performance of the services which they will perform under the Contract.

B. The Contractor, its employees, subcontractors, and subcontractor's employees may not while engaged in participating or responding to a solicitation or while in the course and scope of delivering goods or services under a City of Denton contract or on the City's property .

i. use or possess a firearm, including a concealed handgun that is licensed under state law, except as required by the terms of the contract; or

ii. use or possess alcoholic or other intoxicating beverages, illegal drugs or controlled substances, nor may such workers be intoxicated, or under the influence of alcohol or drugs, on the job.

C. If the City or the City's representative notifies the Contractor that any worker is incompetent, disorderly or disobedient, has knowingly or repeatedly violated safety regulations, has possessed

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any firearms, or has possessed or was under the influence of alcohol or drugs on the job, the Contractor shall immediately remove such worker from Contract services, and may not employ such worker again on Contract services without the City's prior written consent.
Immigration: The Contractor represents and warrants that it shall comply with the requirements of the Immigration Reform and Control Act of 1986 and 1990 regarding employment verification and retention of verification forms for any individuals hired on or after November 6, 1986, who will perform any labor or services under the Contract and the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 ("IIRIRA) enacted on September 30, 1996.

11. **COMPLIANCE WITH HEALTH, SAFETY, AND ENVIRONMENTAL REGULATIONS**: The Contractor, it's Subcontractors, and their respective employees, shall comply fully with all applicable federal, state, and local health, safety, and environmental laws, ordinances, rules and regulations in the performance of the services, including but not limited to those promulgated by the City and by the Occupational Safety and Health Administration (OSHA). In case of conflict, the most stringent safety requirement shall govern. The Contractor shall indemnify and hold the City harmless from and against all claims, demands, suits, actions, judgments, fines, penalties and liability of every kind arising from the breach of the Contractor's obligations under this paragraph.

Environmental Protection: The Respondent shall be in compliance with all applicable standards, orders, or regulations issued pursuant to the mandates of the Clean Air Act (42 U.S.C. §7401 *et seq*.) and the Federal Water Pollution Control Act, as amended, (33 U.S.C. §1251 *et seq*.).

12. **INVOICES**:
A. The Contractor shall submit separate invoices in duplicate on each purchase order or purchase release after each delivery. If partial shipments or deliveries are authorized by the City, a separate invoice must be sent for each shipment or delivery made.
B. **Proper Invoices must include a unique invoice number, the purchase order or delivery order number and the master agreement number if applicable, the Department's Name, and the name of the point of contact for the Department**. Invoices shall be itemized and transportation charges, if any, shall be listed separately. A copy of the bill of lading and the freight waybill, when applicable, shall be attached to the invoice. The Contractor's name, remittance address and, if applicable, the tax identification number on the invoice must exactly match the information in the Vendor's registration with the City. Unless otherwise instructed in writing, the City may rely on the remittance address specified on the Contractor's invoice.
C. Invoices for labor shall include a copy of all time-sheets with trade labor rate and deliverables order number clearly identified. Invoices shall also include a tabulation of work-hours at the appropriate rates and grouped by work order number. Time billed for labor shall be limited to hours actually worked at the work site.
D. Unless otherwise expressly authorized in the Contract, the Contractor shall pass through all Subcontract and other authorized expenses at actual cost without markup.
E. Federal excise taxes, State taxes, or City sales taxes must not be included in the invoiced amount.
The City will furnish a tax exemption certificate upon request.

13. **PAYMENT**:
A. All proper invoices need to be sent to Accounts Payable. Approved invoices will be paid within thirty (30) calendar days of the City's receipt of the deliverables or of the invoice being received

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in Accounts Payable, whichever is later.

B. **If payment is not timely made, (per paragraph A); interest shall accrue on the unpaid balance at the lesser of the rate specified in Texas Government Code Section 2251.025 or the maximum lawful rate; except, if payment is not timely made for a reason for which the City may withhold payment hereunder, interest shall not accrue until ten (10) calendar days after the grounds for withholding payment have been resolved.**

C. If partial shipments or deliveries are authorized by the City, the Contractor will be paid for the partial shipment or delivery, as stated above, provided that the invoice matches the shipment or delivery.

D. The City may withhold or set off the entire payment or part of any payment otherwise due the Contractor to such extent as may be necessary on account of:

i. delivery of defective or non-conforming deliverables by the Contractor;

ii. third party claims, which are not covered by the insurance which the Contractor is required to provide, are filed or reasonable evidence indicating probable filing of such claims;

iii. failure of the Contractor to pay Subcontractors, or for labor, materials or equipment;

iv. damage to the property of the City or the City's agents, employees or contractors, which is not covered by insurance required to be provided by the Contractor;

v. reasonable evidence that the Contractor's obligations will not be completed within the time specified in the Contract, and that the unpaid balance would not be adequate to cover actual or damages for the anticipated delay;

vi. failure of the Contractor to submit proper invoices with purchase order number, with all required attachments and supporting documentation; or

vii. failure of the Contractor to comply with any material provision of the Contract Documents.

E. Notice is hereby given that any awarded firm who is in arrears to the City of Denton for delinquent taxes, the City may offset indebtedness owed the City through payment withholding.

F. Payment will be made by check unless the parties mutually agree to payment by credit card or electronic transfer of funds. The Contractor agrees that there shall be no additional charges, surcharges, or penalties to the City for payments made by credit card or electronic funds transfer.

G. The awarding or continuation of this contract is dependent upon the availability of funding. The City's payment obligations are payable only and solely from funds Appropriated and available for this contract. The absence of Appropriated or other lawfully available funds shall render the Contract null and void to the extent funds are not Appropriated or available and any deliverables delivered but unpaid shall be returned to the Contractor. The City shall provide the Contractor written notice of the failure of the City to make an adequate Appropriation for any fiscal year to pay the amounts due under the Contract, or the reduction of any Appropriation to an amount insufficient to permit the City to pay its obligations under the Contract. In the event of none or inadequate appropriation of funds, there will be no penalty nor removal fees charged to the City.

14. **TRAVEL EXPENSES**: All travel, lodging and per diem expenses in connection with the Contract shall be paid by the Contractor, unless otherwise stated in the contract terms. During the term of this contract, the contractor shall bill and the City shall reimburse contractor for all reasonable and approved out of pocket expenses which are incurred in the connection with the performance of duties hereunder. Notwithstanding the foregoing, expenses for the time spent by the contractor in traveling to and from City facilities shall not be reimbursed, unless otherwise negotiated.

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15. **FINAL PAYMENT AND CLOSE-OUT**:
A. If a DBE/MBE/WBE Program Plan is agreed to and the Contractor has identified Subcontractors, the Contractor is required to submit a Contract Close-Out MBE/WBE Compliance Report to the Purchasing Manager no later than the 15th calendar day after completion of all work under the contract. Final payment, retainage, or both may be withheld if the Contractor is not in compliance with the requirements as accepted by the City.
B. The making and acceptance of final payment will constitute:
i. a waiver of all claims by the City against the Contractor, except claims (1) which have been previously asserted in writing and not yet settled, (2) arising from defective work appearing after final inspection, (3) arising from failure of the Contractor to comply with the Contract or the terms of any warranty specified herein, (4) arising from the Contractor's continuing obligations under the Contract, including but not limited to indemnity and warranty obligations, or (5) arising under the City's right to audit; and ii. a waiver of all claims by the Contractor against the City other than those previously asserted in writing and not yet settled.

16. **SPECIAL TOOLS & TEST EQUIPMENT**: If the price stated on the Offer includes the cost of any special tooling or special test equipment fabricated or required by the Contractor for the purpose of filling this order, such special tooling equipment and any process sheets related thereto shall become the property of the City and shall be identified by the Contractor as such.

17. **RIGHT TO AUDIT**:
A. The City shall have the right to audit and make copies of the books, records and computations pertaining to the Contract. The Contractor shall retain such books, records, documents and other evidence pertaining to the Contract period and five years thereafter, except if an audit is in progress or audit findings are yet unresolved, in which case records shall be kept until all audit tasks are completed and resolved. These books, records, documents and other evidence shall be available, within ten (10) business days of written request. Further, the Contractor shall also require all Subcontractors, material suppliers, and other payees to retain all books, records, documents and other evidence pertaining to the Contract, and to allow the City similar access to those documents. All books and records will be made available within a 50 mile radius of the City of Denton. The cost of the audit will be borne by the City unless the audit reveals an overpayment of 1% or greater. If an overpayment of 1% or greater occurs, the reasonable cost of the audit, including any travel costs, must be borne by the Contractor which must be payable within five (5) business days of receipt of an invoice.
B. Failure to comply with the provisions of this section shall be a material breach of the Contract and shall constitute, in the City's sole discretion, grounds for termination thereof. Each of the terms "books", "records", "documents" and "other evidence", as used above, shall be construed to include drafts and electronic files, even if such drafts or electronic files are subsequently used to generate or prepare a final printed document.

18. **SUBCONTRACTORS**:
A. If the Contractor identified Subcontractors in a DBE/MBE/WBE agreed to Plan, the Contractor shall comply with all requirements approved by the City. The Contractor shall not initially employ any Subcontractor except as provided in the Contractor's Plan. The Contractor shall not substitute any Subcontractor identified in the Plan, unless the substitute has been accepted by the City in writing. No acceptance by the City of any Subcontractor shall constitute a waiver of any rights or remedies of the City with respect to defective deliverables provided by a Subcontractor. If a Plan has been approved, the Contractor is additionally required to submit a monthly Subcontract

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Awards and Expenditures Report to the Procurement Manager, no later than the tenth calendar day of each month.

B. Work performed for the Contractor by a Subcontractor shall be pursuant to a written contract between the Contractor and Subcontractor. The terms of the subcontract may not conflict with the terms of the
Contract, and shall contain provisions that:

i. require that all deliverables to be provided by the Subcontractor be provided in strict accordance with the provisions, specifications and terms of the Contract;

ii. prohibit the Subcontractor from further subcontracting any portion of the Contract without the prior written consent of the City and the Contractor. The City may require, as a condition to such further subcontracting, that the Subcontractor post a payment bond in form, substance and amount acceptable to the City;

iii. require Subcontractors to submit all invoices and applications for payments, including any claims for additional payments, damages or otherwise, to the Contractor in sufficient time to enable the Contractor to include same with its invoice or application for payment to the City in accordance with the terms of the Contract;

iv. require that all Subcontractors obtain and maintain, throughout the term of their contract, insurance in the type and amounts specified for the Contractor, with the City being a named insured as its interest shall appear; and

v. require that the Subcontractor indemnify and hold the City harmless to the same extent as the Contractor is required to indemnify the City.

C. The Contractor shall be fully responsible to the City for all acts and omissions of the Subcontractors just as the Contractor is responsible for the Contractor's own acts and omissions. Nothing in the Contract shall create for the benefit of any such Subcontractor any contractual relationship between the City and any such Subcontractor, nor shall it create any obligation on the part of the City to pay or to see to the payment of any moneys due any such Subcontractor except as may otherwise be required by law.

D. The Contractor shall pay each Subcontractor its appropriate share of payments made to the Contractor not later than ten (10) calendar days after receipt of payment from the City.

19. **WARRANTY-PRICE**:

A. The Contractor warrants the prices quoted in the Offer are no higher than the Contractor's current prices on orders by others for like deliverables under similar terms of purchase.

B. The Contractor certifies that the prices in the Offer have been arrived at independently without consultation, communication, or agreement for the purpose of restricting competition, as to any matter relating to such fees with any other firm or with any competitor.

C. In addition to any other remedy available, the City may deduct from any amounts owed to the Contractor, or otherwise recover, any amounts paid for items in excess of the Contractor's current prices on orders by others for like deliverables under similar terms of purchase.

20. **WARRANTY – TITLE**: The Contractor warrants that it has good and indefeasible title to all deliverables furnished under the Contract, and that the deliverables are free and clear of all liens, claims, security interests and encumbrances. The Contractor shall indemnify and hold the City harmless from and against all adverse title claims to the deliverables.

21. **WARRANTY – DELIVERABLES**: The Contractor warrants and represents that all deliverables sold the City under the Contract shall be free from defects in design, workmanship or manufacture, and conform in all material respects to the specifications, drawings, and descriptions

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in the Solicitation, to any samples furnished by the Contractor, to the terms, covenants and conditions of the Contract, and to all applicable State, Federal or local laws, rules, and regulations, and industry codes and standards. Unless otherwise stated in the Solicitation, the deliverables shall be new or recycled merchandise, and not used or reconditioned.

A. Recycled deliverables shall be clearly identified as such.

B. The Contractor may not limit, exclude or disclaim the foregoing warranty or any warranty implied by law; and any attempt to do so shall be without force or effect.

C. Unless otherwise specified in the Contract, the warranty period shall be at least one year from the date of acceptance of the deliverables or from the date of acceptance of any replacement deliverables. If during the warranty period, one or more of the above warranties are breached, the Contractor shall promptly upon receipt of demand either repair the non-conforming deliverables, or replace the non-conforming deliverables with fully conforming deliverables, at the City's option and at no additional cost to the City. All costs incidental to such repair or replacement, including but not limited to, any packaging and shipping costs shall be borne exclusively by the Contractor. The City shall endeavor to give the Contractor written notice of the breach of warranty within thirty (30) calendar days of discovery of the breach of warranty, but failure to give timely notice shall not impair the City's rights under this section.

D. If the Contractor is unable or unwilling to repair or replace defective or non-conforming deliverables as required by the City, then in addition to any other available remedy, the City may reduce the quantity of deliverables it may be required to purchase under the Contract from the Contractor, and purchase conforming deliverables from other sources. In such event, the Contractor shall pay to the City upon demand the increased cost, if any, incurred by the City to procure such deliverables from another source.

E. If the Contractor is not the manufacturer, and the deliverables are covered by a separate manufacturer's warranty, the Contractor shall transfer and assign such manufacturer's warranty to the City. If for any reason the manufacturer's warranty cannot be fully transferred to the City, the Contractor shall assist and cooperate with the City to the fullest extent to enforce such manufacturer's warranty for the benefit of the City.

22. **WARRANTY – SERVICES**: The Contractor warrants and represents that all services to be provided the City under the Contract will be fully and timely performed in a good and workmanlike manner in accordance with generally accepted industry standards and practices, the terms, conditions, and covenants of the Contract, and all applicable Federal, State and local laws, rules or regulations.

A. The Contractor may not limit, exclude or disclaim the foregoing warranty or any warranty implied by law, and any attempt to do so shall be without force or effect.

B. Unless otherwise specified in the Contract, the warranty period shall be at least one year from the Acceptance Date. If during the warranty period, one or more of the above warranties are breached, the Contractor shall promptly upon receipt of demand perform the services again in accordance with above standard at no additional cost to the City. All costs incidental to such additional performance shall be borne by the Contractor. The City shall endeavor to give the Contractor written notice of the breach of warranty within thirty (30) calendar days of discovery of the breach warranty, but failure to give timely notice shall not impair the City's rights under this section.

C. If the Contractor is unable or unwilling to perform its services in accordance with the above standard as required by the City, then in addition to any other available remedy, the City may reduce the amount of services it may be required to purchase under the Contract from the Contractor, and purchase conforming services from other sources. In such event, the Contractor

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shall pay to the City upon demand the increased cost, if any, incurred by the City to procure such services from another source.

23. **ACCEPTANCE OF INCOMPLETE OR NON-CONFORMING DELIVERABLES**: If, instead of requiring immediate correction or removal and replacement of defective or non-conforming deliverables, the City prefers to accept it, the City may do so. The Contractor shall pay all claims, costs, losses and damages attributable to the City's evaluation of and determination to accept such defective or non-conforming deliverables. If any such acceptance occurs prior to final payment, the City may deduct such amounts as are necessary to compensate the City for the diminished value of the defective or non-conforming deliverables. If the acceptance occurs after final payment, such amount will be refunded to the City by the Contractor.

24. **RIGHT TO ASSURANCE**: Whenever one party to the Contract in good faith has reason to question the other party's intent to perform, demand may be made to the other party for written assurance of the intent to perform. In the event that no assurance is given within the time specified after demand is made, the demanding party may treat this failure as an anticipatory repudiation of the Contract.

25. **STOP WORK NOTICE**: The City may issue an immediate Stop Work Notice in the event the Contractor is observed performing in a manner that is in violation of Federal, State, or local guidelines, or in a manner that is determined by the City to be unsafe to either life or property. Upon notification, the Contractor will cease all work until notified by the City that the violation or unsafe condition has been corrected. The Contractor shall be liable for all costs incurred by the City as a result of the issuance of such Stop Work Notice.

26. **DEFAULT**: The Contractor shall be in default under the Contract if the Contractor (a) fails to fully, timely and faithfully perform any of its material obligations under the Contract, (b) fails to provide adequate assurance of performance under Paragraph 24, (c) becomes insolvent or seeks relief under the bankruptcy laws of the United States or (d) makes a material misrepresentation in Contractor's Offer, or in any report or deliverable required to be submitted by the Contractor to the City.

27. **TERMINATION FOR CAUSE:** In the event of a default by the Contractor, the City shall have the right to terminate the Contract for cause, by written notice effective ten (10) calendar days, unless otherwise specified, after the date of such notice, unless the Contractor, within such ten (10) day period, cures such default, or provides evidence sufficient to prove to the City's reasonable satisfaction that such default does not, in fact, exist. In addition to any other remedy available under law or in equity, the City shall be entitled to recover all actual damages, costs, losses and expenses, incurred by the City as a result of the Contractor's default, including, without limitation, cost of cover, reasonable attorneys' fees, court costs, and prejudgment and post-judgment interest at the maximum lawful rate. Additionally, in the event of a default by the Contractor, the City may remove the Contractor from the City's vendor list for three (3) years and any Offer submitted by the Contractor may be disqualified for up to three (3) years. All rights and remedies under the Contract are cumulative and are not exclusive of any other right or remedy provided by law.

28. **TERMINATION WITHOUT CAUSE**: The City shall have the right to terminate the Contract, in whole or in part, without cause any time upon thirty (30) calendar days' prior written notice. Upon receipt of a notice of termination, the Contractor shall promptly cease all further work pursuant to the Contract, with such exceptions, if any, specified in the notice of termination. The

City shall pay the Contractor, to the extent of funds Appropriated or otherwise legally available for such purposes, for all goods delivered and services performed and obligations incurred prior to the date of termination in accordance with the terms hereof.

29. **FRAUD**: Fraudulent statements by the Contractor on any Offer or in any report or deliverable required to be submitted by the Contractor to the City shall be grounds for the termination of the Contract for cause by the City and may result in legal action.

30. **DELAYS**:
A. The City may delay scheduled delivery or other due dates by written notice to the Contractor if the City deems it is in its best interest. If such delay causes an increase in the cost of the work under the Contract, the City and the Contractor shall negotiate an equitable adjustment for costs incurred by the Contractor in the Contract price and execute an amendment to the Contract. The Contractor must assert its right to an adjustment within thirty (30) calendar days from the date of receipt of the notice of delay. Failure to agree on any adjusted price shall be handled under the Dispute Resolution process specified in paragraph 49. However, nothing in this provision shall excuse the Contractor from delaying the delivery as notified.
B. Neither party shall be liable for any default or delay in the performance of its obligations under this Contract if, while and to the extent such default or delay is caused by acts of God, fire, riots, civil commotion, labor disruptions, sabotage, sovereign conduct, or any other cause beyond the reasonable control of such Party. In the event of default or delay in contract performance due to any of the foregoing causes, then the time for completion of the services will be extended; provided, however, in such an event, a conference will be held within three (3) business days to establish a mutually agreeable period of time reasonably necessary to overcome the effect of such failure to perform.

31. **INDEMNITY**:
A. Definitions:

i. "Indemnified Claims" shall include any and all claims, demands, suits, causes of action, judgments and liability of every character, type or description, including all reasonable costs and expenses of litigation, mediation or other alternate dispute resolution mechanism, including attorney and other professional fees for: (1) damage to or loss of the property of any person (including, but not limited to the City, the Contractor, their respective agents, officers, employees and subcontractors; the officers, agents, and employees of such subcontractors; and third parties); and/or (2) death, bodily injury, illness, disease, worker's compensation, loss of services, or loss of income or wages to any person (including but not limited to the agents, officers and employees of the City, the Contractor, the Contractor’s subcontractors, and third parties), ii. "Fault" shall include the sale of defective or non-conforming deliverables, negligence, willful misconduct or a breach of any legally imposed strict liability standard.

B. **THE CONTRACTOR SHALL DEFEND (AT THE OPTION OF THE CITY), INDEMNIFY, AND HOLD THE CITY, ITS SUCCESSORS, ASSIGNS, OFFICERS, EMPLOYEES AND ELECTED OFFICIALS HARMLESS FROM AND AGAINST ALL INDEMNIFIED CLAIMS DIRECTLY ARISING OUT OF, INCIDENT TO, CONCERNING OR RESULTING FROM THE FAULT OF THE CONTRACTOR, OR THE CONTRACTOR'S AGENTS, EMPLOYEES OR SUBCONTRACTORS, IN THE PERFORMANCE OF THE CONTRACTOR’S OBLIGATIONS UNDER THE**

CONTRACT. NOTHING HEREIN SHALL BE DEEMED TO LIMIT THE RIGHTS OF THE CITY OR THE CONTRACTOR (INCLUDING, BUT NOT LIMITED TO, THE RIGHT TO SEEK CONTRIBUTION) AGAINST ANY THIRD PARTY WHO MAY BE LIABLE FOR AN INDEMNIFIED CLAIM.

32. **INSURANCE**: The following insurance requirements are applicable, in addition to the specific insurance requirements detailed in **Exhibit E** for services only**.** The successful firm shall procure and maintain insurance of the types and in the minimum amounts acceptable to the City of Denton. The insurance shall be written by a company licensed to do business in the State of Texas and satisfactory to the City of Denton.

A. General Requirements:

i. The Contractor shall at a minimum carry insurance in the types and amounts indicated and agreed to, as submitted to the City and approved by the City within the procurement process, for the duration of the Contract, including extension options and hold over periods, and during any warranty period.

ii. The Contractor shall provide Certificates of Insurance with the coverage's and endorsements required to the City as verification of coverage prior to contract execution and within fourteen (14) calendar days after written request from the City. Failure to provide the required Certificate of Insurance may subject the Offer to disqualification from consideration for award. The Contractor must also forward a Certificate of Insurance to the City whenever a previously identified policy period has expired, or an extension option or hold over period is exercised, as verification of continuing coverage.

iii. The Contractor shall not commence work until the required insurance is obtained and until such insurance has been reviewed by the City. Approval of insurance by the City shall not relieve or decrease the liability of the Contractor hereunder and shall not be construed to be a limitation of liability on the part of the Contractor.

iv. The Contractor must submit certificates of insurance to the City for all subcontractors prior to the subcontractors commencing work on the project.

v. The Contractor's and all subcontractors' insurance coverage shall be written by companies licensed to do business in the State of Texas at the time the policies are issued and shall be written by companies with A.M. Best ratings of **A- VII or better**. The City will accept workers' compensation coverage written by the Texas Workers' Compensation Insurance Fund.

vi. All endorsements naming the City as additional insured, waivers, and notices of cancellation endorsements as well as the Certificate of Insurance shall contain the solicitation number and the following information:

City of Denton
Materials Management Department
901B Texas Street
Denton, Texas 76209

vii. The "other" insurance clause shall not apply to the City where the City is an additional insured shown on any policy. It is intended that policies required in the Contract, covering both the City and the Contractor, shall be considered primary coverage as applicable.

viii. If insurance policies are not written for amounts agreed to with the City, the Contractor shall carry Umbrella or Excess Liability Insurance for any differences in amounts specified. If Excess Liability Insurance is provided, it shall follow the form of the primary coverage.

ix. The City shall be entitled, upon request, at an agreed upon location, and without expense, to review certified copies of policies and endorsements thereto and may make any

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reasonable requests for deletion or revision or modification of particular policy terms, conditions, limitations, or exclusions except where policy provisions are established by law or regulations binding upon either of the parties hereto or the underwriter on any such policies.

x. The City reserves the right to review the insurance requirements set forth during the effective period of the Contract and to make reasonable adjustments to insurance coverage, limits, and exclusions when deemed necessary and prudent by the City based upon changes in statutory law, court decisions, the claims history of the industry or financial condition of the insurance company as well as the Contractor.

xi. The Contractor shall not cause any insurance to be canceled nor permit any insurance to lapse during the term of the Contract or as required in the Contract.

xii. The Contractor shall be responsible for premiums, deductibles and self-insured retentions, if any, stated in policies. All deductibles or self-insured retentions shall be disclosed on the Certificate of Insurance.

xiii. The Contractor shall endeavor to provide the City thirty (30) calendar days' written notice of erosion of the aggregate limits below occurrence limits for all applicable coverage's indicated within the Contract.

xiv. The insurance coverage's specified in within the solicitation and requirements are required minimums and are not intended to limit the responsibility or liability of the Contractor.

B. Specific Coverage Requirements: Specific insurance requirements are contained in the solicitation instrument.

33. **CLAIMS**: If any claim, demand, suit, or other action is asserted against the Contractor which arises under or concerns the Contract, or which could have a material adverse effect on the Contractor's ability to perform thereunder, the Contractor shall give written notice thereof to the City within ten (10) calendar days after receipt of notice by the Contractor. Such notice to the City shall state the date of notification of any such claim, demand, suit, or other action; the names and addresses of the claimant(s); the basis thereof; and the name of each person against whom such claim is being asserted. Such notice shall be delivered personally or by mail and shall be sent to the City and to the Denton City Attorney. Personal delivery to the City Attorney shall be to City Hall, 215 East McKinney Street, Denton, Texas 76201.

34. **NOTICES**: Unless otherwise specified, all notices, requests, or other communications required or appropriate to be given under the Contract shall be in writing and shall be deemed delivered three (3) business days after postmarked if sent by U.S. Postal Service Certified or Registered Mail, Return Receipt Requested. Notices delivered by other means shall be deemed delivered upon receipt by the addressee. Routine communications may be made by first class mail, telefax, or other commercially accepted means. Notices to the Contractor shall be sent to the address specified in the Contractor's Offer, or at such other address as a party may notify the other in writing. Notices to the City shall be addressed to the City at 901B Texas Street, Denton, Texas 76209 and marked to the attention of the Purchasing Manager.

35. **RIGHTS TO BID, PROPOSAL AND CONTRACTUAL MATERIAL**: All material submitted by the Contractor to the City shall become property of the City upon receipt. Any portions of such material claimed by the Contractor to be proprietary must be clearly marked as such. Determination of the public nature of the material is subject to the Texas Public Information Act, Chapter 552, and Texas Government Code.

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36. **NO WARRANTY BY CITY AGAINST INFRINGEMENTS**: The Contractor represents and warrants to the City that: (i) the Contractor shall provide the City good and indefeasible title to the deliverables and (ii) the deliverables supplied by the Contractor in accordance with the specifications in the Contract will not infringe, directly or contributorily, any patent, trademark, copyright, trade secret, or any other intellectual property right of any kind of any third party; that no claims have been made by any person or entity with respect to the ownership or operation of the deliverables and the Contractor does not know of any valid basis for any such claims. The Contractor shall, at its sole expense, defend, indemnify, and hold the City harmless from and against all liability, damages, and costs (including court costs and reasonable fees of attorneys and other professionals) arising out of or resulting from: (i) any claim that the City's exercise anywhere in the world of the rights associated with the City's' ownership, and if applicable, license rights, and its use of the deliverables infringes the intellectual property rights of any third party; or (ii) the Contractor's breach of any of Contractor's representations or warranties stated in this Contract. In the event of any such claim, the City shall have the right to monitor such claim or at its option engage its own separate counsel to act as co-counsel on the City's behalf. Further, Contractor agrees that the City's specifications regarding the deliverables shall in no way diminish Contractor's warranties or obligations under this paragraph and the City makes no warranty that the production, development, or delivery of such deliverables will not impact such warranties of Contractor.

37. **CONFIDENTIALITY**: In order to provide the deliverables to the City, Contractor may require access to certain of the City's and/or its licensors' confidential information (including inventions, employee information, trade secrets, confidential know-how, confidential business information, and other information which the City or its licensors consider confidential) (collectively, "Confidential Information"). Contractor acknowledges and agrees that the Confidential Information is the valuable property of the City and/or its licensors and any unauthorized use, disclosure, dissemination, or other release of the Confidential Information will substantially injure the City and/or its licensors. The Contractor (including its employees, subcontractors, agents, or representatives) agrees that it will maintain the Confidential Information in strict confidence and shall not disclose, disseminate, copy, divulge, recreate, or otherwise use the Confidential Information without the prior written consent of the City or in a manner not expressly permitted under this Agreement, unless the Confidential Information is required to be disclosed by law or an order of any court or other governmental authority with proper jurisdiction, provided the Contractor promptly notifies the City before disclosing such information so as to permit the City reasonable time to seek an appropriate protective order. The Contractor agrees to use protective measures no less stringent than the Contractor uses within its own business to protect its own most valuable information, which protective measures shall under all circumstances be at least reasonable measures to ensure the continued confidentiality of the Confidential Information.

38. **OWNERSHIP AND USE OF DELIVERABLES**: The City shall own all rights, titles, and interests throughout the world in and to the deliverables.

A. Patents. As to any patentable subject matter contained in the deliverables, the Contractor agrees to disclose such patentable subject matter to the City. Further, if requested by the City, the Contractor agrees to assign and, if necessary, cause each of its employees to assign the entire right, title, and interest to specific inventions under such patentable subject matter to the City and to execute, acknowledge, and deliver and, if necessary, cause each of its employees to execute, acknowledge, and deliver an assignment of letters patent, in a form to be reasonably approved by

the City, to the City upon request by the City.
B. Copyrights. As to any deliverables containing copyrightable subject matter, the Contractor agrees that upon their creation, such deliverables shall be considered as work made-for-hire by the Contractor for the City and the City shall own all copyrights in and to such deliverables, provided however, that nothing in this Paragraph 38 shall negate the City's sole or joint ownership of any such deliverables arising by virtue of the City's sole or joint authorship of such deliverables. Should by operation of law, such deliverables not be considered works made-for-hire, the Contractor hereby assigns to the City (and agrees to cause each of its employees providing services to the City hereunder to execute, acknowledge, and deliver an assignment to the City of) all worldwide right, title, and interest in and to such deliverables. With respect to such work made-for-hire, the Contractor agrees to execute, acknowledge, and deliver and cause each of its employees providing services to the City hereunder to execute, acknowledge, and deliver a work-made-for-hire agreement, in a form to be reasonably approved by the City, to the City upon delivery of such deliverables to the City or at such other time as the City may request.
C. Additional Assignments. The Contractor further agrees to, and if applicable, cause each of its employees to, execute, acknowledge, and deliver all applications, specifications, oaths, assignments, and all other instruments which the City might reasonably deem necessary in order to apply for and obtain copyright protection, mask work registration, trademark registration and/or protection, letters patent, or any similar rights in any and all countries and in order to assign and convey to the City, its successors, assigns and nominees, the sole and exclusive right, title, and interest in and to the deliverables. The Contractor's obligations to execute, acknowledge, and deliver (or cause to be executed, acknowledged, and delivered) instruments or papers such as those described in this Paragraph 38 a., b., and c. shall continue after the termination of this Contract with respect to such deliverables. In the event the City should not seek to obtain copyright protection, mask work registration or patent protection for any of the deliverables, but should desire to keep the same secret, the Contractor agrees to treat the same as Confidential Information under the terms of Paragraph 37 above.

39. **PUBLICATIONS**: All published material and written reports submitted under the Contract must be originally developed material unless otherwise specifically provided in the Contract. When material not originally developed is included in a report in any form, the source shall be identified.

40. **ADVERTISING**: The Contractor shall not advertise or publish, without the City's prior consent, the fact that the City has entered into the Contract, except to the extent required by law.

41. **NO CONTINGENT FEES**: The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure the Contract upon any agreement or understanding for commission, percentage, brokerage, or contingent fee, excepting bona fide employees of bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, the City shall have the right, in addition to any other remedy available, to cancel the Contract without liability and to deduct from any amounts owed to the Contractor, or otherwise recover, the full amount of such commission, percentage, brokerage or contingent fee.

42. **GRATUITIES**: The City may, by written notice to the Contractor, cancel the Contract without liability if it is determined by the City that gratuities were offered or given by the Contractor or any agent or representative of the Contractor to any officer or employee of the City of Denton with

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a view toward securing the Contract or securing favorable treatment with respect to the awarding or amending or the making of any determinations with respect to the performing of such contract. In the event the Contract is canceled by the City pursuant to this provision, the City shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by the Contractor in providing such gratuities.

43. **PROHIBITION AGAINST PERSONAL INTEREST IN CONTRACTS**: No officer, employee, independent consultant, or elected official of the City who is involved in the development, evaluation, or decision-making process of the performance of any solicitation shall have a financial interest, direct or indirect, in the Contract resulting from that solicitation as defined in the City's Ethic Ordinance 18-757 and in the City Charter chapter 2 article XI(Ethics). Any willful violation of this section shall constitute impropriety in office, and any officer or employee guilty thereof shall be subject to disciplinary action up to and including dismissal. Any violation of this provision, with the knowledge, expressed or implied, of the Contractor shall render the Contract voidable by the City. The Contractor shall complete and submit the City's Conflict of Interest Questionnaire.

44. **INDEPENDENT CONTRACTOR**: The Contract shall not be construed as creating an employer/employee relationship, a partnership, or a joint venture. The Contractor's services shall be those of an independent contractor. The Contractor agrees and understands that the Contract does not grant any rights or privileges established for employees of the City of Denton, Texas for the purposes of income tax, withholding, social security taxes, vacation or sick leave benefits, worker's compensation, or any other City employee benefit. The City shall not have supervision and control of the Contractor or any employee of the Contractor, and it is expressly understood that Contractor shall perform the services hereunder according to the attached specifications at the general direction of the City Manager of the City of Denton, Texas, or their designee under this agreement. The contractor is expressly free to advertise and perform services for other parties while performing services for the City.

45. **ASSIGNMENT-DELEGATION**: The Contract shall be binding upon and ensure to the benefit of the City and the Contractor and their respective successors and assigns, provided however, that no right or interest in the Contract shall be assigned and no obligation shall be delegated by the Contractor without the prior written consent of the City. Any attempted assignment or delegation by the Contractor shall be void unless made in conformity with this paragraph. The Contract is not intended to confer rights or benefits on any person, firm or entity not a party hereto; it being the intention of the parties that there are no third party beneficiaries to the Contract.
The Vendor shall notify the City's Purchasing Manager, in writing, of a company name, ownership, or address change for the purpose of maintaining updated City records. The president of the company or authorized official must sign the letter. A letter indicating changes in a company name or ownership must be accompanied with supporting legal documentation such as an updated W-9, documents filed with the state indicating such change, copy of the board of director's resolution approving the action, or an executed merger or acquisition agreement. Failure to do so may adversely impact future invoice payments.

46. **WAIVER**: No claim or right arising out of a breach of the Contract can be discharged in whole or in part by a waiver or renunciation of the claim or right unless the waiver or renunciation is

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supported by consideration and is in writing signed by the aggrieved party. No waiver by either the Contractor or the City of any one or more events of default by the other party shall operate as, or be construed to be, a permanent waiver of any rights or obligations under the Contract, or an express or implied acceptance of any other existing or future default or defaults, whether of a similar or different character.

47. **MODIFICATIONS**: The Contract can be modified or amended only by a writing signed by both parties. No pre-printed or similar terms on any the Contractor invoice, order or other document shall have any force or effect to change the terms, covenants, and conditions of the Contract.

48. **INTERPRETATION**: The Contract is intended by the parties as a final, complete and exclusive statement of the terms of their agreement. No course of prior dealing between the parties or course of performance or usage of the trade shall be relevant to supplement or explain any term used in the Contract. Although the Contract may have been substantially drafted by one party, it is the intent of the parties that all provisions be construed in a manner to be fair to both parties, reading no provisions more strictly against one party or the other. Whenever a term defined by the Uniform Commercial Code, as enacted by the State of Texas, is used in the Contract, the UCC definition shall control, unless otherwise defined in the Contract.

49. **DISPUTE RESOLUTION**:
A. If a dispute arises out of or relates to the Contract, or the breach thereof, the parties agree to negotiate prior to prosecuting a suit for damages. However, this section does not prohibit the filing of a lawsuit to toll the running of a statute of limitations or to seek injunctive relief. Either party may make a written request for a meeting between representatives of each party within fourteen (14) calendar days after receipt of the request or such later period as agreed by the parties. Each party shall include, at a minimum, one (1) senior level individual with decision-making authority regarding the dispute. The purpose of this and any subsequent meeting is to attempt in good faith to negotiate a resolution of the dispute. If, within thirty (30) calendar days after such meeting, the parties have not succeeded in negotiating a resolution of the dispute, they will proceed directly to mediation as described below. Negotiation may be waived by a written agreement signed by both parties, in which event the parties may proceed directly to mediation as described below.
B. If the efforts to resolve the dispute through negotiation fail, or the parties waive the negotiation process, the parties may select, within thirty (30) calendar days, a mediator trained in mediation skills to assist with resolution of the dispute. Should they choose this option; the City and the Contractor agree to act in good faith in the selection of the mediator and to give consideration to qualified individuals nominated to act as mediator. Nothing in the Contract prevents the parties from relying on the skills of a person who is trained in the subject matter of the dispute or a contract interpretation expert. If the parties fail to agree on a mediator within thirty (30) calendar days of initiation of the mediation process, the mediator shall be selected by the Denton County Alternative Dispute Resolution Program (DCAP). The parties agree to participate in mediation in good faith for up to thirty (30) calendar days from the date of the first mediation session. The City and the Contractor will share the mediator's fees equally and the parties will bear their own costs of participation such as fees for any consultants or attorneys they may utilize to represent them or otherwise assist them in the mediation.

50. **JURISDICTION AND VENUE**: The Contract is made under and shall be governed by the laws of the State of Texas, including, when applicable, the Uniform Commercial Code as adopted

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in Texas, V.T.C.A., Bus. & Comm. Code, Chapter 1, excluding any rule or principle that would refer to and apply the substantive law of another state or jurisdiction. All issues arising from this Contract shall be resolved in the courts of Denton County, Texas and the parties agree to submit to the exclusive personal jurisdiction of such courts. The foregoing, however, shall not be construed or interpreted to limit or restrict the right or ability of the City to seek and secure injunctive relief from any competent authority as contemplated herein.

51. **INVALIDITY**: The invalidity, illegality, or unenforceability of any provision of the Contract shall in no way affect the validity or enforceability of any other portion or provision of the Contract. Any void provision shall be deemed severed from the Contract and the balance of the Contract shall be construed and enforced as if the Contract did not contain the particular portion or provision held to be void. The parties further agree to reform the Contract to replace any stricken provision with a valid provision that comes as close as possible to the intent of the stricken provision. The provisions of this section shall not prevent this entire Contract from being void should a provision which is the essence of the Contract be determined to be void.

52. **HOLIDAYS:** The following holidays are observed by the City:

New Year's Day (observed)
Martin Luther King, Jr. Day
Memorial Day
Juneteenth
Independence Day
Labor Day
Veterans Day
Thanksgiving
Friday After Thanksgiving
Christmas Eve (observed)
Christmas Day (observed)

If a Legal Holiday falls on Saturday, it will be observed on the preceding Friday. If a Legal Holiday falls on Sunday, it will be observed on the following Monday. Normal hours of operation shall be between 8:00 am and 4:00 pm, Monday through Friday, excluding City of Denton Holidays. Any scheduled deliveries or work performance not within the normal hours of operation **must be approved** by the City Manager of Denton, Texas or their authorized designee.

53. **SURVIVABILITY OF OBLIGATIONS:** All provisions of the Contract that impose continuing obligations on the parties, including but not limited to the warranty, indemnity, and confidentiality obligations of the parties, shall survive the expiration or termination of the Contract.

54. **NON-SUSPENSION OR DEBARMENT CERTIFICATION:**
The City of Denton is prohibited from contracting with or making prime or sub-awards to parties that are suspended or debarred or whose principals are suspended or debarred from Federal, State, or City of Denton Contracts. By accepting a Contract with the City, the Vendor certifies that its firm and its principals are not currently suspended or debarred from doing business with the Federal Government, as indicated by the General Services Administration List of Parties Excluded from Federal Procurement and Non-Procurement Programs, the State of Texas, or the City of Denton.

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55. **EQUAL OPPORTUNITY**

A. **Equal Employment Opportunity:** No Offeror, or Offeror's agent, shall engage in any discriminatory employment practice. No person shall, on the grounds of race, sex, sexual orientation, age, disability, creed, color, genetic testing, or national origin, be refused the benefits of, or be otherwise subjected to discrimination under any activities resulting from this RFQ.

B. **Americans with Disabilities Act (ADA) Compliance:** No Offeror, or Offeror's agent, shall engage in any discriminatory employment practice against individuals with disabilities as defined in the ADA.

56. **BUY AMERICAN ACT-SUPPLIES (Applicable to certain federally funded requirements)**

The following federally funded requirements are applicable. A. Definitions. As used in this paragraph –

i. "Component" means an article, material, or supply incorporated directly into an end product.

ii. "Cost of components" means -

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the end product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

iii. "Domestic end product" means-

(1) An unmanufactured end product mined or produced in the United States; or

(2) An end product manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind as those that the agency determines are not mined, produced, or manufactured in sufficient and reasonably available commercial quantities of a satisfactory quality are treated as domestic. Scrap generated, collected, and prepared for processing in the United States is considered domestic.

iv. "End product" means those articles, materials, and supplies to be acquired under the contract for public use.

v. "Foreign end product" means an end product other than a domestic end product.

vi. "United States" means the 50 States, the District of Columbia, and outlying areas.

B. The Buy American Act (41 U.S.C. 10a - 10d) provides a preference for domestic end products for supplies acquired for use in the United States.

C. The City does not maintain a list of foreign articles that will be treated as domestic for this Contract; but will consider for approval foreign articles as domestic for this product if the articles are on a list approved by another Governmental Agency. The Offeror shall submit documentation with their Offer demonstrating that the article is on an approved Governmental list.

D. The Contractor shall deliver only domestic end products except to the extent that it specified delivery of foreign end products in the provision of the Solicitation entitled "Buy American Act Certificate".

57. **RIGHT TO INFORMATION:** The City of Denton reserves the right to use any and all information presented in any response to this contract, whether amended or not, except as prohibited by law. Selection of rejection of the submittal does not affect this right.

58. **LICENSE FEES OR TAXES:** Provided the solicitation requires an awarded contractor or

supplier to be licensed by the State of Texas, any and all fees and taxes are the responsibility of the respondent.

59. **PREVAILING WAGE RATES:** The contractor shall comply with prevailing wage rates as defined by the United States Department of Labor Davis-Bacon Wage Determination at http://www.dol.gov/whd/contracts/dbra.htm and at the Wage Determinations website www.wdol.gov for Denton County, Texas (WD-2509).

60. **COMPLIANCE WITH ALL STATE, FEDERAL, AND LOCAL LAWS:** The contractor or supplier shall comply with all State, Federal, and Local laws and requirements. The Respondent must comply with all applicable laws at all times, including, without limitation, the following: (i) §36.02 of the Texas Penal Code, which prohibits bribery; (ii) §36.09 of the Texas Penal Code, which prohibits the offering or conferring of benefits to public servants. The Respondent shall give all notices and comply with all laws and regulations applicable to furnishing and performance of the Contract.

61. **FEDERAL, STATE, AND LOCAL REQUIREMENTS:** Respondent shall demonstrate on-site compliance with the Federal Tax Reform Act of 1986, Section 1706, amending Section 530 of the Revenue Act of 1978, dealing with issuance of Form W-2's to common law employees. Respondent is responsible for both federal and State unemployment insurance coverage and standard Workers' Compensation insurance coverage. Respondent shall ensure compliance with all federal and State tax laws and withholding requirements. The City of Denton shall not be liable to Respondent or its employees for any Unemployment or Workers' Compensation coverage, or federal or State withholding requirements. Contractor shall indemnify the City of Denton and shall pay all costs, penalties, or losses resulting from Respondent's omission or breach of this Section.

62. **DRUG FREE WORKPLACE:** The contractor shall comply with the applicable provisions of the Drug-Free Work Place Act of 1988 (Public Law 100-690, Title V, Subtitle D; 41 U.S.C. 701 ET SEQ.) and maintain a drug-free work environment; and the final rule, government-wide requirements for drug-free work place (grants), issued by the Office of Management and Budget and the Department of Defense (32 CFR Part 280, Subpart F) to implement the provisions of the Drug-Free Work Place Act of 1988 is incorporated by reference and the contractor shall comply with the relevant provisions thereof, including any amendments to the final rule that may hereafter be issued.

63. **RESPONDENT LIABILITY FOR DAMAGE TO GOVERNMENT PROPERTY:** The Respondent shall be liable for all damages to government-owned, leased, or occupied property and equipment caused by the Respondent and its employees, agents, subcontractors, and suppliers, including any delivery or cartage company, in connection with any performance pursuant to the Contract. The Respondent shall notify the City of Denton Procurement Manager in writing of any such damage within one (1) calendar day.

64. **FORCE MAJEURE:** The City of Denton, any Customer, and the Respondent shall not be responsible for performance under the Contract should it be prevented from performance by an act of war, order of legal authority, act of God, or other unavoidable cause not attributable to the fault or negligence of the City of Denton. In the event of an occurrence under this Section, the Respondent will be excused from any further performance or observance of the requirements so affected for as long as such circumstances prevail and the Respondent continues to use

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commercially reasonable efforts to recommence performance or observance whenever and to whatever extent possible without delay. The Respondent shall immediately notify the City of Denton Procurement Manager by telephone (to be confirmed in writing within five (5) calendar days of the inception of such occurrence) and describe at a reasonable level of detail the circumstances causing the non-performance or delay in performance.

65. **NON-WAIVER OF RIGHTS:** Failure of a Party to require performance by another Party under the Contract will not affect the right of such Party to require performance in the future. No delay, failure, or waiver of either Party's exercise or partial exercise of any right or remedy under the Contract shall operate to limit, impair, preclude, cancel, waive or otherwise affect such right or remedy. A waiver by a Party of any breach of any term of the Contract will not be construed as a waiver of any continuing or succeeding breach.

66. **NO WAIVER OF SOVEREIGN IMMUNITY:** The Parties expressly agree that no provision of the Contract is in any way intended to constitute a waiver by the City of Denton of any immunities from suit or from liability that the City of Denton may have by operation of law.

67. **RECORDS RETENTION:** The Respondent shall retain all financial records, supporting documents, statistical records, and any other records or books relating to the performances called for in the Contract. The Respondent shall retain all such records for a period of four (4) years after the expiration of the Contract, or until the CPA or State Auditor's Office is satisfied that all audit and litigation matters are resolved, whichever period is longer. The Respondent shall grant access to all books, records and documents pertinent to the Contract to the CPA, the State Auditor of Texas, and any federal governmental entity that has authority to review records due to federal funds being spent under the Contract.

Should a conflict arise between any of the contract documents, it shall be resolved with the following order of precedence (if applicable). In any event, the final negotiated contract shall take precedence over any and all contract documents to the extent of such conflict.

1. **Final negotiated contract**
2. **RFP/Bid documents**
3. **City's standard terms and conditions**
4. **Purchase order**
5. **Supplier terms and conditions**

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Exhibit D
Certificate of Interested Parties Electronic Filing

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that the City may not enter into this contract unless the Contractor submits a disclosure of interested parties (Form 1295) to the City at the time the Contractor submits the signed contract. The Texas Ethics Commission has adopted rules requiring the business entity to file Form 1295 electronically with the Commission.

Contractor will be required to furnish a Certificate of Interest Parties before the contract is awarded, in accordance with Government Code 2252.908.

The contractor shall:

1. Log onto the State Ethics Commission Website at : https://www.ethics.state.tx.us/filinginfo/1295/
2. Register utilizing the tutorial provided by the State
3. Print a copy of the completed Form 1295
4. Enter the Certificate Number on page 2 of this contract.
5. Complete and sign the Form 1295
6. Email the form to purchasing@cityofdenton.com with the contract number in the subject line. (EX: Contract 1234 – Form 1295)

The City must acknowledge the receipt of the filed Form 1295 not later than the 30th day after Council award. Once a Form 1295 is acknowledged, it will be posted to the Texas Ethics Commission's website within seven business days.

Exhibit E - Proposal Pricing

Line #	Description	QTY	UOM	SewerAI Corporation Unit
1	Service Work - Rates	1	EA	
2	PACP/LACP condition assessment of Storm sewer and sanitary sewer mainlines and lateral lines.*Estimated Annual Quantity - 500,000 Linear Feet*	1	LF	**$0.22**
3	MACP Level 2 condition assessment of Storm sewer and sanitary sewer manholes and junction boxes.*Estimated Annual Quantity - 500 Each*	1	EA	**$35.00**
4	3D Modeling of Storm sewer and sanitary sewer manholes and junction boxes.*Estimated Annual Quantity - 100 Each*	1	EA	**$5.00**
5	Annual Subscription Fee	1	EA	**$12,000.00**

Exhibit F

CONFLICT OF INTEREST QUESTIONNAIRE

CONFLICT OF INTEREST QUESTIONNAIRE - FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local government entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

_____

Name of Officer

This section, (item 3 including subparts A, B, C & D), must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4 ☒ **I have no Conflict of Interest to disclose.**

5

William J Gilmartin IV — March 19, 2024

Signature of vendor doing business with the governmental entity — Date

DocuSign

Certificate Of Completion

Envelope Id: 45E0A53ED5A14C7F9586821437CE2488
Status: Sent
Subject: Please DocuSign: City Council Contract 8488 Sewer Pipe and Manhole Rating Services
Source Envelope:
Document Pages: 28
Signatures: 3
Initials: 1
Certificate Pages: 6
AutoNav: Enabled
EnvelopeId Stamping: Enabled
Time Zone: (UTC-06:00) Central Time (US & Canada)

Envelope Originator:
Christina Dormady
901B Texas Street
Denton, TX 76209
christina.dormady@cityofdenton.com
IP Address: 198.49.140.10

Record Tracking

Status: Original
4/23/2024 8:55:14 AM

Holder: Christina Dormady
christina.dormady@cityofdenton.com

Location: DocuSign

Signer Events	Signature	Timestamp
Christina Dormady christina.dormady@cityofdenton.com Buyer City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	**Completed** Using IP Address: 198.49.140.10	Sent: 4/23/2024 9:06:42 AM Viewed: 4/23/2024 9:07:38 AM Signed: 4/23/2024 9:08:15 AM
Lori Hewell lori.hewell@cityofdenton.com Purchasing Manager City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DS LH Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 4/23/2024 9:08:16 AM Viewed: 4/23/2024 11:15:54 AM Signed: 4/23/2024 11:18:10 AM
Marcella Lunn marcella.lunn@cityofdenton.com Senior Deputy City Attorney City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DocuSigned by: Marcella Lunn 4B070831B4AA438... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 4/23/2024 11:18:13 AM Viewed: 4/24/2024 8:48:00 AM Signed: 4/24/2024 8:58:56 AM
William Gilmartin IV bgilmartin@sewerai.com CRO SewerAI Corporation Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 4/24/2024 9:03:13 AM ID: 40cbd6da-5c9e-457a-83a9-d64d5a86ba93	DocuSigned by: William Gilmartin IV 1FCCA70504DD4EF... Signature Adoption: Pre-selected Style Using IP Address: 104.28.123.94 Signed using mobile	Sent: 4/24/2024 8:58:58 AM Viewed: 4/24/2024 9:03:13 AM Signed: 4/24/2024 4:54:44 PM

Signer Events	Signature	Timestamp
ethan cox Ethan.cox@cityofdenton.com Director of Streets Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 8/7/2018 4:24:18 PM ID: feebacc3-151e-47bb-af6d-be8889ffcb35	DocuSigned by: ethan cox A83AA619E7314D7... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 4/24/2024 4:54:47 PM Viewed: 4/25/2024 11:44:34 AM Signed: 4/25/2024 11:44:42 AM
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		Sent: 4/25/2024 11:44:46 AM
Sara Hensley sara.hensley@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Lauren Thoden lauren.thoden@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		

In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 4/23/2024 9:08:17 AM
Gretna Jones gretna.jones@cityofdenton.com Legal Secretary City of Denton Security Level: Email, Account Authentication (None)	COPIED	Sent: 4/25/2024 11:44:45 AM Viewed: 4/26/2024 10:35:13 AM

Carbon Copy Events	Status	Timestamp
Electronic Record and Signature Disclosure: Not Offered via DocuSign		
City Secretary Office citysecretary@cityofdenton.com Security Level: Email, Account Authentication (None)		
Electronic Record and Signature Disclosure: Not Offered via DocuSign		
Stephen Bonner stephen.bonner@cityofdenton.com Security Level: Email, Account Authentication (None)		
Electronic Record and Signature Disclosure: Accepted: 1/5/2024 8:42:29 AM ID: c2e8aed5-ea40-47b3-ab9b-a8f5dee850d4		

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	4/23/2024 9:06:43 AM

Payment Events	Status	Timestamps

Electronic Record and Signature Disclosure

ELECTRONIC RECORD AND SIGNATURE DISCLOSURE

From time to time, City of Denton (we, us or Company) may be required by law to provide to you certain written notices or disclosures. Described below are the terms and conditions for providing to you such notices and disclosures electronically through your DocuSign, Inc. (DocuSign) Express user account. Please read the information below carefully and thoroughly, and if you can access this information electronically to your satisfaction and agree to these terms and conditions, please confirm your agreement by clicking the 'I agree' button at the bottom of this document.

Getting paper copies

At any time, you may request from us a paper copy of any record provided or made available electronically to you by us. For such copies, as long as you are an authorized user of the DocuSign system you will have the ability to download and print any documents we send to you through your DocuSign user account for a limited period of time (usually 30 days) after such documents are first sent to you. After such time, if you wish for us to send you paper copies of any such documents from our office to you, you will be charged a $0.00 per-page fee. You may request delivery of such paper copies from us by following the procedure described below.

Withdrawing your consent

If you decide to receive notices and disclosures from us electronically, you may at any time change your mind and tell us that thereafter you want to receive required notices and disclosures only in paper format. How you must inform us of your decision to receive future notices and disclosure in paper format and withdraw your consent to receive notices and disclosures electronically is described below.

Consequences of changing your mind

If you elect to receive required notices and disclosures only in paper format, it will slow the speed at which we can complete certain steps in transactions with you and delivering services to you because we will need first to send the required notices or disclosures to you in paper format, and then wait until we receive back from you your acknowledgment of your receipt of such paper notices or disclosures. To indicate to us that you are changing your mind, you must withdraw your consent using the DocuSign 'Withdraw Consent' form on the signing page of your DocuSign account. This will indicate to us that you have withdrawn your consent to receive required notices and disclosures electronically from us and you will no longer be able to use your DocuSign Express user account to receive required notices and consents electronically from us or to sign electronically documents from us.

All notices and disclosures will be sent to you electronically

Unless you tell us otherwise in accordance with the procedures described herein, we will provide electronically to you through your DocuSign user account all required notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you during the course of our relationship with you. To reduce the chance of you inadvertently not receiving any notice or disclosure, we prefer to provide all of the required notices and disclosures to you by the same method and to the same address that you have given us. Thus, you can receive all the disclosures and notices electronically or in paper format through the paper mail delivery system. If you do not agree with this process, please let us know as described below. Please also see the paragraph immediately above that describes the consequences of your electing not to receive delivery of the notices and disclosures electronically from us.

How to contact City of Denton:
You may contact us to let us know of your changes as to how we may contact you electronically, to request paper copies of certain information from us, and to withdraw your prior consent to receive notices and disclosures electronically as follows:
To contact us by email send messages to: purchasing@cityofdenton.com

To advise City of Denton of your new e-mail address
To let us know of a change in your e-mail address where we should send notices and disclosures electronically to you, you must send an email message to us at melissa.kraft@cityofdenton.com and in the body of such request you must state: your previous e-mail address, your new e-mail address. We do not require any other information from you to change your email address..
In addition, you must notify DocuSign, Inc to arrange for your new email address to be reflected in your DocuSign account by following the process for changing e-mail in DocuSign.
To request paper copies from City of Denton
To request delivery from us of paper copies of the notices and disclosures previously provided by us to you electronically, you must send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail address, full name, US Postal address, and telephone number. We will bill you for any fees at that time, if any.
To withdraw your consent with City of Denton
To inform us that you no longer want to receive future notices and disclosures in electronic format you may:

i. decline to sign a document from within your DocuSign account, and on the subsequent page, select the check-box indicating you wish to withdraw your consent, or you may;
ii. send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail, full name, IS Postal Address, telephone number, and account number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

Required hardware and software

Operating Systems:	Windows2000? or WindowsXP?
Browsers (for SENDERS):	Internet Explorer 6.0? or above
Browsers (for SIGNERS):	Internet Explorer 6.0?, Mozilla FireFox 1.0, NetScape 7.2 (or above)
Email:	Access to a valid email account
Screen Resolution:	800 x 600 minimum
Enabled Security Settings:	•Allow per session cookies •Users accessing the internet behind a Proxy Server must enable HTTP 1.1 settings via proxy connection

** These minimum requirements are subject to change. If these requirements change, we will provide you with an email message at the email address we have on file for you at that time providing you with the revised hardware and software requirements, at which time you will have the right to withdraw your consent.

Acknowledging your access and consent to receive materials electronically
To confirm to us that you can access this information electronically, which will be similar to other electronic notices and disclosures that we will provide to you, please verify that you were able to read this electronic disclosure and that you also were able to print on paper or electronically save this page for your future reference and access or that you were able to e-mail this disclosure and consent to an address where you will be able to print on paper or save it for your future reference and access. Further, if you consent to receiving notices and disclosures exclusively in electronic format on the terms and conditions described above, please let us know by clicking the 'I agree' button below.
By checking the 'I Agree' box, I confirm that:

- I can access and read this Electronic CONSENT TO ELECTRONIC RECEIPT OF ELECTRONIC RECORD AND SIGNATURE DISCLOSURES document; and

- I can print on paper the disclosure or save or send the disclosure to a place where I can print it, for future reference and access; and

- Until or unless I notify City of Denton as described above, I consent to receive from exclusively through electronic means all notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to me by City of Denton during the course of my relationship with you.

File #: ID 24-1079, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Aerowave Technologies, LLC, for the Aerowave In-Cab Radio subscription for the Solid Waste and Recycling Department, which is the sole provider of this software, in accordance with Texas Local Government Code 252.022, which provides that procurement of commodities and services that are available from one source are exempt from competitive bidding, and if over $50,000, shall be awarded by the governing body; providing for the expenditure of funds therefor; and providing an effective date (File 8536 - awarded to Aerowave Technologies, LLC, for one (1) year, with the option for two (2) additional one (1) year extensions, in the total three (3) year not-to-exceed amount of $122,850.00). The Public Utilities Board recommends approval (4 - 0).

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Procurement

ACM: Cassey Ogden

DATE: June 4, 2024

SUBJECT

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Aerowave Technologies, LLC, for the Aerowave In-Cab Radio subscription for the Solid Waste and Recycling Department, which is the sole provider of this software, in accordance with Texas Local Government Code 252.022, which provides that procurement of commodities and services that are available from one source are exempt from competitive bidding, and if over $50,000, shall be awarded by the governing body; providing for the expenditure of funds therefor; and providing an effective date (File 8536 – awarded to Aerowave Technologies, LLC, for one (1) year, with the option for two (2) additional one (1) year extensions, in the total three (3) year not-to-exceed amount of $122,850.00). The Public Utilities Board recommends approval (4 - 0).

STRATEGIC ALIGNMENT

This action supports Key Focus Area: Pursue Organizational Excellence and Collaborative and Respectful Leadership.

INFORMATION/BACKGROUND

The Solid Waste and Recycling Department recently acquired 98 in-cab radios and 20 handheld radios in February 2024. The primary objective behind this procurement is to bolster operator safety while enabling seamless hands-free communication.

The radios will be securely installed within our equipment, providing a hands-free communication solution. Leveraging LTE technology for connectivity ensures reliable and robust communication channels. The radios require a monthly subscription to operate and assign radio operators, channels, and communication between radios. The contract to purchase the equipment with Aerowave was procured through the Buy Board Cooperative Purchasing Network Contract # 696-23 but the monthly subscription was not included.

The subscription host Motorola does not engage in direct sales to customers. Aerowave serves as the radio supplier and is the sole provider of the subscription.

Section 252.022 of the Local Government Code provides that procurement of sole source commodities and services are exempt from competitive bidding, if over $50,000, shall be awarded by the governing body.

Project Description	Estimated 3-Year Expenditure
Premiere Support Year 1	$39,000
Premiere Support Year 2	39,000
Premiere Support Year 3	39,000
Contingency for additional support hours	5,850
Total	**$122,850**

PRIOR ACTION/REVIEW (COUNCIL, BOARDS, COMMISSIONS)

On February 21, 2024, City Council awarded a contract to Aerowave Technologies, LLC, in the not-to-exceed amount of $79,500 (Ordinance 24-277).

On May 20, 2024, the Public Utilities Board (PUB) recommended this item to the City Council for consideration.

RECOMMENDATION

Award a contract with Aerowave Technologies, LLC, for the Aerowave In-Cab Radio subscription for the Solid Waste and Recycling Department, in a one (1) year, with the option for two (2) additional one (1) year extensions, in the total three (3) year not-to-exceed amount of $122,850.

PRINCIPAL PLACE OF BUSINESS

Aerowave Technologies, LLC
Lewisville, TX

ESTIMATED SCHEDULE OF PROJECT

This is an initial one (1) year contract with options to extend the contract for two (2) additional one (1) year periods, with all terms and conditions remaining the same.

FISCAL INFORMATION

These services will be funded from Solid Waste account 665229585.1365.30100. Requisition #164686 has been entered into the Purchasing software system in the amount of $39,000. The budgeted amount for this item is $122,850.

EXHIBITS

Exhibit 1: Agenda Information Sheet
Exhibit 2: Ordinance and Contract

Respectfully submitted:
Lori Hewell, 940-349-7100
Purchasing Manager

For information concerning this acquisition, contact: Brandi Neal, 940-349-8027.

Legal point of contact: Marcella Lunn at 940-349-8333.

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, A TEXAS HOME-RULE MUNICIPAL CORPORATION, AUTHORIZING THE CITY MANAGER TO EXECUTE A CONTRACT WITH AEROWAVE TECHNOLOGIES, LLC, FOR THE AEROWAVE IN-CAB RADIO SUBSCRIPTION FOR THE SOLID WASTE AND RECYCLING DEPARTMENT, WHICH IS THE SOLE PROVIDER OF THIS SOFTWARE, IN ACCORDANCE WITH TEXAS LOCAL GOVERNMENT CODE 252.022, WHICH PROVIDES THAT PROCUREMENT OF COMMODITIES AND SERVICES THAT ARE AVAILABLE FROM ONE SOURCE ARE EXEMPT FROM COMPETITIVE BIDDING, AND IF OVER $50,000, SHALL BE AWARDED BY THE GOVERNING BODY; PROVIDING FOR THE EXPENDITURE OF FUNDS THEREFOR; AND PROVIDING AN EFFECTIVE DATE (FILE 8536 – AWARDED TO AEROWAVE TECHNOLOGIES, LLC, FOR ONE (1) YEAR, WITH THE OPTION FOR TWO (2) ADDITIONAL ONE (1) YEAR EXTENSIONS, IN THE TOTAL THREE (3) YEAR NOT-TO-EXCEED AMOUNT OF $122,850.00).

WHEREAS, Section 252.022 of the Local Government Code provides that procurement of items that are only available from one source, including items that are only available from one source because of patents, copyrights, secret processes, or natural monopolies; films, manuscripts, or books; electricity, gas, water, and other utility purchases; captive replacement parts or components for equipment; and library materials for a public library that are available only from the persons holding exclusive distribution rights to the materials; need not be submitted to competitive bids; and

WHEREAS, this procurement was undertaken as part of the City's governmental function; and

WHEREAS, the City Council wishes to procure one or more of the items mentioned in the above paragraph; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The following purchase of materials, equipment or supplies, as described in the "File" listed hereon, and on file in the office of the Purchasing Agent, and the license terms attached are hereby approved:

FILE NUMBER	VENDOR	AMOUNT
8536	Aerowave Technologies, LLC	$122,850.00

SECTION 2. The City Council hereby finds that this bid, and the award thereof, constitutes a procurement of items that are available from only one source, including items that are only available from one source because of patents, copyrights, secret processes, or natural monopolies; films, manuscripts, or books; electricity, gas, water, and other utility purchases; captive replacement parts or components for equipment; and library materials for a public library

that are available only from the persons holding exclusive distribution rights to the materials; need not be submitted to competitive bids.

SECTION 3. The acceptance and approval of the above items shall not constitute a contract between the City and the person submitting the quotation for such items until such person shall comply with all requirements specified by the Purchasing Department.

SECTION 4. The City Manager, or their designee, is hereby authorized to execute the contract relating to the items specified in Section 1, attached hereto, and the expenditure of funds pursuant to said contract is hereby authorized.

SECTION 5. The City Council of the City of Denton hereby expressly delegates the authority to take any actions that may be required or permitted to be performed by the City of Denton under this ordinance to the City Manager of the City of Denton, or their designee.

SECTION 6. This ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____. The ordinance was passed and approved by the following vote [___ - ___]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Chris Watts, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: _____

Digitally signed by Marcella Lunn
DN: dc=com, dc=cityofdenton, dc=codad, ou=Department Users and Groups, ou=General Government, ou=Legal, cn=Marcella Lunn, email=Marcella.Lunn@cityofdenton.com
Date: 2024.05.03 13:17:07 -05'00'

Docusign City Council Transmittal Coversheet

FILE	8536
File Name	AEROWAVE MOBILE IN-CAB RADIO SUBSCRIPTION
Purchasing Contact	Crystal Westbrook
City Council Target Date	
Piggy Back Option	Not Applicable
Contract Expiration	
Ordinance	

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CONTRACT BY AND BETWEEN
CITY OF DENTON, TEXAS AND AEROWAVE TECHNOLOGIES, LLC
(CONTRACT 8536)

THIS CONTRACT is made and entered into this date _____, by and between **AEROWAVE TECHNOLOGIES, LLC** a Delaware limited liability company, whose address is 250 Valley Ridge Blvd, STE 100, Lewisville, TX 75057 hereinafter referred to as "Contractor," and the **CITY OF DENTON, TEXAS**, a home rule municipal corporation, hereinafter referred to as "City," to be effective upon approval of the Denton City Council and subsequent execution of this Contract by the Denton City Manager or their duly authorized designee.

For and in consideration of the covenants and agreements contained herein, and for the mutual benefits to be obtained hereby, the parties agree as follows:

SCOPE OF SERVICES

Contractor shall provide products and/or services in accordance with the Contractor proposal listed in Exhibit D, a copy of which is attached hereto as Exhibit D and incorporated herein for all purposes. The Contract consists of this written agreement and the following items which are attached hereto and incorporated herein by reference:

(a) Special Terms and Conditions **(Exhibit "A");**
(b) City of Denton Standard Terms and Conditions **(Exhibit "B");**
(c) Certificate of Interested Parties Electronic Filing **(Exhibit "C");**
(d) Contractor's Proposal (**Exhibit "D"**);
(e) Form CIQ – Conflict of Interest Questionnaire **(Exhibit "E");**

These documents make up the Contract documents and what is called for by one shall be as binding as if called for by all. In the event of an inconsistency or conflict in any of the provisions of the Contract documents, the inconsistency or conflict shall be resolved by giving precedence first to the written agreement then to the contract documents in the order in which they are listed above. These documents shall be referred to collectively as "Contract Documents."

Prohibition on Contracts with Companies Boycotting Israel
Contractor acknowledges that in accordance with Chapter 2271 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains a written verification from the company that it: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract. The terms "boycott Israel" and "company" shall have the meanings ascribed to those terms in Section 808.001 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Boycotting Certain Energy Companies
Contractor acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not boycott energy companies; and (2) will not boycott

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energy companies during the term of the contract. The terms "boycott energy company" and "company" shall have the meanings ascribed to those terms in Section 809.001 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Boycotting Certain Firearm Entities and Firearm Trade Associations

Contractor acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association. The terms "discriminate against a firearm entity or firearm trade association," "firearm entity" and "firearm trade association" shall have the meanings ascribed to those terms in Chapter 2274 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Doing Business with Iran, Sudan, or a Foreign Terrorist Organization

Sections 2252 and 2270 of the Texas Government Code restricts CITY from contracting with companies that do business with Iran, Sudan, or a foreign terrorist organization. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor, pursuant to Chapters 2252 and 2270, is not ineligible to enter into this agreement and will not become ineligible to receive payments under this agreement by doing business with Iran, Sudan, or a foreign terrorist organization***. Failure to meet or maintain the requirements under this provision will be considered a material breach.

Termination Right for Contracts with Companies Doing Business with Certain Foreign-Owned Companies

The City of Denton may terminate this Contract immediately without any further liability if the City of Denton determines, in its sole judgment, that this Contract meets the requirements under Chapter 2274, and Contractor is, or will be in the future, (i) owned by or the majority of stock or other ownership interest of the company is held or controlled by individuals who are citizens of China, Iran, North Korea, Russia, or other designated country (ii) directly controlled by the Government of China, Iran, North Korea, Russia, or other designated country, or (iii) is headquartered in China, Iran, North Korea, Russia, or other designated country.

The parties agree to transact business electronically. Any statutory requirements that certain terms be in writing will be satisfied using electronic documents and signing. Electronic signing of this document will be deemed an original for all legal purposes.

IN WITNESS WHEREOF, the parties of these presents have executed this agreement in the year and day first above written.

CONTRACTOR

DocuSigned by:
BY: Cecilia Montalvo
538E691313454CD...
AUTHORIZED SIGNATURE

Printed Name: Cecilia Montalvo

Title: Controller

214-396-7507
PHONE NUMBER

ceciliam@aerowavetech.com
EMAIL ADDRESS

2024- 1113412
TEXAS ETHICS COMMISSION
1295 CERTIFICATE NUMBER

CITY OF DENTON, TEXAS

BY: _____
SARA HENSLEY, CITY MANAGER

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

DocuSigned by:
BY: Marella Lunn
4B070831B4AA438...

THIS AGREEMENT HAS BEEN
BOTH REVIEWED AND APPROVED
as to financial and operational obligations
and business terms.

DocuSigned by:
Brian Boerner
DCD14331B89A4A9...
SIGNATURE

Brian Boerner
PRINTED NAME

Director of Solid Waste
TITLE

SWR
DEPARTMENT

Contract # 8536

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Exhibit A
Special Terms and Conditions

1. Total Contract Amount

The contract total for services shall not exceed $122,850. Pricing shall be per Exhibit D attached.

2. The Quantities

The quantities indicated on Exhibit D are estimates based upon the best available information. The City reserves the right to increase or decrease the quantities to meet its actual needs without any adjustments in the bid price. Individual purchase orders will be issued on an as needed basis.

3. Contract Terms

The contract term will be one (1) year, effective from date of award. The City and the Supplier shall have the option to renew this contract for an additional two (2) one-year periods.

The Contract shall commence upon the issuance of a Notice of Award by the City of Denton and shall automatically renew each year, from the date of award by City Council. The Supplier's request to not renew the contract must be submitted in writing to the Purchasing Manager at least 60 days prior to the contract renewal date for each year. At the sole option of the City of Denton, the Contract may be further extended as needed, not to exceed a total of six (6) months.

4. Price Escalation and De-escalation

On Supplier's request in the form stated herein, the City will implement an escalation/de-escalation price adjustment annually based on these special terms. Any request for price adjustment must be based on the, U.S Department of Labor, Bureau of Labor Statistics, Producer Price Index (PPI) or the manufacturer published pricing list. The maximum escalation will not exceed +/- 8% for any individual year. The escalation will be determined annually at the renewal date. The price will be increased or decreased based upon the annual percentage change in the PPI or the percentage change in the manufacturer's price list. Should the PPI or manufacturer price list change exceed a minimum threshold value of +/-1%, then the stated eligible bid prices shall be adjusted in accordance with the percent change not to exceed the 8% limit per year. The supplier should provide documentation as percentage of each cost associated with the unit prices quoted for consideration.

Request must be submitted in writing with supporting evidence for need of such increase to the Purchasing Manager at least 60 days prior to contract expiration of each year. Respondent must also provide supporting documentation as justification for the request. If no request is made, then it will be assumed that the current contract price will be in effect.

Upon receipt of such request, the City of Denton reserves the right to either: accept the escalation as competitive with the general market price at the time, and become effective upon the renewal

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date of the contract award or reject the increases within 30 calendar days after receipt of a properly submitted request. If a properly submitted increase is rejected, the Contractor may request cancellation of such items from the Contract by giving the City of Denton written notice. Cancellation will not go into effect for 15 calendar days after a determination has been issued. Pre-price increase prices must be honored on orders dated up to the official date of the City of Denton approval and/or cancellation.

The request can be sent by e-mail to: purchasing@cityofdenton.com noting the solicitation number.

The City of Denton reserves the right to accept, reject, or negotiate the proposed price changes.

5. Performance Liquidated Damages

The Contractor shall incur contractual payment losses, as initiated by the City for performance that falls short of specified performance standards as outlined below:

- Delivery beyond contracted lead times
- Performance below contracted levels (services only)

The Contractor shall be assessed a one (1%) percent fee each month when any one of the performance standards outlined above are not met in full. The Contractor shall be assessed a two (2%) percent profit fee each month when any two (2) or more performance standards outlined above are not met in full. At the end of each month, the City will review the monthly reports and determine the percentage of penalty to be assessed to the Contractor's monthly profit margin.

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Exhibit B
Standard Purchase Terms and Conditions

These standard Terms and Conditions and the Terms and Conditions, Specifications, Drawings and other requirements included in the City of Denton's contract are applicable to contracts/purchase orders issued by the City of Denton hereinafter referred to as the City or Buyer and the Seller or respondent herein after referred to as Contractor or Supplier. Any deviations must be in writing and signed by a representative of the City's Procurement Department and the Supplier. No Terms and Conditions contained in the seller's proposal response, invoice or statement shall serve to modify the terms set forth herein. If there is a conflict between the provisions on the face of the contract/purchase order these written provisions will take precedence.

The Contractor agrees that the contract shall be governed by the following terms and conditions, unless exceptions are duly noted and fully negotiated. Unless otherwise specified in the contract, Sections 3, 4, 5, 6, 7, 8, 20, 21, and 36 shall apply only to a solicitation to purchase goods, and sections 9, 10, 11, 22 and 32 shall apply only to a solicitation to purchase services to be performed principally at the City's premises or on public rights-of-way.

1. **CONTRACTOR'S OBLIGATIONS**. The Contractor shall fully and timely provide all deliverables described in the Solicitation and in the Contractor's Offer in strict accordance with the terms, covenants, and conditions of the Contract and all applicable Federal, State, and local laws, rules, and regulations.

2. **EFFECTIVE DATE/TERM**. Unless otherwise specified in the Solicitation, this Contract shall be effective as of the date the contract is signed by the City, and shall continue in effect until all obligations are performed in accordance with the Contract.

3. **CONTRACTOR TO PACKAGE DELIVERABLES**: The Contractor will package deliverables in accordance with good commercial practice and shall include a packing list showing the description of each item, the quantity and unit price unless otherwise provided in the Specifications or Supplemental Terms and Conditions, each shipping container shall be clearly and permanently marked as follows: (a) The Contractor's name and address, (b) the City's name, address and purchase order or purchase release number and the price agreement number if applicable, (c) Container number and total number of containers, e.g. box 1 of 4 boxes, and (d) the number of the container bearing the packing list. The Contractor shall bear cost of packaging. Deliverables shall be suitably packed to secure lowest transportation costs and to conform to all the requirements of common carriers and any applicable specification. The City's count or weight shall be final and conclusive on shipments not accompanied by packing lists.

4. **SHIPMENT UNDER RESERVATION PROHIBITED**: The Contractor is not authorized to ship the deliverables under reservation and no tender of a bill of lading will operate as a tender of deliverables.

5. **TITLE & RISK OF LOSS**: Title to and risk of loss of the deliverables shall pass to the City only when the City actually receives and accepts the deliverables.

6. **DELIVERY TERMS AND TRANSPORTATION CHARGES**: Deliverables shall be

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shipped F.O.B. point of delivery unless otherwise specified in the Supplemental Terms and Conditions. Unless otherwise stated in the Offer, the Contractor's price shall be deemed to include all delivery and transportation charges. The City shall have the right to designate what method of transportation shall be used to ship the deliverables. The place of delivery shall be that set forth the purchase order.

7. **RIGHT OF INSPECTION AND REJECTION**: The City expressly reserves all rights under law, including, but not limited to the Uniform Commercial Code, to inspect the deliverables at delivery before accepting them, and to reject defective or non-conforming deliverables. If the City has the right to inspect the Contractor's, or the Contractor's Subcontractor's, facilities, or the deliverables at the Contractor's, or the Contractor's Subcontractor's, premises, the Contractor shall furnish, or cause to be furnished, without additional charge, all reasonable facilities and assistance to the City to facilitate such inspection.

8. **NO REPLACEMENT OF DEFECTIVE TENDER**: Every tender or delivery of deliverables must fully comply with all provisions of the Contract as to time of delivery, quality, and quantity. Any non-complying tender shall constitute a breach and the Contractor shall not have the right to substitute a conforming tender; provided, where the time for performance has not yet expired, the Contractor may notify the City of the intention to cure and may then make a conforming tender within the time allotted in the contract.

9. **PLACE AND CONDITION OF WORK**: The City shall provide the Contractor access to the sites where the Contractor is to perform the services as required in order for the Contractor to perform the services in a timely and efficient manner, in accordance with and subject to the applicable security laws, rules, and regulations. The Contractor acknowledges that it has satisfied itself as to the nature of the City's service requirements and specifications, the location and essential characteristics of the work sites, the quality and quantity of materials, equipment, labor and facilities necessary to perform the services, and any other condition or state of fact which could in any way affect performance of the Contractor's obligations under the contract. The Contractor hereby releases and holds the City harmless from and against any liability or claim for damages of any kind or nature if the actual site or service conditions differ from expected conditions.

The contractor shall, at all times, exercise reasonable precautions for the safety of their employees, City Staff, participants and others on or near the City's facilities.

10. **WORKFORCE**

A. The Contractor shall employ only orderly and competent workers, skilled in the performance of the services which they will perform under the Contract.

B. The Contractor, its employees, subcontractors, and subcontractor's employees may not while engaged in participating or responding to a solicitation or while in the course and scope of delivering goods or services under a City of Denton contract or on the City's property .

i. use or possess a firearm, including a concealed handgun that is licensed under state law, except as required by the terms of the contract; or

ii. use or possess alcoholic or other intoxicating beverages, illegal drugs or controlled substances, nor may such workers be intoxicated, or under the influence of alcohol or drugs, on the job.

C. If the City or the City's representative notifies the Contractor that any worker is incompetent, disorderly or disobedient, has knowingly or repeatedly violated safety regulations, has possessed

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any firearms, or has possessed or was under the influence of alcohol or drugs on the job, the Contractor shall immediately remove such worker from Contract services, and may not employ such worker again on Contract services without the City's prior written consent.
Immigration: The Contractor represents and warrants that it shall comply with the requirements of the Immigration Reform and Control Act of 1986 and 1990 regarding employment verification and retention of verification forms for any individuals hired on or after November 6, 1986, who will perform any labor or services under the Contract and the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 ("IIRIRA) enacted on September 30, 1996.

11. **COMPLIANCE WITH HEALTH, SAFETY, AND ENVIRONMENTAL REGULATIONS**: The Contractor, it's Subcontractors, and their respective employees, shall comply fully with all applicable federal, state, and local health, safety, and environmental laws, ordinances, rules and regulations in the performance of the services, including but not limited to those promulgated by the City and by the Occupational Safety and Health Administration (OSHA). In case of conflict, the most stringent safety requirement shall govern. The Contractor shall indemnify and hold the City harmless from and against all claims, demands, suits, actions, judgments, fines, penalties and liability of every kind arising from the breach of the Contractor's obligations under this paragraph.

Environmental Protection: The Respondent shall be in compliance with all applicable standards, orders, or regulations issued pursuant to the mandates of the Clean Air Act (42 U.S.C. §7401 *et seq.*) and the Federal Water Pollution Control Act, as amended, (33 U.S.C. §1251 *et seq.*).

12. **INVOICES**:
A. The Contractor shall submit separate invoices in duplicate on each purchase order or purchase release after each delivery. If partial shipments or deliveries are authorized by the City, a separate invoice must be sent for each shipment or delivery made.
B. **Proper Invoices must include a unique invoice number, the purchase order or delivery order number and the master agreement number if applicable, the Department's Name, and the name of the point of contact for the Department**. Invoices shall be itemized and transportation charges, if any, shall be listed separately. A copy of the bill of lading and the freight waybill, when applicable, shall be attached to the invoice. The Contractor's name, remittance address and, if applicable, the tax identification number on the invoice must exactly match the information in the Vendor's registration with the City. Unless otherwise instructed in writing, the City may rely on the remittance address specified on the Contractor's invoice.
C. Invoices for labor shall include a copy of all time-sheets with trade labor rate and deliverables order number clearly identified. Invoices shall also include a tabulation of work-hours at the appropriate rates and grouped by work order number. Time billed for labor shall be limited to hours actually worked at the work site.
D. Unless otherwise expressly authorized in the Contract, the Contractor shall pass through all Subcontract and other authorized expenses at actual cost without markup.
E. Federal excise taxes, State taxes, or City sales taxes must not be included in the invoiced amount.
The City will furnish a tax exemption certificate upon request.

13. **PAYMENT**:
A. All proper invoices need to be sent to Accounts Payable. Approved invoices will be paid within thirty (30) calendar days of the City's receipt of the deliverables or of the invoice being received

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in Accounts Payable, whichever is later.

B. **If payment is not timely made, (per paragraph A); interest shall accrue on the unpaid balance at the lesser of the rate specified in Texas Government Code Section 2251.025 or the maximum lawful rate; except, if payment is not timely made for a reason for which the City may withhold payment hereunder, interest shall not accrue until ten (10) calendar days after the grounds for withholding payment have been resolved.**

C. If partial shipments or deliveries are authorized by the City, the Contractor will be paid for the partial shipment or delivery, as stated above, provided that the invoice matches the shipment or delivery.

D. The City may withhold or set off the entire payment or part of any payment otherwise due the Contractor to such extent as may be necessary on account of:

i. delivery of defective or non-conforming deliverables by the Contractor;

ii. third party claims, which are not covered by the insurance which the Contractor is required to provide, are filed or reasonable evidence indicating probable filing of such claims;

iii. failure of the Contractor to pay Subcontractors, or for labor, materials or equipment;

iv. damage to the property of the City or the City's agents, employees or contractors, which is not covered by insurance required to be provided by the Contractor;

v. reasonable evidence that the Contractor's obligations will not be completed within the time specified in the Contract, and that the unpaid balance would not be adequate to cover actual or damages for the anticipated delay;

vi. failure of the Contractor to submit proper invoices with purchase order number, with all required attachments and supporting documentation; or

vii. failure of the Contractor to comply with any material provision of the Contract Documents.

E. Notice is hereby given that any awarded firm who is in arrears to the City of Denton for delinquent taxes, the City may offset indebtedness owed the City through payment withholding.

F. Payment will be made by check unless the parties mutually agree to payment by credit card or electronic transfer of funds. The Contractor agrees that there shall be no additional charges, surcharges, or penalties to the City for payments made by credit card or electronic funds transfer.

G. The awarding or continuation of this contract is dependent upon the availability of funding. The City's payment obligations are payable only and solely from funds Appropriated and available for this contract. The absence of Appropriated or other lawfully available funds shall render the Contract null and void to the extent funds are not Appropriated or available and any deliverables delivered but unpaid shall be returned to the Contractor. The City shall provide the Contractor written notice of the failure of the City to make an adequate Appropriation for any fiscal year to pay the amounts due under the Contract, or the reduction of any Appropriation to an amount insufficient to permit the City to pay its obligations under the Contract. In the event of none or inadequate appropriation of funds, there will be no penalty nor removal fees charged to the City.

14. **TRAVEL EXPENSES**: All travel, lodging and per diem expenses in connection with the Contract shall be paid by the Contractor, unless otherwise stated in the contract terms. During the term of this contract, the contractor shall bill and the City shall reimburse contractor for all reasonable and approved out of pocket expenses which are incurred in the connection with the performance of duties hereunder. Notwithstanding the foregoing, expenses for the time spent by the contractor in traveling to and from City facilities shall not be reimbursed, unless otherwise negotiated.

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15. **FINAL PAYMENT AND CLOSE-OUT**:
A. If a DBE/MBE/WBE Program Plan is agreed to and the Contractor has identified Subcontractors, the Contractor is required to submit a Contract Close-Out MBE/WBE Compliance Report to the Purchasing Manager no later than the 15th calendar day after completion of all work under the contract. Final payment, retainage, or both may be withheld if the Contractor is not in compliance with the requirements as accepted by the City.
B. The making and acceptance of final payment will constitute:
i. a waiver of all claims by the City against the Contractor, except claims (1) which have been previously asserted in writing and not yet settled, (2) arising from defective work appearing after final inspection, (3) arising from failure of the Contractor to comply with the Contract or the terms of any warranty specified herein, (4) arising from the Contractor's continuing obligations under the Contract, including but not limited to indemnity and warranty obligations, or (5) arising under the City's right to audit; and ii. a waiver of all claims by the Contractor against the City other than those previously asserted in writing and not yet settled.

16. **SPECIAL TOOLS & TEST EQUIPMENT**: If the price stated on the Offer includes the cost of any special tooling or special test equipment fabricated or required by the Contractor for the purpose of filling this order, such special tooling equipment and any process sheets related thereto shall become the property of the City and shall be identified by the Contractor as such.

17. **RIGHT TO AUDIT**:
A. The City shall have the right to audit and make copies of the books, records and computations pertaining to the Contract. The Contractor shall retain such books, records, documents and other evidence pertaining to the Contract period and five years thereafter, except if an audit is in progress or audit findings are yet unresolved, in which case records shall be kept until all audit tasks are completed and resolved. These books, records, documents and other evidence shall be available, within ten (10) business days of written request. Further, the Contractor shall also require all Subcontractors, material suppliers, and other payees to retain all books, records, documents and other evidence pertaining to the Contract, and to allow the City similar access to those documents. All books and records will be made available within a 50 mile radius of the City of Denton. The cost of the audit will be borne by the City unless the audit reveals an overpayment of 1% or greater. If an overpayment of 1% or greater occurs, the reasonable cost of the audit, including any travel costs, must be borne by the Contractor which must be payable within five (5) business days of receipt of an invoice.
B. Failure to comply with the provisions of this section shall be a material breach of the Contract and shall constitute, in the City's sole discretion, grounds for termination thereof. Each of the terms "books", "records", "documents" and "other evidence", as used above, shall be construed to include drafts and electronic files, even if such drafts or electronic files are subsequently used to generate or prepare a final printed document.

18. **SUBCONTRACTORS**:
A. If the Contractor identified Subcontractors in a DBE/MBE/WBE agreed to Plan, the Contractor shall comply with all requirements approved by the City. The Contractor shall not initially employ any Subcontractor except as provided in the Contractor's Plan. The Contractor shall not substitute any Subcontractor identified in the Plan, unless the substitute has been accepted by the City in writing. No acceptance by the City of any Subcontractor shall constitute a waiver of any rights or remedies of the City with respect to defective deliverables provided by a Subcontractor. If a Plan has been approved, the Contractor is additionally required to submit a monthly Subcontract

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Awards and Expenditures Report to the Procurement Manager, no later than the tenth calendar day of each month.

B. Work performed for the Contractor by a Subcontractor shall be pursuant to a written contract between the Contractor and Subcontractor. The terms of the subcontract may not conflict with the terms of the
Contract, and shall contain provisions that:

i. require that all deliverables to be provided by the Subcontractor be provided in strict accordance with the provisions, specifications and terms of the Contract;

ii. prohibit the Subcontractor from further subcontracting any portion of the Contract without the prior written consent of the City and the Contractor. The City may require, as a condition to such further subcontracting, that the Subcontractor post a payment bond in form, substance and amount acceptable to the City;

iii. require Subcontractors to submit all invoices and applications for payments, including any claims for additional payments, damages or otherwise, to the Contractor in sufficient time to enable the Contractor to include same with its invoice or application for payment to the City in accordance with the terms of the Contract;

iv. require that all Subcontractors obtain and maintain, throughout the term of their contract, insurance in the type and amounts specified for the Contractor, with the City being a named insured as its interest shall appear; and

v. require that the Subcontractor indemnify and hold the City harmless to the same extent as the Contractor is required to indemnify the City.

C. The Contractor shall be fully responsible to the City for all acts and omissions of the Subcontractors just as the Contractor is responsible for the Contractor's own acts and omissions. Nothing in the Contract shall create for the benefit of any such Subcontractor any contractual relationship between the City and any such Subcontractor, nor shall it create any obligation on the part of the City to pay or to see to the payment of any moneys due any such Subcontractor except as may otherwise be required by law.

D. The Contractor shall pay each Subcontractor its appropriate share of payments made to the Contractor not later than ten (10) calendar days after receipt of payment from the City.

19. **WARRANTY-PRICE**:

A. The Contractor warrants the prices quoted in the Offer are no higher than the Contractor's current prices on orders by others for like deliverables under similar terms of purchase.

B. The Contractor certifies that the prices in the Offer have been arrived at independently without consultation, communication, or agreement for the purpose of restricting competition, as to any matter relating to such fees with any other firm or with any competitor.

C. In addition to any other remedy available, the City may deduct from any amounts owed to the Contractor, or otherwise recover, any amounts paid for items in excess of the Contractor's current prices on orders by others for like deliverables under similar terms of purchase.

20. **WARRANTY – TITLE**: The Contractor warrants that it has good and indefeasible title to all deliverables furnished under the Contract, and that the deliverables are free and clear of all liens, claims, security interests and encumbrances. The Contractor shall indemnify and hold the City harmless from and against all adverse title claims to the deliverables.

21. **WARRANTY – DELIVERABLES**: The Contractor warrants and represents that all deliverables sold the City under the Contract shall be free from defects in design, workmanship or manufacture, and conform in all material respects to the specifications, drawings, and descriptions

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in the Solicitation, to any samples furnished by the Contractor, to the terms, covenants and conditions of the Contract, and to all applicable State, Federal or local laws, rules, and regulations, and industry codes and standards. Unless otherwise stated in the Solicitation, the deliverables shall be new or recycled merchandise, and not used or reconditioned.

A. Recycled deliverables shall be clearly identified as such.

B. The Contractor may not limit, exclude or disclaim the foregoing warranty or any warranty implied by law; and any attempt to do so shall be without force or effect.

C. Unless otherwise specified in the Contract, the warranty period shall be at least one year from the date of acceptance of the deliverables or from the date of acceptance of any replacement deliverables. If during the warranty period, one or more of the above warranties are breached, the Contractor shall promptly upon receipt of demand either repair the non-conforming deliverables, or replace the non-conforming deliverables with fully conforming deliverables, at the City's option and at no additional cost to the City. All costs incidental to such repair or replacement, including but not limited to, any packaging and shipping costs shall be borne exclusively by the Contractor. The City shall endeavor to give the Contractor written notice of the breach of warranty within thirty (30) calendar days of discovery of the breach of warranty, but failure to give timely notice shall not impair the City's rights under this section.

D. If the Contractor is unable or unwilling to repair or replace defective or non-conforming deliverables as required by the City, then in addition to any other available remedy, the City may reduce the quantity of deliverables it may be required to purchase under the Contract from the Contractor, and purchase conforming deliverables from other sources. In such event, the Contractor shall pay to the City upon demand the increased cost, if any, incurred by the City to procure such deliverables from another source.

E. If the Contractor is not the manufacturer, and the deliverables are covered by a separate manufacturer's warranty, the Contractor shall transfer and assign such manufacturer's warranty to the City. If for any reason the manufacturer's warranty cannot be fully transferred to the City, the Contractor shall assist and cooperate with the City to the fullest extent to enforce such manufacturer's warranty for the benefit of the City.

22. **WARRANTY – SERVICES**: The Contractor warrants and represents that all services to be provided the City under the Contract will be fully and timely performed in a good and workmanlike manner in accordance with generally accepted industry standards and practices, the terms, conditions, and covenants of the Contract, and all applicable Federal, State and local laws, rules or regulations.

A. The Contractor may not limit, exclude or disclaim the foregoing warranty or any warranty implied by law, and any attempt to do so shall be without force or effect.

B. Unless otherwise specified in the Contract, the warranty period shall be at least one year from the Acceptance Date. If during the warranty period, one or more of the above warranties are breached, the Contractor shall promptly upon receipt of demand perform the services again in accordance with above standard at no additional cost to the City. All costs incidental to such additional performance shall be borne by the Contractor. The City shall endeavor to give the Contractor written notice of the breach of warranty within thirty (30) calendar days of discovery of the breach warranty, but failure to give timely notice shall not impair the City's rights under this section.

C. If the Contractor is unable or unwilling to perform its services in accordance with the above standard as required by the City, then in addition to any other available remedy, the City may reduce the amount of services it may be required to purchase under the Contract from the Contractor, and purchase conforming services from other sources. In such event, the Contractor

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shall pay to the City upon demand the increased cost, if any, incurred by the City to procure such services from another source.

23. **ACCEPTANCE OF INCOMPLETE OR NON-CONFORMING DELIVERABLES**: If, instead of requiring immediate correction or removal and replacement of defective or non-conforming deliverables, the City prefers to accept it, the City may do so. The Contractor shall pay all claims, costs, losses and damages attributable to the City's evaluation of and determination to accept such defective or non-conforming deliverables. If any such acceptance occurs prior to final payment, the City may deduct such amounts as are necessary to compensate the City for the diminished value of the defective or non-conforming deliverables. If the acceptance occurs after final payment, such amount will be refunded to the City by the Contractor.

24. **RIGHT TO ASSURANCE**: Whenever one party to the Contract in good faith has reason to question the other party's intent to perform, demand may be made to the other party for written assurance of the intent to perform. In the event that no assurance is given within the time specified after demand is made, the demanding party may treat this failure as an anticipatory repudiation of the Contract.

25. **STOP WORK NOTICE**: The City may issue an immediate Stop Work Notice in the event the Contractor is observed performing in a manner that is in violation of Federal, State, or local guidelines, or in a manner that is determined by the City to be unsafe to either life or property. Upon notification, the Contractor will cease all work until notified by the City that the violation or unsafe condition has been corrected. The Contractor shall be liable for all costs incurred by the City as a result of the issuance of such Stop Work Notice.

26. **DEFAULT**: The Contractor shall be in default under the Contract if the Contractor (a) fails to fully, timely and faithfully perform any of its material obligations under the Contract, (b) fails to provide adequate assurance of performance under Paragraph 24, (c) becomes insolvent or seeks relief under the bankruptcy laws of the United States or (d) makes a material misrepresentation in Contractor's Offer, or in any report or deliverable required to be submitted by the Contractor to the City.

27. **TERMINATION FOR CAUSE:** In the event of a default by the Contractor, the City shall have the right to terminate the Contract for cause, by written notice effective ten (10) calendar days, unless otherwise specified, after the date of such notice, unless the Contractor, within such ten (10) day period, cures such default, or provides evidence sufficient to prove to the City's reasonable satisfaction that such default does not, in fact, exist. In addition to any other remedy available under law or in equity, the City shall be entitled to recover all actual damages, costs, losses and expenses, incurred by the City as a result of the Contractor's default, including, without limitation, cost of cover, reasonable attorneys' fees, court costs, and prejudgment and post-judgment interest at the maximum lawful rate. Additionally, in the event of a default by the Contractor, the City may remove the Contractor from the City's vendor list for three (3) years and any Offer submitted by the Contractor may be disqualified for up to three (3) years. All rights and remedies under the Contract are cumulative and are not exclusive of any other right or remedy provided by law.

28. **TERMINATION WITHOUT CAUSE**: The City shall have the right to terminate the Contract, in whole or in part, without cause any time upon thirty (30) calendar days' prior written notice. Upon receipt of a notice of termination, the Contractor shall promptly cease all further work pursuant to the Contract, with such exceptions, if any, specified in the notice of termination. The

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City shall pay the Contractor, to the extent of funds Appropriated or otherwise legally available for such purposes, for all goods delivered and services performed and obligations incurred prior to the date of termination in accordance with the terms hereof.

29. **FRAUD**: Fraudulent statements by the Contractor on any Offer or in any report or deliverable required to be submitted by the Contractor to the City shall be grounds for the termination of the Contract for cause by the City and may result in legal action.

30. **DELAYS**:
A. The City may delay scheduled delivery or other due dates by written notice to the Contractor if the City deems it is in its best interest. If such delay causes an increase in the cost of the work under the Contract, the City and the Contractor shall negotiate an equitable adjustment for costs incurred by the Contractor in the Contract price and execute an amendment to the Contract. The Contractor must assert its right to an adjustment within thirty (30) calendar days from the date of receipt of the notice of delay. Failure to agree on any adjusted price shall be handled under the Dispute Resolution process specified in paragraph 49. However, nothing in this provision shall excuse the Contractor from delaying the delivery as notified.
B. Neither party shall be liable for any default or delay in the performance of its obligations under this Contract if, while and to the extent such default or delay is caused by acts of God, fire, riots, civil commotion, labor disruptions, sabotage, sovereign conduct, or any other cause beyond the reasonable control of such Party. In the event of default or delay in contract performance due to any of the foregoing causes, then the time for completion of the services will be extended; provided, however, in such an event, a conference will be held within three (3) business days to establish a mutually agreeable period of time reasonably necessary to overcome the effect of such failure to perform.

31. **INDEMNITY**:
A. Definitions:

i. "Indemnified Claims" shall include any and all claims, demands, suits, causes of action, judgments and liability of every character, type or description, including all reasonable costs and expenses of litigation, mediation or other alternate dispute resolution mechanism, including attorney and other professional fees for: (1) damage to or loss of the property of any person (including, but not limited to the City, the Contractor, their respective agents, officers, employees and subcontractors; the officers, agents, and employees of such subcontractors; and third parties); and/or (2) death, bodily injury, illness, disease, worker's compensation, loss of services, or loss of income or wages to any person (including but not limited to the agents, officers and employees of the City, the Contractor, the Contractor's subcontractors, and third parties), ii. "Fault" shall include the sale of defective or non-conforming deliverables, negligence, willful misconduct or a breach of any legally imposed strict liability standard.

B. **THE CONTRACTOR SHALL DEFEND (AT THE OPTION OF THE CITY), INDEMNIFY, AND HOLD THE CITY, ITS SUCCESSORS, ASSIGNS, OFFICERS, EMPLOYEES AND ELECTED OFFICIALS HARMLESS FROM AND AGAINST ALL INDEMNIFIED CLAIMS DIRECTLY ARISING OUT OF, INCIDENT TO, CONCERNING OR RESULTING FROM THE FAULT OF THE CONTRACTOR, OR THE CONTRACTOR'S AGENTS, EMPLOYEES OR SUBCONTRACTORS, IN THE PERFORMANCE OF THE CONTRACTOR'S OBLIGATIONS UNDER THE**

CONTRACT. NOTHING HEREIN SHALL BE DEEMED TO LIMIT THE RIGHTS OF THE CITY OR THE CONTRACTOR (INCLUDING, BUT NOT LIMITED TO, THE RIGHT TO SEEK CONTRIBUTION) AGAINST ANY THIRD PARTY WHO MAY BE LIABLE FOR AN INDEMNIFIED CLAIM.

32. **INSURANCE**: The following insurance requirements are applicable, in addition to the specific insurance requirements detailed in **Appendix A** for services only**.** The successful firm shall procure and maintain insurance of the types and in the minimum amounts acceptable to the City of Denton. The insurance shall be written by a company licensed to do business in the State of Texas and satisfactory to the City of Denton.

A. General Requirements:

i. The Contractor shall at a minimum carry insurance in the types and amounts indicated and agreed to, as submitted to the City and approved by the City within the procurement process, for the duration of the Contract, including extension options and hold over periods, and during any warranty period.

ii. The Contractor shall provide Certificates of Insurance with the coverage's and endorsements required to the City as verification of coverage prior to contract execution and within fourteen (14) calendar days after written request from the City. Failure to provide the required Certificate of Insurance may subject the Offer to disqualification from consideration for award. The Contractor must also forward a Certificate of Insurance to the City whenever a previously identified policy period has expired, or an extension option or hold over period is exercised, as verification of continuing coverage.

iii. The Contractor shall not commence work until the required insurance is obtained and until such insurance has been reviewed by the City. Approval of insurance by the City shall not relieve or decrease the liability of the Contractor hereunder and shall not be construed to be a limitation of liability on the part of the Contractor.

iv. The Contractor must submit certificates of insurance to the City for all subcontractors prior to the subcontractors commencing work on the project.

v. The Contractor's and all subcontractors' insurance coverage shall be written by companies licensed to do business in the State of Texas at the time the policies are issued and shall be written by companies with A.M. Best ratings of **A- VII or better**. The City will accept workers' compensation coverage written by the Texas Workers' Compensation Insurance Fund.

vi. All endorsements naming the City as additional insured, waivers, and notices of cancellation endorsements as well as the Certificate of Insurance shall contain the solicitation number and the following information:

City of Denton
Materials Management Department
901B Texas Street
Denton, Texas 76209

vii. The "other" insurance clause shall not apply to the City where the City is an additional insured shown on any policy. It is intended that policies required in the Contract, covering both the City and the Contractor, shall be considered primary coverage as applicable.

viii. If insurance policies are not written for amounts agreed to with the City, the Contractor shall carry Umbrella or Excess Liability Insurance for any differences in amounts specified. If Excess Liability Insurance is provided, it shall follow the form of the primary coverage.

ix. The City shall be entitled, upon request, at an agreed upon location, and without expense, to review certified copies of policies and endorsements thereto and may make any

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reasonable requests for deletion or revision or modification of particular policy terms, conditions, limitations, or exclusions except where policy provisions are established by law or regulations binding upon either of the parties hereto or the underwriter on any such policies.

x. The City reserves the right to review the insurance requirements set forth during the effective period of the Contract and to make reasonable adjustments to insurance coverage, limits, and exclusions when deemed necessary and prudent by the City based upon changes in statutory law, court decisions, the claims history of the industry or financial condition of the insurance company as well as the Contractor.

xi. The Contractor shall not cause any insurance to be canceled nor permit any insurance to lapse during the term of the Contract or as required in the Contract.

xii. The Contractor shall be responsible for premiums, deductibles and self-insured retentions, if any, stated in policies. All deductibles or self-insured retentions shall be disclosed on the Certificate of Insurance.

xiii. The Contractor shall endeavor to provide the City thirty (30) calendar days' written notice of erosion of the aggregate limits below occurrence limits for all applicable coverage's indicated within the Contract.

xiv. The insurance coverage's specified in within the solicitation and requirements are required minimums and are not intended to limit the responsibility or liability of the Contractor.

B. Specific Coverage Requirements: Specific insurance requirements are contained in the solicitation instrument.

33. **CLAIMS**: If any claim, demand, suit, or other action is asserted against the Contractor which arises under or concerns the Contract, or which could have a material adverse effect on the Contractor's ability to perform thereunder, the Contractor shall give written notice thereof to the City within ten (10) calendar days after receipt of notice by the Contractor. Such notice to the City shall state the date of notification of any such claim, demand, suit, or other action; the names and addresses of the claimant(s); the basis thereof; and the name of each person against whom such claim is being asserted. Such notice shall be delivered personally or by mail and shall be sent to the City and to the Denton City Attorney. Personal delivery to the City Attorney shall be to City Hall, 215 East McKinney Street, Denton, Texas 76201.

34. **NOTICES**: Unless otherwise specified, all notices, requests, or other communications required or appropriate to be given under the Contract shall be in writing and shall be deemed delivered three (3) business days after postmarked if sent by U.S. Postal Service Certified or Registered Mail, Return Receipt Requested. Notices delivered by other means shall be deemed delivered upon receipt by the addressee. Routine communications may be made by first class mail, telefax, or other commercially accepted means. Notices to the Contractor shall be sent to the address specified in the Contractor's Offer, or at such other address as a party may notify the other in writing. Notices to the City shall be addressed to the City at 901B Texas Street, Denton, Texas 76209 and marked to the attention of the Purchasing Manager.

35. **RIGHTS TO BID, PROPOSAL AND CONTRACTUAL MATERIAL**: All material submitted by the Contractor to the City shall become property of the City upon receipt. Any portions of such material claimed by the Contractor to be proprietary must be clearly marked as such. Determination of the public nature of the material is subject to the Texas Public Information Act, Chapter 552, and Texas Government Code.

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36. **NO WARRANTY BY CITY AGAINST INFRINGEMENTS**: The Contractor represents and warrants to the City that: (i) the Contractor shall provide the City good and indefeasible title to the deliverables and (ii) the deliverables supplied by the Contractor in accordance with the specifications in the Contract will not infringe, directly or contributorily, any patent, trademark, copyright, trade secret, or any other intellectual property right of any kind of any third party; that no claims have been made by any person or entity with respect to the ownership or operation of the deliverables and the Contractor does not know of any valid basis for any such claims. The Contractor shall, at its sole expense, defend, indemnify, and hold the City harmless from and against all liability, damages, and costs (including court costs and reasonable fees of attorneys and other professionals) arising out of or resulting from: (i) any claim that the City's exercise anywhere in the world of the rights associated with the City's' ownership, and if applicable, license rights, and its use of the deliverables infringes the intellectual property rights of any third party; or (ii) the Contractor's breach of any of Contractor's representations or warranties stated in this Contract. In the event of any such claim, the City shall have the right to monitor such claim or at its option engage its own separate counsel to act as co-counsel on the City's behalf. Further, Contractor agrees that the City's specifications regarding the deliverables shall in no way diminish Contractor's warranties or obligations under this paragraph and the City makes no warranty that the production, development, or delivery of such deliverables will not impact such warranties of Contractor.

37. **CONFIDENTIALITY**: In order to provide the deliverables to the City, Contractor may require access to certain of the City's and/or its licensors' confidential information (including inventions, employee information, trade secrets, confidential know-how, confidential business information, and other information which the City or its licensors consider confidential) (collectively, "Confidential Information"). Contractor acknowledges and agrees that the Confidential Information is the valuable property of the City and/or its licensors and any unauthorized use, disclosure, dissemination, or other release of the Confidential Information will substantially injure the City and/or its licensors. The Contractor (including its employees, subcontractors, agents, or representatives) agrees that it will maintain the Confidential Information in strict confidence and shall not disclose, disseminate, copy, divulge, recreate, or otherwise use the Confidential Information without the prior written consent of the City or in a manner not expressly permitted under this Agreement, unless the Confidential Information is required to be disclosed by law or an order of any court or other governmental authority with proper jurisdiction, provided the Contractor promptly notifies the City before disclosing such information so as to permit the City reasonable time to seek an appropriate protective order. The Contractor agrees to use protective measures no less stringent than the Contractor uses within its own business to protect its own most valuable information, which protective measures shall under all circumstances be at least reasonable measures to ensure the continued confidentiality of the Confidential Information.

38. **OWNERSHIP AND USE OF DELIVERABLES**: The City shall own all rights, titles, and interests throughout the world in and to the deliverables.
A. Patents. As to any patentable subject matter contained in the deliverables, the Contractor agrees to disclose such patentable subject matter to the City. Further, if requested by the City, the Contractor agrees to assign and, if necessary, cause each of its employees to assign the entire right, title, and interest to specific inventions under such patentable subject matter to the City and to execute, acknowledge, and deliver and, if necessary, cause each of its employees to execute, acknowledge, and deliver an assignment of letters patent, in a form to be reasonably approved by

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the City, to the City upon request by the City.
B. Copyrights. As to any deliverables containing copyrightable subject matter, the Contractor agrees that upon their creation, such deliverables shall be considered as work made-for-hire by the Contractor for the City and the City shall own all copyrights in and to such deliverables, provided however, that nothing in this Paragraph 38 shall negate the City's sole or joint ownership of any such deliverables arising by virtue of the City's sole or joint authorship of such deliverables. Should by operation of law, such deliverables not be considered works made-for-hire, the Contractor hereby assigns to the City (and agrees to cause each of its employees providing services to the City hereunder to execute, acknowledge, and deliver an assignment to the City of) all worldwide right, title, and interest in and to such deliverables. With respect to such work made-for-hire, the Contractor agrees to execute, acknowledge, and deliver and cause each of its employees providing services to the City hereunder to execute, acknowledge, and deliver a work-made-for-hire agreement, in a form to be reasonably approved by the City, to the City upon delivery of such deliverables to the City or at such other time as the City may request.
C. Additional Assignments. The Contractor further agrees to, and if applicable, cause each of its employees to, execute, acknowledge, and deliver all applications, specifications, oaths, assignments, and all other instruments which the City might reasonably deem necessary in order to apply for and obtain copyright protection, mask work registration, trademark registration and/or protection, letters patent, or any similar rights in any and all countries and in order to assign and convey to the City, its successors, assigns and nominees, the sole and exclusive right, title, and interest in and to the deliverables. The Contractor's obligations to execute, acknowledge, and deliver (or cause to be executed, acknowledged, and delivered) instruments or papers such as those described in this Paragraph 38 a., b., and c. shall continue after the termination of this Contract with respect to such deliverables. In the event the City should not seek to obtain copyright protection, mask work registration or patent protection for any of the deliverables, but should desire to keep the same secret, the Contractor agrees to treat the same as Confidential Information under the terms of Paragraph 37 above.

39. **PUBLICATIONS**: All published material and written reports submitted under the Contract must be originally developed material unless otherwise specifically provided in the Contract. When material not originally developed is included in a report in any form, the source shall be identified.

40. **ADVERTISING**: The Contractor shall not advertise or publish, without the City's prior consent, the fact that the City has entered into the Contract, except to the extent required by law.

41. **NO CONTINGENT FEES**: The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure the Contract upon any agreement or understanding for commission, percentage, brokerage, or contingent fee, excepting bona fide employees of bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, the City shall have the right, in addition to any other remedy available, to cancel the Contract without liability and to deduct from any amounts owed to the Contractor, or otherwise recover, the full amount of such commission, percentage, brokerage or contingent fee.

42. **GRATUITIES**: The City may, by written notice to the Contractor, cancel the Contract without liability if it is determined by the City that gratuities were offered or given by the Contractor or any agent or representative of the Contractor to any officer or employee of the City of Denton with

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a view toward securing the Contract or securing favorable treatment with respect to the awarding or amending or the making of any determinations with respect to the performing of such contract. In the event the Contract is canceled by the City pursuant to this provision, the City shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by the Contractor in providing such gratuities.

43. **PROHIBITION AGAINST PERSONAL INTEREST IN CONTRACTS**: No officer, employee, independent consultant, or elected official of the City who is involved in the development, evaluation, or decision-making process of the performance of any solicitation shall have a financial interest, direct or indirect, in the Contract resulting from that solicitation as defined in the City's Ethic Ordinance 18-757 and in the City Charter chapter 2 article XI(Ethics). Any willful violation of this section shall constitute impropriety in office, and any officer or employee guilty thereof shall be subject to disciplinary action up to and including dismissal. Any violation of this provision, with the knowledge, expressed or implied, of the Contractor shall render the Contract voidable by the City. The Contractor shall complete and submit the City's Conflict of Interest Questionnaire.

44. **INDEPENDENT CONTRACTOR**: The Contract shall not be construed as creating an employer/employee relationship, a partnership, or a joint venture. The Contractor's services shall be those of an independent contractor. The Contractor agrees and understands that the Contract does not grant any rights or privileges established for employees of the City of Denton, Texas for the purposes of income tax, withholding, social security taxes, vacation or sick leave benefits, worker's compensation, or any other City employee benefit. The City shall not have supervision and control of the Contractor or any employee of the Contractor, and it is expressly understood that Contractor shall perform the services hereunder according to the attached specifications at the general direction of the City Manager of the City of Denton, Texas, or their designee under this agreement. The contractor is expressly free to advertise and perform services for other parties while performing services for the City.

45. **ASSIGNMENT-DELEGATION**: The Contract shall be binding upon and ensure to the benefit of the City and the Contractor and their respective successors and assigns, provided however, that no right or interest in the Contract shall be assigned and no obligation shall be delegated by the Contractor without the prior written consent of the City. Any attempted assignment or delegation by the Contractor shall be void unless made in conformity with this paragraph. The Contract is not intended to confer rights or benefits on any person, firm or entity not a party hereto; it being the intention of the parties that there are no third party beneficiaries to the Contract.
The Vendor shall notify the City's Purchasing Manager, in writing, of a company name, ownership, or address change for the purpose of maintaining updated City records. The president of the company or authorized official must sign the letter. A letter indicating changes in a company name or ownership must be accompanied with supporting legal documentation such as an updated W-9, documents filed with the state indicating such change, copy of the board of director's resolution approving the action, or an executed merger or acquisition agreement. Failure to do so may adversely impact future invoice payments.

46. **WAIVER**: No claim or right arising out of a breach of the Contract can be discharged in whole or in part by a waiver or renunciation of the claim or right unless the waiver or renunciation is

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supported by consideration and is in writing signed by the aggrieved party. No waiver by either the Contractor or the City of any one or more events of default by the other party shall operate as, or be construed to be, a permanent waiver of any rights or obligations under the Contract, or an express or implied acceptance of any other existing or future default or defaults, whether of a similar or different character.

47. **MODIFICATIONS**: The Contract can be modified or amended only by a writing signed by both parties. No pre-printed or similar terms on any the Contractor invoice, order or other document shall have any force or effect to change the terms, covenants, and conditions of the Contract.

48. **INTERPRETATION**: The Contract is intended by the parties as a final, complete and exclusive statement of the terms of their agreement. No course of prior dealing between the parties or course of performance or usage of the trade shall be relevant to supplement or explain any term used in the Contract. Although the Contract may have been substantially drafted by one party, it is the intent of the parties that all provisions be construed in a manner to be fair to both parties, reading no provisions more strictly against one party or the other. Whenever a term defined by the Uniform Commercial Code, as enacted by the State of Texas, is used in the Contract, the UCC definition shall control, unless otherwise defined in the Contract.

49. **DISPUTE RESOLUTION**:
A. If a dispute arises out of or relates to the Contract, or the breach thereof, the parties agree to negotiate prior to prosecuting a suit for damages. However, this section does not prohibit the filing of a lawsuit to toll the running of a statute of limitations or to seek injunctive relief. Either party may make a written request for a meeting between representatives of each party within fourteen (14) calendar days after receipt of the request or such later period as agreed by the parties. Each party shall include, at a minimum, one (1) senior level individual with decision-making authority regarding the dispute. The purpose of this and any subsequent meeting is to attempt in good faith to negotiate a resolution of the dispute. If, within thirty (30) calendar days after such meeting, the parties have not succeeded in negotiating a resolution of the dispute, they will proceed directly to mediation as described below. Negotiation may be waived by a written agreement signed by both parties, in which event the parties may proceed directly to mediation as described below.
B. If the efforts to resolve the dispute through negotiation fail, or the parties waive the negotiation process, the parties may select, within thirty (30) calendar days, a mediator trained in mediation skills to assist with resolution of the dispute. Should they choose this option; the City and the Contractor agree to act in good faith in the selection of the mediator and to give consideration to qualified individuals nominated to act as mediator. Nothing in the Contract prevents the parties from relying on the skills of a person who is trained in the subject matter of the dispute or a contract interpretation expert. If the parties fail to agree on a mediator within thirty (30) calendar days of initiation of the mediation process, the mediator shall be selected by the Denton County Alternative Dispute Resolution Program (DCAP). The parties agree to participate in mediation in good faith for up to thirty (30) calendar days from the date of the first mediation session. The City and the Contractor will share the mediator's fees equally and the parties will bear their own costs of participation such as fees for any consultants or attorneys they may utilize to represent them or otherwise assist them in the mediation.

50. **JURISDICTION AND VENUE**: The Contract is made under and shall be governed by the laws of the State of Texas, including, when applicable, the Uniform Commercial Code as adopted

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in Texas, V.T.C.A., Bus. & Comm. Code, Chapter 1, excluding any rule or principle that would refer to and apply the substantive law of another state or jurisdiction. All issues arising from this Contract shall be resolved in the courts of Denton County, Texas and the parties agree to submit to the exclusive personal jurisdiction of such courts. The foregoing, however, shall not be construed or interpreted to limit or restrict the right or ability of the City to seek and secure injunctive relief from any competent authority as contemplated herein.

51. **INVALIDITY**: The invalidity, illegality, or unenforceability of any provision of the Contract shall in no way affect the validity or enforceability of any other portion or provision of the Contract. Any void provision shall be deemed severed from the Contract and the balance of the Contract shall be construed and enforced as if the Contract did not contain the particular portion or provision held to be void. The parties further agree to reform the Contract to replace any stricken provision with a valid provision that comes as close as possible to the intent of the stricken provision. The provisions of this section shall not prevent this entire Contract from being void should a provision which is the essence of the Contract be determined to be void.

52. **HOLIDAYS:** The following holidays are observed by the City:

New Year's Day (observed)
Martin Luther King, Jr. Day
Memorial Day
Juneteenth
Independence Day
Labor Day
Veterans Day
Thanksgiving
Friday After Thanksgiving
Christmas Eve (observed)
Christmas Day (observed)

If a Legal Holiday falls on Saturday, it will be observed on the preceding Friday. If a Legal Holiday falls on Sunday, it will be observed on the following Monday. Normal hours of operation shall be between 8:00 am and 4:00 pm, Monday through Friday, excluding City of Denton Holidays. Any scheduled deliveries or work performance not within the normal hours of operation **must be approved** by the City Manager of Denton, Texas or their authorized designee.

53. **SURVIVABILITY OF OBLIGATIONS:** All provisions of the Contract that impose continuing obligations on the parties, including but not limited to the warranty, indemnity, and confidentiality obligations of the parties, shall survive the expiration or termination of the Contract.

54. **NON-SUSPENSION OR DEBARMENT CERTIFICATION:**
The City of Denton is prohibited from contracting with or making prime or sub-awards to parties that are suspended or debarred or whose principals are suspended or debarred from Federal, State, or City of Denton Contracts. By accepting a Contract with the City, the Vendor certifies that its firm and its principals are not currently suspended or debarred from doing business with the Federal Government, as indicated by the General Services Administration List of Parties Excluded from Federal Procurement and Non-Procurement Programs, the State of Texas, or the City of Denton.

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55. **EQUAL OPPORTUNITY**

A. **Equal Employment Opportunity:** No Offeror, or Offeror's agent, shall engage in any discriminatory employment practice. No person shall, on the grounds of race, sex, sexual orientation, age, disability, creed, color, genetic testing, or national origin, be refused the benefits of, or be otherwise subjected to discrimination under any activities resulting from this RFQ.

B. **Americans with Disabilities Act (ADA) Compliance:** No Offeror, or Offeror's agent, shall engage in any discriminatory employment practice against individuals with disabilities as defined in the ADA.

56. **BUY AMERICAN ACT-SUPPLIES (Applicable to certain federally funded requirements)**

The following federally funded requirements are applicable. A. Definitions. As used in this paragraph –

i. "Component" means an article, material, or supply incorporated directly into an end product.

ii. "Cost of components" means -

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the end product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

iii. "Domestic end product" means-

(1) An unmanufactured end product mined or produced in the United States; or

(2) An end product manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind as those that the agency determines are not mined, produced, or manufactured in sufficient and reasonably available commercial quantities of a satisfactory quality are treated as domestic. Scrap generated, collected, and prepared for processing in the United States is considered domestic.

iv. "End product" means those articles, materials, and supplies to be acquired under the contract for public use.

v. "Foreign end product" means an end product other than a domestic end product.

vi. "United States" means the 50 States, the District of Columbia, and outlying areas.

B. The Buy American Act (41 U.S.C. 10a - 10d) provides a preference for domestic end products for supplies acquired for use in the United States.

C. The City does not maintain a list of foreign articles that will be treated as domestic for this Contract; but will consider for approval foreign articles as domestic for this product if the articles are on a list approved by another Governmental Agency. The Offeror shall submit documentation with their Offer demonstrating that the article is on an approved Governmental list.

D. The Contractor shall deliver only domestic end products except to the extent that it specified delivery of foreign end products in the provision of the Solicitation entitled "Buy American Act Certificate".

57. **RIGHT TO INFORMATION:** The City of Denton reserves the right to use any and all information presented in any response to this contract, whether amended or not, except as prohibited by law. Selection of rejection of the submittal does not affect this right.

58. **LICENSE FEES OR TAXES:** Provided the solicitation requires an awarded contractor or

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supplier to be licensed by the State of Texas, any and all fees and taxes are the responsibility of the respondent.

59. **PREVAILING WAGE RATES:** The contractor shall comply with prevailing wage rates as defined by the United States Department of Labor Davis-Bacon Wage Determination at http://www.dol.gov/whd/contracts/dbra.htm and at the Wage Determinations website www.wdol.gov for Denton County, Texas (WD-2509).

60. **COMPLIANCE WITH ALL STATE, FEDERAL, AND LOCAL LAWS:** The contractor or supplier shall comply with all State, Federal, and Local laws and requirements. The Respondent must comply with all applicable laws at all times, including, without limitation, the following: (i) §36.02 of the Texas Penal Code, which prohibits bribery; (ii) §36.09 of the Texas Penal Code, which prohibits the offering or conferring of benefits to public servants. The Respondent shall give all notices and comply with all laws and regulations applicable to furnishing and performance of the Contract.

61. **FEDERAL, STATE, AND LOCAL REQUIREMENTS:** Respondent shall demonstrate on-site compliance with the Federal Tax Reform Act of 1986, Section 1706, amending Section 530 of the Revenue Act of 1978, dealing with issuance of Form W-2's to common law employees. Respondent is responsible for both federal and State unemployment insurance coverage and standard Workers' Compensation insurance coverage. Respondent shall ensure compliance with all federal and State tax laws and withholding requirements. The City of Denton shall not be liable to Respondent or its employees for any Unemployment or Workers' Compensation coverage, or federal or State withholding requirements. Contractor shall indemnify the City of Denton and shall pay all costs, penalties, or losses resulting from Respondent's omission or breach of this Section.

62. **DRUG FREE WORKPLACE:** The contractor shall comply with the applicable provisions of the Drug-Free Work Place Act of 1988 (Public Law 100-690, Title V, Subtitle D; 41 U.S.C. 701 ET SEQ.) and maintain a drug-free work environment; and the final rule, government-wide requirements for drug-free work place (grants), issued by the Office of Management and Budget and the Department of Defense (32 CFR Part 280, Subpart F) to implement the provisions of the Drug-Free Work Place Act of 1988 is incorporated by reference and the contractor shall comply with the relevant provisions thereof, including any amendments to the final rule that may hereafter be issued.

63. **RESPONDENT LIABILITY FOR DAMAGE TO GOVERNMENT PROPERTY:** The Respondent shall be liable for all damages to government-owned, leased, or occupied property and equipment caused by the Respondent and its employees, agents, subcontractors, and suppliers, including any delivery or cartage company, in connection with any performance pursuant to the Contract. The Respondent shall notify the City of Denton Procurement Manager in writing of any such damage within one (1) calendar day.

64. **FORCE MAJEURE:** The City of Denton, any Customer, and the Respondent shall not be responsible for performance under the Contract should it be prevented from performance by an act of war, order of legal authority, act of God, or other unavoidable cause not attributable to the fault or negligence of the City of Denton. In the event of an occurrence under this Section, the Respondent will be excused from any further performance or observance of the requirements so affected for as long as such circumstances prevail and the Respondent continues to use

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commercially reasonable efforts to recommence performance or observance whenever and to whatever extent possible without delay. The Respondent shall immediately notify the City of Denton Procurement Manager by telephone (to be confirmed in writing within five (5) calendar days of the inception of such occurrence) and describe at a reasonable level of detail the circumstances causing the non-performance or delay in performance.

65. **NON-WAIVER OF RIGHTS:** Failure of a Party to require performance by another Party under the Contract will not affect the right of such Party to require performance in the future. No delay, failure, or waiver of either Party's exercise or partial exercise of any right or remedy under the Contract shall operate to limit, impair, preclude, cancel, waive or otherwise affect such right or remedy. A waiver by a Party of any breach of any term of the Contract will not be construed as a waiver of any continuing or succeeding breach.

66. **NO WAIVER OF SOVEREIGN IMMUNITY:** The Parties expressly agree that no provision of the Contract is in any way intended to constitute a waiver by the City of Denton of any immunities from suit or from liability that the City of Denton may have by operation of law.

67. **RECORDS RETENTION:** The Respondent shall retain all financial records, supporting documents, statistical records, and any other records or books relating to the performances called for in the Contract. The Respondent shall retain all such records for a period of four (4) years after the expiration of the Contract, or until the CPA or State Auditor's Office is satisfied that all audit and litigation matters are resolved, whichever period is longer. The Respondent shall grant access to all books, records and documents pertinent to the Contract to the CPA, the State Auditor of Texas, and any federal governmental entity that has authority to review records due to federal funds being spent under the Contract.

Should a conflict arise between any of the contract documents, it shall be resolved with the following order of precedence (if applicable). In any event, the final negotiated contract shall take precedence over any and all contract documents to the extent of such conflict.

1. **Final negotiated contract**
2. **RFP/Bid documents**
3. **City's standard terms and conditions**
4. **Purchase order**
5. **Supplier terms and conditions**

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Exhibit C
Certificate of Interested Parties Electronic Filing

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that the City may not enter into this contract unless the Contractor submits a disclosure of interested parties (Form 1295) to the City at the time the Contractor submits the signed contract. The Texas Ethics Commission has adopted rules requiring the business entity to file Form 1295 electronically with the Commission.

Contractor will be required to furnish a Certificate of Interest Parties before the contract is awarded, in accordance with Government Code 2252.908.

The contractor shall:

1. Log onto the State Ethics Commission Website at : https://www.ethics.state.tx.us/filinginfo/1295/
2. Register utilizing the tutorial provided by the State
3. Print a copy of the completed Form 1295
4. Enter the Certificate Number on page 2 of this contract.
5. Complete and sign the Form 1295
6. Email the form to purchasing@cityofdenton.com with the contract number in the subject line. (EX: Contract 1234 – Form 1295)

The City must acknowledge the receipt of the filed Form 1295 not later than the 30th day after Council award. Once a Form 1295 is acknowledged, it will be posted to the Texas Ethics Commission's website within seven business days.

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EXHIBIT D

Quote

Date	Estimate #
1/9/2024	QUO5306

250 E Valley Ridge Blvd
Suite 100
Lewisville, TX 75057
www.aerowavetech.com

Client Name

DEN201 DENTON, CITY OF : Solid Waste & Recycling

Bill To

Ryan Mayer
ACCOUNTS PAYABLE
215 E MCKINNEY STREET
DENTON TX 76201-4299
United States

Ship To

DENTON, CITY OF
901A TEXAS STREET
DENTON TX 76209
United States

Expires	Memo	Sales Rep	Shipping Method
5/31/2024	Monthly Fees for TLK Radio Fleet	William Young	Delivery - Tech

Qty	Item Name	Item Description	Rate	Amount
	TITLE	Monthly Fees for TLK110 Radios		
17	TLK 110 Monthly Subscriptio...	Monthly WAVE Service Subscription - $28 per month per device. Monthly subscription billed by Aerowave.	28.00	476.00
	TITLE	Monthly Fees for TLK150 Truck Radios		
98	TLK 150 Monthly Subscription	Monthly WAVE Service Subscription - $25 per month per device. Monthly subscription billed by Aerowave.	25.00	2,450.00
	TITLE	Monthly Fees for TLK150 Base Stations		
3	TLK 150 Monthly Subscription	Monthly WAVE Service Subscription - $25 per month per device. Monthly subscription billed by Aerowave.	25.00	75.00
	TITLE	Monthly Fees for Wave Mobile App		
25	WAVE PTT MOBILE APP - ...	Monthly WAVE Mobile App Service Subscription - $8 per month per device. Monthly subscription billed by Aerowave.	8.00	200.00

All orders are subject to credit approval. 20% restocking charge on any returned goods. No goods may be returned without our express written permission. I have read and understand the the terms and conditions.

Client Signature _____ Date _____

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Quote

Date	Estimate #
1/9/2024	QUO5306

250 E Valley Ridge Blvd
Suite 100
Lewisville, TX 75057
www.aerowavetech.com

Client Name

DEN201 DENTON, CITY OF : Solid Waste & Recycling

Qty	Item Name	Item Description	Rate	Amount
1	Aerowave Delivery - Technician		0.00	0.00

Total	$3,201.00

EXHIBIT E

CONFLICT OF INTEREST QUESTIONNAIRE - FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a) and by City of Denton Ethics Code, Ordinance 18-757.
By law this questionnaire must be filed with the records administrator of the local government entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

1 **Name of vendor who has a business relationship with local governmental entity.**

AEROWAVE TECHNOLOGIES, LLC

2 [X] **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

_____
Name of Officer

Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relations hip with the local government officer. This section, (item 3 including subparts A, B, C & D), must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

[ ] Yes [X] No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

[ ] Yes [X] No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of one percent or more?

[ ] Yes [X] No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4 [ ] **I have no Conflict of Interest to disclose.**

5 DocuSigned by:
Cecilia Montalvo
538E691313454CD...
Signature of vendor doing business with the governmental entity

5/2/2024
Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/ Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(A) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

City of Denton Ethics Code Ordinance Number 18-757

Definitions:

Relative: a family member related to a City Official within the third 3rd degree of affinity (marriage) or consanguinity (blood or adoption)

City Official: for purpose of this article, the term consists of the Council Members, Department Heads, or member of the Board of Ethics, Planning and zoning Commission Members, Board of Adjustment, Historic Landmark Commission, or Public Utilities Board

Vendor: a person who provides or seeks to provide goods, services, and/or real property to the City in exchange for compensation. This definition does not include those property owners from whom the City acquires public right-of-way or other real property interests for public use.

Per the City of Denton Ethics Code, Section 2-273. – Prohibitions

(3) It shall be a violation of this Article for a Vendor to offer or give a Gift to City Official exceeding fifty dollars ($50.00) per gift, or multiple gifts cumulatively valued at more than two hundred dollars ($200.00) per a single fiscal year.

Per the City of Denton Ethics Code, Section 2-282. – Disposition (b), (5) Ineligibility

If the Board of Ethics finds that a Vendor has violated this Article, the Board may recommend to the City Manager that the Vendor be deemed ineligible to enter into a City contract or other arrangement for goods, services, or real property, for a period of one (1) year.

DocuSign

Certificate Of Completion

Envelope Id: 6D77C0CBE5E647B08FDD7F5286B84D7A

Status: Sent

Subject: Please DocuSign: City Council Contract 8536 Aerowave Mobile In-Cab Radio Subscription

Source Envelope:

Document Pages: 30

Signatures: 4

Certificate Pages: 6

Initials: 1

AutoNav: Enabled

EnvelopeId Stamping: Enabled

Time Zone: (UTC-06:00) Central Time (US & Canada)

Envelope Originator:
Crystal Westbrook
901B Texas Street
Denton, TX 76209
crystal.westbrook@cityofdenton.com
IP Address: 198.49.140.10

Record Tracking

Status: Original
4/19/2024 8:41:00 AM

Holder: Crystal Westbrook
crystal.westbrook@cityofdenton.com

Location: DocuSign

Signer Events	Signature	Timestamp
Crystal Westbrook crystal.westbrook@cityofdenton.com Senior Buyer City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	**Completed** Using IP Address: 198.49.140.10	Sent: 4/19/2024 8:46:01 AM Viewed: 4/19/2024 8:46:46 AM Signed: 4/19/2024 8:49:08 AM
Lori Hewell lori.hewell@cityofdenton.com Purchasing Manager City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DS LH Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.104	Sent: 4/19/2024 8:49:11 AM Viewed: 4/19/2024 8:52:35 AM Signed: 4/19/2024 8:52:49 AM
Marcella Lunn marcella.lunn@cityofdenton.com Senior Deputy City Attorney City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DocuSigned by: Marcella Lunn 4B070831B4AA438... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 4/19/2024 8:52:53 AM Viewed: 4/22/2024 12:12:47 PM Signed: 4/22/2024 12:16:57 PM
Cecilia Montalvo ceciliam@aerowavetech.com Controller Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 5/2/2024 2:54:34 PM ID: ae20ddb7-d062-42cd-be80-91e86ba3bc5e	DocuSigned by: Cecilia Montalvo 538E691313454CD... Signature Adoption: Pre-selected Style Using IP Address: 47.190.60.68	Sent: 4/22/2024 12:16:59 PM Viewed: 5/2/2024 2:54:34 PM Signed: 5/2/2024 3:02:37 PM

Signer Events	Signature	Timestamp
Brian Boerner brian.boerner@cityofdenton.com Director of Solid Waste Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 5/2/2024 3:37:50 PM ID: aae9e9b1-04a7-49de-9297-32ccb53ddb2d	DocuSigned by: Brian Boerner DCD14331B89A4A9... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 5/2/2024 3:02:40 PM Viewed: 5/2/2024 3:37:50 PM Signed: 5/2/2024 3:38:22 PM
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		Sent: 5/2/2024 3:38:26 PM
Sara Hensley sara.hensley@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Lauren Thoden lauren.thoden@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		

In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 4/19/2024 8:49:10 AM
Gretna Jones gretna.jones@cityofdenton.com Legal Secretary City of Denton Security Level: Email, Account Authentication (None)	COPIED	Sent: 5/2/2024 3:38:25 PM Viewed: 5/2/2024 4:19:56 PM

Carbon Copy Events	Status	Timestamp
Electronic Record and Signature Disclosure: Not Offered via DocuSign		
City Secretary Office citysecretary@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Brandi Neal brandi.neal@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	4/19/2024 8:46:01 AM

Payment Events	Status	Timestamps

Electronic Record and Signature Disclosure

ELECTRONIC RECORD AND SIGNATURE DISCLOSURE

From time to time, City of Denton (we, us or Company) may be required by law to provide to you certain written notices or disclosures. Described below are the terms and conditions for providing to you such notices and disclosures electronically through your DocuSign, Inc. (DocuSign) Express user account. Please read the information below carefully and thoroughly, and if you can access this information electronically to your satisfaction and agree to these terms and conditions, please confirm your agreement by clicking the 'I agree' button at the bottom of this document.

Getting paper copies

At any time, you may request from us a paper copy of any record provided or made available electronically to you by us. For such copies, as long as you are an authorized user of the DocuSign system you will have the ability to download and print any documents we send to you through your DocuSign user account for a limited period of time (usually 30 days) after such documents are first sent to you. After such time, if you wish for us to send you paper copies of any such documents from our office to you, you will be charged a $0.00 per-page fee. You may request delivery of such paper copies from us by following the procedure described below.

Withdrawing your consent

If you decide to receive notices and disclosures from us electronically, you may at any time change your mind and tell us that thereafter you want to receive required notices and disclosures only in paper format. How you must inform us of your decision to receive future notices and disclosure in paper format and withdraw your consent to receive notices and disclosures electronically is described below.

Consequences of changing your mind

If you elect to receive required notices and disclosures only in paper format, it will slow the speed at which we can complete certain steps in transactions with you and delivering services to you because we will need first to send the required notices or disclosures to you in paper format, and then wait until we receive back from you your acknowledgment of your receipt of such paper notices or disclosures. To indicate to us that you are changing your mind, you must withdraw your consent using the DocuSign 'Withdraw Consent' form on the signing page of your DocuSign account. This will indicate to us that you have withdrawn your consent to receive required notices and disclosures electronically from us and you will no longer be able to use your DocuSign Express user account to receive required notices and consents electronically from us or to sign electronically documents from us.

All notices and disclosures will be sent to you electronically

Unless you tell us otherwise in accordance with the procedures described herein, we will provide electronically to you through your DocuSign user account all required notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you during the course of our relationship with you. To reduce the chance of you inadvertently not receiving any notice or disclosure, we prefer to provide all of the required notices and disclosures to you by the same method and to the same address that you have given us. Thus, you can receive all the disclosures and notices electronically or in paper format through the paper mail delivery system. If you do not agree with this process, please let us know as described below. Please also see the paragraph immediately above that describes the consequences of your electing not to receive delivery of the notices and disclosures electronically from us.

How to contact City of Denton:
You may contact us to let us know of your changes as to how we may contact you electronically, to request paper copies of certain information from us, and to withdraw your prior consent to receive notices and disclosures electronically as follows:
To contact us by email send messages to: purchasing@cityofdenton.com

To advise City of Denton of your new e-mail address
To let us know of a change in your e-mail address where we should send notices and disclosures electronically to you, you must send an email message to us at melissa.kraft@cityofdenton.com and in the body of such request you must state: your previous e-mail address, your new e-mail address. We do not require any other information from you to change your email address..
In addition, you must notify DocuSign, Inc to arrange for your new email address to be reflected in your DocuSign account by following the process for changing e-mail in DocuSign.
To request paper copies from City of Denton
To request delivery from us of paper copies of the notices and disclosures previously provided by us to you electronically, you must send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail address, full name, US Postal address, and telephone number. We will bill you for any fees at that time, if any.
To withdraw your consent with City of Denton
To inform us that you no longer want to receive future notices and disclosures in electronic format you may:

i. decline to sign a document from within your DocuSign account, and on the subsequent page, select the check-box indicating you wish to withdraw your consent, or you may;
ii. send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail, full name, IS Postal Address, telephone number, and account number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

Required hardware and software

Operating Systems:	Windows2000? or WindowsXP?
Browsers (for SENDERS):	Internet Explorer 6.0? or above
Browsers (for SIGNERS):	Internet Explorer 6.0?, Mozilla FireFox 1.0, NetScape 7.2 (or above)
Email:	Access to a valid email account
Screen Resolution:	800 x 600 minimum
Enabled Security Settings:	•Allow per session cookies •Users accessing the internet behind a Proxy Server must enable HTTP 1.1 settings via proxy connection

** These minimum requirements are subject to change. If these requirements change, we will provide you with an email message at the email address we have on file for you at that time providing you with the revised hardware and software requirements, at which time you will have the right to withdraw your consent.

Acknowledging your access and consent to receive materials electronically
To confirm to us that you can access this information electronically, which will be similar to other electronic notices and disclosures that we will provide to you, please verify that you were able to read this electronic disclosure and that you also were able to print on paper or electronically save this page for your future reference and access or that you were able to e-mail this disclosure and consent to an address where you will be able to print on paper or save it for your future reference and access. Further, if you consent to receiving notices and disclosures exclusively in electronic format on the terms and conditions described above, please let us know by clicking the 'I agree' button below.
By checking the 'I Agree' box, I confirm that:

- I can access and read this Electronic CONSENT TO ELECTRONIC RECEIPT OF ELECTRONIC RECORD AND SIGNATURE DISCLOSURES document; and

- I can print on paper the disclosure or save or send the disclosure to a place where I can print it, for future reference and access; and

- Until or unless I notify City of Denton as described above, I consent to receive from exclusively through electronic means all notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to me by City of Denton during the course of my relationship with you.

File #: ID 24-1080, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, rejecting any and all competitive proposals under RFP 8429 for Substation Power Transformers; and providing an effective date (RFP 8429). The Public Utilities Board recommends approval (4 - 0).

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Procurement

ACM: Cassey Ogden

DATE: June 4, 2024

SUBJECT

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, rejecting any and all competitive proposals under RFP 8429 for Substation Power Transformers; and providing an effective date (RFP 8429). The Public Utilities Board recommends approval (4 - 0).

INFORMATION/BACKGROUND

The City of Denton issued a request for proposals (RFP) for the manufacturer, testing, and delivery of up to three substation power transformers for Denton Municipal Electric (DME) Capital Projects. A detailed technical specification and pricing sheet was provided for solicitation.

While solicited, potential bidders requested two extensions for additional time to allow them to receive pricing from their vendors. Even with the extensions, only one bid was received. After evaluating the proposals, it was recommended to reject the sole bid due to high cost, unreliable designs based on reference feedback, and exceptions to DME technical specifications. DME plans to re-solicit or find a cooperative contract to use.

This decision aligns with the Local Government Code 252.043, which permits the City Council to reject all bids if necessary.

PRIOR ACTION/REVIEW (COUNCIL, BOARDS, COMMISSIONS)

On May 20, 2024, the Public Utilities Board (PUB) recommended this item to the City Council for consideration.

RECOMMENDATION

Staff recommends rejection of all proposals for the Substation Power Transformers.

EXHIBITS

Exhibit 1: Agenda Information Sheet
Exhibit 2: Ordinance

Respectfully submitted:
Lori Hewell, 940-349-7100
Purchasing Manager

For information concerning this acquisition, contact: Mark Zimmerer, 940-349-7169.

Legal point of contact: Marcella Lunn at 940-349-8333.

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, A TEXAS HOME-RULE MUNICIPAL CORPORATION, REJECTING ANY AND ALL COMPETITIVE PROPOSALS UNDER RFP 8429 FOR SUBSTATION POWER TRANSFORMERS; AND PROVIDING AN EFFECTIVE DATE (RFP 8429).

WHEREAS, the City has solicited, received, and tabulated competitive proposals to evaluate Substation Power Transformers (RFP 8429) in accordance with the procedures of state laws and the City's ordinances; and

WHEREAS, the City staff recommends, and the City Council has determined, that it is in the best interest of the City that the herein described proposals should be rejected; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. All competitive proposals, as described in the "Request for Proposal", "Bid Proposals", or plans and specifications on file in the Office of the City's Purchasing Agent filed according to the bid number assigned herein (RFP 8429 – Substation Power Transformers) are hereby rejected.

SECTION 2. The City Manager, or their designee, is hereby authorized to execute all necessary documents for the rejection of said proposals. The City Manager, or their designee, is hereby authorized, in their discretion, to re-advertise to receive competitive bids, or proceed otherwise, to procure goods and services described in RFP 8429.

SECTION 3. The City Council of the City of Denton hereby expressly delegates the authority to take any actions that may be required or permitted to be performed by the City of Denton under the RFP 8429 to reject said proposals to the City Manager, or their designee.

SECTION 4. This ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____. This ordinance was passed and approved by the following vote [___ - ___]:

	Aye	Nay	Abstain	Absent
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: _____

File #: ID 24-1081, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Pethealth Services (USA) Inc., for microchips and cloud-based data management software for Denton Animal Services; providing for the expenditure of funds therefor; and providing an effective date (RFP 8500 - awarded to Pethealth Services (USA) Inc., for one (1) year, with the option for four (4) additional one (1) year extensions, in the total five (5) year not-to-exceed amount of $207,000.00).

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Procurement

ACM: Cassey Ogden

DATE: June 4, 2024

SUBJECT

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Pethealth Services (USA) Inc., for microchips and cloud-based data management software for Denton Animal Services; providing for the expenditure of funds therefor; and providing an effective date (RFP 8500 – awarded to Pethealth Services (USA) Inc., for one (1) year, with the option for four (4) additional one (1) year extensions, in the total five (5) year not-to-exceed amount of $207,000.00).

STRATEGIC ALIGNMENT

This action supports Key Focus Area: Support Healthy and Safe Communities.

INFORMATION/BACKGROUND

The Linda McNatt Animal Care & Adoption Center serves as a vital hub for animal care and reunification efforts within the Denton community. The procurement of a cloud-based data management system and microchips will play a pivotal role in enhancing operational efficiency and improving service delivery. It will facilitate the tracking of all animal dispositions, including intake, outcomes, and clinical procedures such as microchipping, sterilizations, euthanasia, and other medical interventions. The software is accessible from any location with internet connectivity, ensuring real-time access to critical animal data for authorized staff, including field personnel.

Recently, changes to Chapter 6 of the Code of Ordinances, Sec. 6-14 Registering of cats and dogs, resulted in microchipping requirements, allowing for the microchipping of all animals upon intake and allowing for Animal Services to offer microchipping services to the public for a nominal fee to be set by Council. Microchips serve as a crucial tool in identifying and reuniting lost pets with their owners.

Previously, contract 8160 was executed on December 31, 2022, with a not-to-exceed (NTE) value of $49,000. In the fiscal year 2022-2023, a total expenditure of $15,000 was incurred. This expenditure breakdown includes $4,000 allocated for the implementation of the data management system and $11,000 designated for the purchase of 2,000 microchips. With increases in both people and pet populations, staff anticipates this number will increase each year.

The procurement of a cloud-based data management system represents a significant step forward in enhancing the operational capabilities and animal welfare services provided by Denton Animal Services. By integrating microchip technology and comprehensive data management functionalities, the system will

contribute to more efficient operations, improved animal identification, and enhanced reunification efforts within the community.

Project Description	Estimated 5-Year Expenditure
Year 1	$41,400
Year 2	41,400
Year 3	41,400
Year 4	41,400
Year 5	41,400
Total	**$207,000**

Request for Proposals was sent to 78 prospective suppliers, including three (3) Denton firms. In addition, specifications were placed on the Procurement website for prospective suppliers to download and advertised in the local newspaper. Two (2) proposals were received, references were checked, and proposals were evaluated based upon published criteria including delivery, compliance with specifications, probable performance, and price. Best and Final Offer (BAFO) was requested from the top firm. Based upon this evaluation, Pethealth Services (USA) Inc. was ranked the highest and determined to be the best value for the City.

NIGP Code Used for Solicitation:	**495** - Laboratory and Field Equipment and Supplies: Biology, Botany, Geology, Microbiology, Zoology, Etc. & **875** - Veterinary Equipment and Supplies (See Class 325 for Vitamins and Supplements for Animals)
Notifications sent for Solicitation sent in IonWave:	78
Number of Suppliers that viewed Solicitation in IonWave:	8
HUB-Historically Underutilized Business Invitations sent out:	8
SBE-Small Business Enterprise Invitations sent out:	43
Responses from Solicitation:	2

RECOMMENDATION

Award a contract with Pethealth Services (USA) Inc., for microchips and cloud-based data management software for Denton Animal Services, in a one (1) year, with the option for four (4) additional one (1) year extensions, in the total five (5) year not-to-exceed amount of $207,000.

PRINCIPAL PLACE OF BUSINESS

Pethealth Services (USA) Inc.
Buffalo, NY

ESTIMATED SCHEDULE OF PROJECT

This is an initial one (1) year contract with options to extend the contract for four (4) additional one (1) year periods, with all terms and conditions remaining the same.

FISCAL INFORMATION

These products and services will be funded through the using department's budget on an as needed basis.

EXHIBITS

Exhibit 1: Agenda Information Sheet
Exhibit 2: Pricing Evaluation
Exhibit 3: Ordinance and Contract

Respectfully submitted:
Lori Hewell, 940-349-7100
Purchasing Manager

For information concerning this acquisition, contact: Monica Benavides, 940-349-7598.

Legal point of contact: Marcella Lunn at 940-349-8333.

Exhibit 2

RFP 8500 - Pricing Evaluation for Microchips and Data Management Software

			Respondent's Business Name:	**Pethealth Services (USA) Inc.**		Datamars Inc.	
			Principal Place of Business (City and State):	**Buffalo, NY**		Temple, TX	
Line #	**Description**	**QTY**	**UOM**	**Unit**	**Extended**	**Unit**	**Extended**
1	Microchips	7,500	EA	**$5.00**	**$37,500.00**	$4.50	$33,750.00
2	Online Registration of Microchips	7,500	EA	**$0.00**	**$0.00**	$0.00	$0.00

Evaluation

Item #	**Standard Criteria**	**Pethealth Services (USA) Inc.**	Datamars Inc.
1	Delivery/Project Schedule - 15%	**14.25**	0.75
2	Compliance with Specifications - 30%	**27.00**	0.00
3	Probable Performance - 15%	**13.50**	2.25
4	Price, Total Cost of Ownership - 30%	**32.73**	40.00
	Total Score:	**87.48**	43.00

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, A TEXAS HOME-RULE MUNICIPAL CORPORATION, AUTHORIZING THE CITY MANAGER TO EXECUTE A CONTRACT WITH PETHEALTH SERVICES (USA) INC., FOR MICROCHIPS AND CLOUD-BASED DATA MANAGEMENT SOFTWARE FOR DENTON ANIMAL SERVICES; PROVIDING FOR THE EXPENDITURE OF FUNDS THEREFOR; AND PROVIDING AN EFFECTIVE DATE (RFP 8500 – AWARDED TO PETHEALTH SERVICES (USA) INC., FOR ONE (1) YEAR, WITH THE OPTION FOR FOUR (4) ADDITIONAL ONE (1) YEAR EXTENSIONS, IN THE TOTAL FIVE (5) YEAR NOT-TO-EXCEED AMOUNT OF $207,000.00).

WHEREAS, the City has solicited, received, and evaluated competitive proposals for microchips and cloud-based data management software for Denton Animal Services; and

WHEREAS, the City Manager, or a designated employee, has received, reviewed, and recommended that the herein described proposals are the most advantageous to the City considering the relative importance of price and the other evaluation factors included in the request for proposals; and

WHEREAS, this procurement was undertaken as part of the City's governmental function; and

WHEREAS, the City Council has provided in the City Budget for the appropriation of funds to be used for the purchase of the materials, equipment, supplies, or services approved and accepted herein; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The items in the following numbered request for proposal for materials, equipment, supplies, or services shown in the "Request Proposals" on file in the office of the Purchasing Agent, are hereby accepted and approved as being the most advantageous to the City considering the relative importance of price and the other evaluation factors included in the request for proposals.

RFP NUMBER	CONTRACTOR	AMOUNT
8500	Pethealth Services (USA) Inc.	$207,000.00

SECTION 2. That by the acceptance and approval of the above numbered items of the submitted proposals, the City accepts the offer of the persons submitting the proposals for such items and agrees to purchase the materials, equipment, supplies, or services in accordance with the terms, specifications, standards, quantities, and for the specified sums contained in the Proposal Invitations, Proposals, and related documents.

SECTION 3. That should the City and person submitting approved and accepted items wish to enter into a formal written agreement as a result of the acceptance, approval, and awarding of the proposals, the City Manager, or their designated representative, is hereby authorized to execute the written contract which shall be attached hereto; provided that the written contract is in accordance with the terms, conditions, specifications, standards, quantities, and specified sums contained in the Proposal and related documents herein approved and accepted.

SECTION 4. The City Council of the City of Denton hereby expressly delegates the authority to take any actions that may be required or permitted to be performed by the City of Denton under this ordinance to the City Manager of the City of Denton, or their designee.

SECTION 5. By the acceptance and approval of the above enumerated bids, the City Council hereby authorizes the expenditure of funds therefor in the amount and in accordance with the approved bids.

SECTION 6. This ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____. This ordinance was passed and approved by the following vote [___ - ___]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: _____

Docusign City Council Transmittal Coversheet

RFP	8500
File Name	Microchips and Data Management Software
Purchasing Contact	Kayla Clark
City Council Target Date	
Piggy Back Option	No
Contract Expiration	
Ordinance	

DS
LH

DocuSign Envelope ID: 05DC802F-A985-482F-9E60-ADD640E8F31C

CONTRACT BY AND BETWEEN
CITY OF DENTON, TEXAS AND PETHEALTH SERVICES (USA) INC.
(Contract 8500)

THIS CONTRACT is made and entered into this date _____, by and between PETHEALTH SERVICES (USA) INC. an Illinois corporation, whose address is 223 West Erie Street Suite 6W Chicago, IL 60654, hereinafter referred to as "Contractor," and the **CITY OF DENTON, TEXAS**, a home rule municipal corporation, hereinafter referred to as "City," to be effective upon approval of the Denton City Council and subsequent execution of this Contract by the Denton City Manager or his duly authorized designee.

For and in consideration of the covenants and agreements contained herein, and for the mutual benefits to be obtained hereby, the parties agree as follows:

SCOPE OF SERVICES

Contractor shall provide products in accordance with the City's RFP #8500_, a copy of which is on file at the office of Purchasing Agent and incorporated herein for all purposes. The Contract consists of this written agreement and the following items which are attached hereto, or on file, and incorporated herein by reference:

(a) Special Terms and Conditions **(Exhibit "A");**
(b) City of Denton's RFP 8500 **(Exhibit "B" on file at the office of the Purchasing Agent**);
(c) City of Denton Standard Terms and Conditions **(Exhibit "C");**
(d) Certificate of Interested Parties Electronic Filing **(Exhibit "D");**
(e) Contractor's Proposal. **(Exhibit "E")**;
(f) Form CIQ – Conflict of Interest Questionnaire **(Exhibit "F")**

These documents make up the Contract documents and what is called for by one shall be as binding as if called for by all. In the event of an inconsistency or conflict in any of the provisions of the Contract documents, the inconsistency or conflict shall be resolved by giving precedence first to the written agreement then to the contract documents in the order in which they are listed above. These documents shall be referred to collectively as "Contract Documents."

Prohibition on Contracts with Companies Boycotting Israel
Contractor acknowledges that in accordance with Chapter 2271 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains a written verification from the company that it: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract. The terms "boycott Israel" and "company" shall have the meanings ascribed to those terms in Section 808.001 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Boycotting Certain Energy Companies
Contractor acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not boycott energy companies; and (2) will not boycott

DocuSign Envelope ID: 05DC802F-A985-482F-9E60-ADD640E8F31C

energy companies during the term of the contract. The terms "boycott energy company" and "company" shall have the meanings ascribed to those terms in Section 809.001 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Boycotting Certain Firearm Entities and Firearm Trade Associations

Contractor acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association. The terms "discriminate against a firearm entity or firearm trade association," "firearm entity" and "firearm trade association" shall have the meanings ascribed to those terms in Chapter 2274 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition On Contracts With Companies Doing Business with Iran, Sudan, or a Foreign Terrorist Organization

Sections 2252 and 2270 of the Texas Government Code restricts CITY from contracting with companies that do business with Iran, Sudan, or a foreign terrorist organization. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor, pursuant to Chapters 2252 and 2270, is not ineligible to enter into this agreement and will not become ineligible to receive payments under this agreement by doing business with Iran, Sudan, or a foreign terrorist organization***. Failure to meet or maintain the requirements under this provision will be considered a material breach.

Termination Right for Contracts with Companies Doing Business with Certain Foreign-Owned Companies

The City of Denton may terminate this Contract immediately without any further liability if the City of Denton determines, in its sole judgment, that this Contract meets the requirements under Chapter 2274, and Contractor is, or will be in the future, (i) owned by or the majority of stock or other ownership interest of the company is held or controlled by individuals who are citizens of China, Iran, North Korea, Russia, or other designated country (ii) directly controlled by the Government of China, Iran, North Korea, Russia, or other designated country, or (iii) is headquartered in China, Iran, North Korea, Russia, or other designated country.

The parties agree to transact business electronically. Any statutory requirements that certain terms be in writing will be satisfied using electronic documents and signing. Electronic signing of this document will be deemed an original for all legal purposes.

IN WITNESS WHEREOF, the parties of these presents have executed this agreement in the year and day first above written.

CONTRACTOR

DocuSigned by:

BY: Steve Zeidman

42D02E784A4F446...

AUTHORIZED SIGNATURE

Printed Name: Steve Zeidman

Title: SVP, Software Solutions

602-509-8788

PHONE NUMBER

steve.zeidman@pethealthinc.com

EMAIL ADDRESS

steve.zeidman@pethealthinc.com

TEXAS ETHICS COMMISSION
1295 CERTIFICATE NUMBER

CITY OF DENTON, TEXAS

BY: _____

SARA HENSLEY, CITY MANAGER

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

DocuSigned by:

BY: Marcella Lunn

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THIS AGREEMENT HAS BEEN
BOTH REVIEWED AND APPROVED
as to financial and operational obligations
and business terms.

DocuSigned by:

Nikki Sassenus

C2E0F78F2F5A400...

SIGNATURE

Nikki Sassenus

PRINTED NAME

Director of Animal Services

TITLE

Animal Services

DEPARTMENT

Exhibit A
Special Terms and Conditions

1. The Quantities

The quantities indicated on Exhibit E are estimates based upon the best available information. The City reserves the right to increase or decrease the quantities to meet its actual needs without any adjustments in the bid price. Individual purchase orders will be issued on an as needed basis.

2. Product Changes During Contract Term

The Contractor shall not change specifications during the contract term without prior approval. Any deviation in the specifications or change in the product must be approved in advance by the City of Denton. Notice of a change shall be submitted in writing to purchasing@cityofdenton.com, with the above file number in the subject line, for review. Products found to have changed specifications without notification, and acceptance, will be returned at the contractor's expense. Products that have been installed will be replaced at the contractor's expense.

3. Authorized Distributor

The Contractor shall be the manufacturer or authorized distributor of the proposed products. The distributor shall be authorized to sell to the City of Denton, and make available the manufacturer's representative as needed by the City.

4. Contract Terms

The contract term will be one (1) year, effective from date of award. The City and the Contractor shall have the option to renew this contract for an additional four (4) one-year periods.

The Contract shall commence upon the issuance of a Notice of Award by the City of Denton and shall automatically renew each year, from the date of award by City Council. The Contractor's request to not renew the contract must be submitted in writing to the Purchasing Manager at least 60 days prior to the contract renewal date for each year. At the sole option of the City of Denton, the Contract may be further extended as needed, not to exceed a total of six (6) months.

5. Price Escalation and De-escalation

On Contractor's request in the form stated herein, the City will implement an escalation/de-escalation price adjustment annually based on these special terms. Any request for price adjustment must be based on the, U.S Department of Labor, Bureau of Labor Statistics, Producer Price Index (PPI) or the manufacturer published pricing list. The maximum escalation will not exceed +/- 8% for any individual year. The escalation will be determined annually at the renewal date. The price will be increased or decreased based upon the annual percentage change in the PPI or the percentage change in the manufacturer's price list. Should the PPI or manufacturer price list change exceed a minimum threshold value of +/-1%, then the stated eligible bid prices shall be adjusted in accordance with the percent change not to exceed the 8%

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limit per year. The Contractor should provide documentation as percentage of each cost associated with the unit prices quoted for consideration.

Request must be submitted in writing with supporting evidence for need of such increase to the Purchasing Manager at least 60 days prior to contract expiration of each year. Respondent must also provide supporting documentation as justification for the request. If no request is made, then it will be assumed that the current contract price will be in effect.

Upon receipt of such request, the City of Denton reserves the right to either: accept the escalation as competitive with the general market price at the time, and become effective upon the renewal date of the contract award or reject the increases within 30 calendar days after receipt of a properly submitted request. If a properly submitted increase is rejected, the Contractor may request cancellation of such items from the Contract by giving the City of Denton written notice. Cancellation will not go into effect for 15 calendar days after a determination has been issued. Pre-price increase prices must be honored on orders dated up to the official date of the City of Denton approval and/or cancellation.

The request can be sent by e-mail to: purchasing@cityofdenton.com noting the solicitation number.

The City of Denton reserves the right to accept, reject, or negotiate the proposed price changes.

6. Total Contract Amount

The contract total shall not exceed $207,000. Pricing shall be per Exhibit E attached.

7. Performance Liquidated Damages

The Contractor shall incur contractual payment losses, as initiated by the City for performance that falls short of specified performance standards as outlined below:

- Delivery beyond contracted lead times
- Performance below contracted levels (services only)

The Contractor shall be assessed a one (1%) percent fee each month when any one of the performance standards outlined above are not met in full. The Contractor shall be assessed a two (2%) percent profit fee each month when any two (2) or more performance standards outlined above are not met in full. At the end of each month, the City will review the monthly reports and determine the percentage of penalty to be assessed to the Contractor's monthly profit margin.

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Exhibit C
City of Denton
Standard Purchase Terms and Conditions

These standard Terms and Conditions and the Terms and Conditions, Specifications, Drawings and other requirements included in the City of Denton's contract are applicable to contracts/purchase orders issued by the City of Denton hereinafter referred to as the City or Buyer and the Seller or respondent herein after referred to as Contractor or Supplier. Any deviations must be in writing and signed by a representative of the City's Procurement Department and the Supplier. No Terms and Conditions contained in the seller's proposal response, invoice or statement shall serve to modify the terms set forth herein. If there is a conflict between the provisions on the face of the contract/purchase order these written provisions will take precedence.

The Contractor agrees that the contract shall be governed by the following terms and conditions, unless exceptions are duly noted and fully negotiated. Unless otherwise specified in the contract, Sections 3, 4, 5, 6, 7, 8, 20, 21, and 36 shall apply only to a solicitation to purchase goods, and sections 9, 10, 11, 22 and 32 shall apply only to a solicitation to purchase services to be performed principally at the City's premises or on public rights-of-way.

1. **CONTRACTOR'S OBLIGATIONS**. The Contractor shall fully and timely provide all deliverables described in the Solicitation and in the Contractor's Offer in strict accordance with the terms, covenants, and conditions of the Contract and all applicable Federal, State, and local laws, rules, and regulations.

2. **EFFECTIVE DATE/TERM**. Unless otherwise specified in the Solicitation, this Contract shall be effective as of the date the contract is signed by the City, and shall continue in effect until all obligations are performed in accordance with the Contract.

3. **CONTRACTOR TO PACKAGE DELIVERABLES**: The Contractor will package deliverables in accordance with good commercial practice and shall include a packing list showing the description of each item, the quantity and unit price unless otherwise provided in the Specifications or Supplemental Terms and Conditions, each shipping container shall be clearly and permanently marked as follows: (a) The Contractor's name and address, (b) the City's name, address and purchase order or purchase release number and the price agreement number if applicable, (c) Container number and total number of containers, e.g. box 1 of 4 boxes, and (d) the number of the container bearing the packing list. The Contractor shall bear cost of packaging. Deliverables shall be suitably packed to secure lowest transportation costs and to conform to all the requirements of common carriers and any applicable specification. The City's count or weight shall be final and conclusive on shipments not accompanied by packing lists.

4. **SHIPMENT UNDER RESERVATION PROHIBITED**: The Contractor is not authorized to ship the deliverables under reservation and no tender of a bill of lading will operate as a tender of deliverables.

5. **TITLE & RISK OF LOSS**: Title to and risk of loss of the deliverables shall pass to the City only when the City actually receives and accepts the deliverables.

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6. **DELIVERY TERMS AND TRANSPORTATION CHARGES**: Deliverables shall be shipped F.O.B. point of delivery unless otherwise specified in the Supplemental Terms and Conditions. Unless otherwise stated in the Offer, the Contractor's price shall be deemed to include all delivery and transportation charges. The City shall have the right to designate what method of transportation shall be used to ship the deliverables. The place of delivery shall be that set forth the purchase order.

7. **RIGHT OF INSPECTION AND REJECTION**: The City expressly reserves all rights under law, including, but not limited to the Uniform Commercial Code, to inspect the deliverables at delivery before accepting them, and to reject defective or non-conforming deliverables. If the City has the right to inspect the Contractor's, or the Contractor's Subcontractor's, facilities, or the deliverables at the Contractor's, or the Contractor's Subcontractor's, premises, the Contractor shall furnish, or cause to be furnished, without additional charge, all reasonable facilities and assistance to the City to facilitate such inspection.

8. **NO REPLACEMENT OF DEFECTIVE TENDER**: Every tender or delivery of deliverables must fully comply with all provisions of the Contract as to time of delivery, quality, and quantity. Any non-complying tender shall constitute a breach and the Contractor shall not have the right to substitute a conforming tender; provided, where the time for performance has not yet expired, the Contractor may notify the City of the intention to cure and may then make a conforming tender within the time allotted in the contract.

9. **PLACE AND CONDITION OF WORK**: The City shall provide the Contractor access to the sites where the Contractor is to perform the services as required in order for the Contractor to perform the services in a timely and efficient manner, in accordance with and subject to the applicable security laws, rules, and regulations. The Contractor acknowledges that it has satisfied itself as to the nature of the City's service requirements and specifications, the location and essential characteristics of the work sites, the quality and quantity of materials, equipment, labor and facilities necessary to perform the services, and any other condition or state of fact which could in any way affect performance of the Contractor's obligations under the contract. The Contractor hereby releases and holds the City harmless from and against any liability or claim for damages of any kind or nature if the actual site or service conditions differ from expected conditions.

The contractor shall, at all times, exercise reasonable precautions for the safety of their employees, City Staff, participants and others on or near the City's facilities.

10. **WORKFORCE**

A. The Contractor shall employ only orderly and competent workers, skilled in the performance of the services which they will perform under the Contract.

B. The Contractor, its employees, subcontractors, and subcontractor's employees may not while engaged in participating or responding to a solicitation or while in the course and scope of delivering goods or services under a City of Denton contract or on the City's property .

i. use or possess a firearm, including a concealed handgun that is licensed under state law, except as required by the terms of the contract; or

ii. use or possess alcoholic or other intoxicating beverages, illegal drugs or controlled substances, nor may such workers be intoxicated, or under the influence of alcohol or drugs, on the job.

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C. If the City or the City's representative notifies the Contractor that any worker is incompetent, disorderly or disobedient, has knowingly or repeatedly violated safety regulations, has possessed any firearms, or has possessed or was under the influence of alcohol or drugs on the job, the Contractor shall immediately remove such worker from Contract services, and may not employ such worker again on Contract services without the City's prior written consent.
Immigration: The Contractor represents and warrants that it shall comply with the requirements of the Immigration Reform and Control Act of 1986 and 1990 regarding employment verification and retention of verification forms for any individuals hired on or after November 6, 1986, who will perform any labor or services under the Contract and the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 ("IIRIRA) enacted on September 30, 1996.

11. **COMPLIANCE WITH HEALTH, SAFETY, AND ENVIRONMENTAL REGULATIONS**: The Contractor, it's Subcontractors, and their respective employees, shall comply fully with all applicable federal, state, and local health, safety, and environmental laws, ordinances, rules and regulations in the performance of the services, including but not limited to those promulgated by the City and by the Occupational Safety and Health Administration (OSHA). In case of conflict, the most stringent safety requirement shall govern. The Contractor shall indemnify and hold the City harmless from and against all claims, demands, suits, actions, judgments, fines, penalties and liability of every kind arising from the breach of the Contractor's obligations under this paragraph.

Environmental Protection: The Respondent shall be in compliance with all applicable standards, orders, or regulations issued pursuant to the mandates of the Clean Air Act (42 U.S.C. §7401 *et seq*.) and the Federal Water Pollution Control Act, as amended, (33 U.S.C. §1251 *et seq*.).

12. **INVOICES**:
A. The Contractor shall submit separate invoices in duplicate on each purchase order or purchase release after each delivery. If partial shipments or deliveries are authorized by the City, a separate invoice must be sent for each shipment or delivery made.
B. **Proper Invoices must include a unique invoice number, the purchase order or delivery order number and the master agreement number if applicable, the Department's Name, and the name of the point of contact for the Department**. Invoices shall be itemized and transportation charges, if any, shall be listed separately. A copy of the bill of lading and the freight waybill, when applicable, shall be attached to the invoice. The Contractor's name, remittance address and, if applicable, the tax identification number on the invoice must exactly match the information in the Vendor's registration with the City. Unless otherwise instructed in writing, the City may rely on the remittance address specified on the Contractor's invoice.
C. Invoices for labor shall include a copy of all time-sheets with trade labor rate and deliverables order number clearly identified. Invoices shall also include a tabulation of work-hours at the appropriate rates and grouped by work order number. Time billed for labor shall be limited to hours actually worked at the work site.
D. Unless otherwise expressly authorized in the Contract, the Contractor shall pass through all Subcontract and other authorized expenses at actual cost without markup.
E. Federal excise taxes, State taxes, or City sales taxes must not be included in the invoiced amount.
The City will furnish a tax exemption certificate upon request.

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13. **PAYMENT**:
A. All proper invoices need to be sent to Accounts Payable. Approved invoices will be paid within thirty (30) calendar days of the City's receipt of the deliverables or of the invoice being received in Accounts Payable, whichever is later.
B. **If payment is not timely made, (per paragraph A); interest shall accrue on the unpaid balance at the lesser of the rate specified in Texas Government Code Section 2251.025 or the maximum lawful rate; except, if payment is not timely made for a reason for which the City may withhold payment hereunder, interest shall not accrue until ten (10) calendar days after the grounds for withholding payment have been resolved.**
C. If partial shipments or deliveries are authorized by the City, the Contractor will be paid for the partial shipment or delivery, as stated above, provided that the invoice matches the shipment or delivery.
D. The City may withhold or set off the entire payment or part of any payment otherwise due the Contractor to such extent as may be necessary on account of:

i. delivery of defective or non-conforming deliverables by the Contractor;
ii. third party claims, which are not covered by the insurance which the Contractor is required to provide, are filed or reasonable evidence indicating probable filing of such claims;
iii. failure of the Contractor to pay Subcontractors, or for labor, materials or equipment;
iv. damage to the property of the City or the City's agents, employees or contractors, which is not covered by insurance required to be provided by the Contractor;
v. reasonable evidence that the Contractor's obligations will not be completed within the time specified in the Contract, and that the unpaid balance would not be adequate to cover actual or damages for the anticipated delay;
vi. failure of the Contractor to submit proper invoices with purchase order number, with all required attachments and supporting documentation; or
vii. failure of the Contractor to comply with any material provision of the Contract Documents.

E. Notice is hereby given that any awarded firm who is in arrears to the City of Denton for delinquent taxes, the City may offset indebtedness owed the City through payment withholding.
F. Payment will be made by check unless the parties mutually agree to payment by credit card or electronic transfer of funds. The Contractor agrees that there shall be no additional charges, surcharges, or penalties to the City for payments made by credit card or electronic funds transfer.
G. The awarding or continuation of this contract is dependent upon the availability of funding. The City's payment obligations are payable only and solely from funds Appropriated and available for this contract. The absence of Appropriated or other lawfully available funds shall render the Contract null and void to the extent funds are not Appropriated or available and any deliverables delivered but unpaid shall be returned to the Contractor. The City shall provide the Contractor written notice of the failure of the City to make an adequate Appropriation for any fiscal year to pay the amounts due under the Contract, or the reduction of any Appropriation to an amount insufficient to permit the City to pay its obligations under the Contract. In the event of none or inadequate appropriation of funds, there will be no penalty nor removal fees charged to the City.

14. **TRAVEL EXPENSES**: All travel, lodging and per diem expenses in connection with the Contract shall be paid by the Contractor, unless otherwise stated in the contract terms. During the term of this contract, the contractor shall bill and the City shall reimburse contractor for all reasonable and approved out of pocket expenses which are incurred in the connection with the performance of duties hereunder. Notwithstanding the foregoing, expenses for the time spent by

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the contractor in traveling to and from City facilities shall not be reimbursed, unless otherwise negotiated.

15. **FINAL PAYMENT AND CLOSE-OUT**:
A. If a DBE/MBE/WBE Program Plan is agreed to and the Contractor has identified Subcontractors, the Contractor is required to submit a Contract Close-Out MBE/WBE Compliance Report to the Purchasing Manager no later than the 15th calendar day after completion of all work under the contract. Final payment, retainage, or both may be withheld if the Contractor is not in compliance with the requirements as accepted by the City.
B. The making and acceptance of final payment will constitute:
i. a waiver of all claims by the City against the Contractor, except claims (1) which have been previously asserted in writing and not yet settled, (2) arising from defective work appearing after final inspection, (3) arising from failure of the Contractor to comply with the Contract or the terms of any warranty specified herein, (4) arising from the Contractor's continuing obligations under the Contract, including but not limited to indemnity and warranty obligations, or (5) arising under the City's right to audit; and ii. a waiver of all claims by the Contractor against the City other than those previously asserted in writing and not yet settled.

16. **SPECIAL TOOLS & TEST EQUIPMENT**: If the price stated on the Offer includes the cost of any special tooling or special test equipment fabricated or required by the Contractor for the purpose of filling this order, such special tooling equipment and any process sheets related thereto shall become the property of the City and shall be identified by the Contractor as such.

17. **RIGHT TO AUDIT**:
A. The City shall have the right to audit and make copies of the books, records and computations pertaining to the Contract. The Contractor shall retain such books, records, documents and other evidence pertaining to the Contract period and five years thereafter, except if an audit is in progress or audit findings are yet unresolved, in which case records shall be kept until all audit tasks are completed and resolved. These books, records, documents and other evidence shall be available, within ten (10) business days of written request. Further, the Contractor shall also require all Subcontractors, material suppliers, and other payees to retain all books, records, documents and other evidence pertaining to the Contract, and to allow the City similar access to those documents. All books and records will be made available within a 50 mile radius of the City of Denton. The cost of the audit will be borne by the City unless the audit reveals an overpayment of 1% or greater. If an overpayment of 1% or greater occurs, the reasonable cost of the audit, including any travel costs, must be borne by the Contractor which must be payable within five (5) business days of receipt of an invoice.
B. Failure to comply with the provisions of this section shall be a material breach of the Contract and shall constitute, in the City's sole discretion, grounds for termination thereof. Each of the terms "books", "records", "documents" and "other evidence", as used above, shall be construed to include drafts and electronic files, even if such drafts or electronic files are subsequently used to generate or prepare a final printed document.

18. **SUBCONTRACTORS**:
A. If the Contractor identified Subcontractors in a DBE/MBE/WBE agreed to Plan, the Contractor shall comply with all requirements approved by the City. The Contractor shall not initially employ any Subcontractor except as provided in the Contractor's Plan. The Contractor shall not substitute any Subcontractor identified in the Plan, unless the substitute has been accepted by the City in

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writing. No acceptance by the City of any Subcontractor shall constitute a waiver of any rights or remedies of the City with respect to defective deliverables provided by a Subcontractor. If a Plan has been approved, the Contractor is additionally required to submit a monthly Subcontract Awards and Expenditures Report to the Procurement Manager, no later than the tenth calendar day of each month.

B. Work performed for the Contractor by a Subcontractor shall be pursuant to a written contract between the Contractor and Subcontractor. The terms of the subcontract may not conflict with the terms of the
Contract, and shall contain provisions that:

i. require that all deliverables to be provided by the Subcontractor be provided in strict accordance with the provisions, specifications and terms of the Contract;

ii. prohibit the Subcontractor from further subcontracting any portion of the Contract without the prior written consent of the City and the Contractor. The City may require, as a condition to such further subcontracting, that the Subcontractor post a payment bond in form, substance and amount acceptable to the City;

iii. require Subcontractors to submit all invoices and applications for payments, including any claims for additional payments, damages or otherwise, to the Contractor in sufficient time to enable the Contractor to include same with its invoice or application for payment to the City in accordance with the terms of the Contract;

iv. require that all Subcontractors obtain and maintain, throughout the term of their contract, insurance in the type and amounts specified for the Contractor, with the City being a named insured as its interest shall appear; and

v. require that the Subcontractor indemnify and hold the City harmless to the same extent as the Contractor is required to indemnify the City.

C. The Contractor shall be fully responsible to the City for all acts and omissions of the Subcontractors just as the Contractor is responsible for the Contractor's own acts and omissions. Nothing in the Contract shall create for the benefit of any such Subcontractor any contractual relationship between the City and any such Subcontractor, nor shall it create any obligation on the part of the City to pay or to see to the payment of any moneys due any such Subcontractor except as may otherwise be required by law.

D. The Contractor shall pay each Subcontractor its appropriate share of payments made to the Contractor not later than ten (10) calendar days after receipt of payment from the City.

19. **WARRANTY-PRICE**:

A. The Contractor warrants the prices quoted in the Offer are no higher than the Contractor's current prices on orders by others for like deliverables under similar terms of purchase.

B. The Contractor certifies that the prices in the Offer have been arrived at independently without consultation, communication, or agreement for the purpose of restricting competition, as to any matter relating to such fees with any other firm or with any competitor.

C. In addition to any other remedy available, the City may deduct from any amounts owed to the Contractor, or otherwise recover, any amounts paid for items in excess of the Contractor's current prices on orders by others for like deliverables under similar terms of purchase.

20. **WARRANTY – TITLE**: The Contractor warrants that it has good and indefeasible title to all deliverables furnished under the Contract, and that the deliverables are free and clear of all liens, claims, security interests and encumbrances. The Contractor shall indemnify and hold the City harmless from and against all adverse title claims to the deliverables.

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21. **WARRANTY – DELIVERABLES**: The Contractor warrants and represents that all deliverables sold the City under the Contract shall be free from defects in design, workmanship or manufacture, and conform in all material respects to the specifications, drawings, and descriptions in the Solicitation, to any samples furnished by the Contractor, to the terms, covenants and conditions of the Contract, and to all applicable State, Federal or local laws, rules, and regulations, and industry codes and standards. Unless otherwise stated in the Solicitation, the deliverables shall be new or recycled merchandise, and not used or reconditioned.

A. Recycled deliverables shall be clearly identified as such.

B. The Contractor may not limit, exclude or disclaim the foregoing warranty or any warranty implied by law; and any attempt to do so shall be without force or effect.

C. Unless otherwise specified in the Contract, the warranty period shall be at least one year from the date of acceptance of the deliverables or from the date of acceptance of any replacement deliverables. If during the warranty period, one or more of the above warranties are breached, the Contractor shall promptly upon receipt of demand either repair the non-conforming deliverables, or replace the non-conforming deliverables with fully conforming deliverables, at the City's option and at no additional cost to the City. All costs incidental to such repair or replacement, including but not limited to, any packaging and shipping costs shall be borne exclusively by the Contractor. The City shall endeavor to give the Contractor written notice of the breach of warranty within thirty (30) calendar days of discovery of the breach of warranty, but failure to give timely notice shall not impair the City's rights under this section.

D. If the Contractor is unable or unwilling to repair or replace defective or non-conforming deliverables as required by the City, then in addition to any other available remedy, the City may reduce the quantity of deliverables it may be required to purchase under the Contract from the Contractor, and purchase conforming deliverables from other sources. In such event, the Contractor shall pay to the City upon demand the increased cost, if any, incurred by the City to procure such deliverables from another source.

E. If the Contractor is not the manufacturer, and the deliverables are covered by a separate manufacturer's warranty, the Contractor shall transfer and assign such manufacturer's warranty to the City. If for any reason the manufacturer's warranty cannot be fully transferred to the City, the Contractor shall assist and cooperate with the City to the fullest extent to enforce such manufacturer's warranty for the benefit of the City.

22. **WARRANTY – SERVICES**: The Contractor warrants and represents that all services to be provided the City under the Contract will be fully and timely performed in a good and workmanlike manner in accordance with generally accepted industry standards and practices, the terms, conditions, and covenants of the Contract, and all applicable Federal, State and local laws, rules or regulations.

A. The Contractor may not limit, exclude or disclaim the foregoing warranty or any warranty implied by law, and any attempt to do so shall be without force or effect.

B. Unless otherwise specified in the Contract, the warranty period shall be at least one year from the Acceptance Date. If during the warranty period, one or more of the above warranties are breached, the Contractor shall promptly upon receipt of demand perform the services again in accordance with above standard at no additional cost to the City. All costs incidental to such additional performance shall be borne by the Contractor. The City shall endeavor to give the Contractor written notice of the breach of warranty within thirty (30) calendar days of discovery of the breach warranty, but failure to give timely notice shall not impair the City's rights under this section.

C. If the Contractor is unable or unwilling to perform its services in accordance with the above

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standard as required by the City, then in addition to any other available remedy, the City may reduce the amount of services it may be required to purchase under the Contract from the Contractor, and purchase conforming services from other sources. In such event, the Contractor shall pay to the City upon demand the increased cost, if any, incurred by the City to procure such services from another source.

23. **ACCEPTANCE OF INCOMPLETE OR NON-CONFORMING DELIVERABLES**: If, instead of requiring immediate correction or removal and replacement of defective or non-conforming deliverables, the City prefers to accept it, the City may do so. The Contractor shall pay all claims, costs, losses and damages attributable to the City's evaluation of and determination to accept such defective or non-conforming deliverables. If any such acceptance occurs prior to final payment, the City may deduct such amounts as are necessary to compensate the City for the diminished value of the defective or non-conforming deliverables. If the acceptance occurs after final payment, such amount will be refunded to the City by the Contractor.

24. **RIGHT TO ASSURANCE**: Whenever one party to the Contract in good faith has reason to question the other party's intent to perform, demand may be made to the other party for written assurance of the intent to perform. In the event that no assurance is given within the time specified after demand is made, the demanding party may treat this failure as an anticipatory repudiation of the Contract.

25. **STOP WORK NOTICE**: The City may issue an immediate Stop Work Notice in the event the Contractor is observed performing in a manner that is in violation of Federal, State, or local guidelines, or in a manner that is determined by the City to be unsafe to either life or property. Upon notification, the Contractor will cease all work until notified by the City that the violation or unsafe condition has been corrected. The Contractor shall be liable for all costs incurred by the City as a result of the issuance of such Stop Work Notice.

26. **DEFAULT**: The Contractor shall be in default under the Contract if the Contractor (a) fails to fully, timely and faithfully perform any of its material obligations under the Contract, (b) fails to provide adequate assurance of performance under Paragraph 24, (c) becomes insolvent or seeks relief under the bankruptcy laws of the United States or (d) makes a material misrepresentation in Contractor's Offer, or in any report or deliverable required to be submitted by the Contractor to the City.

27. **TERMINATION FOR CAUSE:** In the event of a default by the Contractor, the City shall have the right to terminate the Contract for cause, by written notice effective ten (10) calendar days, unless otherwise specified, after the date of such notice, unless the Contractor, within such ten (10) day period, cures such default, or provides evidence sufficient to prove to the City's reasonable satisfaction that such default does not, in fact, exist. In addition to any other remedy available under law or in equity, the City shall be entitled to recover all actual damages, costs, losses and expenses, incurred by the City as a result of the Contractor's default, including, without limitation, cost of cover, reasonable attorneys' fees, court costs, and prejudgment and post-judgment interest at the maximum lawful rate. Additionally, in the event of a default by the Contractor, the City may remove the Contractor from the City's vendor list for three (3) years and any Offer submitted by the Contractor may be disqualified for up to three (3) years. All rights and remedies under the Contract are cumulative and are not exclusive of any other right or remedy provided by law.

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28. **TERMINATION WITHOUT CAUSE**: The City shall have the right to terminate the Contract, in whole or in part, without cause any time upon thirty (30) calendar days' prior written notice. Upon receipt of a notice of termination, the Contractor shall promptly cease all further work pursuant to the Contract, with such exceptions, if any, specified in the notice of termination. The City shall pay the Contractor, to the extent of funds Appropriated or otherwise legally available for such purposes, for all goods delivered and services performed and obligations incurred prior to the date of termination in accordance with the terms hereof.

29. **FRAUD**: Fraudulent statements by the Contractor on any Offer or in any report or deliverable required to be submitted by the Contractor to the City shall be grounds for the termination of the Contract for cause by the City and may result in legal action.

30. **DELAYS**:
A. The City may delay scheduled delivery or other due dates by written notice to the Contractor if the City deems it is in its best interest. If such delay causes an increase in the cost of the work under the Contract, the City and the Contractor shall negotiate an equitable adjustment for costs incurred by the Contractor in the Contract price and execute an amendment to the Contract. The Contractor must assert its right to an adjustment within thirty (30) calendar days from the date of receipt of the notice of delay. Failure to agree on any adjusted price shall be handled under the Dispute Resolution process specified in paragraph 49. However, nothing in this provision shall excuse the Contractor from delaying the delivery as notified.
B. Neither party shall be liable for any default or delay in the performance of its obligations under this Contract if, while and to the extent such default or delay is caused by acts of God, fire, riots, civil commotion, labor disruptions, sabotage, sovereign conduct, or any other cause beyond the reasonable control of such Party. In the event of default or delay in contract performance due to any of the foregoing causes, then the time for completion of the services will be extended; provided, however, in such an event, a conference will be held within three (3) business days to establish a mutually agreeable period of time reasonably necessary to overcome the effect of such failure to perform.

31. **INDEMNITY**:
A. Definitions:

i. "Indemnified Claims" shall include any and all claims, demands, suits, causes of action, judgments and liability of every character, type or description, including all reasonable costs and expenses of litigation, mediation or other alternate dispute resolution mechanism, including attorney and other professional fees for: (1) damage to or loss of the property of any person (including, but not limited to the City, the Contractor, their respective agents, officers, employees and subcontractors; the officers, agents, and employees of such subcontractors; and third parties); and/or (2) death, bodily injury, illness, disease, worker's compensation, loss of services, or loss of income or wages to any person (including but not limited to the agents, officers and employees of the City, the Contractor, the Contractor's subcontractors, and third parties), ii. "Fault" shall include the sale of defective or non-conforming deliverables, negligence, willful misconduct or a breach of any legally imposed strict liability standard.

B. **THE CONTRACTOR SHALL DEFEND (AT THE OPTION OF THE CITY), INDEMNIFY, AND HOLD THE CITY, ITS SUCCESSORS, ASSIGNS, OFFICERS,**

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EMPLOYEES AND ELECTED OFFICIALS HARMLESS FROM AND AGAINST ALL INDEMNIFIED CLAIMS DIRECTLY ARISING OUT OF, INCIDENT TO, CONCERNING OR RESULTING FROM THE FAULT OF THE CONTRACTOR, OR THE CONTRACTOR'S AGENTS, EMPLOYEES OR SUBCONTRACTORS, IN THE PERFORMANCE OF THE CONTRACTOR'S OBLIGATIONS UNDER THE CONTRACT. NOTHING HEREIN SHALL BE DEEMED TO LIMIT THE RIGHTS OF THE CITY OR THE CONTRACTOR (INCLUDING, BUT NOT LIMITED TO, THE RIGHT TO SEEK CONTRIBUTION) AGAINST ANY THIRD PARTY WHO MAY BE LIABLE FOR AN INDEMNIFIED CLAIM.

32. **INSURANCE**: The following insurance requirements are applicable, in addition to the specific insurance requirements detailed in **Appendix A** for services only**.** The successful firm shall procure and maintain insurance of the types and in the minimum amounts acceptable to the City of Denton. The insurance shall be written by a company licensed to do business in the State of Texas and satisfactory to the City of Denton.

A. General Requirements:

i. The Contractor shall at a minimum carry insurance in the types and amounts indicated and agreed to, as submitted to the City and approved by the City within the procurement process, for the duration of the Contract, including extension options and hold over periods, and during any warranty period.

ii. The Contractor shall provide Certificates of Insurance with the coverage's and endorsements required to the City as verification of coverage prior to contract execution and within fourteen (14) calendar days after written request from the City. Failure to provide the required Certificate of Insurance may subject the Offer to disqualification from consideration for award. The Contractor must also forward a Certificate of Insurance to the City whenever a previously identified policy period has expired, or an extension option or hold over period is exercised, as verification of continuing coverage.

iii. The Contractor shall not commence work until the required insurance is obtained and until such insurance has been reviewed by the City. Approval of insurance by the City shall not relieve or decrease the liability of the Contractor hereunder and shall not be construed to be a limitation of liability on the part of the Contractor.

iv. The Contractor must submit certificates of insurance to the City for all subcontractors prior to the subcontractors commencing work on the project.

v. The Contractor's and all subcontractors' insurance coverage shall be written by companies licensed to do business in the State of Texas at the time the policies are issued and shall be written by companies with A.M. Best ratings of **A- VII or better**. The City will accept workers' compensation coverage written by the Texas Workers' Compensation Insurance Fund.

vi. All endorsements naming the City as additional insured, waivers, and notices of cancellation endorsements as well as the Certificate of Insurance shall contain the solicitation number and the following information:

City of Denton
Materials Management Department
901B Texas Street
Denton, Texas 76209

vii. The "other" insurance clause shall not apply to the City where the City is an additional insured shown on any policy. It is intended that policies required in the Contract, covering both the City and the Contractor, shall be considered primary coverage as applicable.

viii. If insurance policies are not written for amounts agreed to with the City, the Contractor shall carry Umbrella or Excess Liability Insurance for any differences in amounts specified. If Excess Liability Insurance is provided, it shall follow the form of the primary coverage.
ix. The City shall be entitled, upon request, at an agreed upon location, and without expense, to review certified copies of policies and endorsements thereto and may make any reasonable requests for deletion or revision or modification of particular policy terms, conditions, limitations, or exclusions except where policy provisions are established by law or regulations binding upon either of the parties hereto or the underwriter on any such policies.
x. The City reserves the right to review the insurance requirements set forth during the effective period of the Contract and to make reasonable adjustments to insurance coverage, limits, and exclusions when deemed necessary and prudent by the City based upon changes in statutory law, court decisions, the claims history of the industry or financial condition of the insurance company as well as the Contractor.
xi. The Contractor shall not cause any insurance to be canceled nor permit any insurance to lapse during the term of the Contract or as required in the Contract.
xii. The Contractor shall be responsible for premiums, deductibles and self-insured retentions, if any, stated in policies. All deductibles or self-insured retentions shall be disclosed on the Certificate of Insurance.
xiii. The Contractor shall endeavor to provide the City thirty (30) calendar days' written notice of erosion of the aggregate limits below occurrence limits for all applicable coverage's indicated within the Contract.
xiv. The insurance coverage's specified in within the solicitation and requirements are required minimums and are not intended to limit the responsibility or liability of the Contractor.

B. Specific Coverage Requirements: Specific insurance requirements are contained in the solicitation instrument.

33. **CLAIMS**: If any claim, demand, suit, or other action is asserted against the Contractor which arises under or concerns the Contract, or which could have a material adverse effect on the Contractor's ability to perform thereunder, the Contractor shall give written notice thereof to the City within ten (10) calendar days after receipt of notice by the Contractor. Such notice to the City shall state the date of notification of any such claim, demand, suit, or other action; the names and addresses of the claimant(s); the basis thereof; and the name of each person against whom such claim is being asserted. Such notice shall be delivered personally or by mail and shall be sent to the City and to the Denton City Attorney. Personal delivery to the City Attorney shall be to City Hall, 215 East McKinney Street, Denton, Texas 76201.

34. **NOTICES**: Unless otherwise specified, all notices, requests, or other communications required or appropriate to be given under the Contract shall be in writing and shall be deemed delivered three (3) business days after postmarked if sent by U.S. Postal Service Certified or Registered Mail, Return Receipt Requested. Notices delivered by other means shall be deemed delivered upon receipt by the addressee. Routine communications may be made by first class mail, telefax, or other commercially accepted means. Notices to the Contractor shall be sent to the address specified in the Contractor's Offer, or at such other address as a party may notify the other in writing. Notices to the City shall be addressed to the City at 901B Texas Street, Denton, Texas 76209 and marked to the attention of the Purchasing Manager.

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35. **RIGHTS TO BID, PROPOSAL AND CONTRACTUAL MATERIAL**: All material submitted by the Contractor to the City shall become property of the City upon receipt. Any portions of such material claimed by the Contractor to be proprietary must be clearly marked as such. Determination of the public nature of the material is subject to the Texas Public Information Act, Chapter 552, and Texas Government Code.

36. **NO WARRANTY BY CITY AGAINST INFRINGEMENTS**: The Contractor represents and warrants to the City that: (i) the Contractor shall provide the City good and indefeasible title to the deliverables and (ii) the deliverables supplied by the Contractor in accordance with the specifications in the Contract will not infringe, directly or contributorily, any patent, trademark, copyright, trade secret, or any other intellectual property right of any kind of any third party; that no claims have been made by any person or entity with respect to the ownership or operation of the deliverables and the Contractor does not know of any valid basis for any such claims. The Contractor shall, at its sole expense, defend, indemnify, and hold the City harmless from and against all liability, damages, and costs (including court costs and reasonable fees of attorneys and other professionals) arising out of or resulting from: (i) any claim that the City's exercise anywhere in the world of the rights associated with the City's' ownership, and if applicable, license rights, and its use of the deliverables infringes the intellectual property rights of any third party; or (ii) the Contractor's breach of any of Contractor's representations or warranties stated in this Contract. In the event of any such claim, the City shall have the right to monitor such claim or at its option engage its own separate counsel to act as co-counsel on the City's behalf. Further, Contractor agrees that the City's specifications regarding the deliverables shall in no way diminish Contractor's warranties or obligations under this paragraph and the City makes no warranty that the production, development, or delivery of such deliverables will not impact such warranties of Contractor.

37. **CONFIDENTIALITY**: In order to provide the deliverables to the City, Contractor may require access to certain of the City's and/or its licensors' confidential information (including inventions, employee information, trade secrets, confidential know-how, confidential business information, and other information which the City or its licensors consider confidential) (collectively, "Confidential Information"). Contractor acknowledges and agrees that the Confidential Information is the valuable property of the City and/or its licensors and any unauthorized use, disclosure, dissemination, or other release of the Confidential Information will substantially injure the City and/or its licensors. The Contractor (including its employees, subcontractors, agents, or representatives) agrees that it will maintain the Confidential Information in strict confidence and shall not disclose, disseminate, copy, divulge, recreate, or otherwise use the Confidential Information without the prior written consent of the City or in a manner not expressly permitted under this Agreement, unless the Confidential Information is required to be disclosed by law or an order of any court or other governmental authority with proper jurisdiction, provided the Contractor promptly notifies the City before disclosing such information so as to permit the City reasonable time to seek an appropriate protective order. The Contractor agrees to use protective measures no less stringent than the Contractor uses within its own business to protect its own most valuable information, which protective measures shall under all circumstances be at least reasonable measures to ensure the continued confidentiality of the Confidential Information.

38. **OWNERSHIP AND USE OF DELIVERABLES**: The City shall own all rights, titles, and interests throughout the world in and to the deliverables.
A. Patents. As to any patentable subject matter contained in the deliverables, the Contractor agrees

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to disclose such patentable subject matter to the City. Further, if requested by the City, the Contractor agrees to assign and, if necessary, cause each of its employees to assign the entire right, title, and interest to specific inventions under such patentable subject matter to the City and to execute, acknowledge, and deliver and, if necessary, cause each of its employees to execute, acknowledge, and deliver an assignment of letters patent, in a form to be reasonably approved by the City, to the City upon request by the City.

B. Copyrights. As to any deliverables containing copyrightable subject matter, the Contractor agrees that upon their creation, such deliverables shall be considered as work made-for-hire by the Contractor for the City and the City shall own all copyrights in and to such deliverables, provided however, that nothing in this Paragraph 38 shall negate the City's sole or joint ownership of any such deliverables arising by virtue of the City's sole or joint authorship of such deliverables. Should by operation of law, such deliverables not be considered works made-for-hire, the Contractor hereby assigns to the City (and agrees to cause each of its employees providing services to the City hereunder to execute, acknowledge, and deliver an assignment to the City of) all worldwide right, title, and interest in and to such deliverables. With respect to such work made-for-hire, the Contractor agrees to execute, acknowledge, and deliver and cause each of its employees providing services to the City hereunder to execute, acknowledge, and deliver a work-made-for-hire agreement, in a form to be reasonably approved by the City, to the City upon delivery of such deliverables to the City or at such other time as the City may request.

C. Additional Assignments. The Contractor further agrees to, and if applicable, cause each of its employees to, execute, acknowledge, and deliver all applications, specifications, oaths, assignments, and all other instruments which the City might reasonably deem necessary in order to apply for and obtain copyright protection, mask work registration, trademark registration and/or protection, letters patent, or any similar rights in any and all countries and in order to assign and convey to the City, its successors, assigns and nominees, the sole and exclusive right, title, and interest in and to the deliverables. The Contractor's obligations to execute, acknowledge, and deliver (or cause to be executed, acknowledged, and delivered) instruments or papers such as those described in this Paragraph 38 a., b., and c. shall continue after the termination of this Contract with respect to such deliverables. In the event the City should not seek to obtain copyright protection, mask work registration or patent protection for any of the deliverables, but should desire to keep the same secret, the Contractor agrees to treat the same as Confidential Information under the terms of Paragraph 37 above.

39. **PUBLICATIONS**: All published material and written reports submitted under the Contract must be originally developed material unless otherwise specifically provided in the Contract. When material not originally developed is included in a report in any form, the source shall be identified.

40. **ADVERTISING**: The Contractor shall not advertise or publish, without the City's prior consent, the fact that the City has entered into the Contract, except to the extent required by law.

41. **NO CONTINGENT FEES**: The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure the Contract upon any agreement or understanding for commission, percentage, brokerage, or contingent fee, excepting bona fide employees of bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, the City shall have the right, in addition to any other remedy available, to cancel the Contract without liability and to deduct from any amounts owed to the Contractor, or otherwise recover, the full amount of such commission,

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percentage, brokerage or contingent fee.

42. **GRATUITIES**: The City may, by written notice to the Contractor, cancel the Contract without liability if it is determined by the City that gratuities were offered or given by the Contractor or any agent or representative of the Contractor to any officer or employee of the City of Denton with a view toward securing the Contract or securing favorable treatment with respect to the awarding or amending or the making of any determinations with respect to the performing of such contract. In the event the Contract is canceled by the City pursuant to this provision, the City shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by the Contractor in providing such gratuities.

43. **PROHIBITION AGAINST PERSONAL INTEREST IN CONTRACTS**: No officer, employee, independent consultant, or elected official of the City who is involved in the development, evaluation, or decision-making process of the performance of any solicitation shall have a financial interest, direct or indirect, in the Contract resulting from that solicitation as defined in the City's Ethic Ordinance 18-757 and in the City Charter chapter 2 article XI(Ethics). Any willful violation of this section shall constitute impropriety in office, and any officer or employee guilty thereof shall be subject to disciplinary action up to and including dismissal. Any violation of this provision, with the knowledge, expressed or implied, of the Contractor shall render the Contract voidable by the City. The Contractor shall complete and submit the City's Conflict of Interest Questionnaire.

44. **INDEPENDENT CONTRACTOR**: The Contract shall not be construed as creating an employer/employee relationship, a partnership, or a joint venture. The Contractor's services shall be those of an independent contractor. The Contractor agrees and understands that the Contract does not grant any rights or privileges established for employees of the City of Denton, Texas for the purposes of income tax, withholding, social security taxes, vacation or sick leave benefits, worker's compensation, or any other City employee benefit. The City shall not have supervision and control of the Contractor or any employee of the Contractor, and it is expressly understood that Contractor shall perform the services hereunder according to the attached specifications at the general direction of the City Manager of the City of Denton, Texas, or his designee under this agreement. The contractor is expressly free to advertise and perform services for other parties while performing services for the City.

45. **ASSIGNMENT-DELEGATION**: The Contract shall be binding upon and ensure to the benefit of the City and the Contractor and their respective successors and assigns, provided however, that no right or interest in the Contract shall be assigned and no obligation shall be delegated by the Contractor without the prior written consent of the City. Any attempted assignment or delegation by the Contractor shall be void unless made in conformity with this paragraph. The Contract is not intended to confer rights or benefits on any person, firm or entity not a party hereto; it being the intention of the parties that there are no third party beneficiaries to the Contract.

The Vendor shall notify the City's Purchasing Manager, in writing, of a company name, ownership, or address change for the purpose of maintaining updated City records. The president of the company or authorized official must sign the letter. A letter indicating changes in a company name or ownership must be accompanied with supporting legal documentation such as an updated W-9, documents filed with the state indicating such change, copy of the board of director's resolution approving the action, or an executed

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merger or acquisition agreement. Failure to do so may adversely impact future invoice payments.

46. **WAIVER**: No claim or right arising out of a breach of the Contract can be discharged in whole or in part by a waiver or renunciation of the claim or right unless the waiver or renunciation is supported by consideration and is in writing signed by the aggrieved party. No waiver by either the Contractor or the City of any one or more events of default by the other party shall operate as, or be construed to be, a permanent waiver of any rights or obligations under the Contract, or an express or implied acceptance of any other existing or future default or defaults, whether of a similar or different character.

47. **MODIFICATIONS**: The Contract can be modified or amended only by a writing signed by both parties. No pre-printed or similar terms on any the Contractor invoice, order or other document shall have any force or effect to change the terms, covenants, and conditions of the Contract.

48. **INTERPRETATION**: The Contract is intended by the parties as a final, complete and exclusive statement of the terms of their agreement. No course of prior dealing between the parties or course of performance or usage of the trade shall be relevant to supplement or explain any term used in the Contract. Although the Contract may have been substantially drafted by one party, it is the intent of the parties that all provisions be construed in a manner to be fair to both parties, reading no provisions more strictly against one party or the other. Whenever a term defined by the Uniform Commercial Code, as enacted by the State of Texas, is used in the Contract, the UCC definition shall control, unless otherwise defined in the Contract.

49. **DISPUTE RESOLUTION**:
A. If a dispute arises out of or relates to the Contract, or the breach thereof, the parties agree to negotiate prior to prosecuting a suit for damages. However, this section does not prohibit the filing of a lawsuit to toll the running of a statute of limitations or to seek injunctive relief. Either party may make a written request for a meeting between representatives of each party within fourteen (14) calendar days after receipt of the request or such later period as agreed by the parties. Each party shall include, at a minimum, one (1) senior level individual with decision-making authority regarding the dispute. The purpose of this and any subsequent meeting is to attempt in good faith to negotiate a resolution of the dispute. If, within thirty (30) calendar days after such meeting, the parties have not succeeded in negotiating a resolution of the dispute, they will proceed directly to mediation as described below. Negotiation may be waived by a written agreement signed by both parties, in which event the parties may proceed directly to mediation as described below.
B. If the efforts to resolve the dispute through negotiation fail, or the parties waive the negotiation process, the parties may select, within thirty (30) calendar days, a mediator trained in mediation skills to assist with resolution of the dispute. Should they choose this option; the City and the Contractor agree to act in good faith in the selection of the mediator and to give consideration to qualified individuals nominated to act as mediator. Nothing in the Contract prevents the parties from relying on the skills of a person who is trained in the subject matter of the dispute or a contract interpretation expert. If the parties fail to agree on a mediator within thirty (30) calendar days of initiation of the mediation process, the mediator shall be selected by the Denton County Alternative Dispute Resolution Program (DCAP). The parties agree to participate in mediation in good faith for up to thirty (30) calendar days from the date of the first mediation session. The City and the Contractor will share the mediator's fees equally and the parties will bear their own costs of

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participation such as fees for any consultants or attorneys they may utilize to represent them or otherwise assist them in the mediation.

50. **JURISDICTION AND VENUE**: The Contract is made under and shall be governed by the laws of the State of Texas, including, when applicable, the Uniform Commercial Code as adopted in Texas, V.T.C.A., Bus. & Comm. Code, Chapter 1, excluding any rule or principle that would refer to and apply the substantive law of another state or jurisdiction. All issues arising from this Contract shall be resolved in the courts of Denton County, Texas and the parties agree to submit to the exclusive personal jurisdiction of such courts. The foregoing, however, shall not be construed or interpreted to limit or restrict the right or ability of the City to seek and secure injunctive relief from any competent authority as contemplated herein.

51. **INVALIDITY**: The invalidity, illegality, or unenforceability of any provision of the Contract shall in no way affect the validity or enforceability of any other portion or provision of the Contract. Any void provision shall be deemed severed from the Contract and the balance of the Contract shall be construed and enforced as if the Contract did not contain the particular portion or provision held to be void. The parties further agree to reform the Contract to replace any stricken provision with a valid provision that comes as close as possible to the intent of the stricken provision. The provisions of this section shall not prevent this entire Contract from being void should a provision which is the essence of the Contract be determined to be void.

52. **HOLIDAYS:** The following holidays are observed by the City:

New Year's Day (observed)
Martin Luther King, Jr. Day
Memorial Day
Juneteenth
Independence Day
Labor Day
Veterans Day
Thanksgiving
Friday After Thanksgiving
Christmas Eve (observed)
Christmas Day (observed)

If a Legal Holiday falls on Saturday, it will be observed on the preceding Friday. If a Legal Holiday falls on Sunday, it will be observed on the following Monday. Normal hours of operation shall be between 8:00 am and 4:00 pm, Monday through Friday, excluding City of Denton Holidays. Any scheduled deliveries or work performance not within the normal hours of operation **must be approved** by the City Manager of Denton, Texas or his authorized designee.

53. **SURVIVABILITY OF OBLIGATIONS:** All provisions of the Contract that impose continuing obligations on the parties, including but not limited to the warranty, indemnity, and confidentiality obligations of the parties, shall survive the expiration or termination of the Contract.

54. **NON-SUSPENSION OR DEBARMENT CERTIFICATION:**
The City of Denton is prohibited from contracting with or making prime or sub-awards to parties that are suspended or debarred or whose principals are suspended or debarred from Federal, State,

or City of Denton Contracts. By accepting a Contract with the City, the Vendor certifies that its firm and its principals are not currently suspended or debarred from doing business with the Federal Government, as indicated by the General Services Administration List of Parties Excluded from Federal Procurement and Non-Procurement Programs, the State of Texas, or the City of Denton.

55. **EQUAL OPPORTUNITY**

A. **Equal Employment Opportunity:** No Offeror, or Offeror's agent, shall engage in any discriminatory employment practice. No person shall, on the grounds of race, sex, sexual orientation, age, disability, creed, color, genetic testing, or national origin, be refused the benefits of, or be otherwise subjected to discrimination under any activities resulting from this RFQ.

B. **Americans with Disabilities Act (ADA) Compliance:** No Offeror, or Offeror's agent, shall engage in any discriminatory employment practice against individuals with disabilities as defined in the ADA.

56. **BUY AMERICAN ACT-SUPPLIES (Applicable to certain federally funded requirements)**

The following federally funded requirements are applicable. A. Definitions. As used in this paragraph –

i. "Component" means an article, material, or supply incorporated directly into an end product.

ii. "Cost of components" means -

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the end product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

iii. "Domestic end product" means-

(1) An unmanufactured end product mined or produced in the United States; or

(2) An end product manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind as those that the agency determines are not mined, produced, or manufactured in sufficient and reasonably available commercial quantities of a satisfactory quality are treated as domestic. Scrap generated, collected, and prepared for processing in the United States is considered domestic.

iv. "End product" means those articles, materials, and supplies to be acquired under the contract for public use.

v. "Foreign end product" means an end product other than a domestic end product.

vi. "United States" means the 50 States, the District of Columbia, and outlying areas.

B. The Buy American Act (41 U.S.C. 10a - 10d) provides a preference for domestic end products for supplies acquired for use in the United States.

C. The City does not maintain a list of foreign articles that will be treated as domestic for this Contract; but will consider for approval foreign articles as domestic for this product if the articles are on a list approved by another Governmental Agency. The Offeror shall submit documentation with their Offer demonstrating that the article is on an approved Governmental list.

D. The Contractor shall deliver only domestic end products except to the extent that it specified delivery of foreign end products in the provision of the Solicitation entitled "Buy American Act

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Certificate".

57. **RIGHT TO INFORMATION:** The City of Denton reserves the right to use any and all information presented in any response to this contract, whether amended or not, except as prohibited by law. Selection of rejection of the submittal does not affect this right.

58. **LICENSE FEES OR TAXES:** Provided the solicitation requires an awarded contractor or supplier to be licensed by the State of Texas, any and all fees and taxes are the responsibility of the respondent.

59. **PREVAILING WAGE RATES:** The contractor shall comply with prevailing wage rates as defined by the United States Department of Labor Davis-Bacon Wage Determination at http://www.dol.gov/whd/contracts/dbra.htm and at the Wage Determinations website www.wdol.gov for Denton County, Texas (WD-2509).

60. **COMPLIANCE WITH ALL STATE, FEDERAL, AND LOCAL LAWS:** The contractor or supplier shall comply with all State, Federal, and Local laws and requirements. The Respondent must comply with all applicable laws at all times, including, without limitation, the following: (i) §36.02 of the Texas Penal Code, which prohibits bribery; (ii) §36.09 of the Texas Penal Code, which prohibits the offering or conferring of benefits to public servants. The Respondent shall give all notices and comply with all laws and regulations applicable to furnishing and performance of the Contract.

61. **FEDERAL, STATE, AND LOCAL REQUIREMENTS:** Respondent shall demonstrate on-site compliance with the Federal Tax Reform Act of 1986, Section 1706, amending Section 530 of the Revenue Act of 1978, dealing with issuance of Form W-2's to common law employees. Respondent is responsible for both federal and State unemployment insurance coverage and standard Workers' Compensation insurance coverage. Respondent shall ensure compliance with all federal and State tax laws and withholding requirements. The City of Denton shall not be liable to Respondent or its employees for any Unemployment or Workers' Compensation coverage, or federal or State withholding requirements. Contractor shall indemnify the City of Denton and shall pay all costs, penalties, or losses resulting from Respondent's omission or breach of this Section.

62. **DRUG FREE WORKPLACE:** The contractor shall comply with the applicable provisions of the Drug-Free Work Place Act of 1988 (Public Law 100-690, Title V, Subtitle D; 41 U.S.C. 701 ET SEQ.) and maintain a drug-free work environment; and the final rule, government-wide requirements for drug-free work place (grants), issued by the Office of Management and Budget and the Department of Defense (32 CFR Part 280, Subpart F) to implement the provisions of the Drug-Free Work Place Act of 1988 is incorporated by reference and the contractor shall comply with the relevant provisions thereof, including any amendments to the final rule that may hereafter be issued.

63. **RESPONDENT LIABILITY FOR DAMAGE TO GOVERNMENT PROPERTY:** The Respondent shall be liable for all damages to government-owned, leased, or occupied property and equipment caused by the Respondent and its employees, agents, subcontractors, and suppliers, including any delivery or cartage company, in connection with any performance pursuant to the Contract. The Respondent shall notify the City of Denton Procurement Manager in writing of any such damage within one (1) calendar day.

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64. **FORCE MAJEURE:** The City of Denton, any Customer, and the Respondent shall not be responsible for performance under the Contract should it be prevented from performance by an act of war, order of legal authority, act of God, or other unavoidable cause not attributable to the fault or negligence of the City of Denton. In the event of an occurrence under this Section, the Respondent will be excused from any further performance or observance of the requirements so affected for as long as such circumstances prevail and the Respondent continues to use commercially reasonable efforts to recommence performance or observance whenever and to whatever extent possible without delay. The Respondent shall immediately notify the City of Denton Procurement Manager by telephone (to be confirmed in writing within five (5) calendar days of the inception of such occurrence) and describe at a reasonable level of detail the circumstances causing the non-performance or delay in performance.

65. **NON-WAIVER OF RIGHTS:** Failure of a Party to require performance by another Party under the Contract will not affect the right of such Party to require performance in the future. No delay, failure, or waiver of either Party's exercise or partial exercise of any right or remedy under the Contract shall operate to limit, impair, preclude, cancel, waive or otherwise affect such right or remedy. A waiver by a Party of any breach of any term of the Contract will not be construed as a waiver of any continuing or succeeding breach.

66. **NO WAIVER OF SOVEREIGN IMMUNITY:** The Parties expressly agree that no provision of the Contract is in any way intended to constitute a waiver by the City of Denton of any immunities from suit or from liability that the City of Denton may have by operation of law.

67. **RECORDS RETENTION:** The Respondent shall retain all financial records, supporting documents, statistical records, and any other records or books relating to the performances called for in the Contract. The Respondent shall retain all such records for a period of four (4) years after the expiration of the Contract, or until the CPA or State Auditor's Office is satisfied that all audit and litigation matters are resolved, whichever period is longer. The Respondent shall grant access to all books, records and documents pertinent to the Contract to the CPA, the State Auditor of Texas, and any federal governmental entity that has authority to review records due to federal funds being spent under the Contract.

Should a conflict arise between any of the contract documents, it shall be resolved with the following order of precedence (if applicable). In any event, the final negotiated contract shall take precedence over any and all contract documents to the extent of such conflict.

1. **Final negotiated contract**
2. **RFP/Bid documents**
3. **City's standard terms and conditions**
4. **Purchase order**
5. **Contractor terms and conditions**

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Exhibit D
Certificate of Interested Parties Electronic Filing

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that the City may not enter into this contract unless the Contractor submits a disclosure of interested parties (Form 1295) to the City at the time the Contractor submits the signed contract. The Texas Ethics Commission has adopted rules requiring the business entity to file Form 1295 electronically with the Commission.

Contractor will be required to furnish a Certificate of Interest Parties before the contract is awarded, in accordance with Government Code 2252.908.

The contractor shall:

1. Log onto the State Ethics Commission Website at : https://www.ethics.state.tx.us/filinginfo/1295/
2. Register utilizing the tutorial provided by the State
3. Print a copy of the completed Form 1295
4. Enter the Certificate Number on page 2 of this contract.
5. Complete and sign the Form 1295
6. Email the form to purchasing@cityofdenton.com with the contract number in the subject line. (EX: Contract 1234 – Form 1295)

The City must acknowledge the receipt of the filed Form 1295 not later than the 30th day after Council award. Once a Form 1295 is acknowledged, it will be posted to the Texas Ethics Commission's website within seven business days.

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Exhibit E

Contractor's Proposal.

	Pethealth Services (USA) Inc.			
Line #	**Description**	**QTY**	**UOM**	**Unit**
1	Microchips	7500	EA	$5.00
2	Online Registration of Microchips	7500	EA	$0.00
3	PetPoint Enterprise	1	EA/Annually	$2,500.00
4	PetPoint Builders (optional)	1	EA/Annually	$ 4,500.00
5	PetPoint Constuent Services (optional- Includes 4 hours of Engagement Services)	1	EA/Annually	$3,000.00
6	PetPoint Online Licensing Portal (optional – Constituent Services Add-On required for usage)	7500	EA	0.75
7	Petinder Uploads (optional)	1	EA/Annually	$1,800.00

EXHIBIT F

CONFLICT OF INTEREST QUESTIONNAIRE

CONFLICT OF INTEREST QUESTIONNAIRE - FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local government entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

1 **Name of vendor who has a business relationship with local governmental entity.**

Pethealth Services (USA) Inc.

2 ☑ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

_____

Name of Officer

This section, (item 3 including subparts A, B, C & D), must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4 ☑ **I have no Conflict of Interest to disclose.**

5

Signature of vendor doing business with the governmental entity

March 25, 2024

Date

DocuSign

Certificate Of Completion

Envelope Id: 05DC802FA985482F9E60ADD640E8F31C
Status: Sent
Subject: Please DocuSign: City Council Contract 8500-Microchips and Data Management Software
Source Envelope:
Document Pages: 28
Signatures: 3
Certificate Pages: 6
Initials: 1
AutoNav: Enabled
EnvelopeId Stamping: Enabled
Time Zone: (UTC-08:00) Pacific Time (US & Canada)

Envelope Originator:
Kayla Clark
901B Texas Street
Denton, TX 76209
kayla.clark@cityofdenton.com
IP Address: 198.49.140.104

Record Tracking

Status: Original
5/3/2024 10:41:05 AM

Holder: Kayla Clark
kayla.clark@cityofdenton.com

Location: DocuSign

Signer Events	Signature	Timestamp
Kayla Clark kayla.clark@cityofdenton.com Buyer City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	**Completed** Using IP Address: 198.49.140.104	Sent: 5/3/2024 10:48:01 AM Viewed: 5/3/2024 10:48:11 AM Signed: 5/3/2024 10:48:30 AM
Lori Hewell lori.hewell@cityofdenton.com Purchasing Manager City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DS LH Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 5/3/2024 10:48:32 AM Viewed: 5/6/2024 11:07:25 AM Signed: 5/6/2024 11:08:10 AM
Marcella Lunn marcella.lunn@cityofdenton.com Senior Deputy City Attorney City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DocuSigned by: Marcella Lunn 4B070831B4AA438... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 5/6/2024 11:08:12 AM Viewed: 5/8/2024 8:13:26 AM Signed: 5/8/2024 8:15:37 AM
Steve Zeidman steve.zeidman@pethealthinc.com SVP, Software Solutions Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 5/8/2024 8:49:38 AM ID: b68bc47e-ad89-49d3-94d2-b2303d846166	DocuSigned by: Steve Zeidman 42D02E78474F446... Signature Adoption: Pre-selected Style Using IP Address: 65.133.45.202	Sent: 5/8/2024 8:15:39 AM Viewed: 5/8/2024 8:49:38 AM Signed: 5/8/2024 8:52:41 AM

Signer Events	Signature	Timestamp
Nikki Sassenus Nikki.Sassenus@cityofdenton.com Director of Animal Services Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DocuSigned by: Nikki Sassenus C2ECF78F2F5A400... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 5/8/2024 8:52:43 AM Viewed: 5/8/2024 1:55:07 PM Signed: 5/8/2024 1:58:09 PM
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		Sent: 5/8/2024 1:58:14 PM
Cheyenne Defee cheyenne.defee@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Lauren Thoden lauren.thoden@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Sara Hensley sara.hensley@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		

In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 5/3/2024 10:48:32 AM

Carbon Copy Events	Status	Timestamp
Gretna Jones gretna.jones@cityofdenton.com Legal Secretary City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 5/8/2024 1:58:13 PM Viewed: 5/10/2024 9:18:42 AM
City Secretary Office citysecretary@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Monica Benavides Monica.Benavides@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 3/8/2024 12:40:43 PM ID: c45575ef-d22d-4369-ba78-2a064f537a8e		

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	5/3/2024 10:48:01 AM
Envelope Updated	Security Checked	5/9/2024 7:00:11 AM
Envelope Updated	Security Checked	5/9/2024 7:00:11 AM
Envelope Updated	Security Checked	5/9/2024 7:00:11 AM
Envelope Updated	Security Checked	5/9/2024 7:00:11 AM
Envelope Updated	Security Checked	5/9/2024 7:00:11 AM
Envelope Updated	Security Checked	5/9/2024 7:00:11 AM

Payment Events	Status	Timestamps

Electronic Record and Signature Disclosure

ELECTRONIC RECORD AND SIGNATURE DISCLOSURE

From time to time, City of Denton (we, us or Company) may be required by law to provide to you certain written notices or disclosures. Described below are the terms and conditions for providing to you such notices and disclosures electronically through your DocuSign, Inc. (DocuSign) Express user account. Please read the information below carefully and thoroughly, and if you can access this information electronically to your satisfaction and agree to these terms and conditions, please confirm your agreement by clicking the 'I agree' button at the bottom of this document.

Getting paper copies

At any time, you may request from us a paper copy of any record provided or made available electronically to you by us. For such copies, as long as you are an authorized user of the DocuSign system you will have the ability to download and print any documents we send to you through your DocuSign user account for a limited period of time (usually 30 days) after such documents are first sent to you. After such time, if you wish for us to send you paper copies of any such documents from our office to you, you will be charged a $0.00 per-page fee. You may request delivery of such paper copies from us by following the procedure described below.

Withdrawing your consent

If you decide to receive notices and disclosures from us electronically, you may at any time change your mind and tell us that thereafter you want to receive required notices and disclosures only in paper format. How you must inform us of your decision to receive future notices and disclosure in paper format and withdraw your consent to receive notices and disclosures electronically is described below.

Consequences of changing your mind

If you elect to receive required notices and disclosures only in paper format, it will slow the speed at which we can complete certain steps in transactions with you and delivering services to you because we will need first to send the required notices or disclosures to you in paper format, and then wait until we receive back from you your acknowledgment of your receipt of such paper notices or disclosures. To indicate to us that you are changing your mind, you must withdraw your consent using the DocuSign 'Withdraw Consent' form on the signing page of your DocuSign account. This will indicate to us that you have withdrawn your consent to receive required notices and disclosures electronically from us and you will no longer be able to use your DocuSign Express user account to receive required notices and consents electronically from us or to sign electronically documents from us.

All notices and disclosures will be sent to you electronically

Unless you tell us otherwise in accordance with the procedures described herein, we will provide electronically to you through your DocuSign user account all required notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you during the course of our relationship with you. To reduce the chance of you inadvertently not receiving any notice or disclosure, we prefer to provide all of the required notices and disclosures to you by the same method and to the same address that you have given us. Thus, you can receive all the disclosures and notices electronically or in paper format through the paper mail delivery system. If you do not agree with this process, please let us know as described below. Please also see the paragraph immediately above that describes the consequences of your electing not to receive delivery of the notices and disclosures electronically from us.

How to contact City of Denton:
You may contact us to let us know of your changes as to how we may contact you electronically, to request paper copies of certain information from us, and to withdraw your prior consent to receive notices and disclosures electronically as follows:
To contact us by email send messages to: purchasing@cityofdenton.com

To advise City of Denton of your new e-mail address
To let us know of a change in your e-mail address where we should send notices and disclosures electronically to you, you must send an email message to us at melissa.kraft@cityofdenton.com and in the body of such request you must state: your previous e-mail address, your new e-mail address. We do not require any other information from you to change your email address..
In addition, you must notify DocuSign, Inc to arrange for your new email address to be reflected in your DocuSign account by following the process for changing e-mail in DocuSign.
To request paper copies from City of Denton
To request delivery from us of paper copies of the notices and disclosures previously provided by us to you electronically, you must send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail address, full name, US Postal address, and telephone number. We will bill you for any fees at that time, if any.
To withdraw your consent with City of Denton
To inform us that you no longer want to receive future notices and disclosures in electronic format you may:

i. decline to sign a document from within your DocuSign account, and on the subsequent page, select the check-box indicating you wish to withdraw your consent, or you may;
ii. send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail, full name, IS Postal Address, telephone number, and account number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

Required hardware and software

Operating Systems:	Windows2000? or WindowsXP?
Browsers (for SENDERS):	Internet Explorer 6.0? or above
Browsers (for SIGNERS):	Internet Explorer 6.0?, Mozilla FireFox 1.0, NetScape 7.2 (or above)
Email:	Access to a valid email account
Screen Resolution:	800 x 600 minimum
Enabled Security Settings:	•Allow per session cookies •Users accessing the internet behind a Proxy Server must enable HTTP 1.1 settings via proxy connection

** These minimum requirements are subject to change. If these requirements change, we will provide you with an email message at the email address we have on file for you at that time providing you with the revised hardware and software requirements, at which time you will have the right to withdraw your consent.

Acknowledging your access and consent to receive materials electronically
To confirm to us that you can access this information electronically, which will be similar to other electronic notices and disclosures that we will provide to you, please verify that you were able to read this electronic disclosure and that you also were able to print on paper or electronically save this page for your future reference and access or that you were able to e-mail this disclosure and consent to an address where you will be able to print on paper or save it for your future reference and access. Further, if you consent to receiving notices and disclosures exclusively in electronic format on the terms and conditions described above, please let us know by clicking the 'I agree' button below.
By checking the 'I Agree' box, I confirm that:

- I can access and read this Electronic CONSENT TO ELECTRONIC RECEIPT OF ELECTRONIC RECORD AND SIGNATURE DISCLOSURES document; and

- I can print on paper the disclosure or save or send the disclosure to a place where I can print it, for future reference and access; and

- Until or unless I notify City of Denton as described above, I consent to receive from exclusively through electronic means all notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to me by City of Denton during the course of my relationship with you.

File #: ID 24-1088, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Stuart C. Irby Company, for the supply of electric utility fault circuit indicators for Denton Municipal Electric to be stocked in the City of Denton Warehouse; providing for the expenditure of funds therefor: and providing an effective date (RFP 8511 - awarded to Stuart C. Irby Company, for three (3) years, with the option for two (2) additional one (1) year extensions, the total five (5) year not-to-exceed amount of $1,350,000.00).

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Procurement

ACM: Cassey Ogden

DATE: June 4, 2024

SUBJECT

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with Stuart C. Irby Company, for the supply of electric utility fault circuit indicators for Denton Municipal Electric to be stocked in the City of Denton Warehouse; providing for the expenditure of funds therefor: and providing an effective date (RFP 8511 – awarded to Stuart C. Irby Company, for three (3) years, with the option for two (2) additional one (1) year extensions, the total five (5) year not-to-exceed amount of $1,350,000.00).

STRATEGIC ALIGNMENT

This action supports Key Focus Area: Enhance Infrastructure and Mobility.

INFORMATION/BACKGROUND

This Request for Proposal (RFP) is to supply fault circuit indicators that are used by Denton Municipal Electric (DME). A fault indicator provides a visual indication that a fault current has passed through the indicator position or location. Fault indicators are used by DME to assist crews in quickly finding faults or short circuits. This helps by improving restoration time for customers during power interruptions. Automated Smart Tracker fault indicators will also be included in this RFP which will allow remote notifications of faults. Material will be ordered on an as needed basis to maintain appropriate stock levels in the City of Denton Warehouse. These commodities are deemed common stock items and will be funded out of the Warehouse Working Capital account, stocked in the Warehouse, and charged back to the using department as needed.

Project Description	Estimated 5-Year Expenditure
Year 1	$270,000
Year 2	270,000
Year 3	270,000
Year 4	270,000
Year 5	270,000
Total	**$1,350,000**

Request for Proposals was sent to 374 prospective suppliers, including 10 Denton firms. In addition, specifications were placed on the Procurement website for prospective suppliers to download and advertised

in the local newspaper. Four (4) proposals were received, references were checked, and proposals were evaluated based upon published criteria including schedule, probable performance, and price. Best and Final Offers (BAFO) were requested from the top firm. Based upon this evaluation, Stuart C. Irby Company was ranked the highest and determined to be the best value for the City.

NIGP Code Used for Solicitation:	285– Electrical Equipment and Supplies (Except Cable & Wire)
Notifications sent for Solicitation sent in IonWave:	374
Number of Suppliers that viewed Solicitation in IonWave:	16
HUB-Historically Underutilized Business Invitations sent out:	39
SBE-Small Business Enterprise Invitations sent out:	154
Responses from Solicitation:	4

RECOMMENDATION

Award a contract to Stuart C. Irby Company, for the supply of electric utility fault circuit indicators for Denton Municipal Electric to be stocked in the City of Denton Warehouse, in a three (3) year, with the option for two (2) additional one (1) year extensions, the total five (5) year not-to-exceed amount of $1,350,000.

PRINCIPAL PLACE OF BUSINESS

Stuart C. Irby Company
Fort Worth, TX

ESTIMATED SCHEDULE OF PROJECT

This is an initial three (3) year contract with options to extend the contract for two (2) additional one (1) year periods, with all terms and conditions remaining the same.

FISCAL INFORMATION

These items will be funded out of the Warehouse Working Capital account 800100.6801. Requisitions will be entered on an as-needed basis. The budgeted amount for this item is $1,350,000. The City will only pay for services rendered and is not obligated to pay the full contract amount unless needed.

EXHIBITS

Exhibit 1: Agenda Information Sheet
Exhibit 2: Pricing Evaluation
Exhibit 3: Ordinance and Contract

Respectfully submitted:
Lori Hewell, 940-349-7100
Purchasing Manager

For information concerning this acquisition, contact: Keith Kading, 940-349-7178.

Legal point of contact: Marcella Lunn at 940-349-8333.

Exhibit 2
RFP 8511 - Pricing Evaluation for Fault Indicators

			Respondent's Business Name:	**Stuart C. Irby**		Texas Electric Cooperatives		KBS Electrical Distributors, Inc.		Anixter Inc.	
			Principal Place of Business (City and State):	**Fort Worth, TX**		Georgetown, TX		Bryan, TX		Denton, TX	
Line #	**Description**	**QTY**	**UOM**	**Unit**	**Extended**	**Unit**	**Extended**	**Unit**	**Extended**	**Unit**	**Extended**
1	**SECTION A- POWER DELIVERY UNDER GROUND INDICATORS**										
2	Fault Indicator, Small Cable, w/ Lead (*Must be purchases in standard carton multiples of 50*)	300	EA	**$250.00**	**$75,000.00**	$256.00	$76,800.00	$273.00	$81,900.00	$280.49	$84,147.00
3	Fault Indicator, Large Cable, w/out Lead-(*Must be purchases in standard carton multiples of 50*)	150	EA	**$226.00**	**$33,900.00**	$232.00	$34,800.00	$247.00	$37,050.00	$253.50	$38,025.00
4	Fault Indicator Harness, Small Cable (Single fiber lead) (*Must be purchases in standard carton multiples of 5*)	300	EA	**$38.00**	**$11,400.00**	$39.00	$11,700.00	$44.00	$13,200.00	$42.40	$12,720.00
5	Fault Indicator Harness, Large Cable(Three fiber leads) (*Must be purchases in standard carton multiples of 5*)	150	EA	**$84.00**	**$12,600.00**	$95.00	$14,250.00	$100.00	$15,000.00	$103.13	$15,469.50
6	**SECTION B- SMART GRID OVER HEAD INDICATORS**										
7	Fault Indicator, 1PH OH	100	EA	**no bid**	**$27,590.00**	$247.00	$24,700.00	$239.00	$23,900.00	$275.90	$27,590.00
8	**SECTION C - POWER DELIVERY AT&T (FIRSTNET) URD SYSTEM**										
9	Smart Load Tracker LM	20	EA	**$4,779.00**	**$95,580.00**	$4,887.00	$97,740.00	$4,940.00	$98,800.00	$5,357.10	$107,142.00
10	Reporter LT-4G AT&T (Battery only unit)	8	EA	**$2,126.00**	**$17,008.00**	$2,127.00	$17,016.00	$2,199.00	$17,592.00	$2,331.56	$18,652.48
11	Fiber Optic Cable 3PH 10ft Length	8	SET	**$80.00**	**$640.00**	$78.00	$624.00	$82.00	$656.00	$84.82	$678.56
13	Power Harvester Unit	5	EA	**$752.00**	**$3,760.00**	$700.00	$3,500.00	$723.00	$3,615.00	$767.22	$3,836.10
14	Test & Reset Magnet	5	EA	**$75.00**	**$375.00**	$73.00	$365.00	$77.00	$385.00	$79.04	$395.20
15	**SECTION D - POWER DELIVERY AT&T (FIRSTNET) - OVERHEAD SYSTEM**										
16	Smart Navigator 2.0 Satellite (Non-directional)	50	EA	**$895.00**	**$44,750.00**	$916.00	$45,800.00	$946.00	$47,300.00	$1,003.38	$50,169.00
17	Smart Navigator 2.0 Master -4G AT&T (Non-directional)	25	EA	**$1,205.00**	**$30,125.00**	$1,206.00	$30,150.00	$1,246.00	$31,150.00	$1,321.45	$33,036.25
			Total:	**$352,728.00**		$357,445.00		$370,548.00		$391,861.09	

Evaluation

Item #	**Scoring Criteria**	**Stuart C. Irby**	Texas Electric	KBS Electrical	Anixter Inc.
1	Delivery/Project Schedule - 25%	**16.25**	16.25	16.25	15.00
2	Probable Performance - 25%	**18.75**	17.50	17.50	13.75
3	Price, Total Cost of Ownership - 50%	**50.00**	49.34	47.60	45.01
	Total Score:	**85.00**	83.09	81.35	73.76

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, A TEXAS HOME-RULE MUNICIPAL CORPORATION, AUTHORIZING THE CITY MANAGER TO EXECUTE A CONTRACT WITH STUART C. IRBY COMPANY, FOR THE SUPPLY OF ELECTRIC UTILITY FAULT CIRCUIT INDICATORS FOR DENTON MUNICIPAL ELECTRIC TO BE STOCKED IN THE CITY OF DENTON WAREHOUSE; PROVIDING FOR THE EXPENDITURE OF FUNDS THEREFOR: AND PROVIDING AN EFFECTIVE DATE (RFP 8511 – AWARDED TO STUART C. IRBY COMPANY, FOR THREE (3) YEARS, WITH THE OPTION FOR TWO (2) ADDITIONAL ONE (1) YEAR EXTENSIONS, THE TOTAL FIVE (5) YEAR NOT-TO-EXCEED AMOUNT OF $1,350,000.00).

WHEREAS, the City has solicited, received, and evaluated competitive proposals for the supply of electric utility fault circuit indicators for Denton Municipal Electric to be stocked in the City of Denton Warehouse; and

WHEREAS, the City Manager, or a designated employee, has received, reviewed, and recommended that the herein described proposals are the most advantageous to the City considering the relative importance of price and the other evaluation factors included in the request for proposals; and

WHEREAS, this procurement was undertaken as part of the City's governmental function; and

WHEREAS, the City Council has provided in the City Budget for the appropriation of funds to be used for the purchase of the materials, equipment, supplies, or services approved and accepted herein; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The items in the following numbered request for proposal for materials, equipment, supplies, or services shown in the "Request Proposals" on file in the office of the Purchasing Agent, are hereby accepted and approved as being the most advantageous to the City considering the relative importance of price and the other evaluation factors included in the request for proposals.

RFP NUMBER	CONTRACTOR	AMOUNT
8511	Stuart C. Irby Company	$1,350,000.00

SECTION 2. That by the acceptance and approval of the above numbered items of the submitted proposals, the City accepts the offer of the persons submitting the proposals for such items and agrees to purchase the materials, equipment, supplies, or services in accordance with the terms, specifications, standards, quantities, and for the specified sums contained in the Proposal Invitations,

Proposals, and related documents.

SECTION 3. That should the City and person submitting approved and accepted items wish to enter into a formal written agreement as a result of the acceptance, approval, and awarding of the proposals, the City Manager, or their designated representative, is hereby authorized to execute the written contract which shall be attached hereto; provided that the written contract is in accordance with the terms, conditions, specifications, standards, quantities, and specified sums contained in the Proposal and related documents herein approved and accepted.

SECTION 4. The City Council of the City of Denton hereby expressly delegates the authority to take any actions that may be required or permitted to be performed by the City of Denton under this ordinance to the City Manager of the City of Denton, or their designee.

SECTION 5. By the acceptance and approval of the above enumerated bids, the City Council hereby authorizes the expenditure of funds therefor in the amount and in accordance with the approved bids.

SECTION 6. This ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____. This ordinance was passed and approved by the following vote [___ - ___]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Marcella Lunn

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Docusign City Council Transmittal Coversheet

RFP	8511
File Name	Fault Indicators
Purchasing Contact	Ginny Brummett
City Council Target Date	
Piggy Back Option	Yes
Contract Expiration	
Ordinance	

DS
LH

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CONTRACT BY AND BETWEEN
CITY OF DENTON, TEXAS AND STUART C. IRBY COMPANY
(Contract #8511)

THIS CONTRACT is made and entered into this date _____, by and between Stuart C. Irby Company a Mississippi Corporation whose address is 7125 Belton Street Fort Worth, Texas 76118 , hereinafter referred to as "Contractor," and the **CITY OF DENTON, TEXAS**, a home rule municipal corporation, hereinafter referred to as "City," to be effective upon approval of the Denton City Council and subsequent execution of this Contract by the Denton City Manager or his duly authorized designee.

For and in consideration of the covenants and agreements contained herein, and for the mutual benefits to be obtained hereby, the parties agree as follows:

SCOPE OF SERVICES

Contractor shall provide products in accordance with the City's RFP #8511-Fault Indicators, a copy of which is on file at the office of Purchasing Agent and incorporated herein for all purposes. The Contract consists of this written agreement and the following items which are attached hereto, or on file, and incorporated herein by reference:

(a) Special Terms and Conditions **(Exhibit "A");**
(b) City of Denton's RFP 8511 **(Exhibit "B" on file at the office of the Purchasing Agent**);
(c) City of Denton Standard Terms and Conditions **(Exhibit "C");**
(d) Certificate of Interested Parties Electronic Filing **(Exhibit "D");**
(e) Contractor's Proposal. **(Exhibit "E")**;
(f) Form CIQ – Conflict of Interest Questionnaire **(Exhibit "F")**

These documents make up the Contract documents and what is called for by one shall be as binding as if called for by all. In the event of an inconsistency or conflict in any of the provisions of the Contract documents, the inconsistency or conflict shall be resolved by giving precedence first to the written agreement then to the contract documents in the order in which they are listed above. These documents shall be referred to collectively as "Contract Documents."

Prohibition on Contracts with Companies Boycotting Israel
Contractor acknowledges that in accordance with Chapter 2271 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains a written verification from the company that it: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract. The terms "boycott Israel" and "company" shall have the meanings ascribed to those terms in Section 808.001 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Boycotting Certain Energy Companies
Contractor acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains

written verification from the company that it (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the contract. The terms "boycott energy company" and "company" shall have the meanings ascribed to those terms in Section 809.001 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition on Contracts with Companies Boycotting Certain Firearm Entities and Firearm Trade Associations

Contractor acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association. The terms "discriminate against a firearm entity or firearm trade association," "firearm entity" and "firearm trade association" shall have the meanings ascribed to those terms in Chapter 2274 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

Prohibition On Contracts With Companies Doing Business with Iran, Sudan, or a Foreign Terrorist Organization

Sections 2252 and 2270 of the Texas Government Code restricts CITY from contracting with companies that do business with Iran, Sudan, or a foreign terrorist organization. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor, pursuant to Chapters 2252 and 2270, is not ineligible to enter into this agreement and will not become ineligible to receive payments under this agreement by doing business with Iran, Sudan, or a foreign terrorist organization***. Failure to meet or maintain the requirements under this provision will be considered a material breach.

Termination Right for Contracts with Companies Doing Business with Certain Foreign-Owned Companies

The City of Denton may terminate this Contract immediately without any further liability if the City of Denton determines, in its sole judgment, that this Contract meets the requirements under Chapter 2274, and Contractor is, or will be in the future, (i) owned by or the majority of stock or other ownership interest of the company is held or controlled by individuals who are citizens of China, Iran, North Korea, Russia, or other designated country (ii) directly controlled by the Government of China, Iran, North Korea, Russia, or other designated country, or (iii) is headquartered in China, Iran, North Korea, Russia, or other designated country.

The parties agree to transact business electronically. Any statutory requirements that certain terms be in writing will be satisfied using electronic documents and signing. Electronic signing of this document will be deemed an original for all legal purposes.

IN WITNESS WHEREOF, the parties of these presents have executed this agreement in the year and day first above written.

Contract 8511

CONTRACTOR

DocuSigned by:

BY: Russell James
2ADBC7430CA44D8...
AUTHORIZED SIGNATURE

Printed Name: Russell James

Title: Inside Sales

817-312-4011
PHONE NUMBER

james@irby.com
EMAIL ADDRESS

2024-1157704
TEXAS ETHICS COMMISSION
1295 CERTIFICATE NUMBER

CITY OF DENTON, TEXAS

BY: _____
SARA HENSLEY, CITY MANAGER

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

DocuSigned by:

BY: Marcella Lunn
4B070831B4AA438...

THIS AGREEMENT HAS BEEN
BOTH REVIEWED AND APPROVED
as to financial and operational obligations
and business terms.

DocuSigned by:

Jessica Williams
57D4C9696F2F43B...
SIGNATURE

Jessica Williams
PRINTED NAME

Chief Financial Officer
TITLE

Finance
DEPARTMENT

Contract 8511

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Exhibit A
Special Terms and Conditions

1. The Quantities

The quantities indicated on Exhibit E are estimates based upon the best available information. The City reserves the right to increase or decrease the quantities to meet its actual needs without any adjustments in the bid price. Individual purchase orders will be issued on an as needed basis.

2. Product Changes During Contract Term

The Contractor shall not change specifications during the contract term without prior approval. Any deviation in the specifications or change in the product must be approved in advance by the City of Denton. Notice of a change shall be submitted in writing to purchasing@cityofdenton.com, with the above file number in the subject line, for review. Products found to have changed specifications without notification, and acceptance, will be returned at the contractor's expense. Products that have been installed will be replaced at the contractor's expense.

3. Authorized Distributor

The Contractor shall be the manufacturer or authorized distributor of the proposed products. The distributor shall be authorized to sell to the City of Denton and make available the manufacturer's representative as needed by the City.

4. Contract Terms

The contract term will be three (3) year, effective from date of award. The City and the Contractor shall have the option to renew this contract for an additional two (2) one-year periods.

The Contract shall commence upon the issuance of a Notice of Award by the City of Denton and shall automatically renew each year, from the date of award by City Council. The Contractor's request to not renew the contract must be submitted in writing to the Purchasing Manager at least 60 days prior to the contract renewal date for each year. At the sole option of the City of Denton, the Contract may be further extended as needed, not to exceed a total of six (6) months.

5. Price Escalation

On Contractor's request in the form stated herein, the City will implement an escalation/de-escalation price adjustment quarterly based on these special terms after December 31,2024. Any request for price adjustment must be based on the, U.S Department of Labor, Bureau of Labor Statistics, Producer Price Index (PPI) or the manufacturer published pricing list. The maximum escalation will not exceed +/- 8% for any individual year. The escalation will be determined annually at the renewal date. The price will be increased or decreased based upon the annual percentage change in the PPI or the percentage change in the manufacturer's price list. Should the PPI or manufacturer price list change exceed a minimum threshold value of +/-1%, then the stated eligible bid prices shall be adjusted in accordance with the percent change not to exceed

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the 8% limit per year. The Contractor should provide documentation as percentage of each cost associated with the unit prices quoted for consideration.

Request must be submitted in writing with supporting evidence for need of such increase to the Purchasing Manager at least 60 days prior to contract expiration of each year. Respondent must also provide supporting documentation as justification for the request. If no request is made, then it will be assumed that the current contract price will be in effect.

Upon receipt of such request, the City of Denton reserves the right to either: accept the escalation as competitive with the general market price at the time, and become effective upon the renewal date of the contract award or reject the increases within 30 calendar days after receipt of a properly submitted request. If a properly submitted increase is rejected, the Contractor may request cancellation of such items from the Contract by giving the City of Denton written notice. Cancellation will not go into effect for 15 calendar days after a determination has been issued. Pre-price increase prices must be honored on orders dated up to the official date of the City of Denton approval and/or cancellation.

The request can be sent by e-mail to: purchasing@cityofdenton.com noting the solicitation number.

The City of Denton reserves the right to accept, reject, or negotiate the proposed price changes.

6. Total Contract Amount

The contract total shall not exceed $1,350,000. Pricing shall be per Exhibit E attached.

7. Delivery Lead Time

Product or services shall be delivered to the City in 8-10 weeks after receipt of the order. Free freight on orders of $2,700 or more.

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Exhibit C
City of Denton
Standard Purchase Terms and Conditions

These standard Terms and Conditions and the Terms and Conditions, Specifications, Drawings and other requirements included in the City of Denton's contract are applicable to contracts/purchase orders issued by the City of Denton hereinafter referred to as the City or Buyer and the Seller or respondent herein after referred to as Contractor or Supplier. Any deviations must be in writing and signed by a representative of the City's Procurement Department and the Supplier. No Terms and Conditions contained in the seller's proposal response, invoice or statement shall serve to modify the terms set forth herein. If there is a conflict between the provisions on the face of the contract/purchase order these written provisions will take precedence.

The Contractor agrees that the contract shall be governed by the following terms and conditions, unless exceptions are duly noted and fully negotiated. Unless otherwise specified in the contract, Sections 3, 4, 5, 6, 7, 8, 20, 21, and 36 shall apply only to a solicitation to purchase goods, and sections 9, 10, 11, 22 and 32 shall apply only to a solicitation to purchase services to be performed principally at the City's premises or on public rights-of-way.

1. **CONTRACTOR'S OBLIGATIONS**. The Contractor shall fully and timely provide all deliverables described in the Solicitation and in the Contractor's Offer in strict accordance with the terms, covenants, and conditions of the Contract and all applicable Federal, State, and local laws, rules, and regulations.

2. **EFFECTIVE DATE/TERM**. Unless otherwise specified in the Solicitation, this Contract shall be effective as of the date the contract is signed by the City, and shall continue in effect until all obligations are performed in accordance with the Contract.

3. **CONTRACTOR TO PACKAGE DELIVERABLES**: The Contractor will package deliverables in accordance with good commercial practice and shall include a packing list showing the description of each item, the quantity and unit price unless otherwise provided in the Specifications or Supplemental Terms and Conditions, each shipping container shall be clearly and permanently marked as follows: (a) The Contractor's name and address, (b) the City's name, address and purchase order or purchase release number and the price agreement number if applicable, (c) Container number and total number of containers, e.g. box 1 of 4 boxes, and (d) the number of the container bearing the packing list. The Contractor shall bear cost of packaging. Deliverables shall be suitably packed to secure lowest transportation costs and to conform to all the requirements of common carriers and any applicable specification. The City's count or weight shall be final and conclusive on shipments not accompanied by packing lists.

4. **SHIPMENT UNDER RESERVATION PROHIBITED**: The Contractor is not authorized to ship the deliverables under reservation and no tender of a bill of lading will operate as a tender of deliverables.

5. **TITLE & RISK OF LOSS**: Title to and risk of loss of the deliverables shall pass to the City

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only when the City actually receives and accepts the deliverables.

6. **DELIVERY TERMS AND TRANSPORTATION CHARGES**: Deliverables shall be shipped F.O.B. point of delivery unless otherwise specified in the Supplemental Terms and Conditions. The City shall have the right to designate what method of transportation shall be used to ship the deliverables. The place of delivery shall be that set forth the purchase order.

7. **RIGHT OF INSPECTION AND REJECTION**: The City expressly reserves all rights under law, including, but not limited to the Uniform Commercial Code, to inspect the deliverables at delivery before accepting them, and to reject defective or non-conforming deliverables. If the City has the right to inspect the Contractor's, or the Contractor's Subcontractor's, facilities, or the deliverables at the Contractor's, or the Contractor's Subcontractor's, premises, the Contractor shall furnish, or cause to be furnished, without additional charge, all reasonable facilities and assistance to the City to facilitate such inspection.

8. **NO REPLACEMENT OF DEFECTIVE TENDER**: Every tender or delivery of deliverables must fully comply with all provisions of the Contract as to time of delivery, quality, and quantity. Any non-complying tender shall constitute a breach and the Contractor shall not have the right to substitute a conforming tender; provided, where the time for performance has not yet expired, the Contractor may notify the City of the intention to cure and may then make a conforming tender within the time allotted in the contract.

9. **PLACE AND CONDITION OF WORK**: The City shall provide the Contractor access to the sites where the Contractor is to perform the services as required in order for the Contractor to perform the services in a timely and efficient manner, in accordance with and subject to the applicable security laws, rules, and regulations. The Contractor acknowledges that it has satisfied itself as to the nature of the City's service requirements and specifications, the location and essential characteristics of the work sites, the quality and quantity of materials, equipment, labor and facilities necessary to perform the services, and any other condition or state of fact which could in any way affect performance of the Contractor's obligations under the contract. The Contractor hereby releases and holds the City harmless from and against any liability or claim for damages of any kind or nature if the actual site or service conditions differ from expected conditions.

The contractor shall, at all times, exercise reasonable precautions for the safety of their employees, City Staff, participants and others on or near the City's facilities.

10. **WORKFORCE**

A. The Contractor shall employ only orderly and competent workers, skilled in the performance of the services which they will perform under the Contract.

B. The Contractor, its employees, subcontractors, and subcontractor's employees may not while engaged in participating or responding to a solicitation or while in the course and scope of delivering goods or services under a City of Denton contract or on the City's property .

i. use or possess a firearm, including a concealed handgun that is licensed under state law, except as required by the terms of the contract; or

ii. use or possess alcoholic or other intoxicating beverages, illegal drugs or controlled substances, nor may such workers be intoxicated, or under the influence of alcohol or drugs, on the job.

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C. If the City or the City's representative notifies the Contractor that any worker is incompetent, disorderly or disobedient, has knowingly or repeatedly violated safety regulations, has possessed any firearms, or has possessed or was under the influence of alcohol or drugs on the job, the Contractor shall immediately remove such worker from Contract services, and may not employ such worker again on Contract services without the City's prior written consent.
Immigration: The Contractor represents and warrants that it shall comply with the requirements of the Immigration Reform and Control Act of 1986 and 1990 regarding employment verification and retention of verification forms for any individuals hired on or after November 6, 1986, who will perform any labor or services under the Contract and the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 ("IIRIRA) enacted on September 30, 1996.

11. **COMPLIANCE WITH HEALTH, SAFETY, AND ENVIRONMENTAL REGULATIONS**: The Contractor, it's Subcontractors, and their respective employees, shall comply fully with all applicable federal, state, and local health, safety, and environmental laws, ordinances, rules and regulations in the performance of the services, including but not limited to those promulgated by the City and by the Occupational Safety and Health Administration (OSHA). In case of conflict, the most stringent safety requirement shall govern. The Contractor shall indemnify and hold the City harmless from and against all claims, demands, suits, actions, judgments, fines, penalties and liability of every kind arising from the breach of the Contractor's obligations under this paragraph.

Environmental Protection: The Respondent shall be in compliance with all applicable standards, orders, or regulations issued pursuant to the mandates of the Clean Air Act (42 U.S.C. §7401 *et seq*.) and the Federal Water Pollution Control Act, as amended, (33 U.S.C. §1251 *et seq*.).

12. **INVOICES**:
A. The Contractor shall submit separate invoices in duplicate on each purchase order or purchase release after each delivery. If partial shipments or deliveries are authorized by the City, a separate invoice must be sent for each shipment or delivery made.
B. **Proper Invoices must include a unique invoice number, the purchase order or delivery order number and the master agreement number if applicable, the Department's Name, and the name of the point of contact for the Department**. Invoices shall be itemized and transportation charges, if any, shall be listed separately. A copy of the bill of lading and the freight waybill, when applicable, shall be attached to the invoice. The Contractor's name, remittance address and, if applicable, the tax identification number on the invoice must exactly match the information in the Vendor's registration with the City. Unless otherwise instructed in writing, the City may rely on the remittance address specified on the Contractor's invoice.
C. Invoices for labor shall include a copy of all time-sheets with trade labor rate and deliverables order number clearly identified. Invoices shall also include a tabulation of work-hours at the appropriate rates and grouped by work order number. Time billed for labor shall be limited to hours actually worked at the work site.
D. Unless otherwise expressly authorized in the Contract, the Contractor shall pass through all Subcontract and other authorized expenses at actual cost without markup.
E. Federal excise taxes, State taxes, or City sales taxes must not be included in the invoiced amount.
The City will furnish a tax exemption certificate upon request.

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13. **PAYMENT**:
A. All proper invoices need to be sent to Accounts Payable. Approved invoices will be paid within thirty (30) calendar days of the City's receipt of the deliverables or of the invoice being received in Accounts Payable, whichever is later.
B. **If payment is not timely made, (per paragraph A); interest shall accrue on the unpaid balance at the lesser of the rate specified in Texas Government Code Section 2251.025 or the maximum lawful rate; except, if payment is not timely made for a reason for which the City may withhold payment hereunder, interest shall not accrue until ten (10) calendar days after the grounds for withholding payment have been resolved.**
C. If partial shipments or deliveries are authorized by the City, the Contractor will be paid for the partial shipment or delivery, as stated above, provided that the invoice matches the shipment or delivery.
D. The City may withhold or set off the entire payment or part of any payment otherwise due the Contractor to such extent as may be necessary on account of:

i. delivery of defective or non-conforming deliverables by the Contractor;
ii. third party claims, which are not covered by the insurance which the Contractor is required to provide, are filed or reasonable evidence indicating probable filing of such claims;
iii. failure of the Contractor to pay Subcontractors, or for labor, materials or equipment;
iv. damage to the property of the City or the City's agents, employees or contractors, which is not covered by insurance required to be provided by the Contractor;
v. reasonable evidence that the Contractor's obligations will not be completed within the time specified in the Contract, and that the unpaid balance would not be adequate to cover actual or damages for the anticipated delay;
vi. failure of the Contractor to submit proper invoices with purchase order number, with all required attachments and supporting documentation; or
vii. failure of the Contractor to comply with any material provision of the Contract Documents.

E. Notice is hereby given that any awarded firm who is in arrears to the City of Denton for delinquent taxes, the City may offset indebtedness owed the City through payment withholding.
F. Payment will be made by check unless the parties mutually agree to payment by credit card or electronic transfer of funds. The Contractor agrees that there shall be no additional charges, surcharges, or penalties to the City for payments made by credit card or electronic funds transfer.
G. The awarding or continuation of this contract is dependent upon the availability of funding. The City's payment obligations are payable only and solely from funds Appropriated and available for this contract. The absence of Appropriated or other lawfully available funds shall render the Contract null and void to the extent funds are not Appropriated or available and any deliverables delivered but unpaid shall be returned to the Contractor. The City shall provide the Contractor written notice of the failure of the City to make an adequate Appropriation for any fiscal year to pay the amounts due under the Contract, or the reduction of any Appropriation to an amount insufficient to permit the City to pay its obligations under the Contract. In the event of none or inadequate appropriation of funds, there will be no penalty nor removal fees charged to the City.

14. **TRAVEL EXPENSES**: All travel, lodging and per diem expenses in connection with the Contract shall be paid by the Contractor, unless otherwise stated in the contract terms. During the term of this contract, the contractor shall bill and the City shall reimburse contractor for all

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reasonable and approved out of pocket expenses which are incurred in the connection with the performance of duties hereunder. Notwithstanding the foregoing, expenses for the time spent by the contractor in traveling to and from City facilities shall not be reimbursed, unless otherwise negotiated.

15. **FINAL PAYMENT AND CLOSE-OUT**:
A. If a DBE/MBE/WBE Program Plan is agreed to and the Contractor has identified Subcontractors, the Contractor is required to submit a Contract Close-Out MBE/WBE Compliance Report to the Purchasing Manager no later than the 15th calendar day after completion of all work under the contract. Final payment, retainage, or both may be withheld if the Contractor is not in compliance with the requirements as accepted by the City.
B. The making and acceptance of final payment will constitute:
i. a waiver of all claims by the City against the Contractor, except claims (1) which have been previously asserted in writing and not yet settled, (2) arising from defective work appearing after final inspection, (3) arising from failure of the Contractor to comply with the Contract or the terms of any warranty specified herein, (4) arising from the Contractor's continuing obligations under the Contract, including but not limited to indemnity and warranty obligations, or (5) arising under the City's right to audit; and ii. a waiver of all claims by the Contractor against the City other than those previously asserted in writing and not yet settled.

16. **SPECIAL TOOLS & TEST EQUIPMENT**: If the price stated on the Offer includes the cost of any special tooling or special test equipment fabricated or required by the Contractor for the purpose of filling this order, such special tooling equipment and any process sheets related thereto shall become the property of the City and shall be identified by the Contractor as such.

17. **RIGHT TO AUDIT**:
A. The City shall have the right to audit and make copies of the books, records and computations pertaining to the Contract. The Contractor shall retain such books, records, documents and other evidence pertaining to the Contract period and five years thereafter, except if an audit is in progress or audit findings are yet unresolved, in which case records shall be kept until all audit tasks are completed and resolved. These books, records, documents and other evidence shall be available, within ten (10) business days of written request. Further, the Contractor shall also require all Subcontractors, material suppliers, and other payees to retain all books, records, documents and other evidence pertaining to the Contract, and to allow the City similar access to those documents. All books and records will be made available within a 50 mile radius of the City of Denton. The cost of the audit will be borne by the City unless the audit reveals an overpayment of 1% or greater. If an overpayment of 1% or greater occurs, the reasonable cost of the audit, including any travel costs, must be borne by the Contractor which must be payable within five (5) business days of receipt of an invoice.
B. Failure to comply with the provisions of this section shall be a material breach of the Contract and shall constitute, in the City's sole discretion, grounds for termination thereof. Each of the terms "books", "records", "documents" and "other evidence", as used above, shall be construed to include drafts and electronic files, even if such drafts or electronic files are subsequently used to generate or prepare a final printed document.

18. **SUBCONTRACTORS**:
A. If the Contractor identified Subcontractors in a DBE/MBE/WBE agreed to Plan, the Contractor

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shall comply with all requirements approved by the City. The Contractor shall not initially employ any Subcontractor except as provided in the Contractor's Plan. The Contractor shall not substitute any Subcontractor identified in the Plan, unless the substitute has been accepted by the City in writing. No acceptance by the City of any Subcontractor shall constitute a waiver of any rights or remedies of the City with respect to defective deliverables provided by a Subcontractor. If a Plan has been approved, the Contractor is additionally required to submit a monthly Subcontract Awards and Expenditures Report to the Procurement Manager, no later than the tenth calendar day of each month.

B. Work performed for the Contractor by a Subcontractor shall be pursuant to a written contract between the Contractor and Subcontractor. The terms of the subcontract may not conflict with the terms of the
Contract, and shall contain provisions that:

i. require that all deliverables to be provided by the Subcontractor be provided in strict accordance with the provisions, specifications and terms of the Contract;

ii. prohibit the Subcontractor from further subcontracting any portion of the Contract without the prior written consent of the City and the Contractor. The City may require, as a condition to such further subcontracting, that the Subcontractor post a payment bond in form, substance and amount acceptable to the City;

iii. require Subcontractors to submit all invoices and applications for payments, including any claims for additional payments, damages or otherwise, to the Contractor in sufficient time to enable the Contractor to include same with its invoice or application for payment to the City in accordance with the terms of the Contract;

iv. require that all Subcontractors obtain and maintain, throughout the term of their contract, insurance in the type and amounts specified for the Contractor, with the City being a named insured as its interest shall appear; and

v. require that the Subcontractor indemnify and hold the City harmless to the same extent as the Contractor is required to indemnify the City.

C. The Contractor shall be fully responsible to the City for all acts and omissions of the Subcontractors just as the Contractor is responsible for the Contractor's own acts and omissions. Nothing in the Contract shall create for the benefit of any such Subcontractor any contractual relationship between the City and any such Subcontractor, nor shall it create any obligation on the part of the City to pay or to see to the payment of any moneys due any such Subcontractor except as may otherwise be required by law.

D. The Contractor shall pay each Subcontractor its appropriate share of payments made to the Contractor not later than ten (10) calendar days after receipt of payment from the City.

19. **WARRANTY-PRICE**:

A. The Contractor warrants the prices quoted in the Offer are no higher than the Contractor's current prices on orders by others for like deliverables under similar terms of purchase.

B. The Contractor certifies that the prices in the Offer have been arrived at independently without consultation, communication, or agreement for the purpose of restricting competition, as to any matter relating to such fees with any other firm or with any competitor.

C. In addition to any other remedy available, the City may deduct from any amounts owed to the Contractor, or otherwise recover, any amounts paid for items in excess of the Contractor's current prices on orders by others for like deliverables under similar terms of purchase.

20. **WARRANTY – TITLE**: The Contractor warrants that it has good and indefeasible title to all

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deliverables furnished under the Contract, and that the deliverables are free and clear of all liens, claims, security interests and encumbrances. The Contractor shall indemnify and hold the City harmless from and against all adverse title claims to the deliverables.

21. **WARRANTY – DELIVERABLES**: The Contractor warrants and represents that all deliverables sold the City under the Contract shall be free from defects in design, workmanship or manufacture, and conform in all material respects to the specifications, drawings, and descriptions in the Solicitation, to any samples furnished by the Contractor, to the terms, covenants and conditions of the Contract, and to all applicable State, Federal or local laws, rules, and regulations, and industry codes and standards. Unless otherwise stated in the Solicitation, the deliverables shall be new or recycled merchandise, and not used or reconditioned.
A. Recycled deliverables shall be clearly identified as such.
B. The Contractor may not limit, exclude or disclaim the foregoing warranty or any warranty implied by law; and any attempt to do so shall be without force or effect.
C. Unless otherwise specified in the Contract, the warranty period shall be at least one year from the date of acceptance of the deliverables or from the date of acceptance of any replacement deliverables. If during the warranty period, one or more of the above warranties are breached, the Contractor shall promptly upon receipt of demand either repair the non-conforming deliverables or replace the non-conforming deliverables with fully conforming deliverables, at the City's option and at no additional cost to the City. All costs incidental to such repair or replacement, including but not limited to, any packaging and shipping costs shall be borne exclusively by the Contractor. The City shall endeavor to give the Contractor written notice of the breach of warranty within thirty (30) calendar days of discovery of the breach of warranty, but failure to give timely notice shall not impair the City's rights under this section.
D. If the Contractor is unable or unwilling to repair or replace defective or non-conforming deliverables as required by the City, then in addition to any other available remedy, the City may reduce the quantity of deliverables it may be required to purchase under the Contract from the Contractor and purchase conforming deliverables from other sources. In such event, the Contractor shall pay to the City upon demand the increased cost, if any, incurred by the City to procure such deliverables from another source.
E. If the Contractor is not the manufacturer, and the deliverables are covered by a separate manufacturer's warranty, the Contractor shall transfer and assign such manufacturer's warranty to the City. If for any reason the manufacturer's warranty cannot be fully transferred to the City, the Contractor shall assist and cooperate with the City to the fullest extent to enforce such manufacturer's warranty for the benefit of the City.

22. **WARRANTY – SERVICES**: The Contractor warrants and represents that all services to be provided the City under the Contract will be fully and timely performed in a good and workmanlike manner in accordance with generally accepted industry standards and practices, the terms, conditions, and covenants of the Contract, and all applicable Federal, State and local laws, rules or regulations.
A. The Contractor may not limit, exclude or disclaim the foregoing warranty or any warranty implied by law, and any attempt to do so shall be without force or effect.
B. Unless otherwise specified in the Contract, the warranty period shall be at least one year from the Acceptance Date. If during the warranty period, one or more of the above warranties are breached, the Contractor shall promptly upon receipt of demand perform the services again in accordance with above standard at no additional cost to the City. All costs incidental to such

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additional performance shall be borne by the Contractor. The City shall endeavor to give the Contractor written notice of the breach of warranty within thirty (30) calendar days of discovery of the breach warranty, but failure to give timely notice shall not impair the City's rights under this section.

C. If the Contractor is unable or unwilling to perform its services in accordance with the above standard as required by the City, then in addition to any other available remedy, the City may reduce the amount of services it may be required to purchase under the Contract from the Contractor and purchase conforming services from other sources. In such event, the Contractor shall pay to the City upon demand the increased cost, if any, incurred by the City to procure such services from another source.

23. **ACCEPTANCE OF INCOMPLETE OR NON-CONFORMING DELIVERABLES**: If, instead of requiring immediate correction or removal and replacement of defective or non-conforming deliverables, the City prefers to accept it, the City may do so. The Contractor shall pay all claims, costs, losses and damages attributable to the City's evaluation of and determination to accept such defective or non-conforming deliverables. If any such acceptance occurs prior to final payment, the City may deduct such amounts as are necessary to compensate the City for the diminished value of the defective or non-conforming deliverables. If the acceptance occurs after final payment, such amount will be refunded to the City by the Contractor.

24. **RIGHT TO ASSURANCE**: Whenever one party to the Contract in good faith has reason to question the other party's intent to perform, demand may be made to the other party for written assurance of the intent to perform. In the event that no assurance is given within the time specified after demand is made, the demanding party may treat this failure as an anticipatory repudiation of the Contract.

25. **STOP WORK NOTICE**: The City may issue an immediate Stop Work Notice in the event the Contractor is observed performing in a manner that is in violation of Federal, State, or local guidelines, or in a manner that is determined by the City to be unsafe to either life or property. Upon notification, the Contractor will cease all work until notified by the City that the violation or unsafe condition has been corrected. The Contractor shall be liable for all costs incurred by the City as a result of the issuance of such Stop Work Notice.

26. **DEFAULT**: The Contractor shall be in default under the Contract if the Contractor (a) fails to fully, timely and faithfully perform any of its material obligations under the Contract, (b) fails to provide adequate assurance of performance under Paragraph 24, (c) becomes insolvent or seeks relief under the bankruptcy laws of the United States or (d) makes a material misrepresentation in Contractor's Offer, or in any report or deliverable required to be submitted by the Contractor to the City.

27. **TERMINATION FOR CAUSE:** In the event of a default by the Contractor, the City shall have the right to terminate the Contract for cause, by written notice effective ten (10) calendar days, unless otherwise specified, after the date of such notice, unless the Contractor, within such ten (10) day period, cures such default, or provides evidence sufficient to prove to the City's reasonable satisfaction that such default does not, in fact, exist. In addition to any other remedy available under law or in equity, the City shall be entitled to recover all actual damages, costs, losses and expenses, incurred by the City as a result of the Contractor's default, including, without

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limitation, cost of cover, reasonable attorneys' fees, court costs, and prejudgment and post-judgment interest at the maximum lawful rate. Additionally, in the event of a default by the Contractor, the City may remove the Contractor from the City's vendor list for three (3) years and any Offer submitted by the Contractor may be disqualified for up to three (3) years. All rights and remedies under the Contract are cumulative and are not exclusive of any other right or remedy provided by law.

28. **TERMINATION WITHOUT CAUSE**: The City shall have the right to terminate the Contract, in whole or in part, without cause any time upon thirty (30) calendar days' prior written notice. Upon receipt of a notice of termination, the Contractor shall promptly cease all further work pursuant to the Contract, with such exceptions, if any, specified in the notice of termination. The City shall pay the Contractor, to the extent of funds Appropriated or otherwise legally available for such purposes, for all goods delivered and services performed and obligations incurred prior to the date of termination in accordance with the terms hereof.

29. **FRAUD**: Fraudulent statements by the Contractor on any Offer or in any report or deliverable required to be submitted by the Contractor to the City shall be grounds for the termination of the Contract for cause by the City and may result in legal action.

30. **DELAYS**:
A. The City may delay scheduled delivery or other due dates by written notice to the Contractor if the City deems it is in its best interest. If such delay causes an increase in the cost of the work under the Contract, the City and the Contractor shall negotiate an equitable adjustment for costs incurred by the Contractor in the Contract price and execute an amendment to the Contract. The Contractor must assert its right to an adjustment within thirty (30) calendar days from the date of receipt of the notice of delay. Failure to agree on any adjusted price shall be handled under the Dispute Resolution process specified in paragraph 49. However, nothing in this provision shall excuse the Contractor from delaying the delivery as notified.
B. Neither party shall be liable for any default or delay in the performance of its obligations under this Contract if, while and to the extent such default or delay is caused by acts of God, fire, riots, civil commotion, labor disruptions, sabotage, sovereign conduct, or any other cause beyond the reasonable control of such Party. In the event of default or delay in contract performance due to any of the foregoing causes, then the time for completion of the services will be extended; provided, however, in such an event, a conference will be held within three (3) business days to establish a mutually agreeable period of time reasonably necessary to overcome the effect of such failure to perform.

31. **INDEMNITY**:
A. Definitions:

i. "Indemnified Claims" shall include any and all claims, demands, suits, causes of action, judgments and liability of every character, type or description, including all reasonable costs and expenses of litigation, mediation or other alternate dispute resolution mechanism, including attorney and other professional fees for: (1) damage to or loss of the property of any person (including, but not limited to the City, the Contractor, their respective agents, officers, employees and subcontractors; the officers, agents, and employees of such subcontractors; and third parties); and/or (2) death, bodily injury, illness, disease, worker's compensation, loss of services, or loss of income or wages to any person (including but not

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limited to the agents, officers and employees of the City, the Contractor, the Contractor's subcontractors, and third parties), ii. "Fault" shall include the sale of defective or non-conforming deliverables, negligence, willful misconduct or a breach of any legally imposed strict liability standard.

B. **THE CONTRACTOR SHALL DEFEND (AT THE OPTION OF THE CITY), INDEMNIFY, AND HOLD THE CITY, ITS SUCCESSORS, ASSIGNS, OFFICERS, EMPLOYEES AND ELECTED OFFICIALS HARMLESS FROM AND AGAINST ALL INDEMNIFIED CLAIMS DIRECTLY ARISING OUT OF, INCIDENT TO, CONCERNING OR RESULTING FROM THE FAULT OF THE CONTRACTOR, OR THE CONTRACTOR'S AGENTS, EMPLOYEES OR SUBCONTRACTORS, IN THE PERFORMANCE OF THE CONTRACTOR'S OBLIGATIONS UNDER THE CONTRACT. NOTHING HEREIN SHALL BE DEEMED TO LIMIT THE RIGHTS OF THE CITY OR THE CONTRACTOR (INCLUDING, BUT NOT LIMITED TO, THE RIGHT TO SEEK CONTRIBUTION) AGAINST ANY THIRD PARTY WHO MAY BE LIABLE FOR AN INDEMNIFIED CLAIM.**

32. **INSURANCE**: The following insurance requirements are applicable, in addition to the specific insurance requirements detailed in **Appendix A** for services only**.** The successful firm shall procure and maintain insurance of the types and in the minimum amounts acceptable to the City of Denton. The insurance shall be written by a company licensed to do business in the State of Texas and satisfactory to the City of Denton.

A. General Requirements:

i. The Contractor shall at a minimum carry insurance in the types and amounts indicated and agreed to, as submitted to the City and approved by the City within the procurement process, for the duration of the Contract, including extension options and hold over periods, and during any warranty period.

ii. The Contractor shall provide Certificates of Insurance with the coverage's and endorsements required to the City as verification of coverage prior to contract execution and within fourteen (14) calendar days after written request from the City. Failure to provide the required Certificate of Insurance may subject the Offer to disqualification from consideration for award. The Contractor must also forward a Certificate of Insurance to the City whenever a previously identified policy period has expired, or an extension option or hold over period is exercised, as verification of continuing coverage.

iii. The Contractor shall not commence work until the required insurance is obtained and until such insurance has been reviewed by the City. Approval of insurance by the City shall not relieve or decrease the liability of the Contractor hereunder and shall not be construed to be a limitation of liability on the part of the Contractor.

iv. The Contractor must submit certificates of insurance to the City for all subcontractors prior to the subcontractors commencing work on the project.

v. The Contractor's and all subcontractors' insurance coverage shall be written by companies licensed to do business in the State of Texas at the time the policies are issued and shall be written by companies with A.M. Best ratings of **A- VII or better**. The City will accept workers' compensation coverage written by the Texas Workers' Compensation Insurance Fund.

vi. All endorsements naming the City as additional insured, waivers, and notices of cancellation endorsements as well as the Certificate of Insurance shall contain the

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solicitation number and the following information:
City of Denton
Materials Management Department
901B Texas Street
Denton, Texas 76209

vii. The "other" insurance clause shall not apply to the City where the City is an additional insured shown on any policy. It is intended that policies required in the Contract, covering both the City and the Contractor, shall be considered primary coverage as applicable.

viii. If insurance policies are not written for amounts agreed to with the City, the Contractor shall carry Umbrella or Excess Liability Insurance for any differences in amounts specified. If Excess Liability Insurance is provided, it shall follow the form of the primary coverage.

ix. The City shall be entitled, upon request, at an agreed upon location, and without expense, to review certified copies of policies and endorsements thereto and may make any reasonable requests for deletion or revision or modification of particular policy terms, conditions, limitations, or exclusions except where policy provisions are established by law or regulations binding upon either of the parties hereto or the underwriter on any such policies.

x. The City reserves the right to review the insurance requirements set forth during the effective period of the Contract and to make reasonable adjustments to insurance coverage, limits, and exclusions when deemed necessary and prudent by the City based upon changes in statutory law, court decisions, the claims history of the industry or financial condition of the insurance company as well as the Contractor.

xi. The Contractor shall not cause any insurance to be canceled nor permit any insurance to lapse during the term of the Contract or as required in the Contract.

xii. The Contractor shall be responsible for premiums, deductibles and self-insured retentions, if any, stated in policies. All deductibles or self-insured retentions shall be disclosed on the Certificate of Insurance.

xiii. The Contractor shall endeavor to provide the City thirty (30) calendar days' written notice of erosion of the aggregate limits below occurrence limits for all applicable coverage's indicated within the Contract.

xiv. The insurance coverage's specified in within the solicitation and requirements are required minimums and are not intended to limit the responsibility or liability of the Contractor.

B. Specific Coverage Requirements: Specific insurance requirements are contained in the solicitation instrument.

33. **CLAIMS**: If any claim, demand, suit, or other action is asserted against the Contractor which arises under or concerns the Contract, or which could have a material adverse effect on the Contractor's ability to perform thereunder, the Contractor shall give written notice thereof to the City within ten (10) calendar days after receipt of notice by the Contractor. Such notice to the City shall state the date of notification of any such claim, demand, suit, or other action; the names and addresses of the claimant(s); the basis thereof; and the name of each person against whom such claim is being asserted. Such notice shall be delivered personally or by mail and shall be sent to the City and to the Denton City Attorney. Personal delivery to the City Attorney shall be to City Hall, 215 East McKinney Street, Denton, Texas 76201.

34. **NOTICES**: Unless otherwise specified, all notices, requests, or other communications required

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or appropriate to be given under the Contract shall be in writing and shall be deemed delivered three (3) business days after postmarked if sent by U.S. Postal Service Certified or Registered Mail, Return Receipt Requested. Notices delivered by other means shall be deemed delivered upon receipt by the addressee. Routine communications may be made by first class mail, telefax, or other commercially accepted means. Notices to the Contractor shall be sent to the address specified in the Contractor's Offer, or at such other address as a party may notify the other in writing. Notices to the City shall be addressed to the City at 901B Texas Street, Denton, Texas 76209 and marked to the attention of the Purchasing Manager.

35. **RIGHTS TO BID, PROPOSAL AND CONTRACTUAL MATERIAL**: All material submitted by the Contractor to the City shall become property of the City upon receipt. Any portions of such material claimed by the Contractor to be proprietary must be clearly marked as such. Determination of the public nature of the material is subject to the Texas Public Information Act, Chapter 552, and Texas Government Code.

36. **NO WARRANTY BY CITY AGAINST INFRINGEMENTS**: The Contractor represents and warrants to the City that: (i) the Contractor shall provide the City good and indefeasible title to the deliverables and (ii) the deliverables supplied by the Contractor in accordance with the specifications in the Contract will not infringe, directly or contributorily, any patent, trademark, copyright, trade secret, or any other intellectual property right of any kind of any third party; that no claims have been made by any person or entity with respect to the ownership or operation of the deliverables and the Contractor does not know of any valid basis for any such claims. The Contractor shall, at its sole expense, defend, indemnify, and hold the City harmless from and against all liability, damages, and costs (including court costs and reasonable fees of attorneys and other professionals) arising out of or resulting from: (i) any claim that the City's exercise anywhere in the world of the rights associated with the City's' ownership, and if applicable, license rights, and its use of the deliverables infringes the intellectual property rights of any third party; or (ii) the Contractor's breach of any of Contractor's representations or warranties stated in this Contract. In the event of any such claim, the City shall have the right to monitor such claim or at its option engage its own separate counsel to act as co-counsel on the City's behalf. Further, Contractor agrees that the City's specifications regarding the deliverables shall in no way diminish Contractor's warranties or obligations under this paragraph and the City makes no warranty that the production, development, or delivery of such deliverables will not impact such warranties of Contractor.

37. **CONFIDENTIALITY**: In order to provide the deliverables to the City, Contractor may require access to certain of the City's and/or its licensors' confidential information (including inventions, employee information, trade secrets, confidential know-how, confidential business information, and other information which the City or its licensors consider confidential) (collectively, "Confidential Information"). Contractor acknowledges and agrees that the Confidential Information is the valuable property of the City and/or its licensors and any unauthorized use, disclosure, dissemination, or other release of the Confidential Information will substantially injure the City and/or its licensors. The Contractor (including its employees, subcontractors, agents, or representatives) agrees that it will maintain the Confidential Information in strict confidence and shall not disclose, disseminate, copy, divulge, recreate, or otherwise use the Confidential Information without the prior written consent of the City or in a manner not expressly permitted under this Agreement, unless the Confidential Information is required to be

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disclosed by law or an order of any court or other governmental authority with proper jurisdiction, provided the Contractor promptly notifies the City before disclosing such information so as to permit the City reasonable time to seek an appropriate protective order. The Contractor agrees to use protective measures no less stringent than the Contractor uses within its own business to protect its own most valuable information, which protective measures shall under all circumstances be at least reasonable measures to ensure the continued confidentiality of the Confidential Information.

38. **OWNERSHIP AND USE OF DELIVERABLES**: The City shall own all rights, titles, and interests throughout the world in and to the deliverables.

A. Patents. As to any patentable subject matter contained in the deliverables, the Contractor agrees to disclose such patentable subject matter to the City. Further, if requested by the City, the Contractor agrees to assign and, if necessary, cause each of its employees to assign the entire right, title, and interest to specific inventions under such patentable subject matter to the City and to execute, acknowledge, and deliver and, if necessary, cause each of its employees to execute, acknowledge, and deliver an assignment of letters patent, in a form to be reasonably approved by the City, to the City upon request by the City.

B. Copyrights. As to any deliverables containing copyrightable subject matter, the Contractor agrees that upon their creation, such deliverables shall be considered as work made-for-hire by the Contractor for the City and the City shall own all copyrights in and to such deliverables, provided however, that nothing in this Paragraph 38 shall negate the City's sole or joint ownership of any such deliverables arising by virtue of the City's sole or joint authorship of such deliverables. Should by operation of law, such deliverables not be considered works made-for-hire, the Contractor hereby assigns to the City (and agrees to cause each of its employees providing services to the City hereunder to execute, acknowledge, and deliver an assignment to the City of) all worldwide right, title, and interest in and to such deliverables. With respect to such work made-for-hire, the Contractor agrees to execute, acknowledge, and deliver and cause each of its employees providing services to the City hereunder to execute, acknowledge, and deliver a work-made-for-hire agreement, in a form to be reasonably approved by the City, to the City upon delivery of such deliverables to the City or at such other time as the City may request.

C. Additional Assignments. The Contractor further agrees to, and if applicable, cause each of its employees to, execute, acknowledge, and deliver all applications, specifications, oaths, assignments, and all other instruments which the City might reasonably deem necessary in order to apply for and obtain copyright protection, mask work registration, trademark registration and/or protection, letters patent, or any similar rights in any and all countries and in order to assign and convey to the City, its successors, assigns and nominees, the sole and exclusive right, title, and interest in and to the deliverables. The Contractor's obligations to execute, acknowledge, and deliver (or cause to be executed, acknowledged, and delivered) instruments or papers such as those described in this Paragraph 38 a., b., and c. shall continue after the termination of this Contract with respect to such deliverables. In the event the City should not seek to obtain copyright protection, mask work registration or patent protection for any of the deliverables, but should desire to keep the same secret, the Contractor agrees to treat the same as Confidential Information under the terms of Paragraph 37 above.

39. **PUBLICATIONS**: All published material and written reports submitted under the Contract must be originally developed material unless otherwise specifically provided in the Contract. When material not originally developed is included in a report in any form, the source shall be identified.

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40. **ADVERTISING**: The Contractor shall not advertise or publish, without the City's prior consent, the fact that the City has entered into the Contract, except to the extent required by law.

41. **NO CONTINGENT FEES**: The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure the Contract upon any agreement or understanding for commission, percentage, brokerage, or contingent fee, excepting bona fide employees of bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, the City shall have the right, in addition to any other remedy available, to cancel the Contract without liability and to deduct from any amounts owed to the Contractor, or otherwise recover, the full amount of such commission, percentage, brokerage or contingent fee.

42. **GRATUITIES**: The City may, by written notice to the Contractor, cancel the Contract without liability if it is determined by the City that gratuities were offered or given by the Contractor or any agent or representative of the Contractor to any officer or employee of the City of Denton with a view toward securing the Contract or securing favorable treatment with respect to the awarding or amending or the making of any determinations with respect to the performing of such contract. In the event the Contract is canceled by the City pursuant to this provision, the City shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by the Contractor in providing such gratuities.

43. **PROHIBITION AGAINST PERSONAL INTEREST IN CONTRACTS**: No officer, employee, independent consultant, or elected official of the City who is involved in the development, evaluation, or decision-making process of the performance of any solicitation shall have a financial interest, direct or indirect, in the Contract resulting from that solicitation as defined in the City's Ethic Ordinance 18-757 and in the City Charter chapter 2 article XI(Ethics). Any willful violation of this section shall constitute impropriety in office, and any officer or employee guilty thereof shall be subject to disciplinary action up to and including dismissal. Any violation of this provision, with the knowledge, expressed or implied, of the Contractor shall render the Contract voidable by the City. The Contractor shall complete and submit the City's Conflict of Interest Questionnaire.

44. **INDEPENDENT CONTRACTOR**: The Contract shall not be construed as creating an employer/employee relationship, a partnership, or a joint venture. The Contractor's services shall be those of an independent contractor. The Contractor agrees and understands that the Contract does not grant any rights or privileges established for employees of the City of Denton, Texas for the purposes of income tax, withholding, social security taxes, vacation or sick leave benefits, worker's compensation, or any other City employee benefit. The City shall not have supervision and control of the Contractor or any employee of the Contractor, and it is expressly understood that Contractor shall perform the services hereunder according to the attached specifications at the general direction of the City Manager of the City of Denton, Texas, or his designee under this agreement. The contractor is expressly free to advertise and perform services for other parties while performing services for the City.

45. **ASSIGNMENT-DELEGATION**: The Contract shall be binding upon and ensure to the benefit of the City and the Contractor and their respective successors and assigns, provided

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however, that no right or interest in the Contract shall be assigned and no obligation shall be delegated by the Contractor without the prior written consent of the City. Any attempted assignment or delegation by the Contractor shall be void unless made in conformity with this paragraph. The Contract is not intended to confer rights or benefits on any person, firm or entity not a party hereto; it being the intention of the parties that there are no third party beneficiaries to the Contract.
The Vendor shall notify the City's Purchasing Manager, in writing, of a company name, ownership, or address change for the purpose of maintaining updated City records. The president of the company or authorized official must sign the letter. A letter indicating changes in a company name or ownership must be accompanied with supporting legal documentation such as an updated W-9, documents filed with the state indicating such change, copy of the board of director's resolution approving the action, or an executed merger or acquisition agreement. Failure to do so may adversely impact future invoice payments.

46. **WAIVER**: No claim or right arising out of a breach of the Contract can be discharged in whole or in part by a waiver or renunciation of the claim or right unless the waiver or renunciation is supported by consideration and is in writing signed by the aggrieved party. No waiver by either the Contractor or the City of any one or more events of default by the other party shall operate as, or be construed to be, a permanent waiver of any rights or obligations under the Contract, or an express or implied acceptance of any other existing or future default or defaults, whether of a similar or different character.

47. **MODIFICATIONS**: The Contract can be modified or amended only by a writing signed by both parties. No pre-printed or similar terms on any the Contractor invoice, order or other document shall have any force or effect to change the terms, covenants, and conditions of the Contract.

48. **INTERPRETATION**: The Contract is intended by the parties as a final, complete and exclusive statement of the terms of their agreement. No course of prior dealing between the parties or course of performance or usage of the trade shall be relevant to supplement or explain any term used in the Contract. Although the Contract may have been substantially drafted by one party, it is the intent of the parties that all provisions be construed in a manner to be fair to both parties, reading no provisions more strictly against one party or the other. Whenever a term defined by the Uniform Commercial Code, as enacted by the State of Texas, is used in the Contract, the UCC definition shall control, unless otherwise defined in the Contract.

49. **DISPUTE RESOLUTION**:
A. If a dispute arises out of or relates to the Contract, or the breach thereof, the parties agree to negotiate prior to prosecuting a suit for damages. However, this section does not prohibit the filing of a lawsuit to toll the running of a statute of limitations or to seek injunctive relief. Either party may make a written request for a meeting between representatives of each party within fourteen (14) calendar days after receipt of the request or such later period as agreed by the parties. Each party shall include, at a minimum, one (1) senior level individual with decision-making authority regarding the dispute. The purpose of this and any subsequent meeting is to attempt in good faith to negotiate a resolution of the dispute. If, within thirty (30) calendar days after such meeting, the parties have not succeeded in negotiating a resolution of the dispute, they will proceed directly to

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mediation as described below. Negotiation may be waived by a written agreement signed by both parties, in which event the parties may proceed directly to mediation as described below.
B. If the efforts to resolve the dispute through negotiation fail, or the parties waive the negotiation process, the parties may select, within thirty (30) calendar days, a mediator trained in mediation skills to assist with resolution of the dispute. Should they choose this option; the City and the Contractor agree to act in good faith in the selection of the mediator and to give consideration to qualified individuals nominated to act as mediator. Nothing in the Contract prevents the parties from relying on the skills of a person who is trained in the subject matter of the dispute or a contract interpretation expert. If the parties fail to agree on a mediator within thirty (30) calendar days of initiation of the mediation process, the mediator shall be selected by the Denton County Alternative Dispute Resolution Program (DCAP). The parties agree to participate in mediation in good faith for up to thirty (30) calendar days from the date of the first mediation session. The City and the Contractor will share the mediator's fees equally and the parties will bear their own costs of participation such as fees for any consultants or attorneys they may utilize to represent them or otherwise assist them in the mediation.

50. **JURISDICTION AND VENUE**: The Contract is made under and shall be governed by the laws of the State of Texas, including, when applicable, the Uniform Commercial Code as adopted in Texas, V.T.C.A., Bus. & Comm. Code, Chapter 1, excluding any rule or principle that would refer to and apply the substantive law of another state or jurisdiction. All issues arising from this Contract shall be resolved in the courts of Denton County, Texas and the parties agree to submit to the exclusive personal jurisdiction of such courts. The foregoing, however, shall not be construed or interpreted to limit or restrict the right or ability of the City to seek and secure injunctive relief from any competent authority as contemplated herein.

51. **INVALIDITY**: The invalidity, illegality, or unenforceability of any provision of the Contract shall in no way affect the validity or enforceability of any other portion or provision of the Contract. Any void provision shall be deemed severed from the Contract and the balance of the Contract shall be construed and enforced as if the Contract did not contain the particular portion or provision held to be void. The parties further agree to reform the Contract to replace any stricken provision with a valid provision that comes as close as possible to the intent of the stricken provision. The provisions of this section shall not prevent this entire Contract from being void should a provision which is the essence of the Contract be determined to be void.

52. **HOLIDAYS:** The following holidays are observed by the City:

New Year's Day (observed)
Martin Luther King, Jr. Day
Memorial Day
Juneteenth
Independence Day
Labor Day
Veterans Day
Thanksgiving
Friday After Thanksgiving
Christmas Eve (observed)
Christmas Day (observed)

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If a Legal Holiday falls on Saturday, it will be observed on the preceding Friday. If a Legal Holiday falls on Sunday, it will be observed on the following Monday. Normal hours of operation shall be between 8:00 am and 4:00 pm, Monday through Friday, excluding City of Denton Holidays. Any scheduled deliveries or work performance not within the normal hours of operation **must be approved** by the City Manager of Denton, Texas or his authorized designee.

53. **SURVIVABILITY OF OBLIGATIONS:** All provisions of the Contract that impose continuing obligations on the parties, including but not limited to the warranty, indemnity, and confidentiality obligations of the parties, shall survive the expiration or termination of the Contract.

54. **NON-SUSPENSION OR DEBARMENT CERTIFICATION:**
The City of Denton is prohibited from contracting with or making prime or sub-awards to parties that are suspended or debarred or whose principals are suspended or debarred from Federal, State, or City of Denton Contracts. By accepting a Contract with the City, the Vendor certifies that its firm and its principals are not currently suspended or debarred from doing business with the Federal Government, as indicated by the General Services Administration List of Parties Excluded from Federal Procurement and Non-Procurement Programs, the State of Texas, or the City of Denton.

55. **EQUAL OPPORTUNITY**
A. **Equal Employment Opportunity:** No Offeror, or Offeror's agent, shall engage in any discriminatory employment practice. No person shall, on the grounds of race, sex, sexual orientation, age, disability, creed, color, genetic testing, or national origin, be refused the benefits of, or be otherwise subjected to discrimination under any activities resulting from this RFQ.
B. **Americans with Disabilities Act (ADA) Compliance:** No Offeror, or Offeror's agent, shall engage in any discriminatory employment practice against individuals with disabilities as defined in the ADA.

56. **BUY AMERICAN ACT-SUPPLIES (Applicable to certain federally funded requirements)**
The following federally funded requirements are applicable. A. Definitions. As used in this paragraph –
i. "Component" means an article, material, or supply incorporated directly into an end product.
ii. "Cost of components" means -
(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the end product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or
(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.
iii. "Domestic end product" means-
(1) An unmanufactured end product mined or produced in the United States; or
(2) An end product manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind as those that the agency

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determines are not mined, produced, or manufactured in sufficient and reasonably available commercial quantities of a satisfactory quality are treated as domestic. Scrap generated, collected, and prepared for processing in the United States is considered domestic.
iv. "End product" means those articles, materials, and supplies to be acquired under the contract for public use.
v. "Foreign end product" means an end product other than a domestic end product.
vi. "United States" means the 50 States, the District of Columbia, and outlying areas.
B. The Buy American Act (41 U.S.C. 10a - 10d) provides a preference for domestic end products for supplies acquired for use in the United States.
C. The City does not maintain a list of foreign articles that will be treated as domestic for this Contract; but will consider for approval foreign articles as domestic for this product if the articles are on a list approved by another Governmental Agency. The Offeror shall submit documentation with their Offer demonstrating that the article is on an approved Governmental list.
D. The Contractor shall deliver only domestic end products except to the extent that it specified delivery of foreign end products in the provision of the Solicitation entitled "Buy American Act Certificate".

57. **RIGHT TO INFORMATION:** The City of Denton reserves the right to use any and all information presented in any response to this contract, whether amended or not, except as prohibited by law. Selection of rejection of the submittal does not affect this right.

58. **LICENSE FEES OR TAXES:** Provided the solicitation requires an awarded contractor or supplier to be licensed by the State of Texas, any and all fees and taxes are the responsibility of the respondent.

59. **PREVAILING WAGE RATES:** The contractor shall comply with prevailing wage rates as defined by the United States Department of Labor Davis-Bacon Wage Determination at http://www.dol.gov/whd/contracts/dbra.htm and at the Wage Determinations website www.wdol.gov for Denton County, Texas (WD-2509).

60. **COMPLIANCE WITH ALL STATE, FEDERAL, AND LOCAL LAWS:** The contractor or supplier shall comply with all State, Federal, and Local laws and requirements. The Respondent must comply with all applicable laws at all times, including, without limitation, the following: (i) §36.02 of the Texas Penal Code, which prohibits bribery; (ii) §36.09 of the Texas Penal Code, which prohibits the offering or conferring of benefits to public servants. The Respondent shall give all notices and comply with all laws and regulations applicable to furnishing and performance of the Contract.

61. **FEDERAL, STATE, AND LOCAL REQUIREMENTS:** Respondent shall demonstrate on-site compliance with the Federal Tax Reform Act of 1986, Section 1706, amending Section 530 of the Revenue Act of 1978, dealing with issuance of Form W-2's to common law employees. Respondent is responsible for both federal and State unemployment insurance coverage and standard Workers' Compensation insurance coverage. Respondent shall ensure compliance with all federal and State tax laws and withholding requirements. The City of Denton shall not be liable to Respondent or its employees for any Unemployment or Workers' Compensation coverage, or federal or State withholding requirements. Contractor shall indemnify the City of Denton and shall pay all costs, penalties, or losses resulting from Respondent's omission or breach of this Section.

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62. **DRUG FREE WORKPLACE:** The contractor shall comply with the applicable provisions of the Drug-Free Work Place Act of 1988 (Public Law 100-690, Title V, Subtitle D; 41 U.S.C. 701 ET SEQ.) and maintain a drug-free work environment; and the final rule, government-wide requirements for drug-free work place (grants), issued by the Office of Management and Budget and the Department of Defense (32 CFR Part 280, Subpart F) to implement the provisions of the Drug-Free Work Place Act of 1988 is incorporated by reference and the contractor shall comply with the relevant provisions thereof, including any amendments to the final rule that may hereafter be issued.

63. **RESPONDENT LIABILITY FOR DAMAGE TO GOVERNMENT PROPERTY:** The Respondent shall be liable for all damages to government-owned, leased, or occupied property and equipment caused by the Respondent and its employees, agents, subcontractors, and suppliers, including any delivery or cartage company, in connection with any performance pursuant to the Contract. The Respondent shall notify the City of Denton Procurement Manager in writing of any such damage within one (1) calendar day.

64. **FORCE MAJEURE:** The City of Denton, any Customer, and the Respondent shall not be responsible for performance under the Contract should it be prevented from performance by an act of war, order of legal authority, act of God, or other unavoidable cause not attributable to the fault or negligence of the City of Denton. In the event of an occurrence under this Section, the Respondent will be excused from any further performance or observance of the requirements so affected for as long as such circumstances prevail and the Respondent continues to use commercially reasonable efforts to recommence performance or observance whenever and to whatever extent possible without delay. The Respondent shall immediately notify the City of Denton Procurement Manager by telephone (to be confirmed in writing within five (5) calendar days of the inception of such occurrence) and describe at a reasonable level of detail the circumstances causing the non-performance or delay in performance.

65. **NON-WAIVER OF RIGHTS:** Failure of a Party to require performance by another Party under the Contract will not affect the right of such Party to require performance in the future. No delay, failure, or waiver of either Party's exercise or partial exercise of any right or remedy under the Contract shall operate to limit, impair, preclude, cancel, waive or otherwise affect such right or remedy. A waiver by a Party of any breach of any term of the Contract will not be construed as a waiver of any continuing or succeeding breach.

66. **NO WAIVER OF SOVEREIGN IMMUNITY:** The Parties expressly agree that no provision of the Contract is in any way intended to constitute a waiver by the City of Denton of any immunities from suit or from liability that the City of Denton may have by operation of law.

67. **RECORDS RETENTION:** The Respondent shall retain all financial records, supporting documents, statistical records, and any other records or books relating to the performances called for in the Contract. The Respondent shall retain all such records for a period of four (4) years after the expiration of the Contract, or until the CPA or State Auditor's Office is satisfied that all audit and litigation matters are resolved, whichever period is longer. The Respondent shall grant access to all books, records and documents pertinent to the Contract to the CPA, the State Auditor of Texas, and any federal governmental entity that has authority to review records due to federal

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funds being spent under the Contract.

Should a conflict arise between any of the contract documents, it shall be resolved with the following order of precedence (if applicable). In any event, the final negotiated contract shall take precedence over any and all contract documents to the extent of such conflict.

1. **Final negotiated contract**
2. **RFP/Bid documents**
3. **City's standard terms and conditions**
4. **Purchase order**
5. **Contractor terms and conditions**

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Exhibit D
Certificate of Interested Parties Electronic Filing

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that the City may not enter into this contract unless the Contractor submits a disclosure of interested parties (Form 1295) to the City at the time the Contractor submits the signed contract. The Texas Ethics Commission has adopted rules requiring the business entity to file Form 1295 electronically with the Commission.

Contractor will be required to furnish a Certificate of Interest Parties before the contract is awarded, in accordance with Government Code 2252.908.

The contractor shall:

1. Log onto the State Ethics Commission Website at : https://www.ethics.state.tx.us/filinginfo/1295/
2. Register utilizing the tutorial provided by the State
3. Print a copy of the completed Form 1295
4. Enter the Certificate Number on page 2 of this contract.
5. Complete and sign the Form 1295
6. Email the form to purchasing@cityofdenton.com with the contract number in the subject line. (EX: Contract 1234 – Form 1295)

The City must acknowledge the receipt of the filed Form 1295 not later than the 30th day after Council award. Once a Form 1295 is acknowledged, it will be posted to the Texas Ethics Commission's website within seven business days.

Exhibit E-Pricing
8511 Fault Indicators

					Stuart C. Irby
Line #	**Description**	**Mfgno**	**QTY**	**UOM**	**Unit**
1	SECTION A- POWER DELIVERY UNDER GROUND INDICATORS		1	EA	
2	Fault Indicator, Small Cable, w/ Lead (*Must be purchases in standard carton multiples of 50*)	PD# 29-6114-OFO ONLY	300	EA	$250.00
3	Fault Indicator, Large Cable, w/out Lead-(*Must be purchases in standard carton multiples of 50*)	PD# 29-6115-000 ONLY	150	EA	$226.00
4	Fault Indicator Harness, Small Cable (Single fiber lead) (*Must be purchases in standard carton multiples of 5*)	PD# 49-6007-106 ONLY	300	EA	$38.00
5	Fault Indicator Harness, Large Cable(Three fiber leads) (*Must be purchases in standard carton multiples of 5*)	PD# 49-6007-306 ONLY	150	EA	$84.00
6	SECTION B- SMART GRID OVER HEAD INDICATORS		1	EA	
7	Fault Indicator, 1PH OH	SmartGrid FI-3A S04LRA ONLY	100	EA	No Bid
8	SECTION C - POWER DELIVERY AT&T (FIRSTNET) URD SYSTEM		1	EA	
9	Smart Load Tracker LM	PD# 42-3105-000 ONLY	20	EA	$4,779.00
10	Reporter LT-4G AT&T (Battery only unit)	PD# 28-4310-005 ONLY	8	EA	$2,126.00
11	Fiber Optic Cable 3PH 10ft Length	PD# 49-6007-510 ONLY	8	SET	$80.00
13	Power Harvester Unit	PD# 49-6100-000 ONLY	5	EA	$752.00
14	Test & Reset Magnet	PD# 49-6001-002 ONLY	5	EA	$75.00
15	SECTION D - POWER DELIVERY AT&T (FIRSTNET) - OVERHEAD SYSTEM		1	EA	
16	Smart Navigator 2.0 Satellite (Non-directional)	PD# 44-1142-000 ONLY	50	EA	$895.00
17	Smart Navigator 2.0 Master -4G AT&T (Non-directional)	PD# 44-1142-100-AT&T	25	EA	$1,205.00

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EXHIBIT F-CIQ

CONFLICT OF INTEREST QUESTIONNAIRE

CONFLICT OF INTEREST QUESTIONNAIRE - FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local government entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

1 **Name of vendor who has a business relationship with local governmental entity.**

None

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

_____

Name of Officer

This section, (item 3 including subparts A, B, C & D), must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☑ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☑ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of one percent or more?

☐ Yes ☑ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4 ☑ **I have no Conflict of Interest to disclose.**

5

Signature of vendor doing business with the governmental entity

4-2-24

Date

DocuSign

Certificate Of Completion

Envelope Id: 36DBE27AD712474995F33BC4A3DA58F8
Status: Sent
Subject: Please DocuSign: City Council Contract 8511 Fault Indicators
Source Envelope:
Document Pages: 29
Signatures: 3
Certificate Pages: 6
Initials: 1
AutoNav: Enabled
EnvelopeId Stamping: Enabled
Time Zone: (UTC-06:00) Central Time (US & Canada)

Envelope Originator:
Ginny Brummett
901B Texas Street
Denton, TX 76209
Ginny.Brummett@cityofdenton.com
IP Address: 198.49.140.104

Record Tracking

Status: Original
5/7/2024 11:14:12 AM

Holder: Ginny Brummett
Ginny.Brummett@cityofdenton.com

Location: DocuSign

Signer Events	Signature	Timestamp
Ginny Brummett ginny.brummett@cityofdenton.com Buyer City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	**Completed** Using IP Address: 198.49.140.104	Sent: 5/7/2024 11:39:34 AM Viewed: 5/7/2024 11:39:45 AM Signed: 5/7/2024 11:40:10 AM
Lori Hewell lori.hewell@cityofdenton.com Purchasing Manager City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DS LH Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 5/7/2024 11:40:12 AM Resent: 5/7/2024 4:02:37 PM Viewed: 5/8/2024 7:49:13 AM Signed: 5/8/2024 7:49:52 AM
Marcella Lunn marcella.lunn@cityofdenton.com Senior Deputy City Attorney City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DocuSigned by: Marcella Lunn 4B070831B4AA438... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 5/8/2024 7:49:54 AM Viewed: 5/8/2024 10:01:41 AM Signed: 5/8/2024 10:07:23 AM
Russell James russell@irby.com Inside Sales Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 5/8/2024 10:08:33 AM ID: 9165248b-a6e5-4789-8715-d32d3530d7ae	DocuSigned by: Russell James 2ADBC7430CA44D8... Signature Adoption: Pre-selected Style Using IP Address: 131.150.71.70	Sent: 5/8/2024 10:07:25 AM Viewed: 5/8/2024 10:08:33 AM Signed: 5/8/2024 10:11:06 AM

Signer Events	Signature	Timestamp
Jessica Williams Jessica.jWilliams@cityofdenton.com Chief Financial Officer Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 5/17/2024 10:46:24 AM ID: a3fb8ce0-d991-46b0-b154-26d82d260bf3	DocuSigned by: Jessica Williams 57D4C9696F2F43B... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 5/8/2024 10:11:08 AM Resent: 5/10/2024 3:16:30 PM Resent: 5/17/2024 9:51:01 AM Viewed: 5/17/2024 10:46:24 AM Signed: 5/17/2024 10:49:38 AM
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		Sent: 5/17/2024 10:49:42 AM
Sara Hensley sara.hensley@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Lauren Thoden lauren.thoden@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		

In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 5/7/2024 11:40:12 AM
Gretna Jones gretna.jones@cityofdenton.com Legal Secretary City of Denton Security Level: Email, Account Authentication (None)	COPIED	Sent: 5/17/2024 10:49:40 AM Viewed: 5/17/2024 11:18:58 AM

Carbon Copy Events	Status	Timestamp
Electronic Record and Signature Disclosure: Not Offered via DocuSign		
City Secretary Office citysecretary@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Keith Kading Keith.Kading@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 5/10/2024 4:51:18 PM ID: 4547fcd4-f629-4d74-befb-1dae601d3487		

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	5/7/2024 11:39:34 AM

Payment Events	Status	Timestamps

Electronic Record and Signature Disclosure

ELECTRONIC RECORD AND SIGNATURE DISCLOSURE

From time to time, City of Denton (we, us or Company) may be required by law to provide to you certain written notices or disclosures. Described below are the terms and conditions for providing to you such notices and disclosures electronically through your DocuSign, Inc. (DocuSign) Express user account. Please read the information below carefully and thoroughly, and if you can access this information electronically to your satisfaction and agree to these terms and conditions, please confirm your agreement by clicking the 'I agree' button at the bottom of this document.

Getting paper copies

At any time, you may request from us a paper copy of any record provided or made available electronically to you by us. For such copies, as long as you are an authorized user of the DocuSign system you will have the ability to download and print any documents we send to you through your DocuSign user account for a limited period of time (usually 30 days) after such documents are first sent to you. After such time, if you wish for us to send you paper copies of any such documents from our office to you, you will be charged a $0.00 per-page fee. You may request delivery of such paper copies from us by following the procedure described below.

Withdrawing your consent

If you decide to receive notices and disclosures from us electronically, you may at any time change your mind and tell us that thereafter you want to receive required notices and disclosures only in paper format. How you must inform us of your decision to receive future notices and disclosure in paper format and withdraw your consent to receive notices and disclosures electronically is described below.

Consequences of changing your mind

If you elect to receive required notices and disclosures only in paper format, it will slow the speed at which we can complete certain steps in transactions with you and delivering services to you because we will need first to send the required notices or disclosures to you in paper format, and then wait until we receive back from you your acknowledgment of your receipt of such paper notices or disclosures. To indicate to us that you are changing your mind, you must withdraw your consent using the DocuSign 'Withdraw Consent' form on the signing page of your DocuSign account. This will indicate to us that you have withdrawn your consent to receive required notices and disclosures electronically from us and you will no longer be able to use your DocuSign Express user account to receive required notices and consents electronically from us or to sign electronically documents from us.

All notices and disclosures will be sent to you electronically

Unless you tell us otherwise in accordance with the procedures described herein, we will provide electronically to you through your DocuSign user account all required notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you during the course of our relationship with you. To reduce the chance of you inadvertently not receiving any notice or disclosure, we prefer to provide all of the required notices and disclosures to you by the same method and to the same address that you have given us. Thus, you can receive all the disclosures and notices electronically or in paper format through the paper mail delivery system. If you do not agree with this process, please let us know as described below. Please also see the paragraph immediately above that describes the consequences of your electing not to receive delivery of the notices and disclosures electronically from us.

How to contact City of Denton:
You may contact us to let us know of your changes as to how we may contact you electronically, to request paper copies of certain information from us, and to withdraw your prior consent to receive notices and disclosures electronically as follows:
To contact us by email send messages to: purchasing@cityofdenton.com

To advise City of Denton of your new e-mail address
To let us know of a change in your e-mail address where we should send notices and disclosures electronically to you, you must send an email message to us at melissa.kraft@cityofdenton.com and in the body of such request you must state: your previous e-mail address, your new e-mail address. We do not require any other information from you to change your email address..
In addition, you must notify DocuSign, Inc to arrange for your new email address to be reflected in your DocuSign account by following the process for changing e-mail in DocuSign.
To request paper copies from City of Denton
To request delivery from us of paper copies of the notices and disclosures previously provided by us to you electronically, you must send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail address, full name, US Postal address, and telephone number. We will bill you for any fees at that time, if any.
To withdraw your consent with City of Denton
To inform us that you no longer want to receive future notices and disclosures in electronic format you may:

i. decline to sign a document from within your DocuSign account, and on the subsequent page, select the check-box indicating you wish to withdraw your consent, or you may;
ii. send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail, full name, IS Postal Address, telephone number, and account number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

Required hardware and software

Operating Systems:	Windows2000? or WindowsXP?
Browsers (for SENDERS):	Internet Explorer 6.0? or above
Browsers (for SIGNERS):	Internet Explorer 6.0?, Mozilla FireFox 1.0, NetScape 7.2 (or above)
Email:	Access to a valid email account
Screen Resolution:	800 x 600 minimum
Enabled Security Settings:	•Allow per session cookies •Users accessing the internet behind a Proxy Server must enable HTTP 1.1 settings via proxy connection

** These minimum requirements are subject to change. If these requirements change, we will provide you with an email message at the email address we have on file for you at that time providing you with the revised hardware and software requirements, at which time you will have the right to withdraw your consent.

Acknowledging your access and consent to receive materials electronically
To confirm to us that you can access this information electronically, which will be similar to other electronic notices and disclosures that we will provide to you, please verify that you were able to read this electronic disclosure and that you also were able to print on paper or electronically save this page for your future reference and access or that you were able to e-mail this disclosure and consent to an address where you will be able to print on paper or save it for your future reference and access. Further, if you consent to receiving notices and disclosures exclusively in electronic format on the terms and conditions described above, please let us know by clicking the 'I agree' button below.
By checking the 'I Agree' box, I confirm that:

- I can access and read this Electronic CONSENT TO ELECTRONIC RECEIPT OF ELECTRONIC RECORD AND SIGNATURE DISCLOSURES document; and

- I can print on paper the disclosure or save or send the disclosure to a place where I can print it, for future reference and access; and

- Until or unless I notify City of Denton as described above, I consent to receive from exclusively through electronic means all notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to me by City of Denton during the course of my relationship with you.

File #: ID 24-1093, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with The MODassic Group, LLC dba CivicBrand, for a mission, vision, and rebranding initiative for the Marketing and Communications Department; providing for the expenditure of funds therefor; and providing an effective date (RFP 8532 - awarded to The MODassic Group, LLC dba CivicBrand, in the not-to-exceed amount of $80,000.00).

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Procurement

ACM: Cassey Ogden

DATE: June 4, 2024

SUBJECT

Consider adoption of an ordinance of the City of Denton, a Texas home-rule municipal corporation, authorizing the City Manager to execute a contract with The MODassic Group, LLC dba CivicBrand, for a mission, vision, and rebranding initiative for the Marketing and Communications Department; providing for the expenditure of funds therefor; and providing an effective date (RFP 8532 – awarded to The MODassic Group, LLC dba CivicBrand, in the not-to-exceed amount of $80,000.00).

STRATEGIC ALIGNMENT

This action supports Key Focus Area: Pursue Organizational Excellence and Collaborative and Respectful Leadership.

INFORMATION/BACKGROUND

Staff recently issued a Request for Proposal (RFP) for a comprehensive mission, vision, and rebranding initiative. Key components of the RFP included: a revision to the City's mission and vision statements, a complete municipal rebrand including the design of an updated logo and graphics, a comprehensive style guide, and the creation of a strategic marketing and communications plan to effectively introduce an updated mission, vision, and brand identity to key stakeholders.

Denton sets itself apart from other cities in North Texas with its lively arts and cultural landscape, strong university partnerships, dynamic community collaborations, and a commitment to 100% renewable energy. The goal of this RFP is to forge a brand identity that mirrors Denton's distinctive spirit and to establish a robust brand policy that ensures consistency across all platforms.

Some of the major deliverables outlined in the RFP included:

- Community input and engagement report(s)
- An updated city logo and graphics, inclusive of the city's sub-brands (e.x. Parks and Recreation, Denton Public Library)
- Mission and vision statements
- Brand unification standards and style guide drafts
- A three-to-five-year deployment and implementation plan
- A marketing and communications plan to roll out the new mission, vision, and brand to all stakeholders (including City of Denton employees).

This rebranding initiative represents a strategic step forward in aligning Denton's public image with its dynamic and progressive community values. By integrating our rich cultural identity with a clear, unified brand message, we aim to strengthen community engagement and foster pride among all stakeholders.

Request for Proposals were sent to 1009 prospective suppliers. In addition, specifications were placed on the Procurement website for prospective suppliers to download and advertised in the local newspaper. Nine (9) proposals were received, and references were checked to ensure the vendor can provide the services requested in the Scope of Work. The proposal was evaluated based upon published criteria including delivery, compliance with specifications, probable performance, and price. Best and Final Offer (BAFO) was requested from three firms. The department is awarding the contract to The MODassic Group, LLC Dba CivicBrand.

NIGP Code Used for Solicitation:	918 – (Service Only) - Consulting Services
Notifications sent for Solicitation sent in IonWave:	1,009
Number of Suppliers that viewed Solicitation in IonWave:	16
HUB-Historically Underutilized Business Invitations sent out:	152
SBE-Small Business Enterprise Invitations sent out:	396
Responses from Solicitation:	9

RECOMMENDATION

Award a contract with The MODassic Group, LLC Dba CivicBrand, for a mission, vision, and rebranding initiative for the Marketing and Communications Department, not-to-exceed amount of $80,000.

PRINCIPAL PLACE OF BUSINESS

The MODassic Group, LLC dba CivicBrand
Richardson, TX

ESTIMATED SCHEDULE OF PROJECT

This project will be started upon approval with a completion date by July 31, 2025.

FISCAL INFORMATION

These services will be funded from the non-departmental account 160099.8411.0009. Requisition OR #164911 has been entered into the Purchasing software system in the amount of $80,000. The budgeted amount for this item is $80,000.

EXHIBITS

Exhibit 1: Agenda Information Sheet
Exhibit 2: Pricing Evaluation
Exhibit 3: Ordinance and Contract

Respectfully submitted:
Lori Hewell, 940-349-7100
Purchasing Manager

For information concerning this acquisition, contact: Dustin Sternbeck, 940-349-8251.

Legal point of contact: Marcella Lunn at 940-349-8333.

Exhibit 2
RFP 8532 - Pricing Evaluation for the Mission, Vision, and Rebranding Initiative

			Respondent's Business Name:	**CivicBrand (The MODassic Group)**	J.O. Agency	Slate Communications	Avant Marketing Group	MIG, Inc.	Message Masters	TopRight	Camp Pixel LLC	Tierra Fluker LLC DBA Distinct
			Principal Place of Business (City and State):	**Richardson, TX**	Fort Worth, TX	Fort Collins, CO	Saint Louis, MO	Berkeley, CA	Argyle, TX	Austin, TX	Oklahoma City, OK	Arlington, TX
Line #	**Description**	**QTY**	**UOM**	**Unit**	**Unit**	**Unit**	**Unit**	**Unit**	**Unit**	**Unit**	**Unit**	**Unit**
1	Provide a lump sum fee, not-to-exceed for this project, with a breakdown of the cost for professional services and hours for each phase	1	EA	**$80,000.00**	$62,720.00	$88,200.00	$76,000.00	$179,500.00	$175,000.00	$366,360.00	$85,000.00	$55,833.00

Evaluation

Item #	**Standard Criteria**	**CivicBrand (The MODassic Group)**	J.O. Agency	Slate Communications	Avant Marketing Group	MIG, Inc.	Message Masters	TopRight	Camp Pixel LLC	Tierra Fluker LLC DBA Distinct
1	Experience - 20%	**20.00**	14.67	13.33	12.00	14.67	12.00	10.67	9.33	4.00
2	Qualificaitons - 20%	**20.00**	17.33	10.67	13.33	10.67	14.67	9.33	8.00	4.00
3	Proposal and Approach - 20%	**20.00**	16.00	13.33	10.67	10.67	9.33	12.00	6.67	4.00
4	Previous Prokect References - 20%	**20.00**	16.00	14.67	13.33	14.67	10.67	13.33	9.33	6.67
5	Price, Total Cost of Ownership - 20%	**13.96**	17.80	12.66	14.69	6.22	6.38	3.05	13.14	20.00
	Total Score:	**93.96**	81.80	64.66	64.02	56.89	53.05	48.38	46.47	38.67

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, A TEXAS HOME-RULE MUNICIPAL CORPORATION, AUTHORIZING THE CITY MANAGER TO EXECUTE A CONTRACT WITH THE MODASSIC GROUP, LLC DBA CIVICBRAND, FOR A MISSION, VISION, AND REBRANDING INITIATIVE FOR THE MARKETING AND COMMUNICATIONS DEPARTMENT; PROVIDING FOR THE EXPENDITURE OF FUNDS THEREFOR; AND PROVIDING AN EFFECTIVE DATE (RFP 8532 – AWARDED TO THE MODASSIC GROUP, LLC DBA CIVICBRAND, IN THE NOT-TO-EXCEED AMOUNT OF $80,000.00).

WHEREAS, the City has solicited, received, and evaluated competitive proposals for a mission, vision, and rebranding initiative for the Marketing and Communications Department; and

WHEREAS, the City Manager, or a designated employee, has received, reviewed, and recommended that the herein described proposals are the most advantageous to the City considering the relative importance of price and the other evaluation factors included in the request for proposals; and

WHEREAS, this procurement was undertaken as part of the City's governmental function; and

WHEREAS, the City Council has provided in the City Budget for the appropriation of funds to be used for the purchase of the materials, equipment, supplies, or services approved and accepted herein; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The items in the following numbered request for proposal for materials, equipment, supplies, or services shown in the "Request Proposals" on file in the office of the Purchasing Agent, are hereby accepted and approved as being the most advantageous to the City considering the relative importance of price and the other evaluation factors included in the request for proposals.

RFP NUMBER	CONTRACTOR	AMOUNT
8532	The MODassic Group, LLC dba CivicBrand	$80,000.00

SECTION 2. That by the acceptance and approval of the above numbered items of the submitted proposals, the City accepts the offer of the persons submitting the proposals for such items and agrees to purchase the materials, equipment, supplies, or services in accordance with the terms, specifications, standards, quantities, and for the specified sums contained in the Proposal Invitations, Proposals, and related documents.

SECTION 3. That should the City and person submitting approved and accepted items wish

to enter into a formal written agreement as a result of the acceptance, approval, and awarding of the proposals, the City Manager, or their designated representative, is hereby authorized to execute the written contract which shall be attached hereto; provided that the written contract is in accordance with the terms, conditions, specifications, standards, quantities, and specified sums contained in the Proposal and related documents herein approved and accepted.

SECTION 4. The City Council of the City of Denton hereby expressly delegates the authority to take any actions that may be required or permitted to be performed by the City of Denton under this ordinance to the City Manager of the City of Denton, or their designee.

SECTION 5. By the acceptance and approval of the above enumerated bids, the City Council hereby authorizes the expenditure of funds therefor in the amount and in accordance with the approved bids.

SECTION 6. This ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____. This ordinance was passed and approved by the following vote [___ - ___]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Marcella Lunn

Docusign City Council Transmittal Coversheet

RFP	8532
File Name	Mission, Vision, and Rebranding Initiative
Purchasing Contact	Kayla Clark
City Council Target Date	
Piggy Back Option	No
Contract Expiration	
Ordinance	

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PROFESSIONAL SERVICES AGREEMENT
FOR CONSULTING SERVICES
FILE 8532

STATE OF TEXAS §

COUNTY OF DENTON §

THIS AGREEMENT (the "Agreement") is made and entered into on _____, by and between the City of Denton, Texas, a Texas municipal corporation, with its principal office at 215 East McKinney Street, Denton, Denton County, Texas 76201, hereinafter called "OWNER" and The MODassic Group, LLC. Dba CivicBrand, with its corporate office at 508 W. Lookout Drive, #14-1030, Richardson, TX 75080, hereinafter called "CONSULTANT," acting herein, by and through their duly authorized representatives.

WITNESSETH, that in consideration of the covenants and agreements herein contained, the parties hereto do mutually agree as follows:

ARTICLE I
CONSULTANT AS INDEPENDENT CONTRACTOR

The OWNER has selected CONSULTANT on the basis of demonstrated competence and qualifications to perform the services herein described for a fair and reasonable price pursuant to Chapter 2254 of the Texas Government Code. The OWNER hereby contracts with the CONSULTANT as an independent contractor and not as an employee, and as such, the OWNER will not assert control over the day-to-day operations of the CONSULTANT. The CONSULTANT is customarily engaged to provide services as described herein independently and on a nonexclusive basis in the course of its business. This Agreement does not in any way constitute a joint venture between OWNER and CONSULTANT. The CONSULTANT hereby agrees to perform the services described herein based on the skills required for the scope of work in connection with the Project as stated in the sections to follow, with diligence and in accordance with the highest professional standards customarily obtained for such services in the State of Texas. The professional services set out herein are in connection with the following described project:

The Project shall include, without limitation, Mission, Vision, and Rebranding Initiative as described in **Exhibit A**, which is on file at the purchasing office and incorporated herein (the "Project").

ARTICLE II
SCOPE OF BASIC SERVICES

The CONSULTANT shall perform the following services in a professional manner:

A. The CONSULTANT shall perform all those services as necessary and as described in the OWNER's RFP 8532 – Mission, Vision, and Rebranding Initiative, which is on file at the purchasing office and made a part hereof as **Exhibit A** as if written word for word herein.

B. To perform all those services set forth in CONSULTANT's proposal, which proposal is attached hereto and made a part hereof as **Exhibit B** as if written word for word herein.

C. CONSULTANT shall perform all those services set forth in individual task orders, as described in **Exhibit B**, which shall be attached to this Agreement and made a part hereof.

D. If there is any conflict between the terms of this Agreement and the exhibits attached to this Agreement, the terms and conditions of this Agreement will control over the terms and conditions of the attached exhibits or task orders.

ARTICLE III
ADDITIONAL SERVICES

Additional services to be performed by the CONSULTANT, if authorized by the OWNER, which are not included in the above-described Basic Services, may be negotiated as needed, per rates included in **Exhibit B**.

A. Preparing applications and supporting documents for government grants, loans, or planning advances and providing data for detailed applications.

B. Preparing data and reports for assistance to OWNER in preparation for hearings before regulatory agencies, courts, arbitration panels or mediator, giving testimony, personally or by deposition, and preparations therefore before any regulatory agency, court, arbitration panel or mediator.

C. Assisting OWNER in preparing for, or appearing at litigation, mediation, arbitration, dispute review boards, or other legal and/or administrative proceedings in the defense or prosecution of claims disputes with Contractor(s).

D. Assisting OWNER in the defense or prosecution of litigation in connection with or in addition to those services contemplated by this AGREEMENT. Such services, if any, shall be furnished by CONSULTANT on a fee basis negotiated by the respective parties outside of and in addition to this AGREEMENT.

E. Visits to the site in excess of the number of trips included in **Exhibit B**.

F. Preparing statements for invoicing or other documentation for billing other than for the standard invoice for services attached to this professional services agreement.

ARTICLE IV
TIME OF COMPLETION

CONSULTANT is authorized to commence work under this contract upon execution of this AGREEMENT. CONSULTANT shall perform and complete its obligations herein in a prompt and continuous manner, so as to not delay the completion of the Project in accordance with the schedules as described in **Exhibit B**. The contract shall remain effective for a period which may reasonably be required for the completion of the Project, acceptance by an authorized representative of the OWNER, exhaustion of authorized funds, or termination as provided in this Agreement, whichever occurs first.

ARTICLE V
COMPENSATION

A. COMPENSATION TERMS:

1. "Subcontract Expense" is defined as expenses incurred by the CONSULTANT in employment of others in outside firms for services related to this agreement.

2. "Direct Non-Labor Expense" is defined as that expense for any assignment incurred by the CONSULTANT for supplies, transportation and equipment, travel, communications, subsistence, and lodging away from home, and similar incidental expenses in connection with that assignment.

B. BILLING AND PAYMENT: For and in consideration of the professional services to be performed by the CONSULTANT herein, the OWNER agrees to pay, based on the cost estimate detail at an hourly rate shown in **Exhibit B** which is attached hereto and made a part of this Agreement as if written word for word herein, a total fee, including reimbursement for direct non-labor expenses not to exceed $80,000.

Partial payments to the CONSULTANT will be made on the basis of detailed monthly statements rendered to and approved by the OWNER through its City Manager or his designee; however, under no circumstances shall any monthly statement for services exceed the value of the work performed at the time a statement is rendered.

Nothing contained in this Article shall require the OWNER to pay for any work which is unsatisfactory, as reasonably determined by the City Manager or his designee, or which is not submitted in compliance with the terms of this Agreement. The OWNER shall not be required to make any payments to the CONSULTANT when the CONSULTANT is in default under this Agreement.

It is specifically understood and agreed that the CONSULTANT shall not be authorized to undertake any work pursuant to this Agreement which would require additional payments by the OWNER for any charge, expense, or reimbursement above the maximum not to exceed fee as stated, without first having obtained written authorization from the OWNER. The CONSULTANT shall not proceed to perform the services listed in Article III "Additional Services," without obtaining prior written authorization from the OWNER.

C. ADDITIONAL SERVICES: For additional services authorized in writing by the OWNER in Article III, the CONSULTANT shall be paid based on the Schedule of Charges at an hourly rate shown in **Exhibit B**. Payments for additional services shall be due and payable upon submission by the CONSULTANT and approval by the City staff, and shall be in accordance with subsection B hereof. Statements shall not be submitted more frequently than monthly.

D. PAYMENT: If the OWNER fails to make payments due the CONSULTANT for services and expenses within thirty (30) days after receipt of the CONSULTANT's undisputed statement thereof, the amounts due the CONSULTANT will be paid interest in accordance with the Texas Government Code 2251.025. Additionally, the CONSULTANT may, after giving seven (7) days' written notice to the OWNER, suspend services under this Agreement until the CONSULTANT has been paid in full all amounts due for services, expenses, and charges. Nothing herein shall require the OWNER to pay the late charge if the OWNER reasonably determines that the work is unsatisfactory, in accordance with this Article V, "Compensation," there is a bona fide dispute concerning the amount due, or the invoice was not mailed to the address or in the form as described in this Agreement. The OWNER will notify CONSULTANT of any disputes within twenty-one (21) days of receipt of the invoice.

E. **Invoices** shall be sent directly to the City of Denton Accounts Payable Department, 215 E McKinney St, Denton, TX, 76201-4299. A pro-forma invoice shall be sent to the contract administrator. It is the intention of the City of Denton to make payment on completed orders within thirty days after receipt of invoice or items; whichever is later, unless unusual circumstances arise. **Invoices must be fully documented as to labor, materials, and equipment provided, if applicable, and must reference the City of Denton Purchase Order Number in order to be processed. No payments shall be made on invoices not listing a Purchase Order Number.**

ARTICLE VI
OBSERVATION AND REVIEW OF THE WORK

The CONSULTANT will exercise reasonable care and due diligence in discovering and promptly reporting to the OWNER any defects or deficiencies in the work of the CONSULTANT or any subcontractors or subconsultants.

ARTICLE VII
OWNERSHIP OF DOCUMENTS

All documents prepared or furnished by the CONSULTANT (and CONSULTANT's subcontractors or subconsultants) pursuant to this Agreement are instruments of service, and shall become the property of the OWNER upon the termination of this Agreement. The CONSULTANT is entitled to retain copies of all such documents. The documents prepared and furnished by the CONSULTANT are intended only to be applicable to this Project, and OWNER's use of these documents in other projects shall be at OWNER's sole risk and expense. In the event the OWNER uses any of the information or materials developed pursuant to this Agreement in another project or for other purposes than specified herein, CONSULTANT is released from any and all liability relating to their use in that project.

ARTICLE VIII
INDEMNITY AGREEMENT

THE CONSULTANT SHALL INDEMNIFY AND SAVE AND HOLD HARMLESS THE OWNER AND ITS OFFICERS, OFFICIALS, AGENTS, AND EMPLOYEES FROM AND AGAINST ANY AND ALL LIABILITY, CLAIMS, DEMANDS, DAMAGES, LOSSES, AND EXPENSES, INCLUDING, BUT NOT LIMITED TO COURT COSTS AND REASONABLE ATTORNEY FEES ASSERTED AGAINST OR INCURRED BY THE OWNER, AND INCLUDING, WITHOUT LIMITATION, DAMAGES FOR BODILY AND PERSONAL INJURY, DEATH AND PROPERTY DAMAGE, RESULTING FROM THE NEGLIGENT ACTS OR OMISSIONS OF THE CONSULTANT OR ITS OFFICERS, SHAREHOLDERS, AGENTS, OR EMPLOYEES INCIDENTAL TO, RELATED TO, AND IN THE EXECUTION, OPERATION, OR PERFORMANCE OF THIS AGREEMENT.

Nothing in this Agreement shall be construed to create a liability to any person who is not a party to this Agreement, and nothing herein shall waive any of the parties' defenses, both at law or equity, to any claim, cause of action, or litigation filed by anyone not a party to this Agreement, including the defense of governmental immunity, which defenses are hereby expressly reserved.

ARTICLE IX
INSURANCE

During the performance of the services under this Agreement, CONSULTANT shall maintain insurance in compliance with the requirements of **Exhibit C** which is attached hereto and made a part of this Agreement as if written word for word herein.

ARTICLE X
ALTERNATIVE DISPUTE RESOLUTION

The parties may agree to settle any disputes under this Agreement by submitting the dispute to mediation with each party bearing its own costs of mediation. No mediation arising out of or relating to this Agreement, involving one party's disagreement may include the other party to the disagreement without the other's approval. Mediation will not be a condition precedent to suit.

ARTICLE XI
TERMINATION OF AGREEMENT

A. Notwithstanding any other provision of this Agreement, either party may terminate by giving thirty (30) days' advance written notice to the other party.

B. This Agreement may be terminated in whole or in part in the event of either party substantially failing to fulfill its obligations under this Agreement. No such termination will be affected unless the other party is given (1) written notice (delivered by certified mail, return receipt requested) of intent to terminate and setting forth the reasons specifying the non-performance, and not less than fifteen (15) calendar days to cure the

failure; and (2) an opportunity for consultation with the terminating party prior to termination.

C. If the Agreement is terminated prior to completion of the services to be provided hereunder, CONSULTANT shall immediately cease all services and shall render a final bill for services to the OWNER within thirty (30) days after the date of termination. The OWNER shall pay CONSULTANT for all services properly rendered and satisfactorily performed and for reimbursable expenses to termination incurred prior to the date of termination, in accordance with Article V "Compensation." Should the OWNER subsequently contract with a new consultant for the continuation of services on the Project, CONSULTANT shall cooperate in providing information. The CONSULTANT shall turn over all documents prepared or furnished by CONSULTANT pursuant to this Agreement to the OWNER on or before the date of termination, but may maintain copies of such documents for its use.

ARTICLE XII
RESPONSIBILITY FOR CLAIMS AND LIABILITIES

Approval by the OWNER shall not constitute, nor be deemed a release of the responsibility and liability of the CONSULTANT, its employees, associates, agents, subcontractors, and subconsultants for the accuracy and competency of their designs or other work; nor shall such approval be deemed to be an assumption of such responsibility by the OWNER for any defect in the design or other work prepared by the CONSULTANT, its employees, subcontractors, agents, and consultants.

ARTICLE XIII
NOTICES

All notices, communications, and reports required or permitted under this Agreement shall be personally delivered or mailed to the respective parties by depositing same in the United States mail to the address shown below, certified mail, return receipt requested, unless otherwise specified herein. Mailed notices shall be deemed communicated as of three (3) days' mailing:

To CONSULTANT:

The MODassic Group, LLC. Dba CivicBrand
Ryan Short
508 W. Lookout Dr #14-1030
Richardson, TX 75080

To OWNER:

City of Denton
Purchasing Manager –File 8532
901B Texas Street
Denton, Texas 76201

All notices shall be deemed effective upon receipt by the party to whom such notice is given, or within three (3) days' mailing.

ARTICLE XIV
ENTIRE AGREEMENT

This Agreement and related exhibits constitute the complete and final expression of this Agreement of the parties, and is intended as a complete and exclusive statement of the terms of their agreements, and supersedes all prior contemporaneous offers, promises, representations,

negotiations, discussions, communications, and agreements which may have been made in connection with the subject matter hereof.

ARTICLE XV
SEVERABILITY

If any provision of this Agreement is found or deemed by a court of competent jurisdiction to be invalid or unenforceable, it shall be considered severable from the remainder of this Agreement and shall not cause the remainder to be invalid or unenforceable. In such event, the parties shall reform this Agreement to replace such stricken provision with a valid and enforceable provision which comes as close as possible to expressing the intention of the stricken provision.

ARTICLE XVI
COMPLIANCE WITH LAWS

The CONSULTANT shall comply with all federal, state, and local laws, rules, regulations, and ordinances applicable to the work covered hereunder as those laws may now read or hereinafter be amended.

ARTICLE XVII
DISCRIMINATION PROHIBITED

In performing the services required hereunder, the CONSULTANT shall not discriminate against any person on the basis of race, color, religion, sex, sexual orientation, national origin or ancestry, age, or physical handicap.

ARTICLE XVIII
PERSONNEL

A. The CONSULTANT represents that it has or will secure, at its own expense, all personnel required to perform all the services required under this Agreement. Such personnel shall not be employees or officers of, or have any contractual relations with the OWNER. CONSULTANT shall inform the OWNER of any conflict of interest or potential conflict of interest that may arise during the term of this Agreement.

B. All services required hereunder will be performed by the CONSULTANT or under its supervision. All personnel engaged in work shall be qualified, and shall be authorized and permitted under state and local laws to perform such services.

ARTICLE XIX
ASSIGNABILITY

The CONSULTANT acknowledges that this Agreement is based on the demonstrated competence and specific qualifications of the CONSULTANT and is therefore personal as to the CONSULTANT. Therefore, the CONSULTANT shall not assign any interest in this Agreement, and shall not transfer any interest in this Agreement (whether by assignment, novation, or otherwise) without the prior written consent of the OWNER.

ARTICLE XX

MODIFICATION

No waiver or modification of this Agreement or of any covenant, condition, or limitation herein contained shall be valid unless in writing and duly executed by the party to be charged therewith, and no evidence of any waiver or modification shall be offered or received in evidence in any proceeding arising between the parties hereto out of or affecting this Agreement, or the rights or obligations of the parties hereunder, and unless such waiver or modification is in writing and duly executed; and the parties further agree that the provisions of this section will not be waived unless as set forth herein.

ARTICLE XXI
MISCELLANEOUS

A. The following exhibits are attached to and made a part of this Agreement:

Exhibit A – RFP 8532 – Mission, Vision, and Rebranding Initiative (on file at the purchasing office)
Exhibit B – Consultant's Scope of Services Offer, Project Schedule and Rate Sheet
Exhibit C – Consultant's Insurance Requirements
Exhibit D – Conflict of Interest Questionnaire

What is called for by one exhibit shall be as binding as if called for by all. In the event of an inconsistency or conflict in this Agreement and any of the provisions of the exhibits, the inconsistency or conflict shall be resolved by giving precedence first to this Agreement then to the exhibits in the order in which they are listed above.

B. This Agreement shall be governed by, construed, and enforced in accordance with, and subject to, the laws of the State of Texas or federal law, where applicable, without regard to the conflict of law principles of any jurisdiction. In the event there shall be any dispute arising out of the terms and conditions of, or in connection with, this Agreement, the party seeking relief shall submit such dispute to the District Courts of Denton County or if federal diversity or subject matter jurisdiction exists, to the United States District Court for the Eastern District of Texas-Sherman Division.

C. For the purpose of this Agreement, the key persons who will perform most of the work hereunder shall be Ryan Short. However, nothing herein shall limit CONSULTANT from using other equally qualified and competent members of its firm to perform the services required herein.

D. CONSULTANT shall commence, carry on, and complete any and all projects with all applicable dispatch, in a sound, economical, and efficient manner and in accordance with the provisions hereof. In accomplishing the projects, CONSULTANT shall take such steps as are appropriate to ensure that the work involved is properly coordinated with related work being carried on by the OWNER.

E. The OWNER shall assist the CONSULTANT by placing at the CONSULTANT's disposal all available information pertinent to the Project, including previous reports, any other data relative to the Project, and arranging for the access thereto, and make all

provisions for the CONSULTANT to enter in or upon public and private property as required for the CONSULTANT to perform services under this Agreement.

F. The captions of this Agreement are for informational purposes only, and shall not in any way affect the substantive terms or conditions of this Agreement.

G. The parties agree to transact business electronically. Any statutory requirements that certain terms be in writing will be satisfied using electronic documents and signing. Electronic signing of this document will be deemed an original for all legal purposes.

ARTICLE XXII
INDEPENDENT CONTRACTOR

CONSULTANT shall provide services to OWNER as an independent contractor, not as an employee of the OWNER. CONSULTANT shall not have or claim any right arising from employee status.

ARTICLE XXIII
RIGHT TO AUDIT

The OWNER shall have the right to audit and make copies of the books, records and computations pertaining to this agreement. The CONTRACTOR shall retain such books, records, documents and other evidence pertaining to this agreement during the contract period and five years thereafter, except if an audit is in progress or audit findings are yet unresolved, in which case records shall be kept until all audit tasks are completed and resolved. These books, records, documents and other evidence shall be available, within 10 business days of written request. Further, the CONTRACTOR shall also require all Subcontractors, material suppliers, and other payees to retain all books, records, documents and other evidence pertaining to this agreement, and to allow the OWNER similar access to those documents. All books and records will be made available within a 50 mile radius of the City of Denton. The cost of the audit will be borne by the OWNER unless the audit reveals an overpayment of 1% or greater. If an overpayment of 1% or greater occurs, the reasonable cost of the audit, including any travel costs, must be borne by the CONTRACTOR which must be payable within five business days of receipt of an invoice.

Failure to comply with the provisions of this section shall be a material breach of this contract and shall constitute, in the OWNER'S sole discretion, grounds for termination thereof. Each of the terms "books", "records", "documents" and "other evidence", as used above, shall be construed to include drafts and electronic files, even if such drafts or electronic files are subsequently used to generate or prepare a final printed document.

ARTICLE XXIV
Prohibition on Contracts with Companies Boycotting Israel

Contractor acknowledges that in accordance with Chapter 2271 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains a written verification from the company that it: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract. The terms "boycott Israel" and "company" shall have the meanings ascribed to those terms in Section 808.001 of the Texas

Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

ARTICLE XXV
Prohibition On Contracts With Companies Doing Business with Iran, Sudan, or a Foreign Terrorist Organization

Sections 2252 and 2270 of the Texas Government Code restricts CITY from contracting with companies that do business with Iran, Sudan, or a foreign terrorist organization. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor, pursuant to Chapters 2252 and 2270, is not ineligible to enter into this agreement and will not become ineligible to receive payments under this agreement by doing business with Iran, Sudan, or a foreign terrorist organization***. Failure to meet or maintain the requirements under this provision will be considered a material breach.

ARTICLE XXVI
Prohibition on Contracts with Companies Boycotting Certain Energy Companies

Contractor acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the contract. The terms "boycott energy company" and "company" shall have the meanings ascribed to those terms in Section 809.001 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not boycott energy companies; and (2) will not boycott energy companies during the term of the agreement.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

ARTICLE XXVII
Prohibition on Contracts with Companies Boycotting Certain Firearm Entities and Firearm Trade Associations

Contractor acknowledges that in accordance with Chapter 2274 of the Texas Government Code, City is prohibited from entering into a contract with a company for goods or services unless the contract contains written verification from the company that it (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association. The terms "discriminate against a firearm entity or firearm trade association," "firearm entity" and "firearm trade association" shall have the meanings ascribed to those terms in Chapter 2274 of the Texas Government Code. ***By signing this agreement, Contractor certifies that Contractor's signature provides written verification to the City that Contractor: (1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and (2) will not discriminate during the term of the contract against a firearm entity or firearm trade association.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

ARTICLE XXVIII
Termination Right for Contracts with Companies Doing Business with Certain Foreign-Owned Companies

The City of Denton may terminate this Contract immediately without any further liability if the City of Denton determines, in its sole judgment, that this Contract meets the requirements under Chapter 2274, and Contractor is, or will be in the future, (i) owned by or the majority of stock or other ownership interest of the company is held or controlled by individuals who are citizens of China, Iran, North Korea, Russia, or other designated country (ii) directly controlled by the Government of China, Iran, North Korea, Russia, or other designated country, or (iii) is headquartered in China, Iran, North Korea, Russia, or other designated country.

ARTICLE XXIX
CERTIFICATE OF INTERESTED PARTIES ELECTRONIC FILING

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that the City may not enter into this contract unless the Contractor submits a disclosure of interested parties (Form 1295) to the City at the time the Contractor submits the signed contract. The Texas Ethics Commission has adopted rules requiring the business entity to file Form 1295 electronically with the Commission.

Contractor will be required to furnish a Certificate of Interest Parties before the contract is awarded, in accordance with Government Code 2252.908.

The contractor shall:

1. Log onto the State Ethics Commission Website at : https://www.ethics.state.tx.us/filinginfo/1295/
2. Register utilizing the tutorial provided by the State
3. Print a copy of the completed Form 1295
4. Enter the Certificate Number on page 2 of this contract.
5. Complete and sign the Form 1295
6. Email the form to purchasing@cityofdenton.com with the contract number in the subject line. (EX: Contract 8532 – Form 1295)

The OWNER must acknowledge the receipt of the filed Form 1295 not later than the 30th day after Council award. Once a Form 1295 is acknowledged, it will be posted to the Texas Ethics Commission's website within seven business days.

ARTICLE XXX
PROHIBITION AGAINST PERSONAL INTEREST IN CONTRACTS

No officer, employee, independent consultant, or elected official of the City who is involved in the development, evaluation, or decision-making process of the performance of any solicitation shall have a financial interest, direct or indirect, in the Contract resulting from that solicitation as defined in the City's Ethic Ordinance 18-757 and in the City Charter chapter 2 article XI(Ethics). Any willful violation of this section shall constitute impropriety in office, and any officer or employee guilty thereof shall be subject to disciplinary action up to and including dismissal. Any

violation of this provision, with the knowledge, expressed or implied, of the Contractor shall render the Contract voidable by the City. The Consultant shall complete and submit the City's Conflict of Interest Questionnaire.

The parties agree to transact business electronically. Any statutory requirements that certain terms be in writing will be satisfied using electronic documents and signing. Electronic signing of this document will be deemed an original for all legal purposes.

IN WITNESS HEREOF, the City of Denton, Texas has caused this Agreement to be executed by its duly authorized City Manager, and CONSULTANT has executed this Agreement through its duly authorized undersigned officer on this date_____.

THIS AGREEMENT HAS BEEN BOTH REVIEWED AND APPROVED as to financial and operational obligations and business terms.

DocuSigned by:
1CD02F73605548A...
SIGNATURE

Dustin Sternbeck
PRINTED NAME

Chief Communications Officer
TITLE

Marketing and Communications
DEPARTMENT

CITY OF DENTON, TEXAS
"OWNER"

_____
SARA HENSLEY, CITY MANAGER

ATTEST:
LAUREN THODEN, City Secretary

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

DocuSigned by:
By Marcella Lunn
4B070831B4AA438...

The MODassic Group, LLC. Dba CivicBrand
"CONSULTANT"

DocuSigned by:
Ryan Short
D7E7D0D10C854F6...
hort

___2024-1160679
TEXAS ETHICS COMMISSION
CERTIFICATE NUMBER

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EXHIBIT B

CivicBrand

MARCH 2024

MISSION, VISION, AND REBRANDING INITIATIVE

CITY OF DENTON, TEXAS

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City of Denton,

As a 2002 graduate of the University of North Texas I am proud to see my career come full circle with the opportunity to work with the great City of Denton.

For the last 16 years, our firm has refined our process, team, and capabilities to become a leading firm in city and place branding. Our unmatched approach to public engagement, city government brand architecture, and intimate understanding of Denton make us uniquely qualified for this project.

We are excited to share our capabilities, work, and customized approach with you and look forward to speaking with you further.

Ryan Short
CEO, CivicBrand
2002 UNT graduate

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YOUNG VOLUNTEER AT PLACEMAKING ACTIVATION IN WACO, TX

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APPROACH 15-23
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BUDGET 32

CONTACT

Ryan Short
ryan@civicbrand.com
(214) 586-0795
224. W. Rainbow Blvd. #122
Salida, CO 81201
CivicBrand.com

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Project Understanding

CivicBrand recognizes that the **C**ity of Denton's comprehensive rebranding effort is aimed at refining its mission and vision statements, overhauling its municipal brand including logo and graphics, creating a style guide, and crafting a strategic marketing and communications plan to introduce the updated mission, vision, and brand identity to key stakeholders.

Outlined in your scope of work request, the following objectives are paramount:

Clarity & Unity - **A**t **C**ivicBrand, we simplify complex concepts through design and brand architecture. With extensive experience, we guide city governments towards clarity, ensuring a brand and message that resonates with all stakeholders.

Community Engagement – With national engagement experience, we are industry leaders in public engagement, engaging diverse communities across cities and college campuses, emphasizing equity in public participation.

Harmony, **A**daptability & **C**onsistency – Specializing in brand architecture for city governments, we have extensive experience in developing cohesive brand strategies that speak to diverse audiences while delivering a consistent and harmonious branding strategy, simultaneously allowing individual departments to achieve their individual goals.

Data-Driven **A**pproach – We value both qualitative and quantitative data, using it to inform our design process. Our approach ensures that engagement data influences decision-making, resulting in tailored solutions.

Authenticity – Unlike branding firms that focus on tourism and external audiences, our entire process is driven by a locals-first approach that develops an authentic brand reflective of the values of your staff and community.

Diversity and Inclusion – Our engagement process prioritizes equity, ensuring all voices shape the branding process. Our founder's Forbes article on equity in public engagement highlights our commitment to diversity and inclusion.

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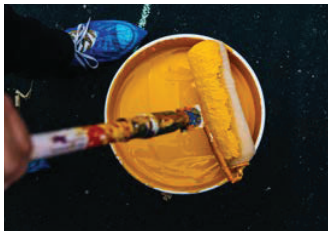

200

Gallons of paint on a recent placemaking street mural.

18

Awards won. It's not why we do this but it's nice to see clients recognized on a national & global stage.

32,000+

Photos taken. It's probably more but that's what we currently have in our Google Photos account.

CivicBrand
BY T**H**E NU**M**BE**R**S

A team of creatives and strategists that are all passionate about place. We love witnessing the power design has on communities and proving that value with real metrics. Whether it's measuring the economic impact of a project or counting the number of people holding hands on a street after a placemaking activation we are here for it and love doing what we do.

11

Talks given last year by **C**ivicBrand **C**EO **R**yan Short on Place branding, engagement & placemaking.

76,123

Miles traveled last year - it's an educated guess based on google maps - but we're on the road a lot.

16

Years in business. **H**ere's the original crew in **200**8. Starting out in a recession you quickly learn how to run lean while delivering value.

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Featured Clients

ADDISON

TOWN OF BRECKENRIDGE

Massachusetts Institute of Technology

Project for Public Spaces

PINE COUNTY MINNESOTA

CITY CENTER WACO

Cocoa Village FLORIDA

City of Dallas

Olympia

MIDTOWN SANTA FE

BURLESON TEXAS

Experience Montclair

RICHARDSON TEXAS

UCSB

SEAL OF THE CITY OF OKLAHOMA CITY

VisitGlendale ARIZONA

FAIRFAX CITY

CITY OF high point

Waupaca WISCONSIN

Historic DOWNTOWN PLANO

the Chickasaw Nation

TWO RIVERS WISCONSIN

GEORGETOWN TEXAS

DWN TWN LBK

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CivicBrand

PROJECT LEAD

"MADE-IN" BRAND
POP-UP SHOP FOR
TWO RIVERS, WI

16 years of helping communities become the best version of themselves

Founded in 2008, CivicBrand works directly with cities, counties, CVBs, DMOs, and downtown organizations to implement public engagement, community visioning, place branding, placemaking, wayfinding, and destination marketing strategies.

Cities are complex, involving multiple departments, community organizations, a mix of public and private efforts, entities that both compete and collaborate, and serve diverse audiences. But at the end of the day, it is one place.

Effective place branding looks beyond just logos and instead creates a comprehensive brand platform and brand architecture that serves a range of needs. This requires deep expertise in equitable engagement, local government, economic development, user experience, design leadership, brand strategy, and tourism and destination marketing.

There are countless firms and local freelancers that can create a nice-looking logo, but communities don't need yet another logo or even another campaign.

Places need clarity on who they are. They need a shared vision that unites and inspires. At CivicBrand, we specialize in helping communities carefully navigate this process and tell the story that delivers real impact for its residents, staff, and stakeholders.

City Nation Place Awards

2023 Finalist - Best Use of Design | Place Branding, High Point, NC
2021 Finalist - Best Use of Data | Placemaking, Waco, TX
2019 Finalist - Best Use of Design | Place Branding, Waupaca, WI
2018 Finalist - Best Citizen Engagement | Place Branding, Park Rapids, MN

CivicBrand.com

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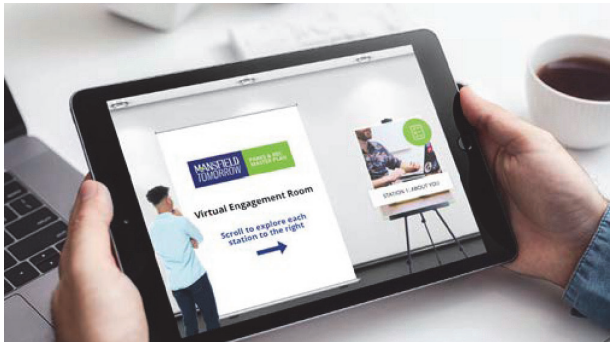
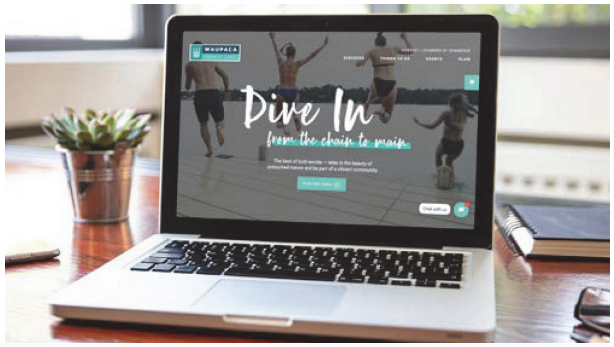
Our expertise



Public Engagement

City & Place Branding

Placemaking & Wayfinding



Destination Marketing

WATCH OUR HIGHLIGHT REEL

vimeo.com/483150148

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Creating a shared identity through place branding

To succeed in this space requires a deep understanding of how civic entities work, the role of public/private partnerships, funding options, planning & development, and public engagement. There are many great design firms out there that work across a range of industries, from hotels to liquor brands, yet lack deep experience in the civic realm.

On the other hand, there are civic consultants who are well-versed in the civic space; however, they either outsource design work or their creative output leaves much to be desired. **A**t **C**ivicBrand, we offer the best of both worlds. There isn't a design firm that possesses a deeper understanding of the civic space than us, and there isn't a civic consultant with our level of design talent.

"**C**ivicBrand's designs are cutting edge and don't have that conventional government look and feel. They really helped set us up for success."

Rich Brown, Economic Development Director
City of Santa Fe, NM

CITY OF high point.

TWO RIVERS WISCONSIN

BTX

WAUPACA CHAIN O' LAKES

DWN TWN LBK

Experience Montclair

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The industry leader in public engagement

There is no one-size-fits-all public engagement strategy. Each community requires a unique combination of strategies designed to reach the entire community - from senior citizens to students, online and offline, across multiple languages, and across all socioeconomic classes. We go where the people are and use the right tools to reach the right audience.

Public engagement is the foundation of every project we take on. Our company's mission was built on this quote by activist Jane Jacobs: "**C**ities have the capability of providing something for everybody, only because, and only when, they are created by everybody.

In-Person

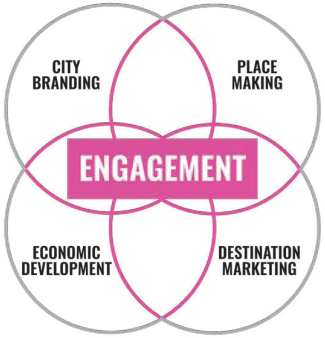
On-The-Street Engagement
Placemaking **A**ctivations
Workshops / **C**harrettes
Kids & Student Events
Focus Groups & Interviews
Live Polling
Pop-up Shops & Events

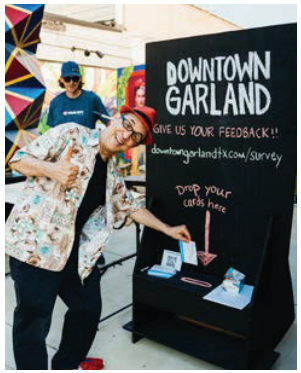
Virtual

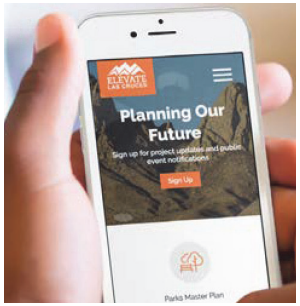
Engagement Websites
Virtual Engagement **R**ooms
Community Podcast Series
Interactive **M**apping Tools
Online surveys
Social media outreach
Interactive Virtual Focus Groups

"Equity in Public Engagement"
Scan the Q**R** code to read our article on Forbes.com

Forbes







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Creating places people love through placemaking & wayfinding

There's a significant difference between a true 'place' and simply real estate or a collection of buildings. Placemaking and Wayfinding can create a genuine destination by integrating elements of place branding and identity into the built environment, alongside a focus on how people utilize and move through the space or community. It goes beyond merely signage or decorating the built environment and addresses safety, walkability, beautification, traffic calming, urban design, and even creatively tackles parking challenges and perceptions.

From permanent wayfinding signage systems to temporary activations of blocks, intersections, alleyways, parking lots, and vacant spaces, CivicBrand works with communities to infuse their brand into the built environment and shape the overall user experience.

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Meet the Team

We're a multidisciplinary team of strategists, creatives, place-makers and story-tellers with a passion for helping communities tell their story. Everyone at CivicBrand is passionate about "place" as we all deeply understand and care about how our communities shape our lives.

We have a distributed team which allows us to hire the very best talent across the county regardless of location.

CivicBrand
Dallas, TX
Salida, CO
Las Cruces, NM
Richmond, VA

Banner Short
Founder

Ryan Short
Founder & Creative Director

Brisa Byford
Engagement & Strategy

Colin Coolidge
Designer

Kelsy Boyle
Designer

Clay Hervey
Photo & Video

Matt Henry
Photo & Video

We have brought on Bret Hawkins and Antero Group as additional Denton based sub-consultants to assist with the project and provide additional local insight.

Bret Hawkins
Denton, TX

Antero Group
Denton, TX

Bret Hawkins
Designer, Local Partner
Denton, TX

Michael Schmitz
Antero Group
Engagement support
Denton, TX

Sean Norton
Antero Group
Engagement support
Denton, TX

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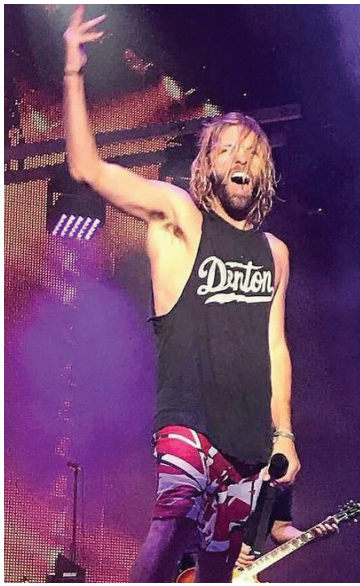
BRET HAWKINS

SUB CONSULTANT



Local partner bringing additional design chops and Denton knowledge

Bret **H**awkins is a graphic designer, entrepreneur, and Denton **C**ounty native with 1**4** years of experience in the creative industry. **H**e specializes in designing comprehensive brand identities but also excels in copywriting, illustration, hand-lettering, and web design. **H**is client list includes Dr. Seuss, Vacasa, comedian Tim **H**awkins, Voltage **C**offee Project, Norman **R**oscoe, Southeastern Seminary, **R**adical **H**ospitality, and **M**ighty Swell. **H**e graduated from the **C**ommunication Design program at the University of North Texas in **20**16 and has been living and working in the 76**20**1 area since **20**1**2**.

Bret's entrepreneurial spirit has given him a unique insider's approach to brand identity design. Since **20**13, he has co-founded three of his own concepts - all based in Denton - and grown them into successful businesses: Gnome **C**ones, Keep Exploring, and Texas Tee **H**ouse (now owned by Norman **R**oscoe). **A**cting as founder and lead creative for all three concepts forged in him the grit and resourcefulness needed to build both a brand and a business from the ground up.

Bret is a great collaborator and prides himself on his ability to work in a broad swath of styles and industries. No matter the scope, he treats every project as if it were his own venture – obsessing over every pixel and word to ensure his clients' vision and visuals are in sync. Whether you need an experienced consultant to refresh your existing brand or create a new one from scratch, Bret is the creative for the job.

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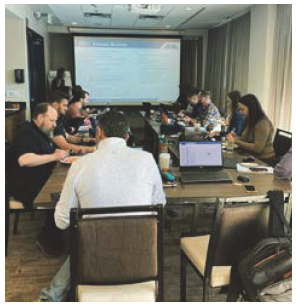
Antero Group

SUB CONSULTANT

Additional local engagement support right on the square in Downtown Denton

While the CivicBrand team will fully lead the entire process, we have enlisted Antero Group as a sub-consultant that will be an extension of the CivicBrand team for any in-person engagement. Antero Group has experience in public engagement, and having an office located right on the square in Downtown Denton will allow us to be even more efficient with your budget by utilizing additional local engagement support at key milestones of the engagement process.

Antero Group, a multidisciplinary firm with 20 employees and local offices in downtown Denton, Denver, and Chicago, specializes in urban planning, economic development, branding, marketing, and civil engineering. Founded in 2015, Antero has a reputation for creating vibrant places, facilitating economic development, and cultivating innovative and sustainable communities. Antero's team members are active in the Denton community and are involved in several civic groups such as the Denton Chamber of Commerce, Denton Main Street Program, and participate in the Town Making series hosted by Stoke.



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Approach
City of Denton
Mission, Vision, and Rebranding Initiatve

Task 1

Kick-Off & Project Management

1.1 Kick off meeting
1.2 Committee Meetings
1.3 Status Checks
1.4 Project website
1.5 Data Transfer

Task 2

Research, Engagement & Audit

2.1 Trip 1 - Engagement & Asset Audit
2.2 Virtual Engagement & Research
2.3 Trip 2 - Equitable Engagement
2.4 Place Brand Audit

Task 3

Brand Strategy

3.1 Mission & Vision
3.2 Brand Story & Principles
3.3 Identity & Brand Architecture
3.4 Messaging & Visual Language
3.5 Brand Guidelines

Task 4

Implementation

4.1 Implementation Plan
4.2 Impact v. Effort Matrix
4.3 Management & Measurement
4.4 Launch Plan

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CIVICBRAND
STRATEGIST
BRISA BYFORD
LEADING A
FOCUS GROUP

Task 1

Project Management & Kick-Off

A process built on proactive communication & transparency

Task 1.1 Kick-Off Meeting
We kick-off the project with a virtual meeting with the staff project team to align on project goals, processes and timelines. In this meeting we will also discuss committee development, role of the committee, and background items needed for the data transfer.

1.2 Committee Meetings
We will work with the staff project team to establish an advisory committee that is representative of the your organization and the community. The committee will be used as a sounding board at various milestones in the process. We will present findings and concepts to the committee meeting at key milestones. The committee will also serve as an action committee to assist in identifying key stakeholders during the engagement phase of the project. There will be approximately 5 committee meetings. **M**ost committee meetings will be virtual with the exception of those

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that are during community visits.

1.3 Status Checks
We will work with the staff project team to establish the schedule for regular check-in meetings. The frequency of the meetings will change at various stages of the project.

1.4 Project website
We will launch a project website which will serve as the **24**/7 hub of public information for the project. This will allow us to keep all stakeholders informed about the process and will offer multiple options for interactive engagement and survey questions throughout the project.

1.5 Data Transfer
CivicBrand will request relevant background information from the staff project team including previous mission, vision, branding, and marketing efforts, strategic plans, engagement efforts, community assets, current brand assets and files, maps, and other relevant documents. It is vital that efforts like these reference and coalesce other plans and engagment that has already been done to avoid engagement fatigue, to build off work already done and to not operate in a silo.

PROJECT WEBSITE FOR CITY OF LUBBOCK, TX
BRANDING PROJECT

1205

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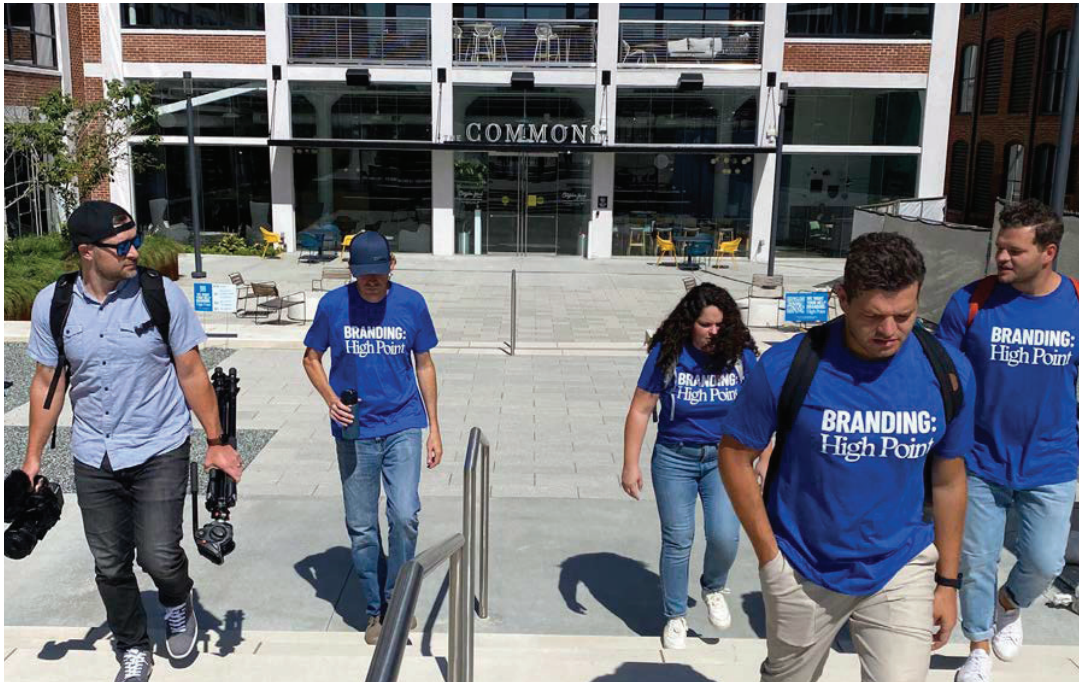

CIVICBRAND TEAM CONDUCTING AN ASSET AUDIT IN HIGH POINT, NORTH CAROLINA

Task 2

Research, Engagement & Audit

In depth research and equitable engagement in order to measure twice and cut once

2.1 Trip 1 - Engagement & Asset Audit
On Trip 1 the CivicBrand team will meet with the staff team and tour key assets within the community, establish existing conditions, and conduct initial interviews and in-person focus groups. We will also conduct on-the-street engagement with residents and business owners as we explore the community. The CivicBrand team also take inventory of and audit community assets during this first trip.

2.2 Virtual Engagement & Research
Between Trip 1 and Trip **2** we will conduct robust digital engagement and research. This includes interviews, virtual focus groups, interactive surveys as well as auditing competing communities. CivicBrand is an industry leader in digital engagement and we have a wide range of tools and tactics to reach the community in an effective and efficient way which makes the

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budget go that much further. This will include in-depth engagement with both the public at large as well as city governement staff and key stakeholders to ensure that we full understand the needs to staff, perceptions of the community, and needs of audiences you communicate with. In addition to the digital engagement, **C**ivicBrand will research the community's online presence and audit how that compares to competing communities for similar assets and amenities through the lens of a persona based target audience approach. By bringing on two local Denton sub-consultants we will also have the opportunity for additional in-person engagement and local support between our two key site visits.

2.3 Trip 2 - Equitable Engagement

A major focus of Trip **2** is equitable engagement and reaching those demographics and groups we haven't heard from during Trip 1 or during the digital engagement and pop-up phase of the project. If you Google "equity in public engagement" the first thing that comes up will be a Forbes article by our founder. We will be closely monitoring who we have heard from and who we haven't. We then make additional efforts through community partners, pop-ups, and on-the-street engagement strategies to reach audiences we have yet to connect with. **A**s an example often includes partnerships with schools, churches or cultural groups, and on-the-street engagement in key neighborhoods, and student and youth focus groups or through community events. On Trip **2** we will visiting any assets that were not visited on Trip 1 or that we need to gather more information on and conducting final staff focus groups and interviews.

2.4 Place Brand Audit

This phase ends with the Place Brand **A**udit which is a 1**00**+ page document that details all of our findings across engagement and research. This is the first key deliverable and sets the stage for entering into the brand strategy phase. The Place Brand **A**udit provides a SWOT analysis across numerous categories and covers both the entire community.

POP-UP ENG**A**GE**M**ENT EVENT IN **H**IG**H** POINT, N**C**

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CUSTOM BRAND ILLUSTRATION BY CIVICBRAND DESIGN TEAM

Task 3

Brand Strategy

A comprehensive brand platform is far more than just a logo and tagline

3.1 Mission & Vision
Everything we learn in the Place Brand **A**udit will shape the mission & vision. While we will engage with diverse groups of residents, staff, and stakeholders, we seek to find the underlying shared values and common thread with which a shared brand vision can be created. With a clear and shared vision for the future we will begin developing a strategy needed to achieve that vision and bring that mission and vision to life.

3.2 Brand Story & Principles
The brand story brings the vision to life through an inspiring narrative that captures the essence of the brand and the strategic vision. Brand principles are developed and used as a decision making filter for all implementation tasks and creative.

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3.3 Identity & Brand Architecture
With an approved brand vision, story, and principles, we will bring the brand to life through identity design. We will create a comprehensive brand platform and brand architecture that defines a primary brand and various sub-brands and endorsement brands that can be used strategically to make up the overall brand platform. City government brand architecture is our specialtiy and we have extensive experiences in develop unfieid brand strategies that still have the flexibility and adapability to support all departments, events, and assetes and their diverse needs while contributing to the overall brand.

3.4 Messaging & Visual Language
In addition to the logo and brand architecture elements, we will develop messaging and a visual language. This is the look, feel, voice, tone, colors, and surrounding elements that all shape how the brand will be communicated and brings the brand to life.

3.5 Brand Guidelines
We will produce a brand guidelines document that details how the brand should be used. This will define logo usage, brand architecture rules, fonts, colors, icons, and imagery. This document serves as a reference document for staff and any vendors or contractors who work with the brand.

BRAND MESSAGING IN LUBBOCK, TX

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Task 4

Implementation & Marketing Plan

A brand is built by living the brand promise on a daily basis

4.1 Implementation & Marketing Plan
The greatest brands in the world meant nothing on day 1. Their value is all based on how they are implemented, managed, and ultimately fulfilling the brand promise on a daily basis. The implementation plan is organized by the strategic focus areas and provides a priority matrix for how the brand should be implemented. This is a multi-phase and multi-year implementation plan.

4.3 Impact v. Effort Matrix
It is important that an implementation has a healthy balance of quick win projects and bigger projects and tasks. They can't all be small and they can't all be big. We will plot all recommendations on an impact vs effort matrix which will help prioritize which projects should be tackled first.

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CIVICBRAND VIDEO SHOOT AT MT. HOOD
FOR CLACKAMAS COUNTY, OREGON

4.4 Management & Measurement
A key element of implementation is identifying key metrics including brand awareness, net promoter score, overall buy-in and adoption of the brand, as well as specific performance metrics. We will develop a management and measurement strategy and identify the key roles and responsibilities.

4.5 Launch
CivicBrand will work with the project team and committee to determine the appropriate launch strategy. In some cases a brand launch with a big splash is appropriate while in other communities soft launching the branding and successfully launching key catalyst projects is best as it can build momentum in a natural way. Developing the launch plan is a key catalyst project.

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A city brand that engages the entire community

Proving a city government brand strategy can inspire an entire community.

Our work with the **C**ity of **H**igh Point, N**C**, has won international awards and has proven firsthand how a city government brand (not a destination marketing brand!) can bring together the entire community. Being known as the furniture capital of the world was great for visitors and those in the furniture industry, but what did that mean for locals and local government? We developed a community-first brand strategy that carries across city departments, the built environment, and brings the entire community together!

CITY OF high point.

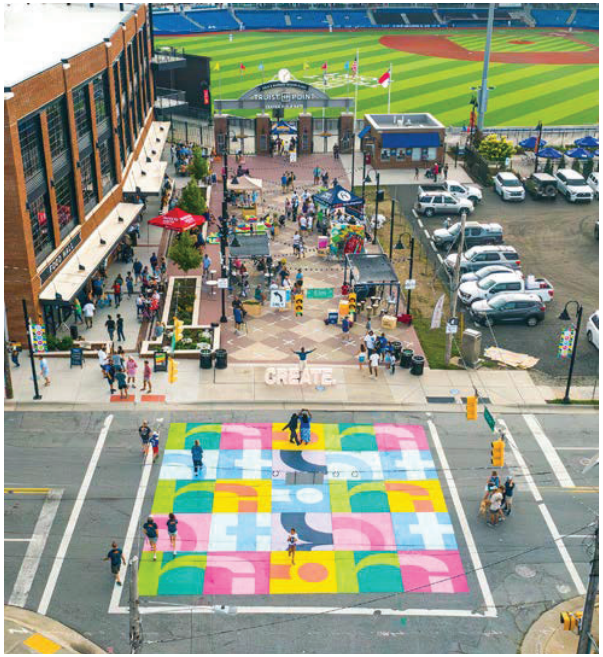
CITY OF high point. | DEPARTMENT NAME

high point economic development.

high point THEATRE

HIGH POINT TRANSIT

HIGH POINT PUBLIC LIBRARY



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CO	TOWN OF BRECKENRIDGE, COLORADO	
	TOWN CORE VALUES	MT. HOOD TERRITORY & CLACKAMAS COUNTY

Core Values for the Town of Breckenridge

Empowering town staff to live their core values on a daily basis

CivicBrand collaborated with the Town of Breckenridge, CO to translate their core values from rhetoric to daily practice. Too often, mission, vision, and core values are generic statements that lack meaningful action. We developed a field guide that articulates the town's values and provides actionable steps for implementing and living them daily. This empowered staff to recognize and embrace colleagues who exemplify these values, fostering a culture where authenticity and recognition intertwine. The campaign came to life through the field guide, photography, and a video shown to new employees.

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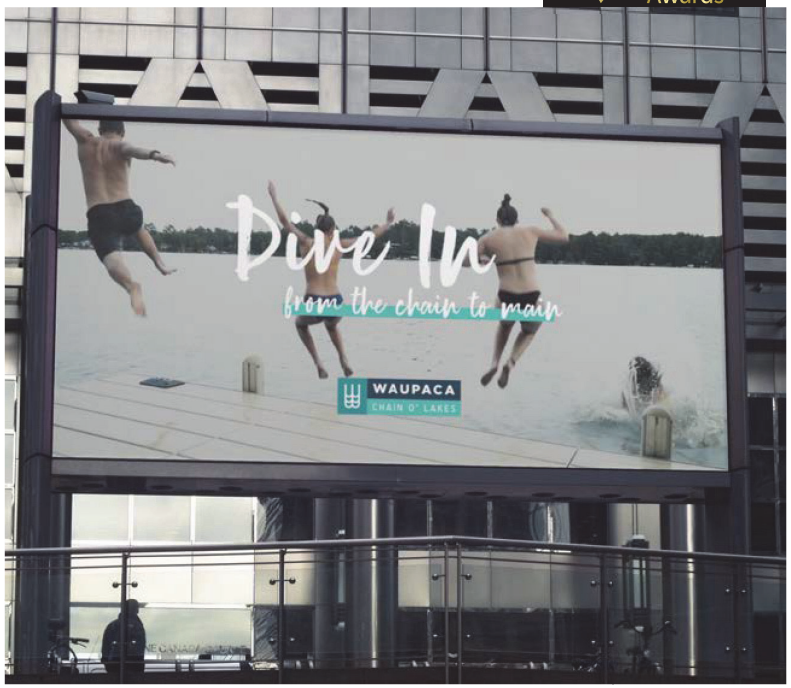
WI | CITY OF WAUPACA, WISCONSIN
PLACE BRANDING | COMMUNITY-WIDE BRAND PLATFORM

City Nation Place Awards

A municial brand that works across the community

A City, Chamber, and CVB collaboration, creating a true place brand platform

Through in-depth engagement and design we developed a brand platform that cast a common vision while at the same time allowing different departments and entities to use the brand to support their different goals. The city, like most communities, needs to attract city staff, talent, residents, businesses and visitors, but they need to do so in a way that is effective and efficent. This brand platform leverages the entire community to tell its story.



Waupaca WISCONSIN

CITY OF WAUPACA 18 57 WISCONSIN

WAUPACA CHAIN O' LAKES

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TX	CITY OF BURLESON, TX	
	PLACE BRANDING	COMMUNITY-WIDE BRAND PLATFORM

Managing growth through place branding

A community wide brand platform that protects culture while growing

Burleson, TX is in the Dallas / Fort Worth metroplex and has experienced unprecedented growth. Therefore Burleson didn't need branding to attract residents, investment or even visitors. Instead, they needed branding for something even more important - to define and protect their identity as they grow. We developed a brand platform and implementation plan that consisted of place brand, city government brand, made-in brand, and resident brand that all work together. We also designed all of the signage and monuments for their newly built town square.

BURLESON TEXAS

18 BTX 81 BURLESON TEXAS

BTX MADE

BTX

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OR | CLACKAMAS COUNTY, OREGON
DESTINATION MARKETING | MT. HOOD TERRITORY & CLACKAMAS COUNTY

Capturing the spirit of the Mt. Hood Territory

Building a photo and video content library for Clackamas County

As part of a larger county-wide branding initiative for **C**lackamas **C**ounty, Oregon, a key task was producing a library of high quality imagery. The goal was to build a robust and diverse library of imagery that county staff could utilize for a wide variety of marketing and communication needs. Our team captured hundreds of photos and hours of video footage including **M**t. **H**ood, the different cities in **C**lackamas **C**ounty, local farms, businesses, residents, parks, transit, recreational activities, and the diverse residents that make up the county.

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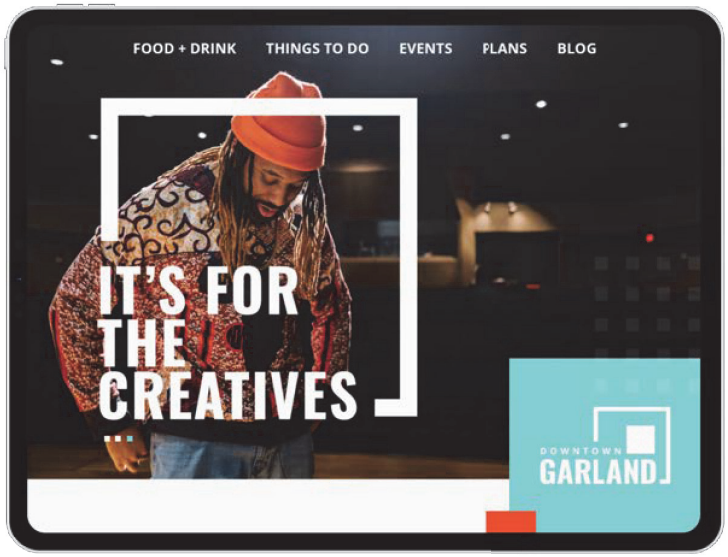
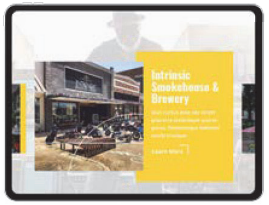
TX	DOWNTOWN GARLAND, TX	
	DISTRICT BRANDING	PLACEMAKING AND BRANDING

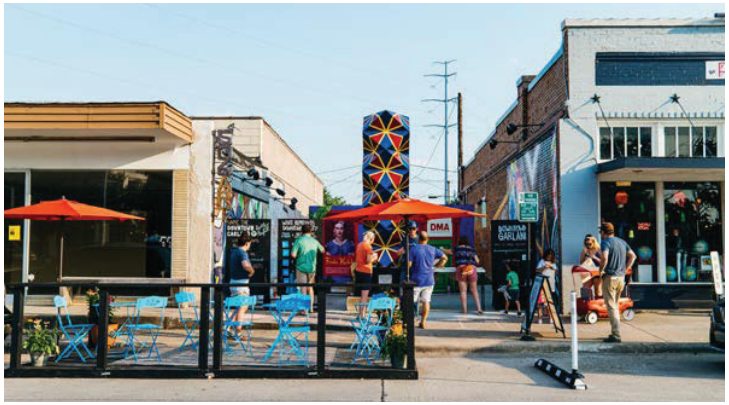
Making downtown a place for everybody

Public engagement, placemaking and downtown brand strategy

Downtown Garland is the heart of Garland, TX and has changed over the years. There was uncertainty on who downtown was for. Is it for shopping? Is it for night-life? **A**rtists? Families? **C**ivicBrand conducted a placemaking activation and multiple rounds of engagement to understand what Downtown Garland means to residents and what they want it to be in the future. Together we developed a brand strategy and vision plan that shows that Downtown Garland is for everyone and created an implementation plan to actually live up to that.







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WI	TWO RIVERS, WISCONSIN	
	PLACE BRANDING	A COMMUNITY WIDE BRAND PLATFORM

Staying true to our past to inspire our future

A made-in brand and place brand that brings back our entrepreneurial spirit

Two **R**ivers was established as a fishing and factory town on beautiful Lake **M**ichigan. The factory closed years ago and the town was struggling to find its identity and a new path forward. Some thought they would never thrive again unless another large employer came to town. **C**ivicBrand helped develop a place brand strategy that doesn't rely on an outside company to bail them out but instead inspires and helps residents rediscover the community's entrepreneurial spirit to reshaping the future of Two **R**ivers.

TWO RIVERS WISCONSIN

MADE IN Two Rivers WISCONSIN

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MONTHLY PROJECT SCHEDULE	1	2	3	4	5	6	7	8	9	10	11	12
KICK-OFF & DATA TRANSFER	■											
TRIP 1 - ENGAGEMENT		■										
VIRTUAL ENGAGEMENT		■	■	■	■							
TRIP 2 - EQUITABLE ENGAGEMENT					■							
PLACE BRAND AUDIT	■	■	■	■	■							
BRAND STRATEGY, MISSION & VISION					■	■	■					
BRAND IDENTITY DESIGN & MESSAGING						■	■	■	■			
IMPLEMENTATION PLAN									■	■	■	

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Approach
City of Denton
Mission, Vision, and Rebranding Initiatve

Task 1

Kick-Off & Project Management

1.1 Kick off meeting
1.2 Committee Meetings
1.3 Status Checks
1.4 Project website
1.5 Data Transfer

Task 2

Research, Engagement & Audit

2.1 Trip 1 - Engagement & Asset Audit
2.2 Virtual Engagement & Research
2.3 Trip 2 - Equitable Engagement
2.4 Place Brand Audit

PROJECT FEE:	$75,000
TRAVEL BUDGET*:	$0
ENGAGEMENT MATERIAL*:	$5,000
TOTAL PROJECT COST:	$80,000

*Not to exceed

Task 3

Brand Strategy

3.1 Mission & Vision
3.2 Brand Story & Principles
3.3 Identity & Brand Architecture
3.4 Messaging & Visual Language
3.5 Brand Guidelines

Task 4

Implementation

4.1 Implementation Plan
4.2 Impact v. Effort Matrix
4.3 Management & Measurement
4.4 Launch Plan

Optional add-ons

PLACEMAKING ACTIVATION	$15,000
PLACEMAKING MATERIALS	$TBD
BRAND VIDEO SHOOT	$17,000

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EXHIBIT C

INSURANCE REQUIREMENTS

Respondent's attention is directed to the insurance requirements below. It is highly recommended that respondents confer with their respective insurance carriers or brokers to determine in advance of Proposal/Bid submission the availability of insurance certificates and endorsements as prescribed and provided herein. If an apparent low respondent fails to comply strictly with the insurance requirements, that respondent may be disqualified from award of the contract. Upon contract award, all insurance requirements shall become contractual obligations, which the successful contractor shall have a duty to maintain throughout the course of this contract.

STANDARD PROVISIONS:

Without limiting any of the other obligations or liabilities of the Contractor, the Contractor shall provide and maintain until the contracted work has been completed and accepted by the City of Denton, Owner, the minimum insurance coverage as indicated hereinafter.

As soon as practicable after notification of contract award, Contractor shall file with the Purchasing Department satisfactory certificates of insurance including any applicable addendum or endorsements, containing the contract number and title of the project. Contractor may, upon written request to the Purchasing Department, ask for clarification of any insurance requirements at any time; however, Contractors are strongly advised to make such requests prior to proposal/bid opening, since the insurance requirements may not be modified or waived after proposal/bid opening unless a written exception has been submitted with the proposal/bid. Contractor shall not commence any work or deliver any material until he or she receives notification that the contract has been accepted, approved, and signed by the City of Denton.

All insurance policies proposed or obtained in satisfaction of these requirements shall comply with the following general specifications, and shall be maintained in compliance with these general specifications throughout the duration of the Contract, or longer, if so noted:

- Each policy shall be issued by a company authorized to do business in the State of Texas with an A.M. Best Company rating of at least **A- or better**.

- Any deductibles or self-insured retentions shall be declared in the proposal. If requested by the City, the insurer shall reduce or eliminate such deductibles or self-insured retentions with respect to the City, its officials, agents, employees, and volunteers; or, the contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

- Liability policies shall be endorsed to provide the following:

    - Name as Additional Insured the City of Denton, its Officials, Agents, Employees, and volunteers.

    - That such insurance is primary to any other insurance available to the

Additional Insured with respect to claims covered under the policy and that this insurance applies separately to each insured against whom claim is made or suit is brought. The inclusion of more than one insured shall not operate to increase the insurer's limit of liability.

- Provide a Waiver of Subrogation in favor of the City of Denton, its officials, agents, employees, and volunteers.

- ***Cancellation: City requires 30 day written notice should any of the policies described on the certificate be cancelled or materially changed before the expiration date.***

- Should any of the required insurance be provided under a claims made form, Contractor shall maintain such coverage continuously throughout the term of this contract and, without lapse, for a period of three years beyond the contract expiration, such that occurrences arising during the contract term which give rise to claims made after expiration of the contract shall be covered.

- Should any of the required insurance be provided under a form of coverage that includes a general annual aggregate limit providing for claims investigation or legal defense costs to be included in the general annual aggregate limit, the Contractor shall either double the occurrence limits or obtain Owners and Contractors Protective Liability Insurance.

- Should any required insurance lapse during the contract term, requests for payments originating after such lapse shall not be processed until the City receives satisfactory evidence of reinstated coverage as required by this contract, effective as of the lapse date. If insurance is not reinstated, City may, at its sole option, terminate this agreement effective on the date of the lapse.

SPECIFIC ADDITIONAL INSURANCE REQUIREMENTS:

All insurance policies proposed or obtained in satisfaction of this Contract shall additionally comply with the following specifications, and shall be maintained in compliance with these additional specifications throughout the duration of the Contract, or longer, if so noted:

A. <u>COMMERCIAL GENERAL LIABILITY INSURANCE</u>

Commercial General Liability Insurance including, but not limited to, Premises/Operations, Personal & Advertising Injury, Products/Completed Operations, Independent Contractors, and Contractual Liability with minimum combined bodily injury (including death) and property damage limits of $1,000,000.00 per occurrence and $2,000,000.00 general aggregate.

B. <u>PROFESSIONAL LIABILITY INSURANCE</u>

If CONTRACTOR is a licensed or certified person who renders professional services, then **Professional Liability Insurance** to provide coverage against any claim which the CONTRACTOR becomes legally obligated to pay as damages arising out of the performance of professional services caused by

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any negligent error, omission or act with minimum limits of $1,000,000.00 per claim, $2,000,000.00 annual aggregate.

SUBCONTRACTING LIABILITY

(1) Without limiting any of the other obligations or liabilities of the CONTRACTOR, the CONTRACTOR shall require each Subcontractor performing work under the contract, at the Subcontractor's own expense, to maintain during the engagement with the CITY, types and limits of insurance that are appropriate for the services/work being performed, comply with all applicable laws and are consistent with industry standards. The Subcontractor's liability insurance shall name CONTRACTOR as an additional insured.

(2) CONTRACTOR shall obtain and monitor the certificates of insurance from each Subcontractor. CONTRACTOR must retain the certificates of insurance for the duration of the contract and shall have the responsibility of enforcing insurance requirements among its subcontractors. The CITY shall be entitled, upon request and without expense, to receive copies of these certificates.

EXHIBIT D

CONFLICT OF INTEREST QUESTIONNAIRE

CONFLICT OF INTEREST QUESTIONNAIRE - FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local government entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

1 **Name of vendor who has a business relationship with local governmental entity.**

The MODassic Group, LLC. Dba CivicBrand

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

_____

Name of Officer

This section, (item 3 including subparts A, B, C & D), must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4 ☑ **I have no Conflict of Interest to disclose.**

5

Ryan Short CivicBrand — 04/02/2024

Signature of vendor doing business with the governmental entity — Date

DocuSign

Certificate Of Completion

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Status: Sent

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Document Pages: 49

Signatures: 3

Initials: 1

Certificate Pages: 6

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EnvelopeId Stamping: Enabled

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Envelope Originator:
Kayla Clark
901B Texas Street
Denton, TX 76209
kayla.clark@cityofdenton.com
IP Address: 198.49.140.104

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kayla.clark@cityofdenton.com

Location: DocuSign

Signer Events	Signature	Timestamp
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Lori Hewell lori.hewell@cityofdenton.com Purchasing Manager City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DS LH Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.104	Sent: 5/13/2024 6:29:58 AM Viewed: 5/13/2024 6:55:27 AM Signed: 5/13/2024 8:43:07 AM
Marcella Lunn marcella.lunn@cityofdenton.com Senior Deputy City Attorney City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DocuSigned by: Marcella Lunn 4B070831B4AA438... Signature Adoption: Pre-selected Style Using IP Address: 198.49.140.10	Sent: 5/13/2024 8:43:10 AM Viewed: 5/17/2024 9:03:09 AM Signed: 5/17/2024 9:07:24 AM
Ryan Short Ryan@civicbrand.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 5/17/2024 9:33:41 AM ID: 83080b63-c5b4-4632-8cd4-4d8d74dc5c48	DocuSigned by: Ryan Short D7E7D0D10C854F6... Signature Adoption: Pre-selected Style Using IP Address: 172.221.84.151	Sent: 5/17/2024 9:07:27 AM Viewed: 5/17/2024 9:33:41 AM Signed: 5/17/2024 9:36:36 AM

Signer Events	Signature	Timestamp
Dustin Sternbeck Dustin.Sternbeck@cityofdenton.com Chief Communications Officer Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 5/17/2024 9:43:52 AM ID: 6215d419-d404-4b91-8958-bfdf61d14d4a	DocuSigned by: 1CD02F73605548A... Signature Adoption: Drawn on Device Using IP Address: 172.56.54.6 Signed using mobile	Sent: 5/17/2024 9:36:39 AM Viewed: 5/17/2024 9:43:52 AM Signed: 5/17/2024 9:45:42 AM
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		Sent: 5/17/2024 9:45:47 AM
Sara Hensley sara.hensley@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Lauren Thoden lauren.thoden@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		

In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp
Cheyenne Defee cheyenne.defee@cityofdenton.com Procurement Administration Supervisor City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 5/13/2024 6:29:58 AM
Gretna Jones gretna.jones@cityofdenton.com Legal Secretary City of Denton Security Level: Email, Account Authentication (None)	COPIED	Sent: 5/17/2024 9:45:45 AM Viewed: 5/17/2024 2:25:45 PM

Carbon Copy Events	Status	Timestamp
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City Secretary Office citysecretary@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		
Kayla Herrod Kayla.herrod@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign		

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
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Payment Events	Status	Timestamps

Electronic Record and Signature Disclosure

ELECTRONIC RECORD AND SIGNATURE DISCLOSURE

From time to time, City of Denton (we, us or Company) may be required by law to provide to you certain written notices or disclosures. Described below are the terms and conditions for providing to you such notices and disclosures electronically through your DocuSign, Inc. (DocuSign) Express user account. Please read the information below carefully and thoroughly, and if you can access this information electronically to your satisfaction and agree to these terms and conditions, please confirm your agreement by clicking the 'I agree' button at the bottom of this document.

Getting paper copies

At any time, you may request from us a paper copy of any record provided or made available electronically to you by us. For such copies, as long as you are an authorized user of the DocuSign system you will have the ability to download and print any documents we send to you through your DocuSign user account for a limited period of time (usually 30 days) after such documents are first sent to you. After such time, if you wish for us to send you paper copies of any such documents from our office to you, you will be charged a $0.00 per-page fee. You may request delivery of such paper copies from us by following the procedure described below.

Withdrawing your consent

If you decide to receive notices and disclosures from us electronically, you may at any time change your mind and tell us that thereafter you want to receive required notices and disclosures only in paper format. How you must inform us of your decision to receive future notices and disclosure in paper format and withdraw your consent to receive notices and disclosures electronically is described below.

Consequences of changing your mind

If you elect to receive required notices and disclosures only in paper format, it will slow the speed at which we can complete certain steps in transactions with you and delivering services to you because we will need first to send the required notices or disclosures to you in paper format, and then wait until we receive back from you your acknowledgment of your receipt of such paper notices or disclosures. To indicate to us that you are changing your mind, you must withdraw your consent using the DocuSign 'Withdraw Consent' form on the signing page of your DocuSign account. This will indicate to us that you have withdrawn your consent to receive required notices and disclosures electronically from us and you will no longer be able to use your DocuSign Express user account to receive required notices and consents electronically from us or to sign electronically documents from us.

All notices and disclosures will be sent to you electronically

Unless you tell us otherwise in accordance with the procedures described herein, we will provide electronically to you through your DocuSign user account all required notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you during the course of our relationship with you. To reduce the chance of you inadvertently not receiving any notice or disclosure, we prefer to provide all of the required notices and disclosures to you by the same method and to the same address that you have given us. Thus, you can receive all the disclosures and notices electronically or in paper format through the paper mail delivery system. If you do not agree with this process, please let us know as described below. Please also see the paragraph immediately above that describes the consequences of your electing not to receive delivery of the notices and disclosures electronically from us.

How to contact City of Denton:
You may contact us to let us know of your changes as to how we may contact you electronically, to request paper copies of certain information from us, and to withdraw your prior consent to receive notices and disclosures electronically as follows:
To contact us by email send messages to: purchasing@cityofdenton.com

To advise City of Denton of your new e-mail address
To let us know of a change in your e-mail address where we should send notices and disclosures electronically to you, you must send an email message to us at melissa.kraft@cityofdenton.com and in the body of such request you must state: your previous e-mail address, your new e-mail address. We do not require any other information from you to change your email address..
In addition, you must notify DocuSign, Inc to arrange for your new email address to be reflected in your DocuSign account by following the process for changing e-mail in DocuSign.
To request paper copies from City of Denton
To request delivery from us of paper copies of the notices and disclosures previously provided by us to you electronically, you must send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail address, full name, US Postal address, and telephone number. We will bill you for any fees at that time, if any.
To withdraw your consent with City of Denton
To inform us that you no longer want to receive future notices and disclosures in electronic format you may:

i. decline to sign a document from within your DocuSign account, and on the subsequent page, select the check-box indicating you wish to withdraw your consent, or you may;
ii. send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail, full name, IS Postal Address, telephone number, and account number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

Required hardware and software

Operating Systems:	Windows2000? or WindowsXP?
Browsers (for SENDERS):	Internet Explorer 6.0? or above
Browsers (for SIGNERS):	Internet Explorer 6.0?, Mozilla FireFox 1.0, NetScape 7.2 (or above)
Email:	Access to a valid email account
Screen Resolution:	800 x 600 minimum
Enabled Security Settings:	•Allow per session cookies •Users accessing the internet behind a Proxy Server must enable HTTP 1.1 settings via proxy connection

** These minimum requirements are subject to change. If these requirements change, we will provide you with an email message at the email address we have on file for you at that time providing you with the revised hardware and software requirements, at which time you will have the right to withdraw your consent.

Acknowledging your access and consent to receive materials electronically
To confirm to us that you can access this information electronically, which will be similar to other electronic notices and disclosures that we will provide to you, please verify that you were able to read this electronic disclosure and that you also were able to print on paper or electronically save this page for your future reference and access or that you were able to e-mail this disclosure and consent to an address where you will be able to print on paper or save it for your future reference and access. Further, if you consent to receiving notices and disclosures exclusively in electronic format on the terms and conditions described above, please let us know by clicking the 'I agree' button below.
By checking the 'I Agree' box, I confirm that:

- I can access and read this Electronic CONSENT TO ELECTRONIC RECEIPT OF ELECTRONIC RECORD AND SIGNATURE DISCLOSURES document; and

- I can print on paper the disclosure or save or send the disclosure to a place where I can print it, for future reference and access; and

- Until or unless I notify City of Denton as described above, I consent to receive from exclusively through electronic means all notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to me by City of Denton during the course of my relationship with you.

File #: ID 24-731, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton determining the public use, need, and necessity for the acquisition of (I) permanent electric easement, generally located at 3833 Airport Road, Denton, Texas 76207, A 0.408-acre easement tract (526551), Fastenal Addition, Block A, Lot 1 for the Denton West to RD Wells Project, Parcel No 1A, situated in William Neil Survey Abstract No. 970, all in the City and County of Denton, Texas, and more particularly described in the attached Exhibit "A" ("collectively, the property interests"); authorizing the City Manager and City Attorney, to acquire the Property Interests by agreement, if possible, including making all offers required by law; authorizing the use of the power of eminent domain to condemn the property interests if agreement cannot be reached; authorizing the City Attorney, to file eminent domain proceedings if necessary; authorizing the expenditure of funding; making findings; providing a savings clause; and providing an effective date.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: **Development Services, Real Estate**

ACM: **Cassandra Ogden**

DATE: **June 4, 2024**

SUBJECT

Consider adoption of an ordinance of the City of Denton determining the public use, need, and necessity for the acquisition of (I) permanent electric easement, generally located at 3833 Airport Road, Denton, Texas 76207, A 0.408-acre easement tract (526551), Fastenal Addition, Block A, Lot 1 for the Denton West to RD Wells Project, Parcel No 1A, situated in William Neil Survey Abstract No. 970, all in the City and County of Denton, Texas, and more particularly described in the attached Exhibit "A" ("collectively, the property interests"); authorizing the City Manager and City Attorney, to acquire the Property Interests by agreement, if possible, including making all offers required by law; authorizing the use of the power of eminent domain to condemn the property interests if agreement cannot be reached; authorizing the City Attorney, to file eminent domain proceedings if necessary; authorizing the expenditure of funding; making findings; providing a savings clause; and providing an effective date.

BACKGROUND

The TxDOT project to expand FM1515 (Airport Road) necessitates the relocation of existing Denton Municipal Electric infrastructure from their current locations. The Denton West to RD Wells transmission will be relocated further from FM1515 Right of Way under Capital Improvement Plan Project 604933500 and requires new electric easement from Fastenal Company. Cost to acquire new easement and to relocate the facilities are eligible for State reimbursement.

7 Arrows Land Staff, LLC, has been contracted to provide easement acquisition and other services in support of the project. In the event negotiation efforts fail and an impasse is reached, in order to avoid project delay, the approval of this ordinance will authorize the City Attorney's Office to acquire the necessary Property Interests via the exercise of eminent domain, with the landowners being compensated in accordance with state law.

If a Council member determines that he or she has a conflict of interest pursuant to the Ethics Ordinance, he or she may contact the City Attorney's Office to have a Recusal Form prepared prior to consideration of this agenda item.

OPTIONS

1. Approve proposed ordinance
2. Decline to approve proposed ordinance

RECOMMENDATION

Staff recommend approval of the ordinance.

ESTIMATED SCHEDULE OF PROJECT
Construction is scheduled to commence October 2024.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)
Public Utility Board May 6, 2024, PUB 24-082 - Approval

FISCAL INFORMATION
The purchase of the Property Interests will be funded from Denton Municipal Electric account 604933500.

EXHIBITS
Exhibit 1 - Agenda Information Sheet
Exhibit 2 - Ordinance
Exhibit 3 - Recommended Motion
Exhibit 4 - Location Map

Respectfully submitted:
Captoria Brown, Senior Real Estate Specialist

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON DETERMINING THE PUBLIC USE, NEED, AND NECESSITY FOR THE ACQUISITION OF (I) PERMANENT ELECTRIC EASEMENT, GENERALLY LOCATED AT 3833 AIRPORT ROAD, DENTON, TEXAS 76207, A 0.408-ACRE EASEMENT TRACT (526551), FASTENAL ADDITION, BLOCK A, LOT 1 FOR THE DENTON WEST TO RD WELLS PROJECT, PARCEL NO 1A, SITUATED IN WILLIAM NEIL SURVEY ABSTRACT NO. 970, ALL IN THE CITY AND COUNTY OF DENTON, TEXAS, AND MORE PARTICULARLY DESCRIBED IN THE ATTACHED EXHIBIT "A" (COLLECTIVELY, THE "PROPERTY INTERESTS"); AUTHORIZING THE CITY MANAGER AND CITY ATTORNEY, TO ACQUIRE THE PROPERTY INTERESTS BY AGREEMENT, IF POSSIBLE, INCLUDING MAKING ALL OFFERS REQUIRED BY LAW; AUTHORIZING THE USE OF THE POWER OF EMINENT DOMAIN TO CONDEMN THE PROPERTY INTERESTS IF AGREEMENT CANNOT BE REACHED; AUTHORIZING THE CITY ATTORNEY, TO FILE EMINENT DOMAIN PROCEEDINGS IF NECESSARY; AUTHORIZING THE EXPENDITURE OF FUNDING; MAKING FINDINGS; PROVIDING A SAVINGS CLAUSE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, The Texas Department of Transportation ("TXDOT") right-of-way expansion and improvement project, Parcel No. 1A, requires a permanent easement to maintain clearance and prevent overhead encroachment at the intersection of Airport Road and Corbin; and

WHEREAS**,** the City Council of the City of Denton ("City Council") after consideration of this matter, has determined that a public use and necessity exists for, and that the public welfare and convenience requires, the acquisition of the Property Interests, comprised of a permanent easement, by the City of Denton ("City"). The City Council finds that the acquisition of the Property Interests is a valid public use necessary to provide electrical utilities to maintain clearance relocation and prevent overhead encroachment at the intersection of Airport Road and Corbin Road for the Denton West to RD Wells utility transmission line rebuild (Denton West to RD Wells Project) located in the City of Denton, all for the public safety and welfare (collectively, the "Project"), to serve the public and the citizens of the City; and

WHEREAS**,** the acquisition of the Property Interests identified in Exhibit "A" is necessary in furtherance of the Project; and

WHEREAS**,** the City is required to make an initial offer as defined by, and in compliance with, Texas Property Code §21.0111 ("Initial Offer"), and a bona fide offer as defined by, and in compliance with, Texas Property Code §21.0113 ("Final Offer") to acquire the Property Interests for public use, voluntarily, from the subject landowners before beginning the acquisition of the Property Interests by eminent domain; and

WHEREAS, independent professional appraisal reports of the Property Interests will be submitted to the City as required by Chapter 21 of the Texas Property Code, and the City Manager or their designee will establish a certain amount determined to be just compensation for the individual Property Interests based on the appraisals and fair market values of the Property Interests and any applicable fees necessary to acquire the Property Interests; and

WHEREAS, the City Council deems it necessary to authorize the City Attorney to initiate condemnation proceedings in order to acquire the Property Interests if an agreement cannot be reached with the subject landowners for the purchase of the Property Interests; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON ORDAINS:

SECTION 1. The City Council finds that the recitals made in the preamble of this Ordinance are true and correct and incorporates such recitals into the body of this ordinance as if copied in their entirety.

SECTION 2. The City Council authorizes acquisition of the Property Interests, as more particularly described in the attached Exhibit "A," for the reasons and purposes set forth above together with all necessary appurtenances, additions, and improvements on, over, under, and through the Property Interests.

SECTION 3. The City Council authorizes the City Attorney, or designee, to negotiate for and to acquire the required property rights in the Property Interests for the City, and to acquire these rights in compliance with State and any other applicable law. The City Attorney, or designee, is specifically authorized and directed to do each and every act necessary to acquire the needed property rights in the Property Interests including, but not limited to, the authority to negotiate, give notices, make written offers to purchase, prepare contracts and conveyance documents, to retain and designate a qualified appraiser of the Property Interests to be acquired and any other experts or consultants that he deems necessary for the acquisition process, to retain qualified outside litigation counsel as needed, and, if necessary, to institute and conduct all parts of the proceedings in eminent domain in accordance with the laws and procedures of the State.

SECTION 4. The City Manager, or their designee, is appointed as negotiator for the acquisition of the needed Property Interests and, as such, the City Manager, or their designee, is authorized and directed to do each and every act and deed specified or authorized by this Ordinance, subject to the availability of funds appropriated by the City Council for such purpose. The City Manager, or their designee, is specifically authorized to establish and make offer(s) of just compensation for the acquisition of the Property Interests to the respective landowner(s) in accordance with State and any other applicable law. If an agreement as to damages or compensation cannot be reached, then the City Attorney, or their designee, is authorized and directed to file or cause to be filed, against the subject landowner(s) and interested parties of the Property Interests, proceedings in eminent domain to acquire the Property Interests

SECTION 5. It is the intent of the City Council that this Ordinance authorize the City Manager and City Attorney, or their designee, are authorized to perform all steps necessary to obtain the Property Interests necessary for the Project, whether through negotiation or condemnation, including the expenditure of funds.

SECTION 6. It is the intent of the City Council that this Ordinance authorize the acquisition and condemnation of all property interests required for the construction and installation

of the Project for public uses to serve the public and citizens of the City. If it is determined that there are scrivener errors in the descriptions contained herein or if later surveys contain more accurate revised descriptions, the City Attorney or their designee is authorized to have such errors corrected or revisions made without the necessity of obtaining a new City Council Ordinance authorizing condemnation of the corrected or revised property. The Project is generally located along Interstate 3833 Airport Road, at the intersection of Airport Road and Corbin Road all in the City and County of Denton, Texas.

SECTION 7. In the event that Special Commissioners, appointed by the Court during condemnation proceedings, return an award that is the same amount or less than the amount offered by the City for just compensation, the City Attorney is hereby authorized to settle the lawsuit for that amount.

SECTION 8. Following an award by Special Commissioners, the City Finance Director is hereby authorized to issue a check from the appropriate fund in an amount not to exceed the Special Commissioners' award payable to the County Clerk of Denton County to be deposited in the registry of the Court to enable the City to take possession of the respective Property Interest(s) without further action of the City Council.

SECTION 9. If any section, article, paragraph, sentence, phrase, clause, or word in this ordinance, or application thereof to any persons or circumstances, is held invalid or unconstitutional by a court of competent jurisdiction, such holding shall not affect the validity of the remaining portions of this ordinance; the City Council declares that it would have ordained such remaining portion despite such invalidity, and such remaining portion shall remain in full force and effect.

SECTION 10. This Ordinance shall become effective immediately upon its passage.

The motion to approve this ordinance was made by _____ and seconded by _____, the ordinance was passed and approved by the following vote [___ - ___]:

	Aye	**Nay**	**Abstain**	**Absent**
Gerard Hudspeth, Mayor:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Benjamin N. Samples, AA

EXHIBIT "A"

The Property Interests

Parcel	**Property Owner**	**SOS Officer**
1	Fastenal Company	Daniel Lars Florness, President

EXHIBIT "A"
ELECTRIC EASEMENT
Fastenal Company Tract

BEING a 0.408-acre tract of land situated in the William Neill Survey, Abstract No. 970, in the City of Denton, Denton County, Texas, being part of a called 18.544-acre tract of land, as described in deed to Fastenal Company, recorded in Document No. 2004-48713 of the Official Records Denton County, Texas (O.R.D.C.T.), and being further described as part of Lot 1 in Block A of the Fastenal Addition, recorded in Cabinet X, Page 854 of the Plat Records of Denton County, Texas (P.R.D.C.T.), and being more particularly described by metes and bounds as follows:

COMMENCING at a 5/8-inch iron rod with cap stamped "TXDOT" found at the north end of a corner clip at the southwest corner of the intersection of F.M. 1515 (Airport Road, variable width R.O.W.) with Corbin Road (variable width R.O.W.), said point located in the existing south right-of-way line of said F.M. 1515 as described in deed to the State of Texas, and recorded in Document No. 2022-93309 (O.R.D.C.T.);

THENCE North 88°56'00" West, along the existing south right-of-way line of said F.M. 1515, a distance of 398.06 feet to the intersection with the most westerly line of a called 1.25-acre Electric Easement as described in deed to the City of Denton, recorded in Document No. 2004-31236 (O.R.D.C.T.), and being the **POINT OF BEGINNING**;

THENCE South 01°13'15" West, departing the existing south right-of-way line of said F.M. 1515, and along the west line of said Electric Easement, a distance of 9.38 feet to the most westerly southwest corner of same;

THENCE South 89°18'04" East, along the south line of said Electric Easement, a distance of 388.18 feet to an interior ell corner of same;

THENCE South 00°06'16" East, along a west line of said Electric Easement, a distance of 248.76 feet to a point for corner;

THENCE North 04°09'26" West, departing the west line of said Electric Easement, a distance of 204.17 feet to a point for corner;

THENCE North 87°48'20" West, a distance of 386.94 feet to a point for corner;

THENCE North 01°05'58" East, a distance of 44.66 feet to the intersection with the existing south right-of-way line of said F.M. 1515, from which point a found 5/8-inch iron rod with cap stamped "TXDOT" bears North 88°56'00" West, a distance of 364.92 feet;

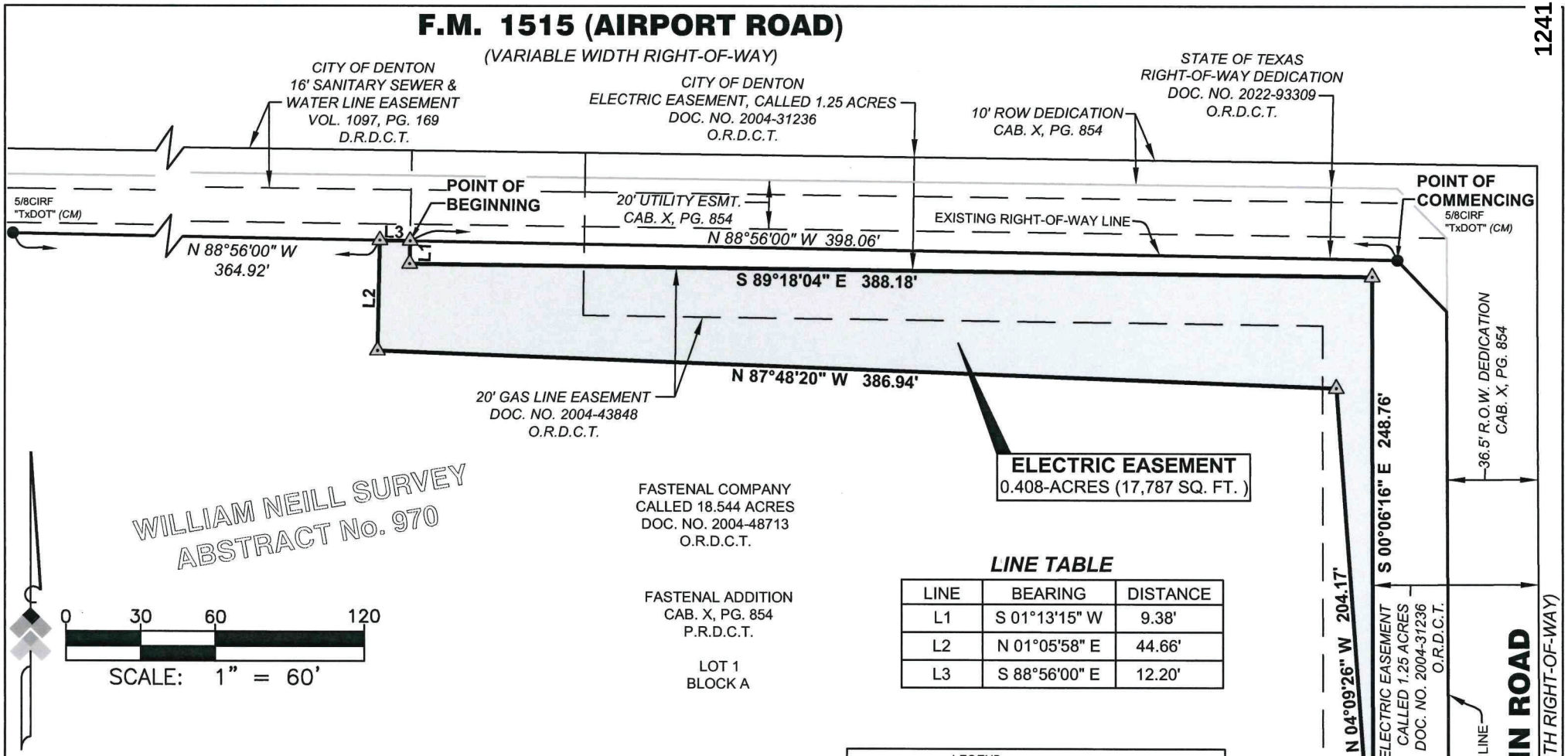
THENCE South 88°56'00" East, along the existing south right-of-way line of said F.M. 1515, a distance of 12.20 feet to the **POINT OF BEGINNING** and containing 0.408-acres (17,787 square feet) of land, more or less.

An Easement Exhibit of even date herewith accompanies this Legal Description. See Exhibit "B".

NOTE: *Bearings are referenced to Grid North of the Texas Coordinate System of 1983 (North Central Zone 4202: NAD83 (2011) EPOCH 2010) as derived locally from RTK Network Continuously Operating Reference Stations (CORS) via Real Time Kinematic (RTK) survey methods. The distances shown hereon represent surface values utilizing a Surface Adjustment Factor of 1.000150630 to scale from grid to surface.*

Marvin King 8/30/23

Marvin King, R.P.L.S. No. 5581
Teague Nall & Perkins
3200 S. Interstate 35E, Suite 1129
Denton, Texas 76210
940-383-4177
TBPLS Firm No. 10011601



LINE TABLE

LINE	BEARING	DISTANCE
L1	S 01°13'15" W	9.38'
L2	N 01°05'58" E	44.66'
L3	S 88°56'00" E	12.20'

LEGEND	
△	CALCULATED POINT
●	5/8" IRON ROD FOUND WITH CAP STAMPED "TxDOT"
(CM)	CONTROLLING MONUMENT
IRF	IRON ROD FOUND
CIRF	CAPPED IRON ROD FOUND
D.R.D.C.T.	DEED RECORDS DENTON COUNTY TEXAS
P.R.D.C.T.	PLAT RECORDS DENTON COUNTY TEXAS
O.R.D.C.T.	OFFICIAL RECORDS DENTON COUNTY TEXAS
═══	EASEMENT BOUNDARY LINE
───	RIGHT-OF-WAY LINE
───	PROPERTY LINE
— — —	EXISTING EASEMENT LINE

NOTES:

1. Bearings of lines shown hereon are referenced to Grid North of the Texas Coordinate System of 1983 (North Central Zone 4202: NAD83 (2011) Epoch 2010) as derived locally from RTK Network continuously operating reference stations (CORS) via real time kinematic (RTK) survey methods. The distances shown hereon represent surface values using a surface adjustment factor of 1.000150630 to scale from grid to surface.

2. This Exhibit was prepared without the benefit of a current Title Commitment, or Encumbrance Report. Additional easements, rights-of-way and/or other matters of record may affect this tract that are not shown hereon.

3. A Legal Description of even date herewith accompanies this Easement Exhibit. See Exhibit "A".

STATE OF TEXAS
REGISTERED
MARVIN KING
5581
PROFESSIONAL
LAND SURVEYOR

8/30/23

teague nall and perkins
3200 S. Interstate 35E, Suite 1129
Denton, Texas 76210
940.383.4177 ph 940.383.8026 fx
www.tnpinc.com
TBPELS FIRM 10011601

EXHIBIT "B"
ELECTRIC EASEMENT

BEING 0.408 ACRES~17,787 SQ. FT. OF LAND SITUATED IN THE WILLIAM NEILL SURVEY, ABSTRACT NO. 970
CITY OF DENTON, DENTON COUNTY, TEXAS

DME13222

L:\PROJECTS\DME13222 DME CIP Support\Denton West to RD Wells TL\cad\survey\DME13222 Fastenal Electric Esmt.dwg

EXHIBIT "C" TO AIS

RECOMMENDED MOTION

City Council Agenda Item ID 24-731

(Denton West to RD Wells)

"I move that the City of Denton, after having made the offers required by State Law, use the power of eminent domain, if needed, to acquire an electric easement located generally 3833 Airport road situated in the William Neil Survey, Abstract No. 970, in the City and County of Denton, Texas, and more particularly described in the attached Exhibit "A" to the ordinance now under consideration and on the screen to be displayed to the audience, all of which are for a valid public use necessary to rebuild, construct and install electric infrastructure as part of the Denton West to RD Wells Project needed to serve the public and citizens of the City of Denton."

Western Blvd
Airport Rd
Airport Rd
Corbin Rd
acquiring easement
SUBJECT
Owner: Fastenal Company
N
W
E
S

File #: OPA24-0002a, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton, a Texas Home-Rule Municipal Corporation, authorizing the City Manager or designee to execute an Oversize Cost Participation Agreement with 4600 Ganzer Investments, LLC, for the construction of a 16" water main for the Water Utilities Department; providing for the expenditure of funds therefor; and providing an effective date (4600 Ganzer Investments, LLC, in the amount not-to-exceed amount of $1,092,497.00).

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Department of Development Services

CM/DCM/ACM: Cassey Ogden

DATE: June 4, 2024

SUBJECT

Consider adoption of an ordinance of the City of Denton, a Texas Home-Rule Municipal Corporation, authorizing the City Manager or designee to execute an Oversize Cost Participation Agreement with 4600 Ganzer Investments, LLC, for the construction of a 16" water main for the Water Utilities Department; providing for the expenditure of funds therefor; and providing an effective date (4600 Ganzer Investments, LLC, in the amount not-to-exceed amount of $1,092,497.00).

BACKGROUND

The Agreement stipulates the Developer agrees to design, construct, and install required facilities and fund Two Million Four Hundred Thirty Thousand Eight Hundred Ninety-Nine and 00/100 Dollars ($2,430,899.00) of the construction and install the Required Facilities. The City agrees to make payments to Developer for all Oversizing Costs in an amount not to exceed One Million Ninety-Two Thousand Four Hundred Ninety-Seven and 00/100 Dollars ($1,092,497.00), or 44.94% of the total estimated costs to design, construct and install the Required Facilities. The Required Facilities must be completed by the Developer; reviewed and inspected by the City; and approved and accepted by the City. The Oversize Participation Agreement is being requested to increase the size and capacity of public improvements for future developments in the area. These improvements align with the future Water & Wastewater Master Plan. The water line will extend along the west side of I-35 northbound and intersect at Ganzer Road.

OPTIONS

1. Recommend Approval
2. Recommend Approval Subject to Conditions
3. Recommend Denial
4. Postpone Item

RECOMMENDATION:

Staff recommends approval of this request.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

Public Utilities Board on May 20, 2024 – Recommended Approval

FISCAL INFORMATION

The Oversized Cost Participation Agreement will be funded by Water Utilities with account 630483517.

EXHIBITS

Exhibit 1 – Agenda Information Sheet
Exhibit 2 – Ordinance and Cost Participation Agreement

Respectfully submitted:

Stephen Gay
Director of Water Utilities

Scott McDonald
Director of Development Services/CBO

Prepared by:
Christian Garcia
Planning Technician Supervisor

DocuSign Envelope ID: 3D3E33BB-28AD-434B-AD83-DB08403BDCCD

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, A TEXAS HOME-RULE MUNICIPAL CORPORATION, AUTHORIZING THE CITY MANAGER OR DESIGNEE TO EXECUTE AN OVERSIZE COST PARTICIPATION AGREEMENT WITH 4600 GANZER INVESTMENTS, LLC, FOR THE CONSTRUCTION OF A 16" WATER MAIN FOR THE WATER UTILITIES DEPARTMENT; PROVIDING FOR THE EXPENDITURE OF FUNDS THEREFOR; AND PROVIDING AN EFFECTIVE DATE (4600 GANZER INVESTMENTS, LLC, IN THE AMOUNT NOT-TO- EXCEED AMOUNT OF $1,092,497.00).

WHEREAS, 4600 Ganzer Investments, LLC (the "Developer") is the owner of a 155.254 acre residential use located north of Ganzer Road and West of I-35E in the City of Denton, Texas Extra-Territorial Jurisdiction – Division 1 and being described on Exhibit A, attached hereto, and made a part hereof for all purposes (the "Property"); and

WHEREAS, Developer is in the process of developing and improving the Property and in connection with the same, must design, construct, and install adequate WATER facilities to service the Property (the "Required Facilities"); and

WHEREAS, as part of these Required Facilities, Developer is proposing to construct a WATER main within the Property, and Developer is proposing to increase the capacity of the WATER main for the Water Utilities Department; and

WHEREAS, the Required Facilities, specifically the WATER main, show additional developable land that will also be served by this WATER main, the City is therefore motivated to provide proportionate and reasonable capacity costs to expand its utility system and ensure adequate utility service to other customers; and

WHEREAS, Subchapter C, Section 212 of the Texas Local Government Code authorizes the City to cost participate with a developer of a subdivision or land to construct public improvements related to the development; and

WHEREAS, the City Council has provided in the City Budget for the appropriation of funds to be used for the purchase of the materials, equipment, supplies, or services approved and accepted herein; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The recitals contained in the preamble of this ordinance are hereby incorporated into the body of this ordinance are true and correct.

SECTION 2. The City Manager, or their designated representative, is hereby authorized to execute the written contract which is attached hereto and incorporated herein as Exhibit B.

SECTION 3. The City Council of the City of Denton, hereby expressly delegates the authority to take any actions that may be required or permitted to be performed by the City of Denton under this ordinance to the City Manager of the City of Denton, or their designee.

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SECTION 4. The City Council hereby authorizes the expenditure of funds therefor in the amount and in accordance with the written contract attached hereto and incorporated herein as Exhibit B.

SECTION 5. This ordinance shall become effective immediately upon its passage and approval.

The motion to approve this ordinance was made by _____ and seconded by _____. This ordinance was passed and approved by the following vote [___ - ___]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

DocuSign Envelope ID: 3D3E33BB-28AD-434B-AD83-DB08403BDCCD

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY
ATTORNEY

BY: DocuSigned by: 847DCF78EA6043D... _____

DocuSign Envelope ID: 3D3E33BB-28AD-434B-AD83-DB08403BDCCD

Exhibit A

Property Description

Being all of Lots 1 & 2, Block A, and Lot 1, Block B, Luxe Addition, an addition to the City of Denton, Denton County, Texas, being 155.254 acres of land located in the John Ayers Survey, Abstract No. 2, according to the Plat recorded in Document Number 2022-311, Plat Records, Denton County, Texas.

DocuSign Envelope ID: A08C008E-4D7C-4AA9-86B5-74F713F37D76

Exhibit B

THE STATE OF TEXAS §
§
COUNTY OF DENTON §

WATER UTILITIES OVERSIZE COST PARTICIPATION AGREEMENT BETWEEN THE CITY OF DENTON AND DEVELOPER FOR THE INSTALLATION OF A SIXTEEN (16) INCH WATER LINE

This Water Utilities Oversize Cost Participation Agreement (this "**Agreement**"), is made and entered into this ___ day of _____, 2024 (the "**Effective Date**"), by and between the City of Denton, a Texas Home-Rule Municipal Corporation (hereinafter referred to as the "**City**"), with its offices located at 215 East McKinney Street, Denton, Texas 76201, and 4600 Ganzer Investments, LLC (hereinafter referred to as "**Developer**"), whose business address is 2505 N. State Highway 360, Suite 800, Grand Prairie, Texas 75050.

RECITALS:

WHEREAS, Developer is the owner of certain real property located in the City of Denton, Texas and being described on **Exhibit A**, attached hereto and made a part hereof for all purposes (the "**Property**"); and

WHEREAS, Developer is in the process of developing and improving the Property and in connection with the same, must design, construct and install adequate water facilities to service the Property (the "**Required Facilities**"); and

WHEREAS, the City, in accordance with its ordinances, wishes to participate in the cost of designing, constructing and installing said Required Facilities to provide for an "oversized" water main to expand its utility system and insure adequate utility service to other customers, which oversized water main consists of approximately 7,240 linear feet of sixteen-inch (16") water line and all necessary appurtenances thereto, as shown on **Exhibit B**, attached hereto and incorporated herein by reference (the "**Oversized Facilities**"); and

WHEREAS, the City and Developer desire to enter in this Agreement under Subchapter C, Section 212 of the Texas Local Government Code, to provide for oversizing of improvements required to increase the capacity of improvements in anticipation of future development in the area; and

WHEREAS, the City and Developer desire to set forth, in writing, their understandings and agreement regarding the design, construction and installation of the Required Facilities as more fully set forth herein; and

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein Developer and the City do hereby AGREE as follows:

1. Term

This Agreement becomes effective upon the Effective Date and shall remain in effect until the Required Facilities are completed, have been accepted by the City, and the City has reimbursed the Developer for the portion of the construction costs for the Required Facilities attributable to oversizing in accordance with the terms hereof, unless earlier terminated in a writing that is signed by both the City and Developer. Scope of Work

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Developer shall design, install, and construct the Oversized Facilities.

2. City and Developer Rights and Responsibilities

A. Developer agrees that all City costs related to participation, in accordance with Section 212.072 of the Texas Local Government Code, shall not exceed thirty (30%) of the improvements benefitting the Property, excluding the oversizing of improvements. The amount of the City's Participation shall be limited to an amount not to exceed one hundred percent (100%) of the total cost for any oversizing of improvements.

B. Prior to the commencement of construction of the Required Facilities, the Developer shall execute a performance bond for the construction of the improvements in the amount of $2,430,899.00 to ensure completion of the project. The bond must be executed by a corporate surety in accordance with Chapter 2253 of the Texas Government Code. The performance bond shall be maintained by the Developer until the completion and acceptance of the Required Facilities. Developer shall repair and/or replace all defects due to faulty materials and workmanship that appear within a period of one (1) year from the date of final completion and final acceptance of the Required Facilities by City. Upon completion and acceptance of the Required Facilities, Developer shall provide a two-year maintenance bond in the amount of the cost of the Required Facilities.

C. This Agreement is subject to and governed by the Denton Development Code and any other applicable ordinances of the City of Denton, Texas.

D. Developer shall obtain, at Developer's sole cost and expense, all necessary permits, licenses, and easements to construct and install the Required Facilities. The easements, deeds, and plats therefor obtained by the Developer in connection with the construction and installation of the Required Facilities shall be reviewed and approved as to form and substance by the City, which approval shall not be unreasonably withheld. If the Developer is unable to acquire needed easements, the Developer shall provide the City with any reasonably requested documentation of efforts to obtain such easements, including evidence of negotiations and reasonable offers made to the affected property owners. Any easements for the Oversized Facilities obtained by the Developer shall be assigned to the City, if not taken in the City's name, prior to acceptance of the Oversized Facilities, and the Developer warrants clear title to such easements from and against all lawful claims and demands of all persons claiming by, through, or under the Developer, subject however to all easements, covenants, conditions, reservations, restrictions and matters of record and any conditions that would be uncovered by an inspection of the easement area or an accurate survey of the same (collectively, the "**Permitted Exceptions**"), and will defend the City against any adverse claim made against such title, other than the Permitted Exceptions.

E. Developer agrees to design, construct and install the Required Facilities and to fund One Million Three Hundred Thirty Eight Thousand Four Hundred

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Two and 00/100 Dollars ($1,338,402.00) (the "**Developer Share**") of the construction cost for the Required Facilities. All costs to design, construct and install the Required Facilities in excess of the Developer Share are "**Oversizing Costs**." The City agrees to make payments to Developer for Oversizing Costs in an amount not to exceed One Million Ninety Two Thousand Four Hundred Ninety Seven and 00/100 Dollars ($1,092,497.00) subject to appropriation, or approximately 44.94% of the $2,430.899.00 shown as the total estimated costs to design, construct and install the Required Facilities as set forth on **Exhibit C**, attached hereto (the "**City Share**").

F. The Director of Water Utilities or their designee shall determine the appropriate level of cost participation by the City based upon the incremental cost between the Developer's Required Facilities and the City's requested Oversized Facilities. This cost determination shall be based upon recent bids for similar facilities and/or cost estimates prepared by the City's engineering staff. If the City cannot justify the costs involved in any such contract where City funds or pro-rata repayment is involved, the City shall have the option and right to submit the proposal for sealed bids, and the Developer shall pay its proportionate share of the acceptable low bid. Final approval of all oversize participation agreements between the City and the Developer shall come from the City Council after recommendation from the Public Utilities Board unless the participation amount is less than the expenditure level authorized by the City Manager.

G. The City shall not, in any case, be liable for any additional cost because of delays in beginning, continuing, or completing construction; changes in the price or cost of materials, supplies, or labor; unforeseen or unanticipated cost because of topography, soil, subsurface, or other site conditions; differences in the calculated and actual per linear feet of pipe or materials needed for the Oversized Facilities; the Developer's decision as to the contractors or subcontractors used to perform the work; or any other reason or cause, specified or unspecified, relating to the construction of the Oversized Facilities.

H. The City shall reimburse Developer for the City Share of Oversizing Costs within sixty (60) days of the completion and acceptance of the construction of the Required Facilities.

I. To confirm the actual cost of the Required Facilities, City shall have the right to inspect any and all records of the Developer, its agents, employees, contractors, or subcontractors, and shall have the right to require the Developer to submit any necessary information, documents, invoices, receipts, or other records to verify the actual cost of the Required Facilities. If the actual costs are lower than those noted on **Exhibit C**, the City's share in cost shall be reduced pro rata.

J. All notices, payments, or communications to be given or made pursuant to this Agreement by the parties hereto, shall be sent to the Developer at the business address given above and to the City Manager for City at the address given above.

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K. **THE DEVELOPER SHALL INDEMNIFY AND HOLD THE CITY HARMLESS FROM ANY AND ALL CLAIMS, DAMAGES, LOSS, OR LIABILITY OF ANY KIND WHATSOEVER (INCLUDING DEATH), BY REASON OF INJURY TO PROPERTY OR PERSON OCCASIONED BY ANY ACT OR OMISSION, NEGLECT, OR WRONGDOING OF THE DEVELOPER, ITS OFFICERS, AGENTS, EMPLOYEES, INVITEES, OR CONTRACTORS, OR OTHER PERSONS WITH REGARD TO THE PERFORMANCE OF THIS AGREEMENT; AND THE DEVELOPER SHALL, AT ITS OWN COST AND EXPENSE, DEFEND AND PROTECT THE CITY AGAINST ANY AND ALL SUCH CLAIMS AND DEMANDS. NOTWITHSTANDING THE FOREGOING TO THE CONTRARY, THE DEVELOPER'S INDEMNIFICATION OBLIGATIONS HEREUNDER SHALL NOT INCLUDE ANY CLAIMS, DAMAGES, LOSSES, OR LIABILITIES OF ANY KIND WHATSOEVER THAT ARE CAUSED BY THE CITY'S SOLE NEGLIGENCE. IN THE EVENT OF JOINT AND CONCURRENT NEGLIGENCE OR FAULT OF BOTH DEVELOPER AND THE CITY, RESPONSIBILITY AND INDEMNITY, IF ANY, SHALL BE APPORTIONED COMPARATIVELY IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS WITHOUT, HOWEVER, WAIVING ANY OF THE DEFENSES OF THE PARTIES UNDER TEXAS LAW. FURTHER, IN THE EVENT OF JOINT AND CONCURRENT NEGLIGENCE OR FAULT OF BOTH DEVELOPER AND THE CITY, RESPONSIBILITY FOR ALL COSTS OF DEFENSE SHALL BE APPORTIONED BETWEEN THE CITY AND DEVELOPER BASED UPON THE COMPARATIVE FAULT OF EACH.**

L. City may withhold funds, and, if necessary, may demand the return of some or all amounts previously paid to Developer for defective work, to protect City from loss or damage.

M. Prior to the final payment by the City:

i. The Required Facilities must be (i) completed by the Developer; (ii) reviewed and inspected by the City; and (iii) approved and accepted by the City. During the work on the Required Facilities, the City has the right to review all documents, maps, plats, records, photographs, reports and drawings affecting the construction and to inspect the work in progress; and

ii. The City shall conduct a final inspection of the Required Facilities and any deficiencies noted by the City during such inspection shall have been addressed by the Developer to the City's satisfaction.

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3. Legal Construction

In case any one or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision of this Agreement, and this Agreement shall be considered as if such invalid, illegal, or unenforceable provision had never been contained in this Agreement.

4. Counterparts

This Agreement may be executed, including electronically, in one or more counterparts, each of which when so executed shall be deemed to be an original and constitute one and the same instrument. If this Agreement is executed in counterparts, then it shall become fully executed only as of the execution of the last such counterpart called for by the terms of this Agreement to be executed.

5. Assignment

Developer shall not sell, assign, transfer or its interest or rights in the Agreement, or any claim or cause of action related thereto in whole or in part, without the prior written consent of the City, which consent shall not be unreasonably withheld. As an express condition of consent to any assignment, Developer shall remain liable for completion of the Required Facilities in the event of default by the successor contractor or assignee.

6. Venue

Any and all suits for any breach of this Agreement, or any other suit pertaining to or arising out of this Agreement, shall be brought in a court of competent jurisdiction in Denton County, Texas. This Agreement shall be governed by and construed in accordance with the laws of the State of Texas.

7. Entire Agreement

This instrument embodies the entire agreement of the parties hereto and there are no promises, terms, conditions, or obligations other than those contained or incorporated herein. This Agreement shall supersede all previous communications, representations, or agreements, whether verbal or written, between the parties hereto with respect to the subject matter of this Agreement.

8. <u>Miscellaneous</u>

A. Pursuant to Section 2270.002, Texas Government Code, the Developer hereby (i) represents that it does not boycott Israel, and (ii) subject to or as otherwise required by applicable federal law, including without limitation 50 U.S.C. Section 4607, agrees it will not boycott Israel during the term of the Agreement. As used in the immediately preceding sentence, "boycott Israel" shall have the meaning given such term in Section 2270.001, Texas Government Code.

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B. The Developer hereby represents that (i) it does not engage in business with Iran, Sudan or any foreign terrorist organization and (ii) it is not listed by the Texas Comptroller under Section 2252.153, Texas Government Code, as a company known to have contracts with or provide supplies or services to a foreign terrorist organization. As used in the immediately preceding sentence, "foreign terrorist organization" shall have the meaning given such term in Section 2252.151, Texas Government Code.

9. Certification of Execution

The person or persons signing and executing this Agreement on behalf of Developer, or representing themselves as signing and executing this Agreement on behalf of Developer, do hereby warrant and certify that he, she or they have been duly authorized by Developer to execute this Agreement on behalf of Developer and to validly and legally bind Developer to all terms, performances and provisions herein set forth.

[Signature pages follow]

DocuSign Envelope ID: A08C008E-4D7C-4AA9-86B5-74F713F37D76

EXECUTED by the undersigned duly-authorized officials and officers of the City and the Developer, on this the _____ day of _____, 2024.

CITY OF DENTON
A Texas Municipal Corporation

By: _____
SARA HENSLEY, CITY MANAGER

ATTEST:
LAUREN THODEN, CITY SECRETARY

By: _____

THIS AGREEMENT HAS BEEN
BOTH REVIEWED AND APPROVED
as to financial and operational
obligations and business terms.

DocuSigned by:
Stephen D. Gay
FEB48BB9726E4A9...
Signature

Director
Title

Water Utilities
Department

Date Signed: 5/14/2024

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

By: DocuSigned by:
847DCF78EA6043D...

DocuSign Envelope ID: A08C008E-4D7C-4AA9-86B5-74F713F37D76

DEVELOPER:

4600 Ganzer Investments, LLC

By: 4600 GNI, L.P., a Nevada limited partnership, its general partner

By: Matthew Hiles
Name: Matthew Hiles, Authorized Agent
Title: Vice President

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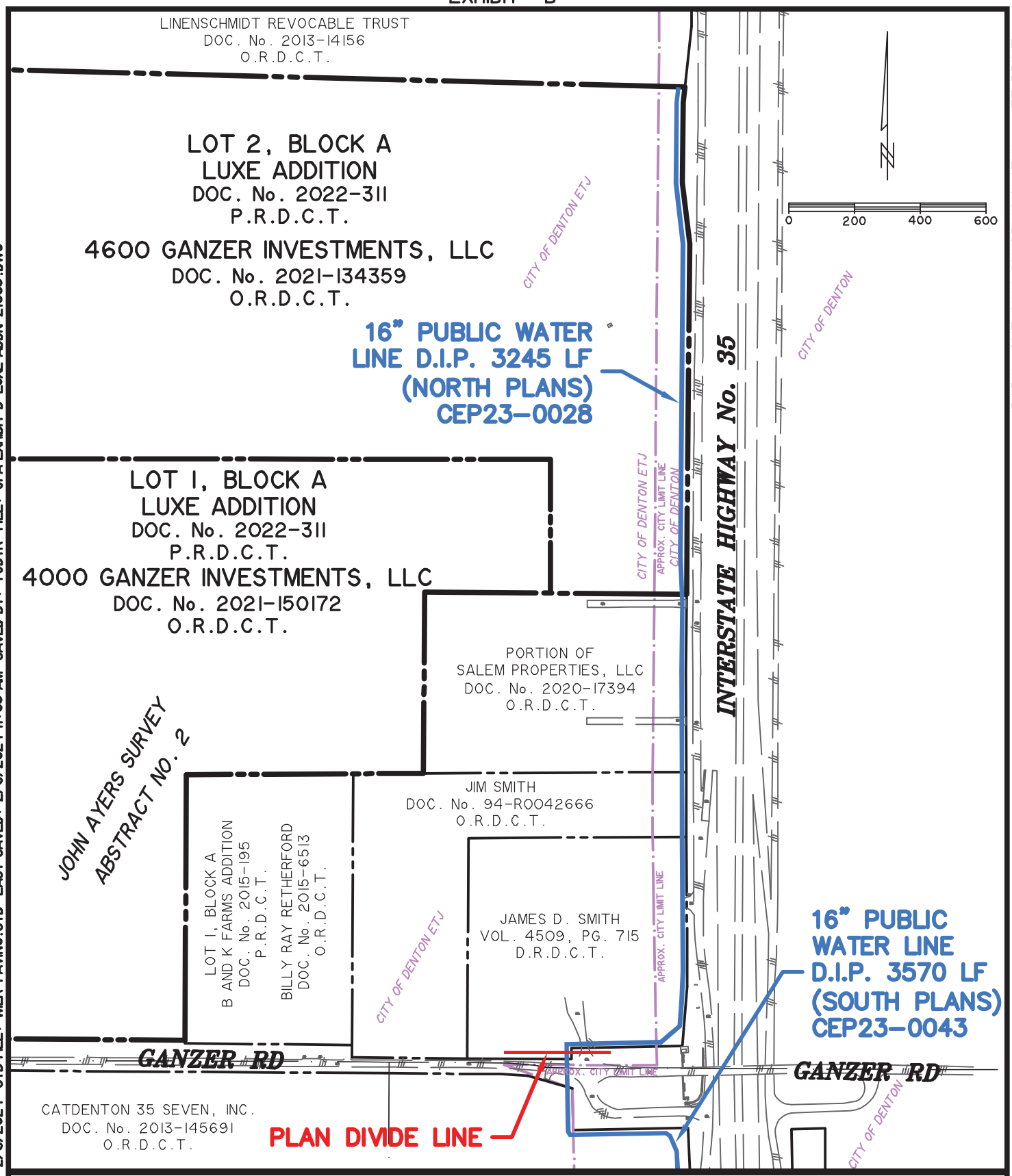
EXHIBIT "B"



MATCH LINE A

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
2201 E. LAMAR BLVD., SUITE 200E ARLINGTON, TEXAS 76006 METRO (817)467-7700
Texas Firm Registration No. F-2776 www.WierAssociates.com

LUXE ADDITION OVERSIZE COST PARTICIPATION EXHIBIT
CITY OF DENTON, DENTON ETJ, DENTON COUNTY, TEXAS

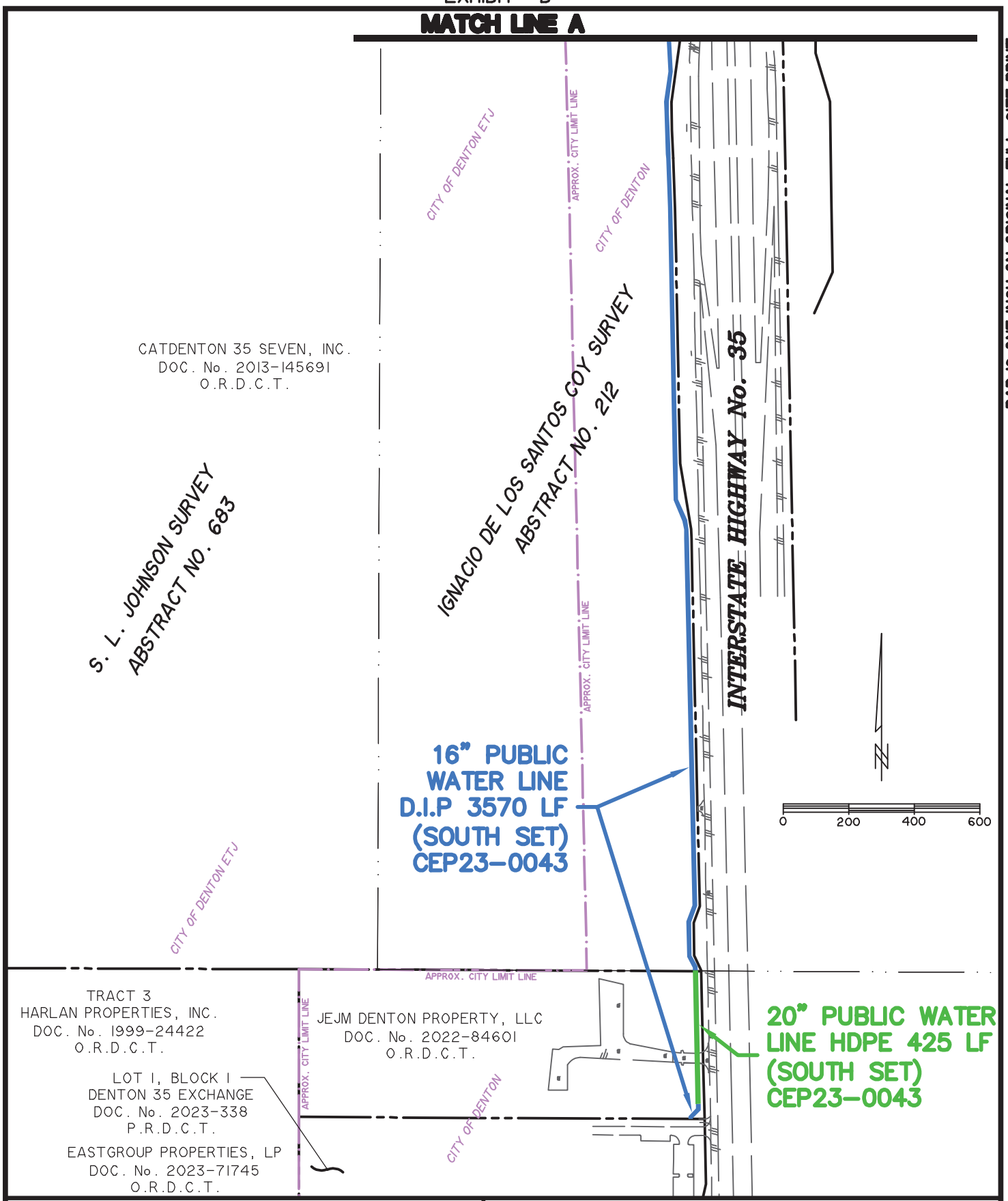
DRAWN BY: BAB
APPROVED:
SHEET 1 OF 2
REV.

BAR IS ONE INCH ON ORIGINAL FULL-SIZE PRINT

WA#:21009 PRINTED: 2/8/2024 STB FILE: WIER-PAVING.STB LAST SAVED: 2/8/2024 11:09 AM SAVED BY: TOBYR FILE: OPA EXHIBIT B-LUXE ADDN-21009.DWG

DocuSign Envelope ID: A08C008E-4D7C-4AA9-86B5-74F713F37D76

EXHIBIT "B"



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WA#:21009 PRINTED: 2/8/2024 STB FILE: WIER-PAVING.STB LAST SAVED: 2/8/2024 11:09 AM SAVED BY: TOBYR FILE: OPA EXHIBIT B-LUXE ADDN-21009.DWG

PREPARED BY:

WIER & ASSOCIATES, INC.

ENGINEERS SURVEYORS LAND PLANNERS

2201 E. LAMAR BLVD., SUITE 200E ARLINGTON, TEXAS 76006 METRO (817)467-7700

Texas Firm Registration No. F-2776 www.WierAssociates.com

LUXE ADDITION OVERSIZE COST PARTICIPATION EXHIBIT

CITY OF DENTON, DENTON ETJ, DENTON COUNTY, TEXAS

DRAWN BY: BAB	SHEET 2 OF 2	REV.
APPROVED:		

DocuSign Envelope ID: A08C008E-4D7C-4AA9-86B5-74F713F37D76

Exhibit C

Estimated Cost of Required Facilities

EXHIBIT C

7-Mar-24

Contractor:	Dallas Underground, LLC
Address:	805-1/2 Lake Bardwell Dr. Ennis, Texas 75119
Phone #:	469-206-9500
Fax #:	
Email:	Jeff@dutexas.com
Bid Date:	

PROJECT:	Off-Site Water Improvements to serve Lots 1 & 2, Block A, Luxe Addition
PROJECT NUMBER	CEP23-0028 & CEP23-0043
OPINION OF PROBABLE CONSTRUCTION COST	

Water:

					Developer	City of Denton
Description	QTY	UNIT	UNIT PRICE	TOTAL	55.058%	44.942%
16" DIP AWWA C151 Class 52	6815	LF	$ 200.00	$ 1,363,000.00	$ 579,275.00	$ 783,725.00
Bore 16" DIP w/24" Steel Casing	773	LF	$ 761.00	$ 588,253.00	$ 574,339.00	$ 13,914.00
20" HDPE by Direct Bore	425	LF	$ 152.00	$ 64,600.00	$ 36,060.00	$ 28,540.00
16" Gate Valve	18	EA	$ 17,500.00	$ 315,000.00	$ 79,200.00	$ 235,800.00
Cast Iron Fittings	1	LS	$ 50,946.00	$ 50,946.00	$ 39,428.00	$ 11,518.00
16" Plug	2	EA	$ 750.00	$ 1,500.00	$ 1,500.00	$ -
16"x20" DIP MJ Reducer	2	EA	$ 1,800.00	$ 3,600.00	$ 3,600.00	$ -
20" HDPE MJ Adapter	2	EA	$ 1,500.00	$ 3,000.00	$ 3,000.00	$ -
20" HDPE Wall Anchor	2	EA	$ 9,500.00	$ 19,000.00	$ -	$ 19,000.00
Concrete Anchor Block	2	EA	$ 3,500.00	$ 7,000.00	$ 7,000.00	$ -
Concrete Thrust Blocks	1	LS	$ 15,000.00	$ 15,000.00	$ 15,000.00	$ -
			$ -	$ -	$ -	$ -
			$ -	$ -	$ -	$ -
			$ -	$ -	$ -	$ -
			$ -	$ -	$ -	$ -
			$ -	$ -	$ -	$ -
			$ -	$ -	$ -	$ -
			$ -	$ -	$ -	$ -
				$ -	$ -	$ -
				Water Subtotal: **$ 2,430,899.00**	**$ 1,338,402.00**	**$ 1,092,497.00**
				Total **$ 2,430,899.00**		

File #: ID 24-1101, **Version:** 1

AGENDA CAPTION

Consider approval of a resolution of the City of Denton waiving a condition to creation of Denton County Municipal Utility District No. 16 (OLEX MUD), encompassing approximately 553 acres of land, located north of Old Stoney Road, south of Jackson Road, and west of FM 156 within Division 2 of the extraterritorial jurisdiction of the City of Denton, Texas; and providing an effective date.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: **Development Services**

CM/DCM/ACM: **Cassey Ogden**

DATE: **June 4, 2024**

SUBJECT

Consider approval of a resolution of the City of Denton waiving a condition to creation of Denton County Municipal Utility District No. 16 (OLEX MUD), encompassing approximately 553 acres of land, located north of Old Stoney Road, south of Jackson Road, and west of FM 156 within Division 2 of the extraterritorial jurisdiction of the City of Denton, Texas; and providing an effective date.

STRATEGIC ALIGNMENT

This action supports Key Focus Area: Enhance Infrastructure and Mobility.

BACKGROUND

On April 29, 2020 the City received a petition for consent to the creation of Denton County Municipal Utility District No. 16. This Municipal Utility District (MUD) is located near FM 156 and US 380 and is also known as "Olex MUD" or "Meadows MUD". The MUD will feature 1,523 residential lots, 8 acres of multifamily property, and 30 acres of commercial property.

A MUD is a special-purpose district created to provide essential services such as water, wastewater, and drainage to areas outside city limits. Governed by an elected board, MUDs fund infrastructure and operations through bonds repaid by property taxes and user fees. MUDs are required to seek City consent when the MUD is within the extraterritorial jurisdiction (ETJ) of the City.

Olex Inc. petitioned the City for consent to the creation and the City began negotiating a development agreement. Initially, a development agreement was approved by the City Council on August 18, 2020, and included provisions on Denton County's consent, utilities, floodplain/ESA, roadway construction specifications, and limited purpose annexation to receive sales tax for commercial property. A first amendment was made to the development agreement on January 25, 2022 to name the City of Denton as the fire service provider and approve a Fire Services Agreement.

Within the consent resolution, there was a requirement for the developer to close on the property by August 31, 2021, and the property did not close until shortly after this date. This resolution for City Council consideration would waive closing conditions and reaffirm the City of Denton's consent to the creation of the district.

RECOMMENDATION

Staff recommends approval of the resolution.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

August 18, 2020- City Council adopted a resolution of consent to the creation of the MUD.
August 18, 2020- City Council approved a development and consent agreement.
January 25, 2022- City Council approved a first amendment to the development and consent agreement.

EXHIBITS
Exhibit 1 - Agenda Information Sheet
Exhibit 2 - Draft Resolution

Respectfully submitted:
Charlie Rosendahl
Business Services Manager

RESOLUTION NO. _____

A RESOLUTION OF THE CITY OF DENTON WAIVING A CONDITION TO CREATION OF DENTON COUNTY MUNICIPAL UTILITY DISTRICT NO. 16 (OLEX MUD), ENCOMPASSING APPROXIMATELY 553 ACRES OF LAND, LOCATED NORTH OF OLD STONEY ROAD, SOUTH OF JACKSON ROAD, AND WEST OF FM 156 WITHIN DIVISION 2 OF THE EXTRATERRITORIAL JURISDICTION OF THE CITY OF DENTON, TEXAS; AND PROVIDING AN EFFECTIVE DATE

WHEREAS, on April 29, 2020, the City received a Petition for Consent to Creation of Denton Municipal Utility District No. 16 ("Petition") from Olex (United States) Inc. ("Petitioner") in Division 2 of the City's Extraterritorial Jurisdiction ("ETJ"); and

WHEREAS, Petitioner has since sold the Property to VS Development, LLC, a Texas limited liability company ("Developer"); and

WHEREAS, on August 18th, 2020, the City Council of the City adopted Resolution No. 20-1379, consenting to the creation of Denton County Municipal Utility District No. 16, sometimes referred to as the "Olex MUD" or the "Meadows MUD" (the "MUD"); and

WHEREAS, Resolution 20-1379 included certain conditions on the City's consent to the creation of the District, including (a) that Developer close on the purchase of the Property by August 31, 2021 (the "Closing Condition") and (b) that the City Council of the City approve a Development and Consent Agreement (the "Agreement Condition"); and

WHEREAS, the Parties agree that the Agreement Condition has been fully satisfied; and

WHEREAS, the City desires to waive the Closing Condition and re-affirm its consent to the creation of the District; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON, TEXAS HEREBY RESOLVES:

SECTION 1. The findings and recitations in the preamble of this Resolution are incorporated herein by reference.

SECTION 2. The City of Denton, Texas hereby waives the Closing Condition contained in Resolution 20-1379 and reaffirms its consent to the Petition in the attached Exhibit "A" to create Denton County Municipal Utility District No. 16 in accordance with the other terms of Resolution 20-1379 and this Resolution. The City hereby acknowledges that the Agreement Condition has been fully satisfied.

SECTION 3. This Resolution shall take effect immediately from and after its date and passage.

The motion to approve this Resolution was made by _____ and seconded by _____; the Resolution was passed and approved by the following vote [___ - ___]:

	Aye	Nay	Abstain	Absent
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

By: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

By: Scott Bray
Scott Bray
2024.05.17 10:50:55
-05'00'

EXHIBIT "A"
Petition for Consent

PETITION FOR CONSENT TO CREATION OF
DENTON COUNTY MUNICIPAL UTILITY DISTRICT NO. 16

THE STATE OF TEXAS §

COUNTY OF DENTON §

TO THE HONORABLE MAYOR AND CITY COUNCIL OF THE CITY OF DENTON:

The undersigned (the "Petitioner"), acting pursuant to the provisions of Chapters 49 and 54 of the Texas Water Code, and Section 42.042 of the Texas Local Government Code, respectfully petitions this Honorable Council for its consent to the creation of a municipal utility district, and for cause would respectfully show the following:

I.

The name of the proposed District shall be "Denton County Municipal Utility District No. 16" (the "District").

II.

The District shall be organized under the terms and provisions of Article III, Section 52, and Article XVI, Section 59, of the Texas Constitution, Chapters 49 and 54 of the Texas Water Code, together with all amendments and additions thereto.

III.

The District shall contain an area of approximately 552.985 acres of land (the "Property"), situated within Denton County, Texas, described by metes and bounds in Exhibit "A," attached hereto and incorporated herein. The District is located wholly within the extraterritorial jurisdiction of the City of Denton, Denton County, Texas, and the District is not within the corporate limits or extraterritorial jurisdiction of any other city, town or village.

IV.

The undersigned constitutes a majority in value of the holders of title to the lands in the proposed District, as shown by the tax rolls and conveyances of record since the date or preparation of said county tax rolls.

004486.000007\4812-4246-9046.v1

V.

The proposed District shall be organized for the following purposes:

(1) provide a water supply for the District for municipal and domestic uses;
(2) collect, transport, process, dispose of and control all domestic, industrial, or communal wastes whether in fluid, solid, or composite state;
(3) gather, conduct, divert and control local storm water or other local harmful excesses of water in the District;
(4) construct, acquire, improve, maintain and operate macadamized, graveled, or paved roads and turnpikes, or other improvements in aid of those roads; and
(5) such other construction, installation, maintenance, purchase, and operation of such additional facilities, systems, plants and enterprises as shall be consistent with the purposes for which the District is organized.

The aforementioned purposes may be accomplished by any mechanical and chemical means and processes incident, necessary or helpful to such purposes, to the extent authorized by law and the creation of the District, to the end that public health and welfare may be conserved and promoted, and the purity and sanitary condition of the State's waters protected, effected and restored.

VI.

The general nature of the work anticipated to be done by the District at the present time is: (i) the construction of a water distribution system for domestic purposes; (ii) the construction of a sanitary sewer system; (iii) the control, abatement and amendment of the harmful excess of waters and the reclamation and drainage of overflowed lands within the District; (iv) the construction and financing of macadamized, graveled, or paved roads and turnpikes, or improvements in aid of those roads; and (v) such other construction, installation, maintenance, purchase and operation of such other facilities, systems, plants and enterprises as shall be consistent with the purposes for which the District is organized, all to the extent authorized by law from time to time.

VII.

There is a necessity for the improvements above described because the District is located within an area which will experience a substantial and sustained residential and commercial growth within the foreseeable future, is urban in nature and is not supplied with adequate water, sanitary sewer, drainage facilities and services, or roads. The health and welfare of the future inhabitants of the District require the provision of adequate water, storm and sanitary sewer facilities and services, and roads.

The provisions of such water, storm and sanitary sewer facilities and services, and roads will conserve and preserve the natural resources of this State by promoting and protecting the

purity and sanitary condition of the State's waters, and will promote and protect the public health and welfare of the community; therefore, a public necessity exists for the organization of said District.

The property cannot be developed without the creation of the District to finance the water, sanitary sewer, and drainage facilities and services, and roads; therefore, a public necessity exists.

VIII.

The proposed improvements are practicable and feasible, in that the terrain of the territory to be included in the proposed District is of such nature that water, storm and sanitary sewer facilities and services, and roads can be constructed or provided at a reasonable cost; and said territory will be rapidly developed for residential use.

IX.

A preliminary investigation has been instituted to determine the cost of the proposed improvements to be constructed by the District, and it is now estimated by those filing this petition, from such information as they have at this time, that the ultimate cost of such improvements will be approximately $52,923,295.00.

X.

WHEREFORE, the undersigned respectfully pray that this Petition be granted in all respects and that the City Council of the City of Denton, Texas, adopt a resolution giving its written consent to the creation of the District.

[THE REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

RESPECTFULLY SUBMITTED this the 22nd day of april, 2020.

PETITIONER:

OLEX (UNITED STATES), INC.,
a Delaware corporation

By: _____
Name: Lars Springman
Title: President

STATE OF TEXAS §
§
COUNTY OF DENTON §

This instrument was acknowledged before me on the 22nd day of April, 2020 by Lars Springman, President of OLEX (UNITED STATES), INC., a Delaware corporation, on behalf of said corporation.

Joan D. Bohannon
Notary Public in and for the State of Texas

(NOTARY SEAL)

JOAN D. BOHANNON
Notary Public, State of Texas
Comm. Expires 04-01-2021
Notary ID 7581601

004486.000007\4812-4246-9046.v1

EXHIBIT "A"

BEING a tract of land situated in the Uberto Allen Survey, Abstract No. 14, William Stonham Survey, Abstract No. 1145 and the Harris Young Survey, Abstract No. 1450, Denton County, Texas and being the remaining portion of a called Tract One (153.488-acres) described in a General Warranty Deed to Olex (United States), Inc., f/k/a Olex Corporation N. V., recorded in Volume 1129, Page 185, Deed Records of Denton County, Texas, and being more particularly described by metes and bounds as follows:

BEGINNING at an aluminum TXDOT right of way disk found on the westerly line of said Tract One (153.488-acres), for the northwest corner of a called Parcel 17, described in an Agreed Judgment to the State of Texas, recoded in Instrument No. 2012-80554, Official Records of Denton County, Texas, same being the northeast corner of a called Parcel 16, described in a Deed to the State of Texas, recorded in Instrument No. 2009-71718, Official Records of Denton County, Texas, same also being the current northerly right of way line of U. S. Highway 380, a variable width right of way;

THENCE North 00°02'22" West, departing the northerly right of way line of said U. S. Highway 380, along the westerly line of said Tract One (153.488-acres) and generally along a barbed wire fence, a distance of 2,236.16 feet to a metal fence corner post found for the northwest corner of said Tract One (153.488-acres), same being the southwest corner of a called 1.931-acre tract of land, described in a Special Warranty Deed to Vangard Wireless, LP, recorded in Instrument No. 2005-79339, Official Records of Denton County, Texas;

THENCE South 89°58'24" East, along the northerly line of said Tract One (153.488-acres), the southerly line of said 1.931-acre tract, the southerly line of a called 5.00-acre tract of land, described in a Warranty Deed to Amanda Noles Nelson, recorded in Instrument No. 2013-92845, Official Records of Denton County, Texas, the southerly line of a called 19.6390-acre tract of land, described in a Special Warranty Deed to Nancy Kay Jones, recorded in Instrument No. 2010-57685, Official Records of Denton County, Texas, the southerly line of Myers Farm, an addition to the City of Denton, according to the final plat, recorded in Document No. 2011-77, Plat Records of Denton County, Texas, and generally along a barbed wire fence, a distance of 2091.05 feet to a 1/2-inch iron rod with a yellow plastic cap found for the southeast corner of said Myers Farm, same being the southwest corner of called 21.1455-acre tract of land described in a Special Warranty Deed to Janis June Myers, recorded in Instrument No. 2010-57683, Official Records of Denton County, Texas;

THENCE South 89°53'09" East, continuing along the northerly line of said Tract One (153.488-acres), the southerly line of said 21.1455-acre tract, and generally along a barbed wire fence, a distance of 1368.48 feet to a 1/2-inch iron rod found for the northeast corner of said Tract One (153.488-acres) and the southeast corner of said 21.1455-acre tract, same being on the westerly right of way line of F. M. 156, a variable width right of way;

THENCE South 17°28'47" West, along the easterly line of said Tract One (153.488-acres) and the westerly right of way line of said F. M. 156, a distance of 94.26 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set at the beginning of a non-tangent curve to the right having a central angle of 15°08'00", a radius of 5659.58 feet, a chord bearing and distance of South 21°13'35" West, 1490.50 feet, from said point, a wooden right of way marker bears South 13°42' West, 3.93 feet;

THENCE in a southwesterly direction, continuing along the easterly line of said Tract One (153.488-acres) and the westerly right of way line of said F. M. 156, along said curve to the right, an arc distance of 1494.85 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner, from which, a wooden right of way marker bears South 03°03' West, 1.20 feet;

THENCE South 28°47'35" West, continuing along the easterly line of said Tract One (153.488-acres) and the westerly right of way line of said F. M. 156, a distance of 556.36 feet to an aluminum TXDOT right of way disk found for the northeast corner of aforesaid Parcel 17, same being the intersection of the westerly right of way line of said F. M. 156 with the northerly right of way line of aforesaid U. S. Highway 380;

THENCE in a westerly direction, departing the westerly right of way line of said F. M. 156, along the northerly line of said Parcel 17 and the northerly right of way line of said U. S. Highway 380, the following:

North 61°04'40" West, a distance of 679.63 feet to an aluminum TXDOT right of way disk found for corner;

South 78°35'46" West, a distance of 296.07 feet to an aluminum TXDOT right of way disk found for corner;

South 38°16'12" West, a distance of 548.81 feet to an aluminum TXDOT right of way disk found for corner;

South 62°08'29" West, a distance of 218.57 feet to an aluminum TXDOT right of way disk found for corner;

South 86°00'46" West, a distance of 322.43 feet to an aluminum TXDOT right of way disk found for corner;

North 90°00'00" West, a distance of 469.04 feet to an aluminum TXDOT right of way disk found for corner;

North 87°16'23" West, a distance of 413.60 feet to the **POINT OF BEGINNING** and containing 144.086 acres (6276387 square feet) of land, more or less.

BEING a tract of land situated in the George W. Anderson Survey, Abstract No. 12, Uberto Allen Survey, Abstract No. 14, Edward F. Anderson Survey, Abstract No. 16, B. B. B & C. RR. Co. Survey, Abstract No. 168, B. B. B & C. RR. Co. Survey, Abstract No. 188, William Stonham Survey, Abstract No. 1145 and the Harris Young Survey, Abstract No. 1450, Denton County, Texas and being the remaining portion of a called Tract Three (425.898-acres) described in a General Warranty Deed to Olex (United States), Inc., f/k/a Olex Corporation N. V., recorded in Volume 1129, Page 185, Deed Records of Denton County, Texas, and being more particularly described by metes and bounds as follows:

BEGINNING at an aluminum TXDOT right of way disk found on the easterly line of said Tract Three (425.898-acres), for the southeast corner of a called Parcel 15, described in an Agreed Judgment to the State of Texas, recoded in Instrument No. 2012-80554, Official Records of Denton County, Texas, same being the intersection of the current southerly right of way line of

U. S. Highway 380, a variable width right of way with the westerly right of way line of F. M. 156, a variable width right of way;

THENCE in a southerly direction, departing the southerly right of way line of said U. S. Highway 380, along the easterly line of said Tract Three (425.898-acres) and the westerly right of way line of said F. M. 156, the following:

South 28°45'02" West, a distance of 581.24 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set at the beginning of a tangent curve to the right having a central angle of 03°49'00", a radius of 5659.58 feet, a chord bearing and distance of South 30°39'32" West, 376.93 feet;

in a southwesterly direction, along said curve to the right, an arc distance of 377.00 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

South 27°44'04" West, a distance of 118.70 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner, from which, a wooden right of way marker bears South 44°02' West, 3.82 feet;

South 32°34'02" West, a distance of 1000.02 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner, from which, a wooden right of way marker bears South 42°17' West, 2.01 feet;

South 38°16'40" West, a distance of 100.50 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner, from which, a wooden right of way marker bears South 44°22' West, 2.44 feet;

South 32°34'02" West, a distance of 1900.00 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner, from which, a wooden right of way marker bears South 27°02' West, 8.82 feet;

South 26°51'24" West, a distance of 100.50 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

South 32°34'02" West, a distance of 924.50 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for the beginning of a tangent curve to the left having a central angle of 6°27'51", a radius of 2924.79 feet, a chord bearing and distance of South 29°20'06" West, 329.80 feet;

in a southwesterly direction, with said curve to the left, an arc distance of 329.97 feet to a PK nail with a washer, stamped "KHA" set in an asphalt road, known as Old Stoney Road, an apparent public use roadway, no record found, for the southeast corner of said Tract Three (425.898-acres);

THENCE South 89°39'42" West, departing the westerly right of way line of said F. M. 156, along the southerly line of said Tract Three (425.898-acres) and along said Old Stoney Road, a distance of 1706.19 feet to a 1/2-inch iron rod found for the southwest corner of said Tract Three (425.898-acres);

THENCE North 0°02'12" West, departing said Old Stoney Road and along the westerly line of said Tract Three (425.898-acres), a distance of 5443.65 feet to a 5/8-inch iron rod with a red

plastic cap, stamped "KHA" set on the southerly line of a called Parcel 14, described in a Deed to the State of Texas, recorded in Instrument No. 2008-19039, Official Records of Denton County, Texas, same being the current southerly right of way line of aforesaid U. S. Highway 380;

THENCE in an easterly direction, departing the westerly line of said Tract Three (425.898-acres) and along the southerly right of way line of said U. S. Highway 380, the following:

South 87°16'23" East, passing at a distance of 8.26 feet, an aluminum TXDOT right of way disk found for the south common corner of said Parcel 14 and aforesaid Parcel 15, continuing for a total distance of 1274.95 feet to a point for corner;

North 63°54'58" East, a distance of 83.00 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

South 87°16'24" East, a distance of 299.75 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

North 88°52'11" East, a distance of 1520.81 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

North 90°00'00" East, a distance of 160.25 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

South 85°24'02" East, a distance of 457.49 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

South 55°26'56" East, a distance of 259.95 feet to an aluminum TXDOT right of way disk found for corner;

South 25°29'50" East, a distance of 449.43 feet to an aluminum TXDOT right of way disk found for corner;

South 61°21'38" East, a distance of 239.94 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

South 54°31'02" East, a distance of 100.71 feet to an aluminum TXDOT right of way disk found for corner;

South 61°21'39" East, a distance of 91.38 feet to the **POINT OF BEGINNING** and containing 408.899 acres (17811656 square feet) of land, more or less.

File #: ID 23-1856, **Version:** 1

AGENDA CAPTION

Hold a public hearing and consider adoption of an ordinance of the City of Denton, Texas repealing the Solid Waste and Recycling Criteria Manual, Stormwater Criteria Manual, Transportation Criteria Manual, Water and Wastewater Criteria Manual, and Streetlight Criteria Manual; combining such documents into the Denton Design Criteria Manual; approving the Denton Design Criteria Manual; providing for a Design Deviation Procedure; and providing for severability, a savings clause and an effective date.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: **Development Services/Engineering Services**

ACM: **Cassandra Ogden**

DATE: **June 4, 2024**

SUBJECT

Hold a public hearing and consider adoption of an ordinance of the City of Denton, Texas repealing the Solid Waste and Recycling Criteria Manual, Stormwater Criteria Manual, Transportation Criteria Manual, Water and Wastewater Criteria Manual, and Streetlight Criteria Manual; combining such documents into the Denton Design Criteria Manual; approving the Denton Design Criteria Manual; providing for a Design Deviation Procedure; and providing for severability, a savings clause and an effective date.

BACKGROUND

To assist developers and design professionals in preparing and submitting required plans and permits for proposed developments, staff has prepared updates to the Criteria Manuals listed below. Staff has taken the approach to provide yearly updates and modifications to the Criteria Manuals to keep the documents up to date with current design and construction standards, as well as address issues observed during construction, and operation and maintenance of public facilities. In 2022 the following Criteria Manuals were updated.

- Solid Waste and Recycling Criteria Manual – last update Dec. 2022
- Stormwater Design Criteria Manual – last update Dec. 2022
- Transportation Design Criteria Manual – last update Dec. 2022
- Water and Wastewater Criteria Manual – last update Dec. 2022
- Streetlight Design Criteria Manual – last update Nov. 2023

Part of the 2024 updates has been to combine these four manuals into a single document formatted to be consistent with the Denton Development Code. The combined document is called the Denton Design Criteria Manual and contains all the requirements formerly included in the five separate manuals for solid waste, stormwater, transportation, water/wastewater and streetlight design criteria. This provides uniformity across the design criteria.

Solid Waste and Recycling Criteria Manual

- Simplified minimum container enclosure requirements guidance to be more easily understood by applicants.

- Provided additional guidance on solid waste collection routes such as a 30-foot minimum turning radius and a minimum of 50 feet of unobstructed area in front of each container.

- Added language specifying that no parking spaces or obstructions can be placed within the swing radius of an enclosure gate.

Stormwater Design Criteria Manual

- Added guidance on what constitutes an adverse impact to other properties.

- Added required engineering analysis for stormwater diversions to another outfall.

- Lowered the maximum spacing of access junction boxes to 500 feet to allow for improved maintenance.

- Increased allowable bends in pipes from 30 degrees up to 45 degrees.

- Provided criteria for underground detention facilities.

- Provided clarifying language on the process for floodplain development/reclamation, when a fully developed flood study will be required, and when a downstream assessment will be required.

- Recommendations on addressing the water quality of storm runoff for developments larger than 1 acer. It is staff's recommendation that these criteria become mandatory next year.

- Added requirements for Stormwater Facility Maintenance Agreements for any private stormwater structure which affects the public interest, such as a detention pond. These agreements are intended to ensure that these structures have a clear maintenance plan provided by an engineer and that the City can request maintenance records from the owner.

Transportation Design Criteria Manual

- Reordering of sections throughout the document to present the information in a more organized manner.

- Added limitations on driveway profile grade changes without a vertical curve.

- Minimum intersection spacing requirements are now measured from the curb line rather than the right-of-way line.

Water and Wastewater Criteria Manual

- Consolidated multiple tables into a single table for clarity.

- Prohibited the placement of manholes in sidewalks, ramps, or driveway approaches.

- Provided additional guidance on sizing of water meters.

- Required manholes to be located at all sewer line ends, not just a sewer cleanout.

- Required a 5-foot minimum separation between sewer manholes and other utilities to allow for maintenance and repair.

- Lift stations must be accessible during the 100-year flood rather than the 25-year flood.

Streetlight Design Criteria Manual

- Lighting study required for all streets except residential roads with speeds less than 30 mph.
- Lighting required every 250' for residential roads with speeds less than 30 mph.
- Provides lighting requirements for intersections, cul-de-sacs, railroad crossings, etc.
- Provides approved luminaries, hardware, and pole types.

Design Deviations:

Additionally, a new section has been added to the Design Criteria Manual to address the process by which developers may request a deviation or variance from the design requirements in the manual and establishes the criteria for granting a design deviation request. These requests will be reviewed and approved or denied by an engineer employed within the City with subject matter expertise relevant to the request. To be approved, a proposed design deviation must not be detrimental to the public welfare and have not adverse impact on any public system or facility. If a request is initially denied by the City's Engineer an applicant may resubmit a similar request with additional information to support their request.

PUBLIC OUTREACH

To give an opportunity for the public to provide feedback on the draft Criteria Manual updates, staff hosted a Developer Town Hall meeting on September 14, 2023. At the Town Hall meeting, the same Criteria Manual updates were presented to the attendees who had the opportunity to ask questions and/or provide comments.

On Nov. 3, 2023, the Draft Denton Design Criteria Manual was published online on the City of Denton website.

On Nov. 9, 2023, staff presented to the Denton Chapter of the Texas Society of Professional Engineers and held a discussion regarding the proposed changes.

On Jan. 10, 2024, the Planning and Zoning Commission received a presentation, held a discussion and provided suggestions or recommendations regarding updates to the City Criteria Manuals.

On Jan. 22, 2024, the Public Utilities Board received a presentation, held a discussion and provided suggestions or recommendations regarding updates to the Criteria Manuals.

On June 4, 2024, staff presented the updated Denton Design Criteria Manual to Council as a work session to receive comments and feedback.

OPTIONS

1. Approve
2. Deny
3. Postpone Item

RECOMMENDATIONS

Staff recommends **approval** of the Denton Design Criteria Manual as presented.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

Jan. 10, 2024 – Planning and Zoning Commission Work Session

Jan. 22, 2024 – Public Utilities Board Work Session
June 4, 2024 – City Council Work Session

EXHIBITS
Exhibit 1 – Agenda Information Sheet
Exhibit 2 – Denton Design Criteria Manual Clean Version
Exhibit 3 – Denton Design Criteria Manual Redline Version
Exhibit 4 – Ordinance
Exhibit 5 – Presentation

Respectfully submitted:
Brett Bourgeois, PE
City Engineer

Design Criteria Manual

Published: July 2024

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Section 1: Introduction

1.1 Title and Effective Date

1.1.1 This document is the Design Criteria Manual of the City of Denton, Texas. It shall be officially known and cited as the "Denton Design Criteria Manual," and is referred to internally in this document as "this DCM" and "this Manual."

1.1.2 This DCM shall become effective on July 1, 2024.

1.2 Purpose

The purpose of the Denton Design Criteria Manual (DCM) is to provide minimum, non-exhaustive guidelines for the design and construction of ***solid waste, stormwater, transportation, water and wastewater, and streetlight infrastructure*** within the City of Denton, Texas and its extraterritorial jurisdictions. The criteria established in this Manual have been developed from a review of various applicable publications, regulatory requirements, and City of Denton offices which oversee the design, construction and maintenance of the facilities.

These guidelines are to be used by design engineers in the City of Denton Capital Projects Engineering Division, consulting engineers employed by the City, and engineers of subdivision and land development infrastructure projects proposed for construction and acceptance by the City, within the City and its extraterritorial jurisdictions.

Along with this Manual, the Denton Development Code (DDC) should be consulted for additional criteria. ***The criteria established in this Manual do not supersede the criteria contained in the DDC.*** In the case of conflict among this Manual, City of Denton Standard Details, or other cited regulations and standards, the more stringent requirement shall apply.

This DCM is ***not*** intended to be an all-inclusive design document for all circumstances and conditions. The DDC and City of Denton Code of Ordinances must be consulted for possible impacts to the proposed design. The Federal Government, the State of Texas, NCTCOG, Denton County, Denton County Transit Authority (DCTA), and other related organizations and resources should be consulted for additional criteria, as may be deemed necessary.

1.3 Organization

In addition to the design criteria established in this DCM, guidance is also provided for design deviations from the required design criteria. The contents of this Manual are categorized into sections shown below:

A. Section 1: Introduction

B. Section 2: Abbreviations and Definitions

C. Section 3: Solid Waste Design

D. Section 4: Stormwater Design

E. Section 5: Transportation Design

F. Section 6: Water and Wastewater Design

G. Section 7: Streetlight Design Criteria

H. Section 8: Design Deviations

Section 2: Abbreviations and Definitions

2.1 Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
APBP	Association of Pedestrian and Bicycle Professionals
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
BFE	Base Flood Elevation
BMP	Best Management Practices
CCN	Certificate of Convenience and Necessity
cfs	cubic feet per second
CLOMR	Conditional Letter of Map Revision
COA	Condominium Owner's Association
CP	Cathodic Protection
cu. ft.	cubic feet
DCAD	Denton Central Appraisal District
DCM	Design Criteria Manual
DCTA	Denton County Transit Authority
DDC	Denton Development Code
DFW	Dallas-Fort Worth Metroplex
DIP	Ductile-Iron Pipe
DRP	Development Review Process
DSA	Down Stream Assessment
EOL	End-of-Line
ESA	Environmentally Sensitive Area
ft.	foot or feet
FEMA	Federal Emergency Management Agency
FFE	Finished Floor Elevation
FHWA	Federal Highway Administration
FIRM	Federal Insurance Rate Map
FIS	Flood Insurance Study
FM	Farm to Market

fps	feet per second
gal.	gallon(s)
GPCD	gallons per capita per day
GPD	gallons per day
GPM	gallons per minute
GPS	Global Positioning System
HDPE	High Density Polyethylene
HEC-HMS	Hydrologic Engineering Center's Hydrologic Modeling System
HEC-RAS	Hydrologic Engineering Center's River Analysis System
HGL	Hydraulic Grade Line
HOA	Home Owners' Association
IBC	International Building Code
ID	Inner Diameter
IFC	International Fire Code
IH	Interstate Highway
in.	inch(es)
IPC	International Plumbing Code
ITE	Institute of Transportation Engineers
*i*SWM™	Integrated Stormwater Management
kg.	kilogram(s)
lb.	pound or pounds
LOMR	Letter of Map Revision
LOS	Level-of-Service
MEP	Mechanical, Electrical, and Plumbing
MGD	Million Gallons per Day
mL	milli-liter(s)
mph	miles per hour
NAVD	North American Vertical Datum
NCHRP	National Cooperative Highway Research Program Report
NCTCOG	North Central Texas Council of Governments
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NGVD	National Geodetic Vertical Datum

NOAA	National Oceanic and Atmospheric Administration
PHT	Peak-Hour Trips
PMF	Probable Maximum Flood
PMP	Probable Maximum Precipitation
POA	Property Owners' Association
POTW	Publicly Owned Treatment Works
PROWAG	Public Rights of Way Accessibility Guidelines
psi	pounds per square inch
PUCT	Public Utilities Commission of Texas
PUE	Public Utility Easement
PVC	Polyvinyl Chloride
PZC	Planning and Zoning Commission
RCP	Reinforced Concrete Pipe
ROW	Right-of-Way
RPBA	Reduced Pressure Backflow Assembly
SCADA	Supervisory Control and Data Acquisition
SCS	Soil Conservation Service
SDR	Standard Dimension Ratio
SFE	Single-Family Equivalent
SETP-PD	Safety End Treatment Plan – Parallel Drainage
SFHA	Special Flood Hazard Area
SH	State Highway
sq. ft.	square feet
sq. mi.	square mile(s)
SWFMA	Stormwater Facility Maintenance Agreement or Maintenance Agreement
TAC	Texas Administrative Code
TAS	Texas Accessibility Standards
TCEQ	Texas Commission on Environmental Quality
TDLR	Texas Department of Licensing and Registration
TIA	Traffic Impact Analysis
TMUTCD	Texas Manual on Uniform Traffic Control Devices
TSS	Total Suspended Solids
TxDOT	Texas Department of Transportation

U.S.	United States of America
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
VPD	Vehicle-trips per day
WOTUS	Waters of the United Stated of America
WMP	Water Master Plan
WSEL	Water surface elevation
w.s.f.u.	Water-Supply Fixture-Unit(s)
ZOI	Zone of Influence

2.2 Definitions

20-Year Horizon
The estimated traffic volume for the study area based on a 20-year growth period.

100-year Event
Event (rainfall or flood) that has a 1% chance of being equaled or exceeded in any given year.

Abutment
A wall supporting the end of a bridge or span and sustaining the pressure of the bordering earth.

Applicant
Any firm, entity, partnership, company, public utility company, or individual that submits a formal request or application.

Apron
A floor or lining of concrete, timber, or other suitable material at the toe of a dam, entrance or discharge side of a spillway, a chute, or other discharge structure, to protect the waterway from erosion from falling water or turbulent flow.

Area of Special Flood Hazard
The area designated as subject to flooding from the 1% chance flood on the flood insurance rate map. For purposes of these criteria, the term "special flood hazard area" is synonymous in meaning with the phrase "area of special flood hazard" and may be referred to as "SFHA".

Backwater
The rise of the water level upstream due to an obstruction or constriction in the channel.

Backwater Curve
The term applied to the longitudinal profile of the water surface in an open channel when flow is steady but non-uniform.

Baffles
Deflector vanes, guides, grids, gratings, or similar devices constructed or placed in flowing water, to: (1) check or effect a more uniform distribution of velocities; (2) absorb energy; (3) divert, guide, or agitate the stormwater flow; and (4) check eddy currents.

Baffle Chute
A drop structure in a channel with baffles for energy dissipation to permit the lowering of the hydraulic energy gradient in a short distance to accommodate topography.

Base Flood Elevation
The elevation shown on the Flood Insurance Rate Map (FIRM) and found in the accompanying Flood Insurance Study (FIS) for Zones A, AE, AH, A1-30, AR, V1-30, or VE that indicates the water surface elevation resulting from the flood that has a 1% chance of equaling or exceeding that level in any given year.

Calibration
Process of checking, adjusting, or standardizing operating characteristics of instruments and model appurtenances on a physical model or coefficients in a mathematical model. The process of evaluating the scale readings of an instrument in terms of the physical quantity to be measured.

Carrier Pipe
A pipe used to carry stormwater, water, or wastewater, as opposed to an exterior protective casing pipe.

Casing Pipe
An exterior protective pipe that encases a carrier pipe for various types of crossings, including roadways, creeks, and railroads. Also known as encasement pipe.

Channel
A man-made drainageway or watercourse, generally constructed to straighten a stream or increase its capacity.

Channel Roughness
Irregularities in channel configuration which attenuate the flow of water and dissipate its energy.

Chute
An inclined conduit or structure used for conveying water to a lower level.

City's Engineer
A Professional Engineer, licensed by the State of Texas, who is the subject matter expert of the relevant topic of discussion, and employed by the City of Denton.

Conduit
Any open or closed structure for conveying flowing water.

Corner Clip
ROW dedication at intersection corners to provide sufficient room for intersection visibility, pedestrian access, and other street facilities.

Critical Flow
The state of flow for a given discharge at which the specific energy is a minimum with respect to the bottom of the conduit. The Froude Number is equal to 1.0 for critical flow conditions.

Crown
The highest point on a transverse section of conduit or the highest point of a roadway cross-section.

Culvert
Large pipe or other conduit through which a small stream passes under a road or street.

Curb
A vertical or sloping structure located along the edge of a roadway, normally constructed integrally with the gutter, which strengthens and protects the pavement edge and clearly defines the pavement edge to vehicle operators.

Dam
A barrier constructed across a watercourse for the purpose of creating a reservoir or diverting water from a conduit or channel.

Degradation
The progressive general lowering of a stream channel by erosion, other than that caused by a constriction.

Department Reviewer
A member of a City of Denton department, designated by the Department Director, with subject matter expertise related to the Design Criteria Manual who is designated as being responsible for the review of design deviation requests.

Depression Storage
Collection and storage of rainfall in natural depressions after exceeding infiltration capacity of the soil.

Design Storm or Flood
The storm or flood which is used as the basis for design.

Detention
The storage of storm runoff for a controlled release during or immediately following the design storm.
1. Off-site detention - A detention pond located outside the boundary of the area it serves.
2. On-site detention - A detention pond which is located within and serves only a specific site or subdivision.
3. Regional detention - Detention facilities provided to control excess runoff based on a watershed-wide hydrologic analysis.

Development
Any man-made change to improved or unimproved real estate, including but not limited to, buildings or other structures, paving, drainage, or utilities. Development activities include: subdivision of land; construction or alteration of structures, roads, parking, fences, pools, signs, temporary uses, utilities, and other facilities; installation of septic systems; grading; excavation, mining or drilling operations; deposit of refuse, debris, or fill materials; and clearing of natural vegetative cover (with the exception of agricultural activities as defined and as permitted). Routine repair and maintenance activities are exempted.

Development Project Facilitation
Division within the City of Denton that assists developers move projects through the City's various development review process and authorized to process the review of design deviation requests.

Drop Structures
A sloping or vertical section of a channel designed to reduce the elevation of flowing water without increasing its velocity.

Energy Dissipaters
Engineered devices such as riprap aprons or concrete baffles placed at the outlet of storm water conveyance systems for the purpose of reducing the velocity, energy and turbulence of the discharged flow.

Entrance Head
The head required to cause flow into a conduit or other structure; it includes both entrance loss and velocity head.

Entrance Loss
Head lost in eddies or friction at the inlet to a conduit, headwall or structure.

Existing Traffic
Existing traffic conditions based on the most recent traffic counts. Existing traffic conditions do not include the traffic created or associated with the development.

Flash Flood
A flood of short duration with a relatively high peak rate of flow, usually resulting from a high intensity rainfall over a small area.

Flood Control
The elimination or reduction of flood losses by the construction of flood storage reservoirs, channel improvements, dikes and levees, by-pass channels, or other engineering works.

Flood Hazard Area
Area subject to flooding by 1% chance floods.

Flood Management or Flood Hazard Mitigation
Any program or activity designed to reduce damages from flooding, including stream erosion.

Floodplain
The area that is subject to flooding from the 1% chance flood. The floodplain includes the regulatory floodway and floodway fringe.

Floodway
The channel and adjacent lands of a watercourse that must be reserved in order to discharge the base flood without increasing the water surface elevation more than the regulatory designated height.

Floodway Fringe
The area located within the floodplain and outside the floodway.

Freeboard
The distance between the normal operating level and the top of the side of an open conduit left to allow for wave action, floating debris, or any other condition or emergency without overtopping the structure.

Frequency (of storms, floods)
Average recurrence interval of events, over long periods of time. Mathematically, frequency is the reciprocal of the exceedance probability.

Froude Number
A flow parameter, which is a measure of the extent to which gravitational action affects the flow. A Froude number greater than one (1) indicates supercritical flow and a value less than 1 subcritical flow. The simplest

form of the Froude number is given by the following equation:

$$F = V / (g\ D)^{0.5} \qquad \textbf{[Eqn. 2.1]}$$

Where:
V = Velocity
g = the acceleration due to gravity (32.2 ft/s^2)
D = depth

Fully Developed Conditions
A description of hydrologic conditions in a watershed, if the watershed has been completely built out based on the zoning and future land use maps of the City. If there is no designated future land use, the runoff coefficient will be assumed to be (0.6) for purposes of determining fully developed water surface elevations. This term is interchangeable with the term "Ultimate Developed Conditions". This is not to be confused with a Developed Floodplain as defined in Subchapter 9.2 of the DDC, which refers to the character of the streambed itself.

Gabion
A wire container filled with rock and used in the construction of dams, retaining walls, and protection against erosion.

Grade
1. The inclination or slope of a channel, canal, conduit, etc., or natural ground surface, usually expressed in terms of the percentage of number of units of vertical rise (or fall) per unit of horizontal distance.
2. The elevation of the invert of the bottom of a conduit, canal, culvert, sewer, etc.
3. The finished surface of a canal bed, road bed, top of an embankment, or bottom of excavation.

Gutter
A generally shallow waterway adjacent to a curb used to convey stormwater.

Headwater
1. The upper reaches of a stream near its sources;
2. The region where ground waters emerge to form a surface stream;
3. The water upstream from a structure.

Hydraulic Control
The hydraulic characteristic which determines the stage-discharge relationship in a conduit. The control is usually critical depth, tailwater depth, or uniform depth.

Hydraulic Grade Line
A line representing the pressure head available at any given point within the system.

Hydraulic Gradient
A hydraulic profile of the piezometric level of the water, representing the sum of the depth of flow and the pressure head. In open channel flow it is the water surface.

Hydraulic Jump
The hydraulic jump is an abrupt rise in the water surface which occurs in an open channel when water

flowing at supercritical velocity is retarded by water flowing at subcritical velocity. The transition through the jump results in a marked loss of energy, evidenced by turbulence of the flow within the area of the jump. The hydraulic jump is sometimes used as a means of energy dissipation.

Hydraulics
A branch of science that deals with practical applications of the mechanics of water movement.

Hydrograph
A graph showing stage, flow, velocity, or other property of water versus time at a given point on a stream or conduit. Examples include: Dimensionless Unit hydrograph, Unit Hydrograph.

Hydrology
The science dealing with the properties, distribution, and circulation of water on and below the Earth's surface and in the atmosphere.

Hyetograph
A histogram or graph of rainfall intensity versus time of storm.

Impervious
A term applied to a material through which water cannot pass or passes with great difficulty.

Infiltration
1. The entering of water through the interstices or pores of a soil or other porous medium.
2. The entrance of water from the ground into a sewer or drain through breaks, defective joints, or porous walls.
3. The absorption of water by the soil, either as it falls as precipitation, or from a stream flowing over the surface.

Inlet
Inlets are drainage structures used to collect surface water through grate or curb openings and convey it to storm drains or direct outlet to culverts.
Inlets used for the drainage of roadway surfaces can be divided into four major classes:
1. Grate Inlets – These inlets include grate inlets consisting of an opening in the gutter covered by one or more grates, and slotted inlets consisting of a pipe cut along the longitudinal axis with a grate or spacer bars to form slot openings.
2. Curb-Opening Inlets – These inlets are vertical openings in the curb covered by a top slab.
3. Combination Inlets – These inlets usually consist of both a curb-opening inlet and a grate inlet placed in a side-by-side configuration, but the curb opening may be located upstream of the grate.
4. Drop Inlet (Y-Inlet) -A storm drain intake structure typically located in unpaved areas. The inlet may extend above the ground level with openings on one or more sides of the inlet or it may be flush with the ground with a grated cover.

Intensity
As applied to rainfall, a rate usually expressed in inches per hour.

Interception
As applied to hydrology, refers to the process by which precipitation is caught and held by foliage, twigs,

and branches of trees, shrubs and buildings, never reaching the surface of the ground, and then lost by evaporation.

Invert
The floor, bottom, or lowest portion of the internal cross-section of a conduit.

Lag Time
The time difference between two occurrences such as between rainfall and runoff or pumping of a well and effect on the stream. *See* Time of Concentration.

Level of Service
A qualitative measure of traffic flow and congestion, representing quality of service. It describes operational conditions within a traffic stream, generally described in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety.

Lining
Impervious material such as concrete, clay, grass, plastic, puddled earth, etc., placed on the sides and bottom of a ditch, channel, and reservoir to prevent or reduce seepage of water through the sides and bottom and/or to prevent erosion.

Lip
A small wall on the downstream end of an apron to break the flow from the apron.

Major Stream
Waterways with a contributing drainage area of one square mile or more.

Manning's Coefficient
The coefficient of roughness used in Manning's Equation for flow in open channels.

Manning's Equation
A uniform flow equation used to relate velocity, hydraulic radius and the energy gradient slope.

Median
The portion of a divided roadway separating the opposing traffic flows. A median may be traversable or non-traversable.

Median Opening
An opening in a non-traversable median that allows accessing or crossing the opposing traffic lanes.

Minimum building elevation
The elevation to which new and substantially improved structures within the floodway or within 200 feet of the floodplain or SFHA are required to be elevated or floodproofed. This elevation would be equal 18 inches above the 100-year water surface elevation based on fully developed conditions or 30 inches above the BFE as indicated in the flood insurance study or, if the BFE is unavailable, 30 inches above the 100-year flood elevation based on current development watershed conditions.

Model
Mathematical systems analysis by computer, applied to evaluate rainfall-runoff relationships; simulate watershed characteristics, predict flood and reservoir routings, or use other aspects of planning.

Nappe
The sheet or curtain of water overflowing a weir or dam. When freely overflowing any given structure, it has a well-defined upper and lower surface.

Open Channel
A conduit in which water flows with a free surface.

Orifice
1. An opening with closed perimeter, and of regular form in a plate, wall, or partition through which water may flow.
2. The end of a small tube, such as a Pilot tube, piezometer, etc.

Peak Flow (Peak Rate of Runoff)
The maximum rate of runoff during a given runoff event.

Percolation
To pass through a permeable substance such as ground water flowing through an aquifer.

Permeability
The property of a material which permits movement of water through it when saturated and actuated by hydrostatic pressure.

Pervious
Applied to a material through which water passes relatively freely.

Pilot Channel
A constructed pathway that guides base streamflow or runoff along a specified route through a drainage facility or drainage feature.

Porosity
1. An index of the void characteristics of a soil or stratum as pertaining to percolation; degree of perviousness.
2. The ratio, usually expressed as a percentage, of (a) the volume of the interstices in a given quantity of material, to (b) the total volume of the material.

Positive Overflow
When the inlets do not function properly, or when the design capacity of the conduit is exceeded, the excess flow must be conveyed overland along a paved course. This could mean along a street or alley but could require a concrete flume and the dedication of special drainage easements on private property.

Post-development
The condition of the given site and drainage area after the anticipated development has taken place.

Precipitation
Any moisture that falls from the atmosphere, including snow, sleet, rain and hail.

Pre-development
The condition of the given site and drainage area prior to development.

Probable Maximum Flood
The flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible in the region.

Probable Maximum Precipitation
The critical depth-duration-area rainfall relationship for a given area during the seasons of the year which would result from a storm containing the most critical meteorological conditions considered probable of occurring.

Projected Growth Rate
The estimated growth rate per year for the study area based upon the average growth in the previous 5-year period along arterials in the vicinity of the proposed project.

Proposed Site Traffic Volumes
The number of vehicles per day and per hour projected to be generated by the development.

Rainfall Duration
The length of time over which a single rainfall event occurs.

Rainfall Frequency
The average recurrence interval of rainfall events.

Rainfall Intensity
The rate of accumulation of rainfall, usually in inches or millimeters per hour.

Rational Formula
A traditional method of computing peak flow using intensity of the storm rainfall.

Reach
Any length of river or channel. Usually used to refer to sections which are uniform with respect to discharge, depth, area or slope, or sections between gaging stations.

Recurrence Interval
The average interval of time within which a given event will be equaled or exceeded once. For an annual series (as opposed to a partial duration series) the probability of occurrence in anyone year is the inverse of the recurrence interval. Thus, a flood having a recurrence interval of 100 years has a 1% probability of being equaled or exceeded in any one year.

Regulatory Floodway
The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a

designated height.

Retention
The storage of a portion or all of the storm runoff for purposes of permanent use of the retained water. Retention facilities are similar to detention facilities with the main difference being that all of the storm runoff will not be released to the downstream drainage network.

Return Period
See Recurrence Interval

Reynold's Number (Re)
A flow parameter which is a measure of the viscous effects on the flow. Typically defined as shown in the equation below:

$$\mathbf{Re = (V.\ D) / \nu} \qquad \textbf{[Eqn. 2.2]}$$

Where:
V = Velocity
D = Depth
ν = kinematic viscosity of the fluid

Riprap (Revetment)
Forms of bank protection, usually using rock or concrete.

Routing
Routing is a technique used to predict the temporal and spatial variations of a flood wave as it traverses a river reach or reservoir. Generally, routing technique may be classified into two categories - hydrologic routing and hydraulic routing.

Right-of-Way
A designated section of a street, sidewalk, alley, waterway or utility easement and/or related facilities, that is dedicated for municipal usage.

Right-of-Way Width
The shortest horizontal distance between the lines which delineate the right-of-way of a street.

Runoff
That part of the precipitation which reaches a stream, drain, sewer, etc., directly or indirectly.
1. Direct Runoff - The total amount of surface runoff and subsurface storm runoff which reaches stream channels.
2. Overland Runoff - Water flowing over the land surface before it reaches a definite stream channel or body of water.

Runoff Coefficient
A decimal number used in the Rational Formula which defines the runoff characteristics of the drainage area under consideration. It may be applied to an entire drainage basin as a composite representation or it may be applied to a small individual area such as one residential lot.

Runoff Total
The total volume of flow from a drainage area for a definite period of time such as a day, month, or a year, or it may be for the duration of a particular storm.

Scour
The erosive action of running water in streams or channels in excavating and carrying away material from the bed and banks.

SCS Runoff Curve Number
Index number used by the National Resource Conservation Service, formerly the Soil Conservation Service, as a measure of the tendency of rainfall to run off into streams rather than evaporate or infiltrate.

Sediment
Material of soil and rock origin transported, carried, or deposited by water.

Sedimentation Basin
A sediment control basin required to catch runoff from common drainage areas with 10 acres or more disturbed at one time during any phase of development that dewaters from the surface unless infeasible.

Sidewalk
A paved area within the street ROW or sidewalk easement specifically designed for pedestrians and/or bicyclists.

Sight Distance
The distance visible to the driver of a passenger vehicle measured along the normal travel path of a roadway from a designated location and to a specified height above the roadway when the view is unobstructed by traffic.

Slope, Critical
The slope or grade of a channel that is exactly equal to the loss of head per foot resulting from flow at a depth that will give uniform flow at critical depth; the minimum slope of a conduit which will produce critical flow.

Slope, Friction
The friction head or loss per unit length of channel or conduit. For uniform flow the friction slope coincides with the energy gradient, but where a distinction is made between energy losses due to bends, expansions, impacts, etc., a distinction must also be made between the friction scope and the energy gradient. The friction slope is equal to the bed or surface slope only for uniform flow in uniform open channels.

Soffit
In a stormwater pipe, the uppermost point of the interior of the pipe wall. The crown is the uppermost point on the outside of the pipe wall.

Spillway
A waterway in or about a dam or other hydraulic structure, for the overflow of excess water.

Standard Details
A collection of uniform detail drawings of structures or devices adopted as standard construction details by the City of Denton.

Steady Flow
Open channel flow is said to be steady if the depth of flow does not change or if it can be assumed to be constant during the time interval of consideration.

Stormwater Facility Maintenance Agreement or Maintenance Agreement
A legal agreement between the City of Denton and a property owner, including HOAs and POAs, for perpetual maintenance of a structural BMP.

Stream
A natural drainageway that conveys stormwater, may also be referred to as a creek. References to a stream or creek in this Manual refer to the entire stormwater carrying component of the stream to the limits of the floodplain, not just to the streambed.

Stilling Basin
Pool of water conventionally used, as part of a drop structure or other structure, to dissipate energy.

Stopping Sight Distance
The distance required by a driver of a vehicle, traveling at a given speed, to bring the vehicle to a stop after an object on the roadway becomes visible. It includes the distance traveled during driver perception time, reaction time, and the vehicle braking distance.

Storage Length
The portion of an auxiliary lane required to store the number of vehicles expected to accumulate in the lane during an average peak period.

Storm Hydrology
The branch of hydrology that concentrates on the calculation of runoff from storm rainfall.

Stormwater Management
The control of storm runoff on-site or on small streams, by means of land use restrictions, detention storage, erosion control, and/or drainage measures.

Stormwater Model
Mathematical representation of a stormwater network.

Study area
The boundaries of the assessment area as determined by the City's Engineer.

Subcritical Flow
The Froude Number is less than 1.0 for subcritical flow conditions.

Supercritical Flow
The Froude Number is greater than 1.0 for supercritical flow conditions.

Tailwater
The depth of flow in the stream directly downstream of a drainage facility.

Time of Concentration
The estimated time in minutes required for runoff to flow from the most remote section of the drainage area to the point at which the flow is to be determined.

Total Head Line (Energy Line)
A line representing the energy in flowing water. The elevation of the energy line is equal to the elevation of the flow line plus the depth plus the velocity head plus the pressure head.

Traffic Queue
Vehicles within a storage queue awaiting traffic movement in a single lane, within one traffic signal cycle.

Trash Rack
Racks, gratings, or mesh designed so as to prevent leaves and rubbish from plugging the outlets from a dam or detention basin.

Trip Distribution
An estimate of the spatial pattern of trips or other flows between given sets of origins and destination pairs. Trip distribution models connect the trip origins and destination, estimated by the trip generation models to create estimated trips based on the Base year and Buildout years (24 hour counts or turning movement counts). Different trip distribution models are developed for each of the trip purposes for which trip generation has been estimated.

Trunk Line
The main line of a storm drain system extending from manhole to manhole or from manhole to outlet structure.

TxDOT Highways
State-operated highways that include Farm to Market (FM) roadways, State Highways (SH), Interstate Highway (IH), IH Frontage Roads, and United States (US) Highways.

Uniform Channel
A channel with a constant cross-section and roughness.

Uniform Flow
Open channel flow is said to be uniform if the depth of flow is the same at every section of the channel.

Unit Hydrograph
The direct runoff hydrograph resulting from one inch of precipitation excess distributed uniformly over a watershed for a specified duration.

Valley Storage
Refers to the water storage capacity of a stream and is a volume that is measured below the base flood elevation. Restrictions on loss of valley storage refer to compensation for the loss of storage caused by fill below the base flood elevation.

Velocity Head
The energy per unit weight of water due to its velocity (v). The velocity head also represents the vertical distance water must fall freely under gravity to reach its velocity (v). The velocity head can be computed from the following equation:

$$\textbf{Velocity Head} = v^2 / 2g \qquad \textbf{[Eqn. 2.3]}$$

Where: v = velocity
g = acceleration due to gravity (32.2 ft/s^2)

Water Year
The water year commonly used in the United States is the period from October 1 to September 30 of the following calendar year.

Watershed
The area contributing storm runoff to a stream or drainage system. Other terms are drainage area, drainage basin and catchment area.

Zone of Influence
A point downstream where the increased discharge from a proposed development results in 0.00' increase in flood elevation.

Section 3: Solid Waste Design Criteria

3.1 Overview

The purpose of Section 3 - Solid Waste Design Criteria of this DCM is to provide basic criteria and standards for the development and maintenance of solid waste and recycling container enclosures.

The Solid Waste Design Criteria established in this Manual shall apply as set forth in:

A. City of Denton Code of Ordinances – Chapter 24,

B. DDC Subchapter 7, Section 7.2 – Applicability, and

C. DDC Subchapter 7, Section 7.12 – Solid Waste and Recycling Design Standards.

The City Code of Ordinances states that the City of Denton shall be the exclusive provider of solid waste collection and disposal services within the Cty Limits including, but not limited to, services provided for preconstruction activities, construction activities, and residential, multifamily, and commercial activities. All contractors and sub-contractors should call City of Denton Customer Service (940-349-8700) to initiate service. Third-Party solid waste providers may not be used for any onsite solid waste services within the City Limits.

3.2 Design Standards

3.2.1 General

A. Nonresidential on-site solid waste and recycling container enclosures shall be located on each platted lot of non-residential property and shall be constructed and maintained by the property owner or developer and made available for use by the City of Denton Solid Waste Department or commercial recycling service provider.

B. Nonresidential on-site solid waste and recycling container enclosures shall be available for the storage of all municipal solid waste and recyclables generated for each platted property. The City reserves the ability to determine whether any parcel or area (For example, Downtown Square, strip centers, multifamily residential, etc.) must have shared container service or an alternative service. Container enclosures shall be of adequate size to contain all solid wastes, liquid wastes, and recyclables generated on the property, including, but not limited to, municipal solid waste, recyclables, grease and oils, process by-products and wastes, hazardous waste, medical waste, and any special wastes, contained in accordance with Chapter 24, City of Denton Code of Ordinances.

C. The container enclosures shall meet the Container Enclosure and Storage Space Dimensional Requirements prescribed in Section 3.2.2 of this Manual, as well as Chapter 469 of the Texas Government Code, as amended.

D. New nonresidential uses of 999 square feet ("sq. ft.") or less will be evaluated by City staff to determine the applicability of constructing an enclosure. Trash and recycling carts may be appropriate, thereby eliminating the need for construction of an enclosure.

E. Cart storage may be utilized on property converted from a residential to non-residential use if the converted property is a structure of less than 2,500 gross sq. ft., has a waste generation rate applicable for cart service, and is in an area where commercial cart service is available.

F. Proposed future building expansion (evaluated at 50% or more of the current square footage) and

phased development shall be considered in site design with regards to sizing, location(s), and access of future solid waste and recyclables container enclosures. Solid waste and recycling areas necessary for future building expansion shall be available , but need not be utilized, nor container enclosures constructed, until future building expansion occurs.

G. Containers for solid waste and recycling service shall be screened from the public right-of-way ("ROW") and from adjacent property owners.

H. Proper construction of the container enclosures shall be completed prior to final approval of the development or property by the City's Solid Waste Department.

I. Container enclosure designs shall be consistent with the engineering drawings and specifications shown in the Solid Waste and Recycling Container Enclosure Construction Drawings in the City of Denton Standard Details.

3.2.2 Container Enclosure and Storage Space Dimensional Requirements

A. All single container enclosures shall have inside walls with dimensions measuring a minimum of 13 feet wide and 11.5 feet deep. The Rear face of the bollard must be three (3) feet from the rear of enclosure and the front of bollard must be eight (8) feet from the front of enclosure, leaving six (6) inches of space equal to the size of the bollard. Only solid waste and recycling containers are allowed in the enclosures. Other storage containers such as grease and oil receptacles, and other items shall be stored and located in a different enclosure. These enclosures shall be located where they will not impede the service of the solid waste and/or recycling containers.

B. All dual container enclosures shall have inside walls with dimensions measuring 26 feet wide and 11.5 feet deep. The Rear face of the bollard must be three (3) feet from the rear of the enclosure and the front of bollard must be eight (8) feet from front of enclosure, leaving six (6) inches of space equal to the size of the bollard. Only solid waste and recycling containers are allowed in the enclosures. Other storage containers such as grease and oil receptacles, and other items shall be stored and located in a different enclosure. These enclosures shall be located where they will not impede the service of the solid waste and/or recycling containers.

C. All roll-off compactor enclosures shall have inside walls with dimensions measuring a minimum of 16 feet wide. The depth of inside walls must accommodate the compactor size selected.

D. The City of Denton Standard Details contain the required construction specifications for container enclosures and storage spaces.

E. All developments shall be required to install container enclosures as specified in Table 3.2-A .

F. Nonresidential uses which are not required to meet the above storage space and enclosure requirements, will be reviewed for adequate solid waste and recyclables enclosures based on site-specific information and the following Solid Waste and Recycling Design Factors:

1. Type of business;
2. Waste generation potential;
3. Waste generation of similar businesses;
4. Square footage of the development and structures;
5. Number of floors;
6. Location of the business;

7. Hours of business operation;
8. Business site plan; and
9. Phased development and future use plans.

Table 3.2-A: Minimum Container Enclosure Requirements

Development Use	Required Enclosure(s) or Container(s)
RESIDENTIAL	
Single-family	Residential curbside cart pick-up
Townhomes – 4 units and fewer	
RESIDENTIAL - MULTIFAMILY	
5 – 48 units	2 front-load containers enclosed
49 – 64 units	3 front-load containers enclosed
65 – 200 units	1 compactor and 1 front-load container for recycling or 4 front-load containers enclosed
200+ units	1 compactor and 1 front-load containers enclosed
GENERAL COMMERCIAL	
1 – 15,000 sq. ft.	2 front-load containers enclosed
15,001 – 50,000 sq. ft.	3 front-load containers enclosed
50,001 – 200,000 sq. ft.	1 compactor and 1 front-load container for recycling or 4 front-load containers enclosed
Over 200,000 sq. ft.	1 compactor and 1 front-load container enclosed

Notes:
[1] For industrial/warehouse development, container(s) do not require enclosures, but container(s) must be screened from public view.

3.2.3 Container Enclosure Design Requirements

A. Materials used for container enclosure construction shall be compatible with the architecture and appearance of the main building and may include the following materials:
   1. Concrete Block – Tinted, colored, painted, or with textured facing;
   2. Concrete – Poured or tilt wall construction;
   3. Brick - Double brick thickness minimum;
   4. Stone;
   5. Metal;
   6. Wood;
   7. Vinyl;
   8. Composite Material; or
   9. Any combination of materials 1-8.

B. Front-load enclosures shall have walls constructed to a minimum height of six (6) feet, or as tall as

required to conceal the container. Compactor enclosure walls must be a minimum height of eight (8) feet, in order to conceal the compactor and mechanical equipment.

C. Gates shall be required when the interior of the enclosure is visible from the public ROW or when it is visible from the lot of an adjacent property owner.

D. Personal access side gates are recommended as a feature of all gated enclosures. These gates should be fitted with emergency egress strike bars.

3.2.4 Enclosure Access, Placement, Ingress, and Egress Requirements

A. The required number of enclosures will be determined based on the type and size of the development.

B. Dumpster enclosures must be angled no more than 30 degrees from the center line of the solid waste collection vehicle route.

C. There must be 50 feet or more of unobstructed truck access in front of each container.

D. For safety purposes, solid waste collection vehicles will not back up more than 100 feet after servicing a container and will not make any turns while backing up.

E. Turn Radii Requirements: The turn radii must be a minimum of 30 feet for any intersection to accommodate occasional turning trucks for weekly pick-up.

F. The collection vehicle will travel through a site once without backtracking. For an example of a typical solid waste collection route, take note of the Typical Solid Waste Collection Route Schematic shown in Figure 3.1 below.

G. Container enclosures shall not be located in a fire lane, public ROW, public utility easements, or sidewalk area.

H. No solid waste container enclosure shall be located within the required front yard or protrude in front of any buildings along the designated lot frontage.

I. Parking spaces shall begin after enclosure gates open. No obstructions permitted around enclosure or gate openings equivalent to the length of gate.

J. The location of container enclosures may not cause the obstruction of traffic for excessive lengths of time while being serviced.

K. The solid waste service truck shall be on the property owner's property during service operations, if the site design permits.

L. Ingress and egress routes shall be designed to facilitate exiting the property in a forward driving direction for all interstate and state roads, arterial streets, and collector streets with four lanes. *See* the Backing Clearance Schematic in Figure 3.2 below.

M. Utility wires and structure overhangs should have a minimum height clearance of 20 feet along the ingress and egress route. No utility wires shall extend over the enclosure approach and service area.

N. Container enclosures shall be located a minimum of 30 feet away from any storm drain or drainage flow areas. Where site configuration allows, container enclosures shall also be placed downslope of any storm drain.

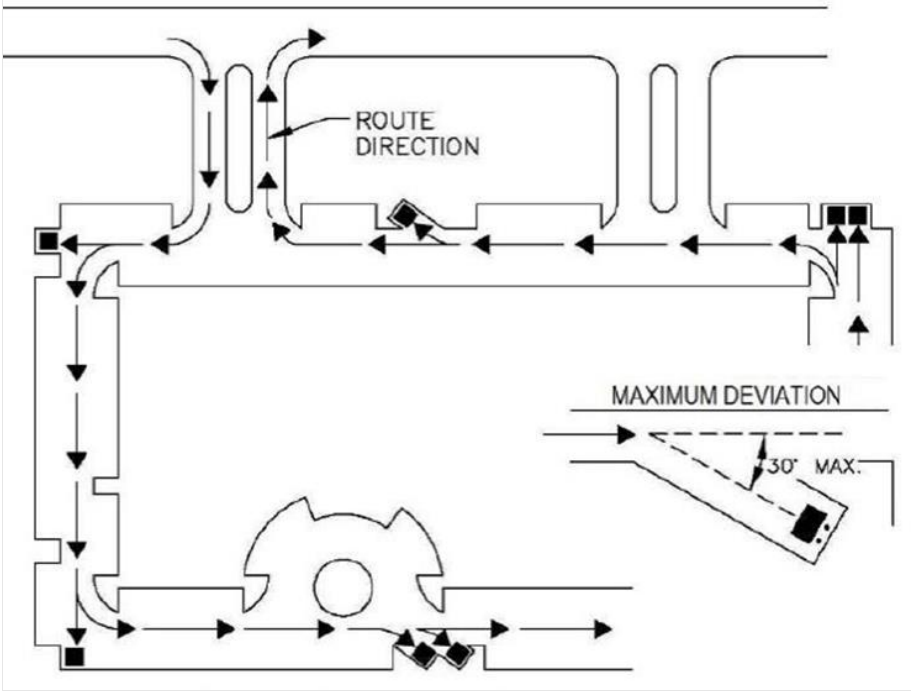

Figure 3.1 Typical Solid Waste Collection Route Schematic

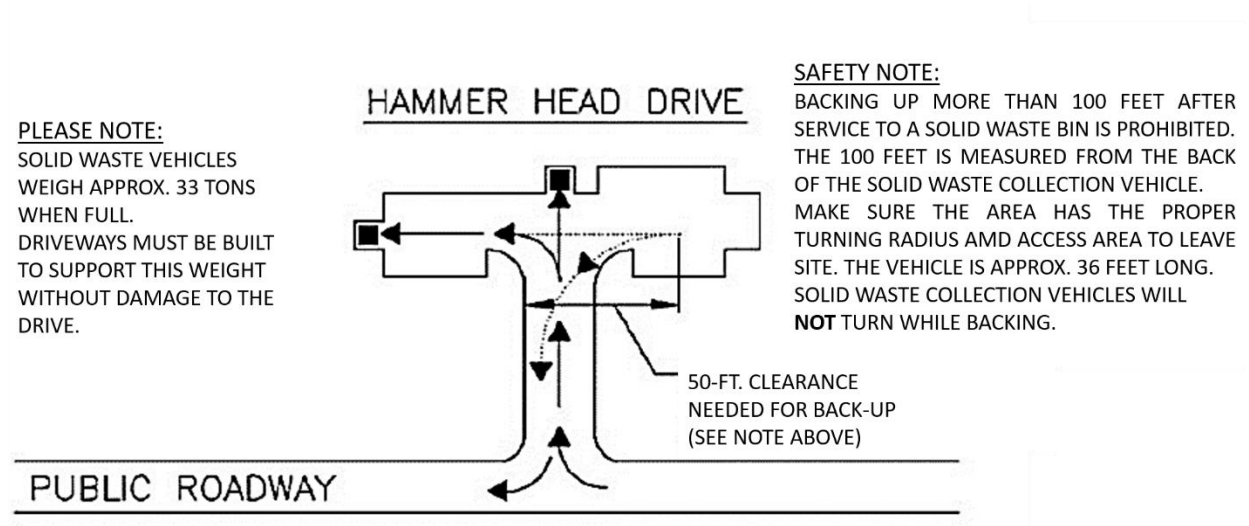

Figure 3.2 Backing Clearance Schematic

3.2.5 Alleyway Access

An alley (residential or commercial) is a private street designed to provide fire and solid waste collection access to the rear of or side of a lot. Dead-ends are not permitted in alleys. Alleys used for solid waste collection must comply with the Transportation Design Criteria in Section 5 of this Manual. Alleyway access must comply with the following criteria:

A. Design Factors:
   1. Turn Radius;
   2. Street Widths;
   3. Horizontal and Vertical Clearances;
   4. Pavement; and
   5. Multifamily Units

B. Turn Radii Requirements: Texas Department of Transportation (TxDOT) recommends, via AASHTO, that the turn radii be a minimum of 30 feet for alley-to-alley intersections with occasional turning trucks for weekly trash pick-up per TCEQ regulations. Turn radii must be sufficient for side-load residential collection vehicles to navigate alleyways lined with trash and recycle carts on both sides. *See* Figure 3.3 below.

C. Alley Width Requirements: Alleys must be paved and a minimum of 15-ft. wide. Additionally, alleys must be wide enough to accommodate carts, to allow vehicles to safely service carts, and to comply with the Transportation Design Criteria in Section 5 of this Manual.

D. Horizontal and Vertical Clearance Requirements: Balconies, landscaping, or other elements shall not encroach into approved horizontal or vertical clearances for vehicle travel, backing, loading, or other operations along any alley.
   1. The horizontal operating travel clearance must be 20 feet.
   2. The vertical operating travel clearance must be 15 feet.

E. Pavement Requirements: Pavement must be built to standards that allow two (2) 33-ton vehicles to travel down all alleys twice each service day. Alternatively, a responsible party, HOA, or POA must provide a waiver recorded with the property for potential damage caused over time by normal hauler operations.

F. Multifamily Unit Requirements: Any attached residential arrangement of five (5) or more dwelling units per lot will fall under the Commercial Business Category as defined by City of Denton Code of Ordinances 24-2 Definitions (Commercial), which requires a solid waste and recycling storage facility (container enclosure). *See* the Site Plan Criteria for Municipal Solid Waste & Recyclables Storage & Enclosure Requirements in the City of Denton Standard Details.

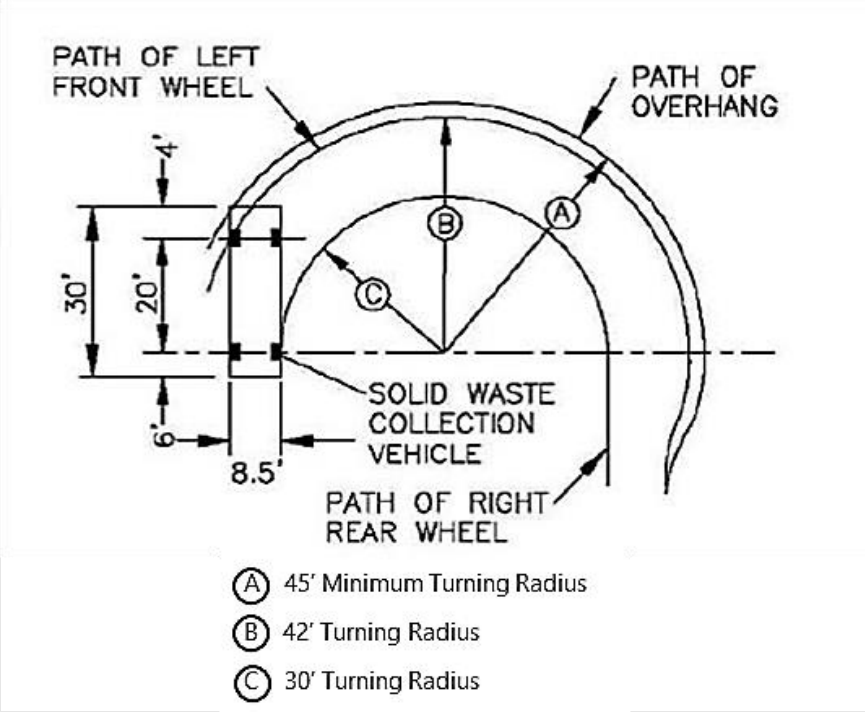

Figure 3.3 Solid Waste Collection Vehicle Turn Radius Schematic

Section 4: Stormwater Design Criteria

4.1 Overview

The purpose of Section 4 - Stormwater Design Criteria of this DCM is to establish standard principles and practices for the design and construction of storm drainage systems, to implement the policies set forth in the DDC and the City of Denton Code of Ordinances, Subpart B, Chapter 30 (Denton Flood Prevention and Protection Ordinance) within the City of Denton, Texas and its extraterritorial jurisdictions.

The following documents govern the design and construction of stormwater drainage systems:

A. City of Denton Code of Ordinances, Chapter 30, Flood Prevention and Protection;

B. DDC Subchapter 7.4 – Environmentally Sensitive Areas;

C. DDC Subchapter 7.5 – Drainage Standards;

D. *i*SWM™ Planning Technical Manual Document;

E. *i*SWM™ Water Quality Technical Manual Document;

F. *i*SWM™ Hydrology Technical Manual Document;

G. *i*swm™ Hydraulics Technical Manual Document;

H. *i*SWM™ Site Development Controls Technical Manual Document;

I. *i*SWM™ Construction Controls Technical Manual Document;

J. *i*SWM™ Construction Control Standard Details Technical Manual Document; and

K. *i*SWM™ Landscape Technical Manual Document.

The design factors, formulae, graphs, and procedures specified in this document are intended for use as minimum engineering criteria for the design of drainage systems with regards to the quantity, rate of flow, method of collection, storage, conveyance, detention, and disposal of storm water***. Responsibility for actual design remains with the design engineer. Users of this Manual should be knowledgeable and experienced in the theory and application of drainage engineering.***

The stormwater criteria contained in this Manual supersede any design criteria contained in the *i*SWM™ Planning, Water Quality, Hydraulics, and Hydrology Technical Manual Documents. The stormwater design criteria contained in this Manual ***do not*** supersede the criteria contained in the DDC or Chapter 30 of the City of Denton Code of Ordinances. Any revisions to the DDC or Chapter 30 of the City of Denton Code of Ordinances shall supersede the criteria in this Manual. In case of any conflict, the more stringent requirement shall apply.

The requirements of this Manual shall apply to all public facilities and to private facilities when the performance of such private facility has an effect on the public interest, health, or welfare.

4.1.0 Organization

Section 4 - Stormwater Design Criteria is categorized as follows:

A. Overview

B. Design Focus

C. Design Storms
D. Hydrologic Methods
E. Acceptable Downstream Conditions for Open Channels and Floodplains
F. Stormwater System Design
G. Culverts
H. Bridges
I. Detention Facilities
J. Energy Dissipation
K. Floodplain
L. Drainage and Floodplain Easements
M. Water Quality
N. Stormwater Facility Maintenance Agreements

4.2 Design Focus

The design criteria for stormwater management primarily focus on:

4.2.1 Streambank Protection - Regulate discharge from the site to minimize downstream bank and channel erosion;

4.2.2 Flood Mitigation and Conveyance - Control runoff within and from the site to minimize flood risk to people and properties for the conveyance storm and the 1% chance storm; and

4.2.3 Water Quality - Reduce pollutants from stormwater by either infiltrating the water quality volume, or removing 80% of TSS from any "*Water Quality*" storm event discharge.

4.3 Design Storms

Design is typically based on four (4) storm events, as detailed in Table 4.3-A.

Table 4.3-A: Design Storm Events

Storm Event Name	Storm Event Description
"Water Quality"	Criteria based on a volume of 1.5 inches of rainfall, not storm frequency
"Streambank Protection"	1-year, 24-hour storm event
"Conveyance"	25-year, 24-hour storm event
"Flood Mitigation"	100-year, 24-hour storm event

Notes:
[1] Throughout the manual, the storms will be referred to by their storm event names.

Drainage facilities shall be designed utilizing the "*Flood Mitigation*" storm event. Replacement or modification of existing drainage facilities shall not reduce capacity, but such facility replacements or modifications may be designed according to the requirements of the specific project and may utilize the "*Conveyance*" storm as the design storm event, through an approved design deviation request.

4.4 Hydrologic Methods

4.4.1 Types of Hydrologic Methods

The following empirical hydrologic methods support hydrologic site analysis for the design methods and procedures included in this Manual:

A. Rational Method;

B. SCS Unit Hydrograph Method;

C. Modified Rational Method;

D. Snyder's Unit Hydrograph Method; and

E. USGS & TxDOT Regression Equations

Table 4.4-A lists the hydrologic methods and the circumstances when they may be used in various analysis and design applications. Table 4.4-B provides some additional constraints on the use of several methods.

Table 4.4-A: Applications of the Hydrologic Methods

Method	Rational Method	SCS Method	Modified Rational	Snyder's Unit Hydrograph Method	USGS & TxDOT Equations
Streambank Protection Volume (SP_V)		✓		✓	
Flood Mitigation Discharge (Q_f)		✓		✓	✓
Storage Facilities		✓	✓	✓	
Outlet Structures		✓		✓	
Gutter Flow and Inlets	✓	✓			
Storm Drain Pipes	✓	✓		✓	
Culverts	✓	✓		✓	✓
Bridges		✓		✓	
Small Ditches	✓	✓		✓	
Open Channels	✓	✓		✓	✓

Table 4.4-B: Constraints on Using Hydrologic Methods

Method	Size Limitations [1]	Used for Estimating
Rational [2]	0 – 100 acres	Peak flows and design of small site or subdivision storm sewer systems.
Modified Rational [3]	0 – 200 acres	Runoff volumes for storage design.
Unit Hydrograph (SCS) [4]	Any Size	Peak flows and hydrographs for all design applications.
Unit Hydrograph (Snyder's) [5]	1 acre and larger	Peak flows and hydrographs for all design applications.
TxDOT Regression Equations [6]	10 – 100 sq. mi.	Peak flows for rural design applications.
USGS Regression Equations [6]	3 – 40 sq. mi.	Peak flows for urban design applications.

Notes:
[1] Size limitation refers to the drainage basin for the stormwater management facility (e.g., culvert, inlet).
[2] Acceptable for small, highly impervious drainage areas, such as parking lots and roadways draining into inlets and gutters.
[3] Used for conceptualizing; the engineer of record must use *i*SWM™ Hydrology Technical Manual Document when using this method.
[4] Refers to SCS routing methodology included in many readily-available programs (such as HEC-HMS or HEC-1) which utilize it.
[5] Refers to Snyder's methodology included in many readily-available programs (such as HEC-HMS or HEC-1) which utilize it.
[6] The USGS and TxDOT equations should not be used when there are significant storage areas within the drainage basin or where other drainage characteristics indicate general regression equations are not appropriate.

4.4.2 Rainfall Estimation

Rainfall intensities, provided in Table 5.3 of the iSWM™ Hydrology Technical Manual, are based on Atlas 14 and shall be used for all hydrologic analysis within Denton County.

4.5 Acceptable Downstream Conditions for Open Channels and Floodplains

Storm water discharge from a development shall not cause adverse impacts to adjacent, upstream, or downstream properties or facilities. The design of a storm drain facility must account for the offsite flows that are routed through the development, flows generated by the development, and the impacts of the development and the drainage system on downstream facilities.

4.5.1 Downstream Assessments

The downstream impacts of development must be carefully evaluated for the two (2) focus areas of Streambank Protection and Flood Mitigation (*See* Section 4.2 of this Manual). The purpose of the downstream assessment is to protect downstream properties from increased flooding and downstream channels from increased erosion potential due to upstream development. The importance of the downstream assessment is particularly evident for larger sites or developments that have the potential to dramatically impact downstream areas. The cumulative effect of smaller sites, however, can be just as dramatic and, as such, following the Focus Areas is just as important for the smaller sites as it is for the larger sites.

A downstream assessment will be required for all developments which alter flow patterns or increase the amount of impervious surface and do not limit the peak discharge to pre-development conditions at each outfall from their site. The assessment shall extend from the outfall of a proposed development to a point downstream where there is no calculated increase in WSEL (water surface elevation) or mean velocity within the receiving stream or storm drainage system. The City shall be consulted to obtain records and maps related to the National Flood Insurance Program (NFIP) and the availability of Flood Insurance Studies (FIS)

and Flood Insurance Rate Maps (FIRMs) which will be helpful in this assessment. The assessment must include the following properties:

A. Hydrologic analysis of the pre- and post-development on-site conditions.
B. Drainage path that defines extent of the analysis.
C. Capacity analysis of all existing constraint points along the drainage path, such as existing floodplain developments, underground storm drainage systems culverts, bridges, tributary confluences, or channels.
D. Offsite undeveloped areas are considered as "fully developed" for both the pre- and post-development analyses.
E. Evaluation of peak discharges and velocities for three (3) 24-hour storm events:
   1. "*Streambank protection*" storm
   2. "*Conveyance*" storm
   3. "*Flood Mitigation*" storm
F. Separate analysis for each major outfall from the proposed development.

Once the analysis is complete, the designer must answer the following questions at each determined junction downstream:

A. Are the post-development discharges greater than the pre-development discharges?
B. Are the post-development velocities greater than the pre-development velocities?
C. Are the post-development velocities greater than the velocities allowed for the receiving system?
D. Are there any increases in post-development flood heights above the pre-development flood heights?

These questions shall be answered for each of the three (3) storm events. The answers to these questions will determine the necessity, type, and size of non-structural and structural controls to be placed on-site or downstream of the proposed development.

Section 2.0 of the iSWM™ Hydrology Technical Manual, as amended, gives additional guidance on calculating the discharges and velocities, as well as determining the downstream extent of the assessment.

4.5.2 Adverse Impacts

Downstream Assessments shall evaluate the capacity of the downstream system within the Zone of Influence (ZOI). If the downstream system has less than fully developed capacity, the study shall demonstrate the development will produce no adverse impacts during the one (1), 25, and 100-year storm events. No adverse impacts may include, but are not limited to:

A. No new or increased flooding of existing structures;

B. Zero increases (0.00') in water surface elevations unless contained within the banks of an existing channel including 1-ft. freeboard. Dry lane requirements set forth in Section 4.6.2 shall also be met;

C. Increasing channel velocity is prohibited where existing velocities are erosive. Any increase in channel velocity in other areas must remain below the maximum allowable velocity as defined in Table 4.6-E;

D. No increases in downstream discharges caused by the proposed development that, in combination with off-site discharges, exceeds the existing capacity of the downstream storm drainage system;

E. The *Downstream Assessment* shall extend to a point downstream, known as the ZOI, where the proposed development creates no adverse impacts. The ZOI will be defined by a detailed hydrologic and hydraulic modeling analysis. The City's Engineer may require analysis beyond the ZOI

established by the Engineer of Record based on the criteria above and known flooding issues. ZOI does not automatically end based the rule of thumb known as the "10% rule"; and

F. If the subject development is part of a larger development, the *Downstream Assessment* must include the larger development, and the ZOI shall be determined based on the entire property.

4.5.3 Stormwater Diversions

Diversion of storm water away from the natural watercourse or existing discharge points will not be allowed, except within the property boundaries controlled by the developer under the following conditions:

A. The storm water is returned to its natural flowing watercourse prior to leaving the developer's property, or

B. A timing analysis of the existing and diverted hydrograph must be performed to confirm that the peak flow rate has not been increased at the point that it reenters the watercourse, as a result of the diversion. The City's Engineer may require additional downstream analysis if there are known downstream flooding or volume-sensitive areas.

4.5.4 Streambank Protection

There are two (2) options by which a developer can provide adequate streambank protection downstream of a proposed development. The first step is to perform the required downstream assessment as described earlier in Section 4.5.1 of this Manual. If it is determined that the proposed project does not exceed acceptable downstream velocities or the downstream conditions are improved to adequately handle the increased velocity, then no additional streambank protection is required. If the downstream assessment shows that the velocities are within acceptable limits, then no streambank protection is required. Acceptable limits for velocity control are provided in Table 4.6-D and Table 4.6-E of this Manual. If existing stream velocities exceed the maximum allowable velocities, then no increase in velocities will be permitted. If the downstream assessment shows an increase in velocity beyond the acceptable limits, then on-site or downstream improvements are required for streambank protection, easements or right-of-entry agreements will need to be obtained in accordance with Section 4.12 of this Manual, and one of the two options below must be utilized for streambank protection.

Option 1: Reinforce/Stabilize Downstream Conditions

If the increased velocities are greater than the allowable velocity of the downstream receiving system, then the developer must reinforce/stabilize the downstream conveyance system. The proposed modifications must be designed so that the downstream system is protected from the post-development velocities. The developer must provide supporting calculations and/or documentation that the downstream velocities do not exceed the allowable range once the downstream modifications are installed.

Allowable bank protection methods include stone riprap, gabions, and bio-engineered methods. Sections 3.2 and 4.0 of the *i*SWM™ Hydraulics Technical Manual give design guidance for designing stone riprap for open channels, culvert outfall protection, riprap aprons for erosion protection at outfalls, and riprap basins for energy dissipation.

If the downstream receiving system is designated as an Environmentally Sensitive Area (ESA) this option may not be a viable option. *See* Section 7.4 of the DDC for more information about the various types of ESAs, permitted encroachments, and processes for assessing and modifying ESAs.

Option 2: Install Stormwater Controls to Maintain Existing Downstream Conditions

The developer must use on-site controls to keep downstream post-development discharges at or below

allowable velocity limits. The developer must provide supporting calculations and/or documentation that the on-site controls will be designed such that downstream velocities for the three (3) storm events (*"Streambank Protection", "Conveyance",* and *"Flood Mitigation"*) are within an allowable range once the controls are installed.

4.5.5 Flood Mitigation

A. Introduction

Flood analysis is based on the *"Flood Mitigation"* storm event (see Table 4.3-A). The intent of the flood mitigation criteria is to provide for public safety; minimize on-site and downstream flood impacts from the *"Flood Mitigation"* storm event; maintain the boundaries of the mapped 100-year floodplain; and protect the physical integrity of the on-site stormwater controls and the downstream stormwater and flood mitigation facilities.

Flood mitigation must be provided for on-site conveyance systems, as well as downstream outfalls as described in the following sections.

B. Flood Mitigation Design Options

There are three (3) options by which a developer may address downstream flood mitigation as discussed below. When on-site or downstream modifications are required for downstream flood mitigation, easements or right-of-entry agreements will need to be obtained.

The developer will provide all supporting calculations and/or documentation to show that the existing downstream conveyance system has capacity (Q_f) to safely pass the fully-developed flood mitigation storm discharge.

Option 1: Provide or Document Adequate Downstream Conveyance Systems

When the downstream receiving system does not have adequate capacity, then the developer shall provide modifications to the off-site, downstream conveyance system. If this option is chosen, the proposed modifications must be designed to adequately convey the full build-out stormwater peak discharges for the *"Flood Mitigation"* storm event. The modifications must also extend to the point at which the discharge from the proposed development no longer has an impact on the receiving stream or storm drainage system.

The developer must provide supporting calculations and/or documentation that the downstream peak discharges are safely conveyed by the proposed system, without endangering downstream properties, structures, bridges, roadways, or other facilities, and no increase in water surface elevation.

Option 2: Install Stormwater Controls to Maintain Existing Downstream Conditions

When the downstream receiving system does not have adequate capacity, then the developer shall provide stormwater controls to reduce downstream flood impacts. These controls include on-site controls such as detention, regional controls, and, as a last resort, local flood protection such as levees, floodwalls, floodproofing, etc.

The developer must provide supporting calculations and/or documentation for each existing discharge point indicating that the controls will be designed and constructed so that there is no increase in downstream peak discharges or water surface elevations due to development.

Option 3: In lieu of a Downstream Assessment, Maintain Existing On-Site Runoff Conditions

Lastly with Option 3, on-site controls shall be used to maintain the pre-development peak discharges for each existing discharge point from the site. The developer must provide

supporting calculations and/or documentation that the on-site controls will be designed and constructed to maintain on-site existing conditions.

It is important to note that Option 3 may not require a downstream assessment. It is a detention-based approach to addressing downstream flood mitigation after the application of the integrated site design practices. However, a downstream assessment may be required for sites adjacent to or near streams in which delayed release of flows from detention facilities could potentially increase the peak flow in the stream due to coincident peaks. This assessment of the impact of coincident peaks is required for all sites with a contributing drainage area greater than or equal to 10% of the stream drainage area at the subject discharge point.

4.6 Stormwater System Design

4.6.1 Introduction

Stormwater system design is an integral component of both site and overall stormwater management design. Good drainage design must strive to maintain compatibility and minimize interference with existing drainage patterns; control flooding of property, structures, and roadways for design flood events; and minimize the potential environmental impacts of stormwater runoff.

Stormwater collection systems must be designed to provide adequate surface drainage while at the same time meeting other stormwater management goals such as water quality, streambank protection, habitat protection, and flood mitigation. Fully developed watershed conditions shall be used for determining runoff for the *"Flood Mitigation"* storm event.

4.6.2 Hydraulic Design Criteria for Streets and Closed Conduits

A. Introduction

This section is intended to provide criteria and guidance for the design of on-site flood mitigation system components including:

1. Street and roadway gutters;
2. Stormwater inlets;
3. Storm drainpipe systems; and
4. Parking lot sheet flow.

B. Streets and ROW

1. Design Criteria
   a. Flow spread limits for curbed streets are shown in Table 4.6-A below.
   b. Inverted crown sections are permitted only in alleys.
   c. Street crowns shall be reduced for approximately 100 feet on each side of the valley gutters. No valley gutters will be permitted across collectors or arterials.
   d. For non-curbed streets the "*Flood Mitigation*" storm event shall be contained within paralleling roadside ditches, within the public ROW (Figure 4. 1 below).
   e. Roadside ditches shall be designed to carry the "*Flood Mitigation*" runoff below the roadway elevation.
   f. Streets or alleys adjacent to an open channel shall have the edge of the pavement

designed with a minimum elevation of one (1) foot above the "*Flood Mitigation*" elevation or as directed by the City's Engineer.

g. Where additional hydraulic capacity is required on the street, the proposed street gradient must be increased, or curb inlets and storm sewers installed to remove a portion of the flow.

h. The maximum concentrated flow directed into the street (from a driveway or flume, etc.) is three (3) cubic feet per second (cfs).

2. Flow Spread Limits

a. Inlets shall be spaced so that the spread of flow in the street for the *"Flood Mitigation"* storm shall not exceed the guidelines listed below in Table 4.6-A, as measured from the gutter or face of the curb:

Table 4.6-A: Flow Spread Limits

Street Classification	Allowable Encroachment
Collectors	one travel lane remains open
Arterials	one travel lane in each direction remains open
Residential Streets	curb depth

b. The allowable drainage flow across street intersections for the *"Flood Mitigation"* storm event shall be as shown in Table 4.6-B as follows:

Table 4.6-B: Permissible Flow Across Street Intersections

Street Classification	Cross-Flow
Arterial Street (divided and undivided)	None
Non-Residential Collector Street	None
Residential Street and Residential Collector	Gutter Flow of 2 inches or less

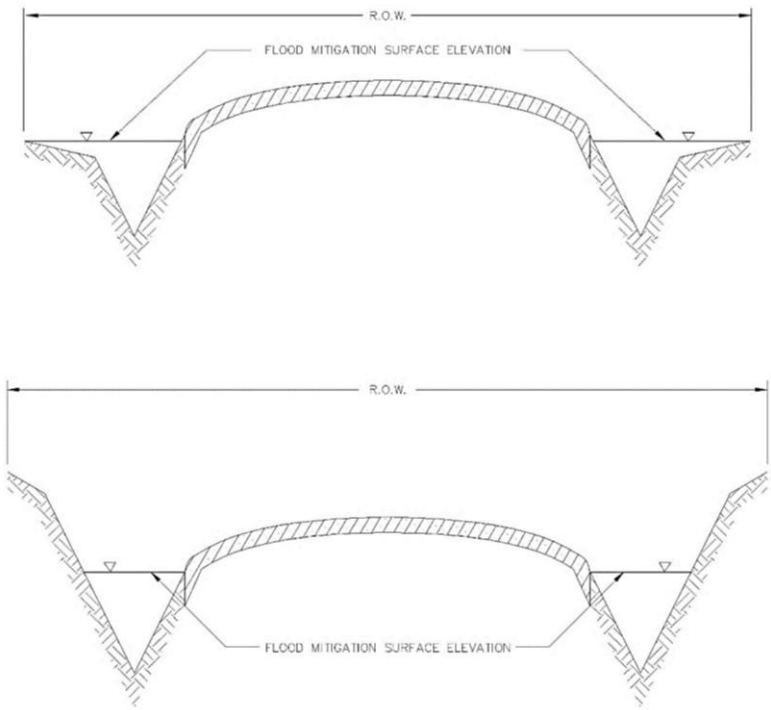

Figure 4.1 Water Spread Limits for Non-Curbed Roadways

3. Minimum Street or Alley Elevations

   No lowering of the standard height of street crown shall be allowed for the purposes of obtaining additional hydraulic capacity. Street crowns shall be in accordance with the City of Denton Standard Details.

C. Drainage Related Minimum Elevations

1. For lots in the influence of a sag area and a positive overflow, the finished floor elevation (FFE) will be at least one (1) foot above the sag area top of the curb, or one (1) foot above the possible maximum pool elevation when the positive overflow is functioning, whichever elevation is higher.
2. New and substantially improved structures within the floodplain or within 200 feet of the floodplain or SFHA must have their finished floor elevated to the minimum building elevation as defined in the City's Chapter 30 Flood Prevention and Protection Ordinance.
3. In all other areas, the minimum FFE shall be a minimum of one (1) foot above the street curb, edge of alley, or rear property line (at the midpoint of the lot), whichever is lower.

D. Storm Inlet Design

1. Permissible Types of Inlet
   a. Drop Inlets (Y-inlet) – Drop inlets are sump inlets which are not located along the curb line of a roadway.
   b. Grate Inlets – The use of grate inlets is not allowed on public drainage systems unless through an approved design deviation request. If allowed, the inlet opening shall be designed twice as large as the calculated opening to compensate for clogging. Grate

inlets may be used on private systems.

c. Curb Inlets – Curb inlets may be located at roadway low points (sumps) or on grade at such points as to meet the water spread limitations and cross-flow depth requirements. Curb inlets may be one of the following:

   i. Recessed curb inlet – Recessed curb inlets are curb inlets constructed such that the front of the inlet is two (2) feet behind the normal face of curb and the depression does not extend into the traffic lanes.

   ii. Standard curb inlet – Standard curb inlets are curb inlets that are in line with the roadway curb.

   iii. Type 2 curb inlet – Type 2 curb inlets are standard curb inlets where the inlet box is located underneath the outer roadway lane instead of behind the curb. They are only to be utilized in situations where there is insufficient parkway area or an encumbered parkway area for a standard curb inlet.

2. Design Criteria

   a. Public curb inlet size shall be 10, 15, or 20 feet. Maximum length of inlet at any one (1) curb location shall be 20 feet on each side of the street. Inlets will be placed only in straight sections of curb and at least 10 feet from any curb return. Inlets required in cul-de-sacs are the only exceptions to the straight curb section requirement. Curb inlets are not allowed in intersection or curb returns.

   b. Recessed inlets will be required on arterial and non-residential collector streets.

   c. The maximum inlet opening shall be six (6) inches. Openings larger than six (6) inches shall require approval through a design deviation request and shall contain a bar or other form of restraint.

   d. Inlets shall be located in the following locations:

      i. At low points;

      ii. Upstream of pavement crown transitions at intersections (or the developer may identify flow patterns and depths to show these inlets are not needed); and

      iii. Where street flow spread limits or permissible intersection depths are exceeded.

   e. Where possible, inlets at intersections shall be located on the street with the lesser classification or on alleys.

   f. A bypass of no more than 5% of the inlet capacity will be allowed for the *"Flood Mitigation"* storm event.

   g. To prevent water flowing across the street for the "*Flood Mitigation*" storm event, water flowing in gutters of arterials should be picked up prior to reaching super-elevated sections.

   h. In super-elevated sections of divided arterials, inlets placed against the center medians shall have no gutter depressions. Interior gutter flow (flow along the median) shall be intercepted at the point of superelevation transition to prevent street cross-flow.

   i. At bridges with curbed approaches, water should be intercepted before flowing onto the bridge to prevent icing during cold weather.

   j. New inlets shall not be constructed within a sidewalk of other pedestrian path.

   k. The use of recessed inlets shall only be allowed where they do not adversely impact the

access or functionality of existing utility facilities.

l. Design and location of inlets shall take into consideration pedestrian and bicycle traffic.

m. The use of slotted drains is discouraged except in instances where there is no alternative. Any use of slotted drains requires approval through a design deviation request. If used, the manufacturer's design guidelines should be followed.

n. Depressed inlets are recommended on continuous grades that exceed 1%, although their use in traffic lanes should be avoided whenever possible.

o. A redundant, flanking inlet is required wherever a sag point or low point inlet is identified and no positive overflow path is provided. The redundant inlet shall have the same size as the sag or low point inlet but will not be considered in the hydraulic capacity calculations. The redundant inlet shall have a maximum inlet elevation of six (6) inches above the sag or low point inlet elevation to ensure ponding does not overtop the curb.

3. Inlet Computations

a. Sump Inlets and Drop Inlets

Curb inlets and drop inlets in a sump or low point can be considered to function as a rectangular broad-crested weir with a coefficient of discharge of 3.06. The capacity shall be based on the following weir equation:

$$Q / L \text{ or } Q / P = 3.06\ H^{3/2} \qquad \textbf{[Eqn. 4.1]}$$

Where:
Q = Capacity of curb opening inlet or capacity of drop inlet (*cfs*)
H = Head at the inlet (*feet*)
L = Length of curb opening inlet (*feet*); or
P = Length of portion of perimeter of inlet opening, through which water enters the drop inlet (*feet*)

Inlets should be located such that the inlet openings do not become submerged. In some cases where this is not possible and the inlet operates under completely submerged conditions, the orifice equation [Eqn. 4.2] should be used to compute the inlet capacity, rather than the weir formula [Eqn. 4.1]. The capacity of a completely submerged inlet shall be based on the following orifice equation:

$$Q = 4.84\ A\ H^{1/2} \qquad \textbf{[Eqn. 4.2]}$$

Where: A = Area of inlet opening

The curves shown in Figure 4.2 and Figure 4.3 provide for direct solution of the above equations.

In order to facilitate the computations required in determining the various hydraulic properties for curb inlets and drop inlets in sump conditions, Figure 4.4 Computation Sheet has been prepared.

Column 1	Inlet number and designation.
Column 2	Total flow in *cfs* to inlet. For inlets other than the first inlet in a system, flow is the sum of runoff from the contributing area plus carry-over flow from inlet or inlets upstream.
Column 3	Assumed length of inlet opening or perimeter in feet.

Column 4	Total area of inlet opening based on assumed inlet opening length and opening height.
Column 5	Discharge per unit foot of inlet opening. Column 2 divided by Column 3.
Column 6	Computed head at inlet for weir flow conditions based on Figures 4.2 or 4.3 or the following equation:

$$H = (q / 3)^{2/3} \quad \textbf{[Eqn. 4.3]}$$

Column 7	Computed head at inlet for orifice flow conditions (submerged inlet) based on Figures 4.2 or 4.3 or the following equation:

$$H = [(Q / A) / 4.82]^2 \quad \textbf{[Eqn. 4.4]}$$

Column 8	Maximum allowable head at sump inlet. This value is determined from topographic conditions at the sump inlet site.
Column 9	Width of spread of water for curb inlets in sump.

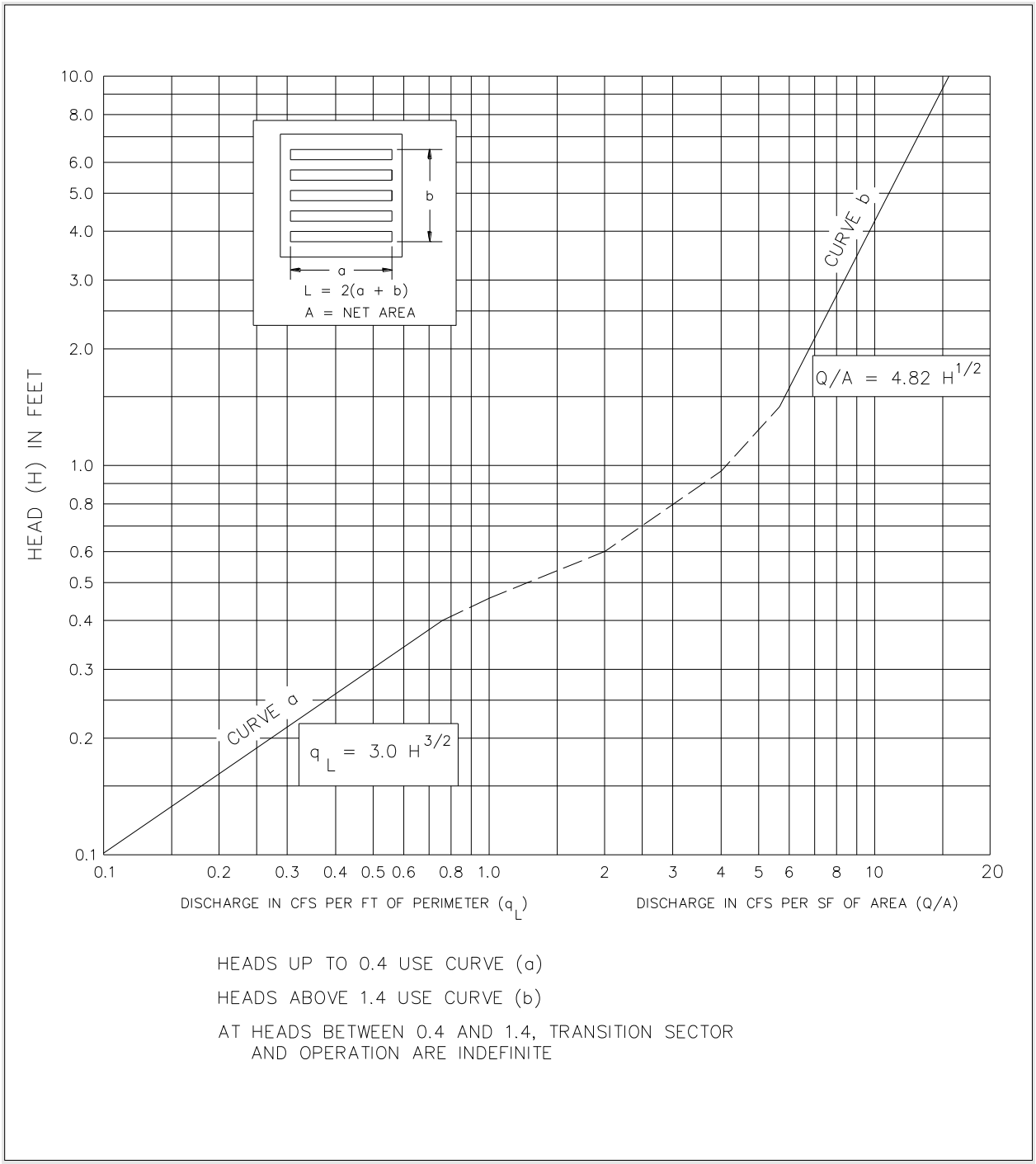

Figure 4.2 Capacity of Grate Inlet in Sump

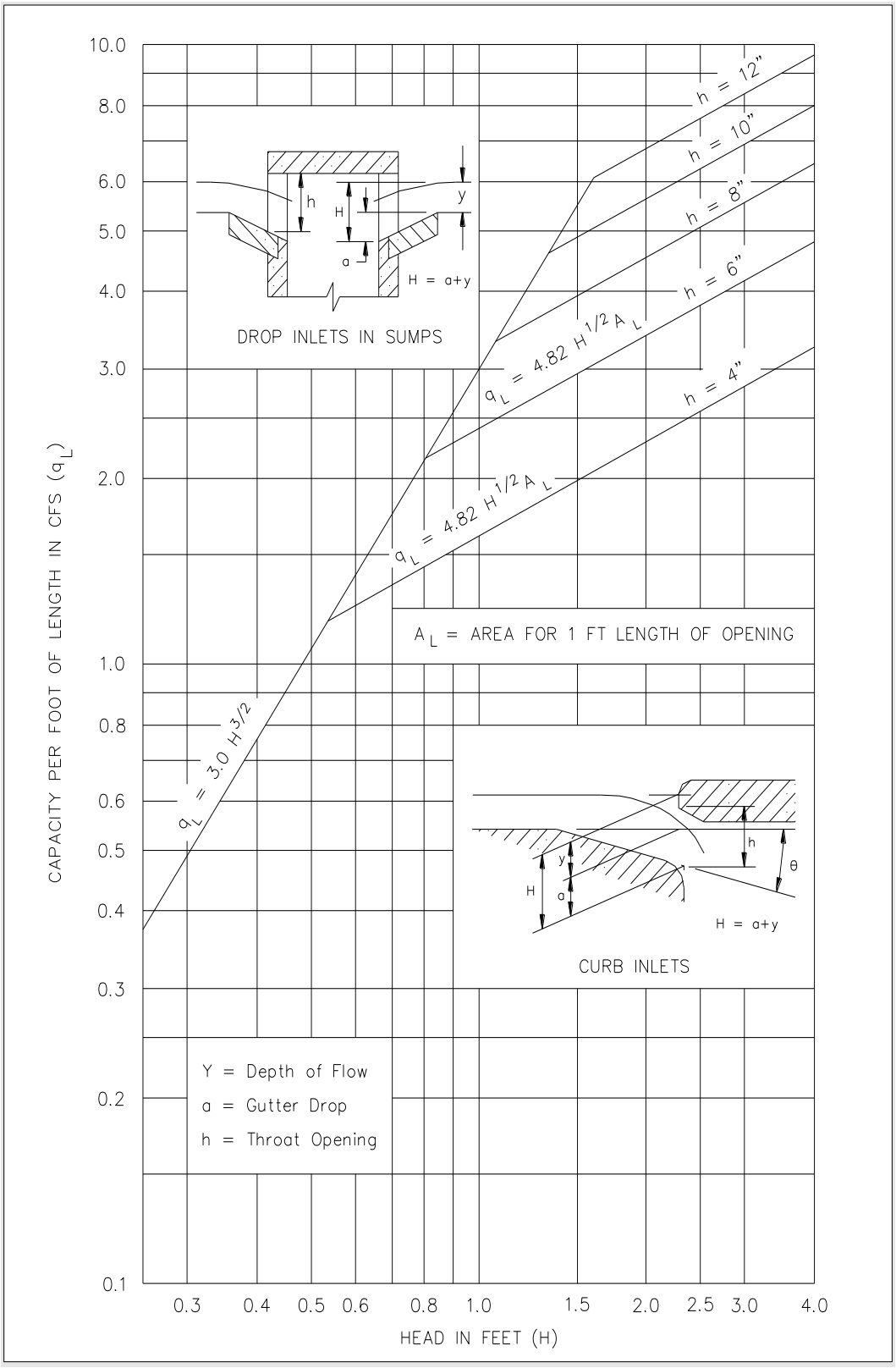

Figure 4.3 Capacity of Drop Inlets and Curb Inlets in Sumps

CURB INLETS AND DROP INLETS IN SUMPS

INLET NO.	FLOW TO INLET Q (cfs)	LENGTH OF INLET OPENING L (ft)	AREA OF INLET OPENING A (sq ft)	DISCHARGE PER UNIT FOOT OF OPENING q = Q/L (cfs/ft)	COMPUTED HEAD AT INLET		MAXIMUM ALLOWABLE HEAD H (ft)	WATER SPREAD LIMITS S_p (ft)	NOTES
					WEIR FLOW $H = (q/3)^{2/3}$ (ft)	ORIFICE FLOW $H = [(Q/A)/4.82]^2$ (ft)			
1	2	3	4	5	6	7	8	9	10

Figure 4.4 Computation Sheet for Curb Inlets and Drop Inlets in Sumps

b. Inlets on Grade

The capacity of a curb inlet on grade will be based on the following equation:

$$Q / L_o = 0.7 [1 / y_o] [(H)^{5/2} - (a)^{5/2}] \quad \text{[Eqn. 4.5]}$$

Where:
Q = Discharge into inlet (cfs)
L_o = Length of inlet opening (feet)
a = Gutter depression (feet)
y_o = Depth of flow in approach gutter (feet)
$H = a + y_o$

The curve shown in Figure 4.6 provides for the direct solution of the above equation when the value of y_o is known. The curve shown in Figure 4.7 provides for the determination of the ratio of the intercepted flow by the inlet to the total flow in the gutter.

In order to facilitate the computations required in determining the various hydraulic properties for curb inlets on grade, Figure 4.5 shows Computation Sheet prepared.

Column 1 Inlet Type and number.
Column 2 Location of inlet by station number.
Column 3 Drainage Area designation of area entering between the previous pick up point and the inlet being designed.
Column 4 Peak Discharge (Q_p) from area of Column 3.
Column 5 Carry-over flow (q) which has been passed by the last preceding inlet to the inlet under consideration.
Column 6 Total gutter flow (Q_o) in cfs. For inlets other than the first inlet in the system, total gutter flow is the sum of the runoff from the contributing area plus carry-over flow from the inlet or inlets upstream. Column 4 plus Column 5.
Column 7 Reciprocal of the pavement cross slope for pavements with straight crown slopes.
Column 8 Reciprocal of the pavement cross slope (Z) divided by the pavement roughness coefficient (n).
Column 9 Slope of approach gutter (S_o) in feet per feet.
Column 10 Depth of gutter flow "y_o" in approach gutter direct from Manning's equation for triangular gutters:

$$y_o = 1.245 (Q^{3/8})[n^{3/8} / S^{3/16}] [1 / Z]^{3/8} \quad \text{[Eqn. 4.6]}$$

Column 11 Spread of water (S_p) or width of ponding in the gutter measured from the face of curb. Column 7 times Column 10.
Column 12 Width of street and height of parabolic crown.
Column 13 Slope of approach gutter (S_o) in feet per feet.
Column 14 Depth of gutter flow " y_o " in approach gutter. Column 15 Spread of water (S_p) or width of ponding in the gutter measured from face of curb.
Column 16 Discharge (Q) in cfs which will be intercepted by an inlet one (1) foot in length for a given depth of flow in the approach gutter (y_o).

Determined from Figure 4.6 or from the solution of the following equation:

$$Q / L_o = 0.7 [1 / y_o] [(H)^{5/2} - (a)^{5/2}] \quad \text{[Eqn. 4.7]}$$

Column 17	Length of inlet (L_o) in feet which is necessary to intercept a given discharge Q_o. Column 6 divided by Column 16.
Column 18	Actual length (L) in feet of inlet which is to be provided.
Column 19	Ratio of the length of inlet provided (L), to the length of the inlet required for 100% interception (L_o). Column 18 divided by Column 17.
Column 20	Percentage of discharge intercepted by the inlet in question determined from Figure 4.7 using the values determined in Column 19 and Column 10 or Column 14.
Column 21	Discharge (Q) in cfs which the inlet in question actually intercepts. Column 6 times Column 20.
Column 22	Carry-over flow (q) is the amount of water which passes any inlet, and is the difference between the total flow (Q_o) of Column 6 and the intercepted flow (Q) of Column 21.

CURB INLETS ON GRADE

INLET		DRAINAGE AREA NO.	SUB-AREA PEAK FLOW Q_a (cfs)	CARRY-OVER FROM UPSTREAM INLET q (cfs)	TOTAL FLOW Q (cfs)	STRAIGHT CROWN SLOPES						PARABOLIC STREET SLOPES					CAPACITY PER FOOT OF INLET Q/L_o (cfs/ft)	LENGTH OF INLET REQ'D FOR Q_a (ft)	INLET LENGTH L (ft)	L/L_o	Q_a/Q_o	FLOW INTERCEPTED $Q_i = Q_a \times Q_i/Q_a$ (cfs)	CARRY-OVER FLOW q (cfs)	COMMENTS
TYPE & NO.	STATION					CROWN SLOPE z	z/n	STREET SLOPE S_o (ft/ft)	FLOW DEPTH y_o (in)	WIDTH OF SPREAD T (ft)	TYPE OF STREET SECTION	STREET SLOPE S_x (ft/ft)	FLOW DEPTH y_o (in)	WIDTH OF SPREAD T (ft)										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

Figure 4.5 Computation Sheet for Curb Inlets On Grade

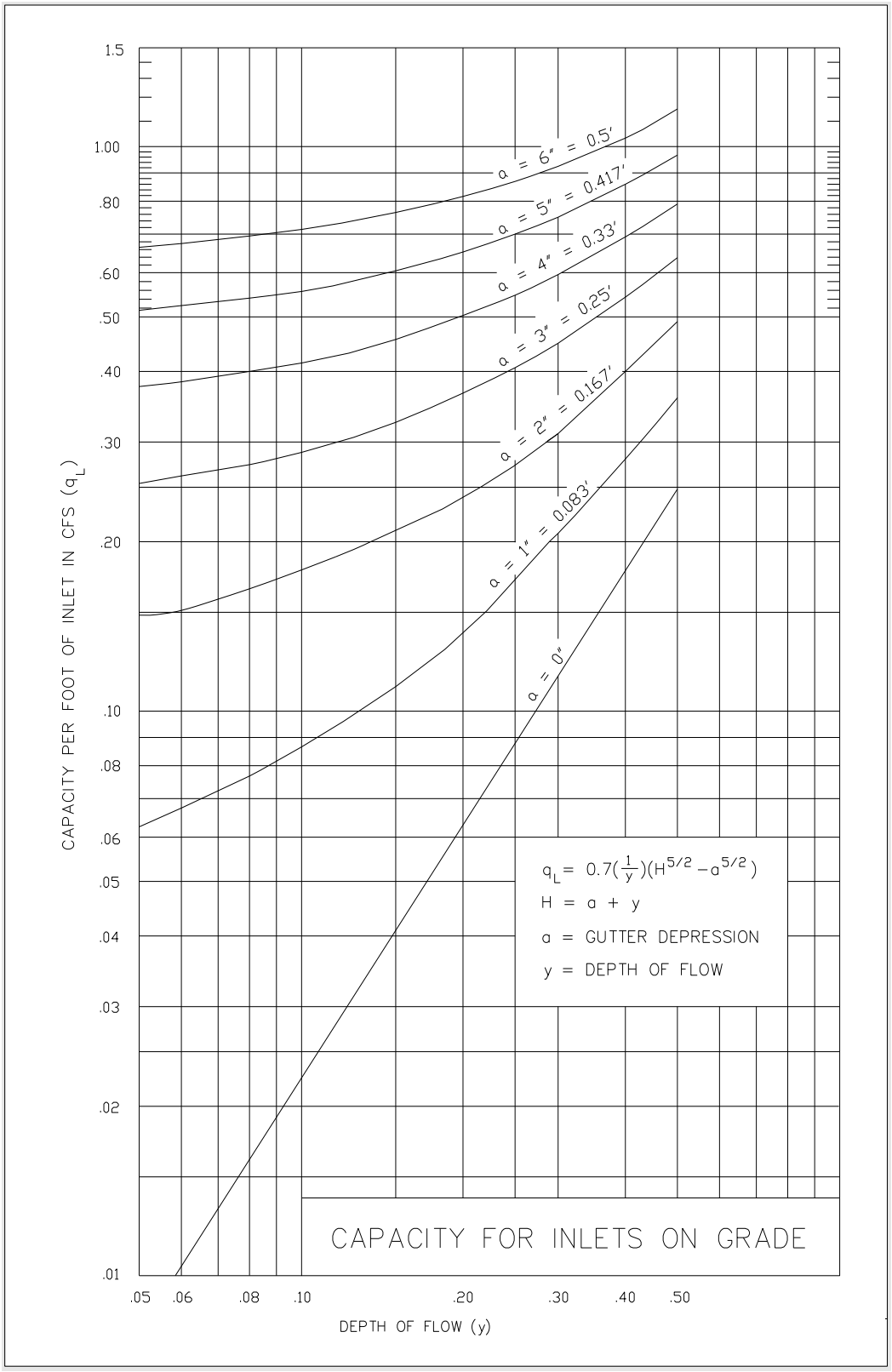

Figure 4.6 Capacity for Inlets On Grade

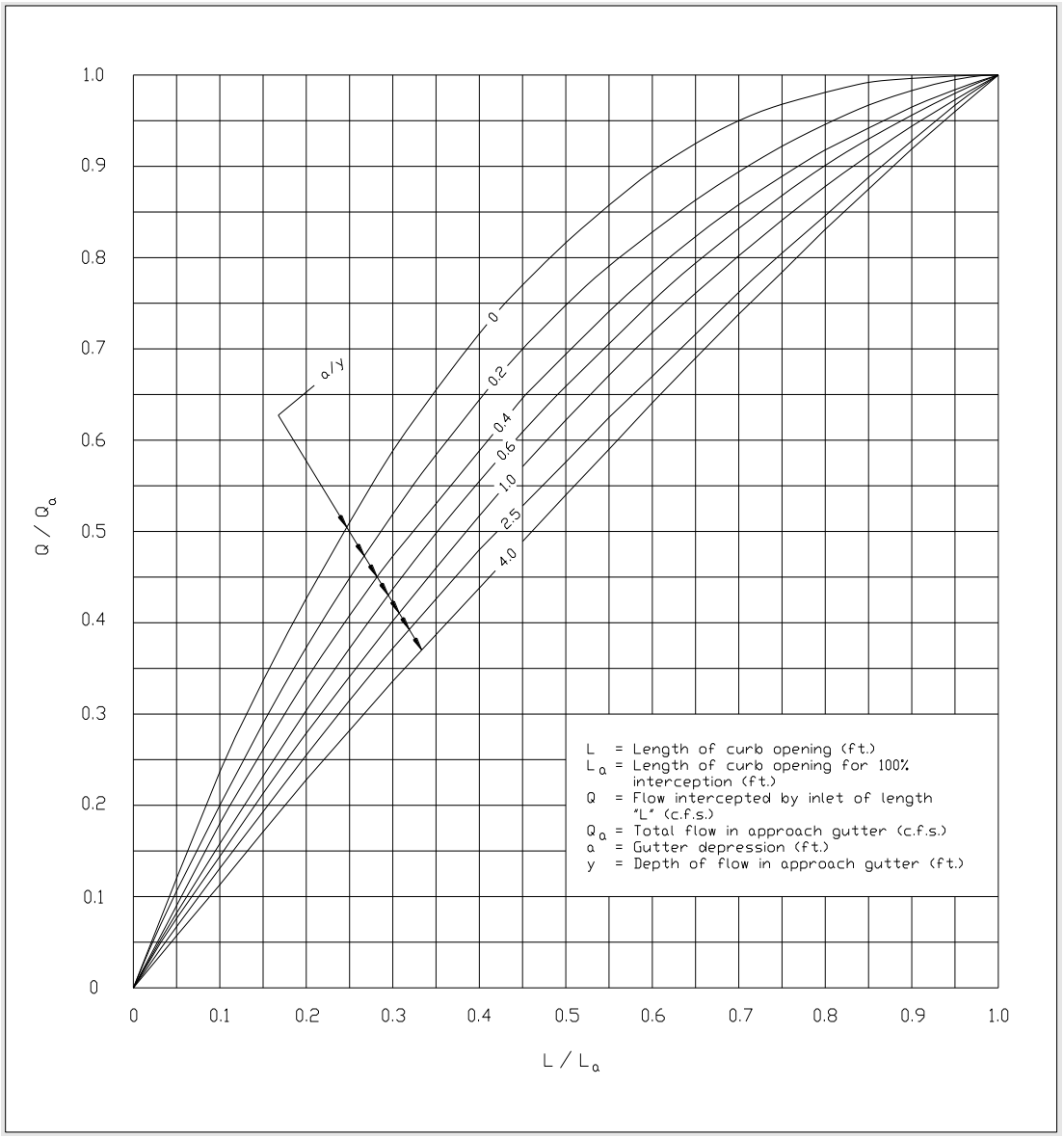

Figure 4.7 Ratio of Intercepted Flow to Total Flow for Inlet On Grade

E. Storm Drain Pipe Design

1. Design Frequency

   Pipe Design: *"Flood Mitigation"* storm event.

2. Design Criteria

   a. Storm drain systems capable of conveying the *"Flood Mitigation"* storm event are required when water spread, intersection cross-flow, and lot-to-lot drainage flow limits are exceeded, or when the minimum time of concentration shown in *Table 1.5 of the iSWM™ Hydrology Technical Manual Document* are reached. Closed pipe systems are required for discharges up to and including 300 cfs in public systems.

   b. Pipe material in a public storm drain system or in public ROW shall be reinforced concrete for all pipe sizes with appropriate bedding and class type depending on cover.

   c. Proposed storm drains may discharge into existing watercourses. *See Section 1.2.10 of the iSWM™ Hydraulics Technical Manual Document* for guidance related to the Tailwater elevation to be used for hydraulic grade line calculations.

   d. The maximum hydraulic gradient shall not produce a velocity that exceeds 15 fps. Table 4.6-C shows the desirable velocities for most storm drainage design. Storm drains shall be designed to have a minimum mean velocity flowing full at 2.5 fps.

Table 4.6-C: Desirable Velocity in Storm Drains

Description	Max. Desirable Velocity (fps)
Culverts (All types)	15
Inlet laterals	No Limit
Collectors (≤ 24 inches)	15
Mains (> 24 inches)	12

   e. The minimum desirable physical slope shall be 0.5% or the slope that will produce a velocity of 2.5 fps as required for the *"Streambank Protection"* storm event when the culvert is flowing partially full, whichever is greater.

   f. The potential hydraulic grade line elevation shall not exceed ground elevation or the gutter flow line, whichever is lowest.

   g. Access junction boxes are required along straight runs of closed conduits, with a maximum spacing of 500 feet for all pipe and box sizes.

   h. Junction Boxes shall also be located at:

      i. any point where three (3) or more drainage conduits (laterals or trunk lines) come together;

      ii. any point where a trunk line size changes;

      iii. grade changes;

      iv. the upstream end of the storm drain system;

      v. Bends greater than 45 degrees;

      vi. Pipe junctions greater than 45 degrees; and

      vii. At the connection point between public and private storm sewer pipes or boxes. If this connection point is in the public ROW, pipe materials on the private system

must meet public storm drain system materials requirements. If the connection point is on private property, then the public portion of the system must be contained in an easement.

i. Inlets will not be allowed to serve as a junction box, except through an approved design deviation request. Where inlets are permitted to serve as a junction box, the width of the inlet, at a minimum, shall be doubled in size. Storm drain systems parallel to the street will not be permitted to run directly through inlets.

j. Bends without junction boxes shall be limited to 45 degrees or less.

k. Pipe junctions without junction boxes shall be limited to 45 degrees or less.

l. The minimum storm drain pipe diameter shall be 18 inches.

m. Pipe diameters shall not decrease downstream.

n. Laterals shall be connected to trunk lines using a junction box or manufactured wye connections. Cut-in or punch-in connections to trunk lines are prohibited.

o. All cut-in or punch-in connections to precast inlets, junction boxes, box culverts, etc. will require a concrete collar to be poured around the connection.

p. Vertical or horizontal curves/deflections in the conduit will not be permitted.

F. Parking Lot Design

Parking lots shall be designed for the *"Flood Mitigation"* storm not to exceed top of curb with a maximum depth at low points of one (1) foot. The *"Flood Mitigation"* storm shall be contained on-site or within dedicated easements. The portion of the parking lot detaining water during the *"Flood Mitigation"* storm may be considered as part of the detention calculation for the site.

4.6.3 Open Channels

A. Design Frequency

1. Open channels, including all natural or improved channels, swales, and ditches shall be designed for the *"Flood Mitigation"* storm event.

B. Design Criteria

1. Depending on velocities (See Table 4.6-E), constructed or improved channels shall be designed with either an earthen channel or a 10-ft. minimum concrete pilot channel section and appropriate side slope protection up to the *"Streambank Protection"* storm event elevation, as described in Section 4.3.

2. All channels with contributing drainage basins larger than one (1) square mile (sq. mi.) shall remain in their natural condition.

3. Channels with a contributing drainage area of less than one (1) sq. mi. shall remain in their natural condition if they are identified as being within an ESA by the current City of Denton ESA map. Channels not identified as being within an ESA may be channelized, with the channelization method being determined by analysis of the erosive velocities.

4. All improved channels shall be designed to carry the flood mitigation flow and shall have one (1) foot of freeboard as illustrated in Figure 4.8. Freeboard requirements at bends in all improved channels shall be the greater of the following:

   a. One (1) foot; or

b. 10% of the flow depth

5. At a minimum, channels that require concrete lining shall be lined up to an elevation of the water surface resulting from the *"Flood Mitigation"* storm event.

6. Concrete lining of a stream channel is adding fill material into Waters of the United States (WOTUS) and must comply with Section 404 of the Clean Water Act, and all requirements outlined in DDC Section 7.4. Provide either proof of mitigation or letter of permission from the United States Army Corps of Engineers (USACE).

7. Unlined improved channels that contain bends may be required to be armored if maximum permissible velocities are exceeded.

8. Unlined improved channels shall have side slopes no steeper than 4H:1V and concrete-lined channels shall have side slopes no steeper than 2H:1V.

9. The minimum grade allowed on any channel, outfall channel, or ditch shall be three-tenths (3/10) foot per 100 feet for concrete-lined channels and five-tenths (5/10) foot per 100 feet for grass-lined channels.

10. Geotechnical investigations will be required for open channel designs to determine the type of soils present and allowable velocities shown in Table 4.6-D and Table 4.6-E.

11. For vegetative channels, flow velocities within the channel shall not exceed the maximum permissible velocities given in Table 4.6-D and Table 4.6-E.

12. An evaluation of streambank stabilization shall be included in the design of open channel improvements for areas upstream and downstream of the proposed improvement. Where indicated by the analysis, stabilization of the offsite bank areas shall be included in the proposed design.

13. HEC-RAS, or similarly capable software approved by the City's Engineer, shall be used to confirm the water surface profiles in open channels.

14. The final design of artificial open channels shall be consistent with the velocity limitations for the selected channel lining. Maximum velocity values for selected lining categories are presented in Table 4.6-D below.

15. If relocation of a stream channel is unavoidable, fill material into WOTUS must comply with Section 404 of the Clean Water Act, and all requirements outlined in DDC Section 7.4 . Provide either proof of mitigation or letter of permission from the United States Army Corps of Engineers (USACE).

The design of stable rock riprap lining depends on the intersection of the velocity (local boundary shear) and the size and gradation of the riprap material. More information on calculating acceptable riprap velocity limits is available in Section 3.2.7 of the *i*SWM™ Hydraulics Technical Manual Document.

Table 4.6-D: Roughness Coefficients (Manning's *n*) and Allowable Velocities for Natural Channels

Channel Description	Manning's *n*	Max. Permissible Channel Velocity (fps)
MINOR NATURAL STREAMS		
Fairly regular section		
1. Some grass weeds	0.030	3 to 6
2. Dense growth of weeds, depth of flow materially greater than weed height	0.035	3 to 6
3. Some weeds, light brush on banks	0.035	3 to 6
4. Some weeds, heavy brush on banks	0.050	3 to 6
5. Some weeds, dense willows on banks	0.060	3 to 6
- For trees within channels with branches submerged at high stage, increase values by	0.010	
- Irregular section with pools, slight channel meander, increase above values by	0.010	
Floodplain - Pasture		
1. Short grass	0.030	3 to 6
2. Tall grass	0.035	3 to 6
Floodplain – Cultivated Areas		
1. No crop	0.030	3 to 6
2. Mature row crops	0.035	3 to 6
3. Mature field crops	0.040	3 to 6
Floodplain – Uncleared		
1. Heavy weeds scattered brush	0.050	3 to 6
2. Wooded	0.120	3 to 6
MAJOR NATURAL STREAMS		
Roughness coefficient is usually less than for minor streams of similar description on account of less effective resistance offered by irregular banks or vegetation on banks. Values of 'n' for larger streams of mostly regular sections , with no boulders or brush	0.028 to 0.060	3 to 6
UNLINED VEGETATED CHANNELS		
Clays (Bermuda Glass)	0.035	5 to 6
Sandy and Silty Soils (Bermuda Glass)	0.035	3 to 5
UNLINED NON-VEGETATED CHANNELS		
Sandy Soils	0.030	1.5 to 2.5
Silts	0.030	0.7 to 1.5
Sandy Silts	0.030	2.5 to 3.0
Clays	0.030	3.0 to 5.0
Coarse Gravels	0.030	5.0 to 6.0
Shale	0.030	6.0 to 10.0
Rock	0.025	15

Notes:
[1] For natural channels with specific vegetation type, refer to Table 4.6-E for more detailed velocity control.

Table 4.6-E: Maximum Velocities for Vegetative Channel Linings

Vegetation Type	Slope Range [1] (%)	Max. Velocity [2] (fps)
Bermuda Grass	0 – 5	6
Bahia	-	4
Tall fescue grass mixtures [3]	0 – 10	4
Kentucky bluegrass	0 – 5	6
Buffalo grass [4]	5 – 10 > 10	5 4
Grass mixture [4]	0 – 5 5 – 10	4 3
Sericea lespedeza, Weeping lovegrass, Alfalfa	0 – 5	3
Annuals [5]	0 – 5	3
Sod	-	4
Lapped Sod	-	5

Notes:
[1] Do not use on slopes steeper than 10% except for side-slope in combination channel.
[2] Use velocities exceeding 5 fps only where good stands can be maintained.
[3] Mixtures of Tall Fescue, Bahia and/or Bermuda.
[4] Buffalo Grass and Grass Mixture will be required over other vegetation types where the maximum velocity is not exceeded.
[5] Annuals – used on mild slopes or as temporary protection until permanent covers are established.

Source: Manual for Erosion and Sediment Control in Georgia, 1996.

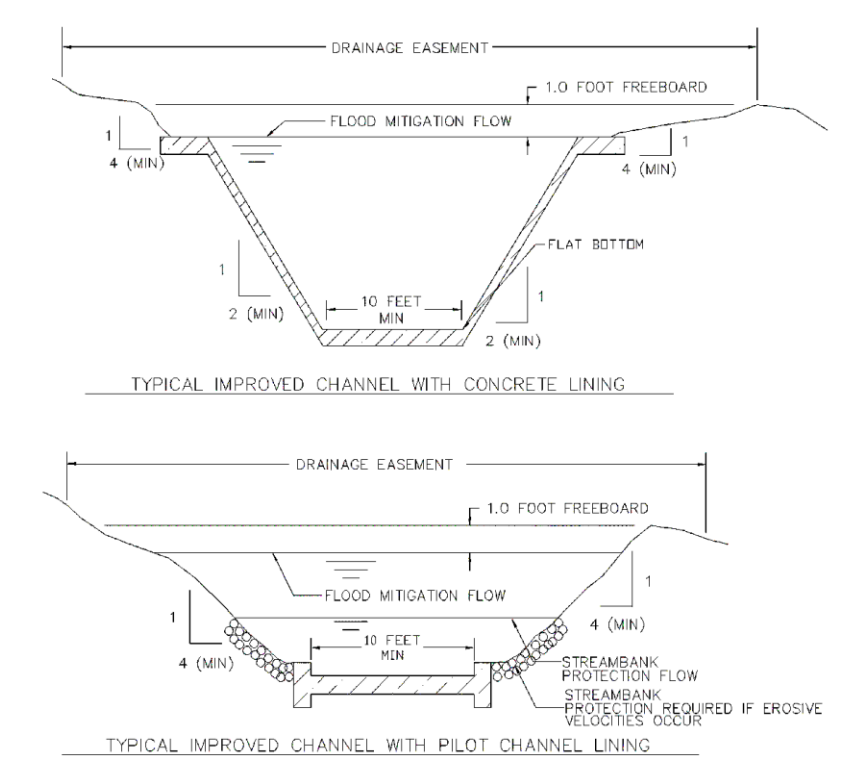

Figure 4.8 Freeboard Requirements and Channel Section Illustrations

C. Channel Drop Structures

1. Sloping channel drops are permitted and are required to have a maximum slope of 4H:1V. Vertical channel drops are not permitted.
2. The flow velocities in the channel upstream and downstream of the drop structure need to satisfy the permissible velocities allowed for channels (Table 4.6-D). The velocities shall be checked for flows produced by the *"Streambank Protection"* and *"Flood Mitigation"* storm events.
3. An apron shall be constructed immediately upstream of the chute or stilling basin to protect against the increasing velocities and turbulence which result as the water approaches the drop structure. The apron shall extend at least five (5) feet upstream of the point where flow becomes supercritical. In no case shall the length of the upstream apron be less than 10 feet.
4. An apron shall be constructed immediately downstream of the chute or stilling basin to protect against erosion due to the occurrence of the hydraulic jump. The apron shall extend a minimum of 10 feet beyond the anticipated location of the jump.
5. The design of drop structures is based on the height of the drop, the normal depths upstream and downstream of the drop structure, and discharge.
6. When used, channel drop structures shall be located near bridges or culverts, as directed by the City's Engineer.
7. The location of the hydraulic jump should be determined based on the upstream and downstream flow depths, and channel slopes.
8. The length of the hydraulic jump should be calculated to determine the length of the downstream apron required to prevent erosion.

4.7 Culverts

Culverts are cross drainage facilities that transport runoff under roadways or other improved areas.

4.7.1 Design Frequency

A. Culverts shall be designed for the *"Flood Mitigation"* storm.

B. The *"Flood Mitigation"* storm shall be routed through all culverts to ensure building structures (e.g., houses, commercial buildings) are not flooded and damage does not occur to a highway or adjacent property for this design event.

4.7.2 Design Criteria

A. Design Considerations

1. Roadway type;
2. Tailwater or depth of flow;
3. Structures, and property subject to flooding;
4. Emergency access; and
5. Road replacement costs.

B. Velocity Limitations

1. The maximum velocity shall be consistent with channel stability requirements at the culvert outlet.
2. The maximum allowable velocity is 15 fps, but outlet protection shall be provided where discharge velocities will cause erosion conditions.
3. To ensure self-cleaning during partial depth flow, a minimum velocity of 2.5 fps is required for the "*Streambank Protection*" storm when the culvert is flowing partially full.

C. Headwater Limitations

1. The *allowable headwater* is the depth of water that can be ponded at the upstream end of the culvert during the *"Flood Mitigation"* storm event. The *allowable headwater* will be limited by both of the following constraints or conditions:
   a. The headwater must not damage upstream property.
   b. The culvert headwater plus 12 inches of freeboard shall not exceed (i) top of curb or (ii) pavement for the low point of the road over the culvert, whichever is lower.

D. Tailwater Considerations

1. If the culvert outlet is operating with a free outfall, the critical depth and equivalent hydraulic grade line shall be determined.
2. For culverts that discharge to an open channel, the stage-discharge curve for the channel must be determined. *See* Section 2.1.4 of the *i*SWM™ Hydraulics Technical Manual on methods to determine a stage-discharge curve.
3. If an upstream culvert outlet is located near a downstream culvert inlet, the headwater elevation of the downstream culvert will establish the design tailwater depth for the upstream culvert.
4. If the culvert discharges to a lake, pond, or other major water body, the expected "*Flood Mitigation*" storm event of the water body will establish the culvert tailwater.

E. Other Criteria

1. Culvert skews shall not exceed 30 degrees, as measured from a line perpendicular to the roadway centerline, without approval.
2. Erosion, sediment control, and velocity dissipation shall be designed in accordance with Section 4.0 of the *i*SWM™ Hydraulics Technical Manual Document.
3. Where applicable, culverts must comply with DDC Section 7.4 regarding Environmentally Sensitive Areas.

4.7.3 Driveway Culverts

Driveway culverts are only permitted in non-curbed roadway sections. All driveway culvert construction shall be inspected by the City during construction. All driveway culverts shall meet the following requirements:

A. All new driveway culverts must be designed to convey flows from a "*Flood Mitigation*" storm. Replacement driveway culverts shall be designed to convey the maximum reasonable discharge based on the existing ditch dimensions adjacent to the culvert.

B. Culverts shall have a minimum pipe diameter of 18 inches.

C. Acceptable culvert material shall be Reinforced Concrete Pipe (RCP) with a diameter of 18 to 42 inches. The RCP must be designated Class III at a minimum.

D. Box culverts shall have a minimum height of 24 inches. Culverts under City streets used for entrances to a subdivision shall be made of approved classes of reinforced concrete pipe or box.

E. The top of pipe elevation must be below the adjacent roadway edge of pavement elevation.

F. Pipe culverts shall utilize a safety end treatment conforming to the most current version of the TxDOT standard detail Safety End Treatment Plan – Parallel Drainage (SETP-PD) with the slope of the riprap being 6H:1V.

G. A driveway approach may utilize a low-water crossing in lieu of a driveway culvert, if all of the following conditions are met:

1. The lowest elevation of the proposed crossing can be no more than eight (8) inches below the road edge elevation.
2. The proposed low-water crossing cannot create a ponding effect on the upstream ditch (i.e., ditch flow line must be equal to or higher than the crossing).
3. Minimum cross slope for the crossing of 1.5%.
4. Low-water crossing shall be constructed of concrete adhering to the City of Denton Standard Details.
5. Toe walls on each side of the crossing shall be extended at least 15 inches below grade to prevent undercutting.

H. Culvert Slope requirements:

1. Culvert slope must provide positive drainage.
2. Culvert slope shall be set as shown on the approved subdivision construction plans.
3. Minimum slope shall be 0.3%.

I. Ditch Slope Requirements

1. The ditch shall be graded upstream and downstream as far as necessary to provide positive drainage with no areas of standing water.
2. Minimum earthen slope is 0.5%.
3. Minimum concrete slope is 0.3% for 2-ft. concrete pilot channels, if 0.5% earthen slope is unobtainable.

4.8 Bridges

4.8.1 Design Frequency

A. *"Flood Mitigation"* storm must be used for all bridges.

4.8.2 Design Criteria

A. A freeboard of two (2) feet shall be maintained between the computed design water surface and the low chord of all bridges.

B. Design guidance is provided in *Section 3.4 of the iSWM™ Hydraulics Technical Manual Document*.

4.8.3 Other Criteria

A. Where applicable, bridges must comply with DDC Section 7.4 regarding Environmentally Sensitive Areas.

4.9 Detention Facilities

4.9.1 Design Requirements

A. Detention facilities shall be designed for the four storms ("*Water Quality*", "*Streambank Protection*", "*Conveyance*", and *"Flood Mitigation"*) for the critical storm duration that results in the maximum (or near maximum) peak flow.

B. Dry detention basins must be sized to temporarily store the volume of runoff required to provide flood protection up to the "*Flood Mitigation*" storm.

C. Routing calculations must be used to demonstrate that the storage volume and outlet structure configuration comply with Section 4.5.5 of this Manual.

D. A calculation summary shall be provided on construction plans as shown in the computation sheet in Figure 4.9 or its equivalent. Stage-storage-discharge values shall be tabulated and flow calculations for discharge structures shall be shown on the construction plans. Detention design shall follow *i*SWM™ guidelines. It is the responsibility of the Engineer of Record to use appropriate methodologies presented in *i*SWM™ based on specific basin characteristics. Detailed calculations and a design narrative shall be provided for review in a supplemental report that is referenced on the construction plans. In general, the narrative shall provide basic design information, such as the hydrologic method applied, design assumptions, pre- and post-development site conditions, downstream constraints, environmental considerations, and design software version used, if applicable.

E. Storage and dam safety design may be subject to the requirements of the Texas Dam Safety Program based on the volume, dam height, and level of hazard. Earthen embankments six (6) feet in height or greater shall be designed per the TCEQ guidelines for dam safety (*See* Texas Administrative Code, Title 30, Part 1, Chapter 299 Dams and Reservoirs for current dam safety criteria).

F. An Operation and Maintenance Manual must be submitted with the civil engineering plans for all private detention basins. Private detention basins shall be inspected by Public Works Inspection to ensure compliance with the design standards required by Section 7.5.3.F. of the DDC. Inspection fees will apply.

4.9.2 Design Criteria for Above Grade Detention Facilities

A. Grading Standards for Above Grade Detention Facilities:

1. Vegetated channel slopes shall not exceed 4H:1V slope. Concrete-lined embankment slopes shall not exceed 2H:1V slope. Vertical walls may be allowed but must be structurally designed to account for inundation of the base and drawdown upon pond draining and must have a 6-ft. high security fence at the top.

2. The side slope for any excavated detention basin, which is not in rock, shall not exceed a 4H:1V slope.
3. Bottom slopes of detention facilities should not be less than 1%.
4. Armored slopes shall be no steeper than 2H:1V.
5. The embankment crown width shall be determined based on a geotechnical investigation of the detention facility site. The minimum width of the embankment crown shall be 12 feet.
6. Earthen embankments used to impound detention water must have a non-permeable core and shall be based on a geotechnical investigation of the site. The geotechnical investigation shall be performed by a Professional Engineer, licensed by the State of Texas, and shall include at a minimum the type of material on-site (or other material to be used in the embankment), moisture content, liquid limit, plasticity index, and required compaction.
7. A Concrete pilot channel with a minimum width of 10 feet, and a minimum slope of 0.5% shall be constructed at the bottom of the detention pond. Privately maintained ponds shall have a concrete pilot channel with a minimum width of six (6) feet.
8. Private Detention Basins shall be designed with 10-ft. wide unobstructed maintenance access around the entire perimeter of the pond.
9. Public Detention Basins shall be designed with 20-ft. wide unobstructed maintenance access around the entire perimeter of the pond.
10. Where deemed necessary by the City's Engineer, security fencing with a minimum height of six (6) feet shall encompass the detention storage area if the velocity, depth, or slopes create a potentially dangerous condition. The fence shall be designed to allow access for maintenance and so as not to restrict stormwater flow into or out of the detention basin. A maintenance equipment access ramp shall be provided for all detention facilities. The slope of the ramp shall not exceed 6H:1V and the minimum width shall be 12 feet.

B. Emergency Spillway, Overflow Path, and Freeboard:

1. A freeboard of one (1) foot will be required between the *"Flood Mitigation"* storm water surface elevation and top of bank.
2. An emergency spillway shall be provided at the flood mitigation maximum storage elevation with sufficient capacity to convey *"Flood Mitigation"* storm inflow rates with six (6) inches of freeboard. This is the peak of the inflow hydrograph coming into the pond and must not account for attenuation effects of the pond. Spillway requirements must also meet all appropriate State and Federal criteria.
3. An emergency overflow path, free of structures or obstructions, must be provided to convey the spillway design discharge to a downstream ROW or drainageway with adequate capacity for the discharge. No impediments to flow are allowed within the emergency overflow path (E.g., fences, trees, parking areas, or buildings). If a fence around a detention facility is needed to restrict access, the bottom of the fence must be elevated to provide a minimum of one foot of freeboard above the emergency overflow WSEL where the fence crosses the spillway. Nevertheless, fences across spillways should be avoided whenever possible. Even if the fence is elevated to the freeboard elevation, there is still the potential for the fence to catch debris floating on the water surface.
4. An emergency spillway must be constructed of concrete.

5. Design calculations shall be provided for all spillways and outlet structures.

C. Landscaping Requirements:

1. All detention basins shall be designed with plantings that minimize erosion based on expected inundation frequencies. Design guidance is provided in the *iSWM™ Landscape Technical Manual Document*.

D. Multiple Use Guidance

Limited recreational equipment (such as picnic tables or playground equipment) and trees may be permitted in private detention facilities with the following restrictions:

1. User access must be provided at a maximum 10% slope in at least two (2) locations, or one (1) location that comprises not less than 20% of the perimeter of the facility.
2. No recreational equipment is permitted in any portion of the facility that lies more than 18 inches below the flood mitigation water surface elevation level of the facility.
3. Recreational structures including, but not limited to, picnic tables and playground equipment, must be rust-resistant and anchored to the ground.
4. Mulch, wood chips, gravel, or rubberized pellets are not permitted within a detention facility due to the likelihood of their floating into the outlet structure.
5. Trees, shrubs, and other woody vegetation will not be permitted in the embankment of any detention facility or in the maintenance access area around such a facility.
6. A maximum of one (1) isolated tree per 5,600 sq. ft. may be permitted in the recreational area of the pond. A trash rack must be used to prevent clogging of the outlet structure. No bark mulch may be used around trees.

E. Retaining Walls

1. Any freestanding retaining wall used to detain water must be designed by a structural engineer to withstand the expected hydraulic forces when the detention area is filled to capacity. These walls must be constructed using reinforced concrete.
2. Any inlet or pipe connections to retaining walls must be designed with a reinforced concrete headwall. The height of this headwall shall match the height of the adjacent retaining wall. The most recent TxDOT details for concrete headwalls shall be used to determine other headwall dimensions and reinforced schedule.

4.9.3 Design Criteria for Underground Detention Facilities

Underground detention is highly discouraged because of the potential for deferred maintenance, the difficult and potentially hazardous nature of access for maintenance, and issues related to anaerobic conditions and pollutant mobility from devices that retain water between events. In any instance where underground detention is contemplated, thorough consideration must be given to the concerns described above to ensure ongoing inspection, maintenance, and functionality. Care should be taken to address material selection for underground detention due to the potential for adverse soil conditions to inhibit the system from functioning properly. A geotechnical engineer shall be consulted to ensure soil and other conditions are appropriate for the selected detention material.

A. Underground detention facilities shall be designed with reinforced concrete and have a minimum pipe diameter of 30 inches to allow for safe access and maintenance of the facility.

B. If an underground vault has multiple chambers, access openings with a maximum spacing of 500 feet must be provided for each chamber.

C. Underground facilities must be located to enable safe access for maintenance and minimize disruption of aboveground uses during maintenance. Access openings shall not be placed in areas that are routinely used for parking.

D. Easements must be provided for all underground detention facilities. If underground detention facilities are bound by private property, the easements must include an additional four (4) feet from the perimeter of the facilities.

E. Underground detention and water quality facilities are prohibited underneath buildings, walls, or other structures.

F. Every SWFMA involving underground detention and water quality facilities must include inspection and maintenance requirements to be performed quarterly and following any rainfall event of 0.5 inches or more. The inspection and maintenance frequency may be reduced after five (5) years of operation, if the owner demonstrates that a lesser frequency is appropriate.

G. A surface emergency overflow path, free of obstructions, must be provided for all underground detention facilities. The emergency overflow path must have sufficient capacity to convey the *"Flood Mitigation"* storm inflow rates to the underground detention facility. This is the peak of the inflow hydrograph coming into the underground detention facility, and must not account for any attenuation effects from the facility. The criteria for emergency overflow paths for surface detention facilities denoted in Section 4.9.2 above also apply to underground detention facilities.

H. Outlets from underground detention must consist of a pipe that can convey 120% of the 100-year outflow, with a minimum diameter of 12 inches. The invert of the outlet pipe must be at the lowest point in the detention facility to ensure that it fully drains.

4.9.4 Design Criteria for Parking Lot Detention

Parking lot detention may be allowed if the following minimum criteria are met:

A. Use of parking lot surface area as detention is permitted, but only up to the lowest curb elevation of the parking lot.

B. The maximum ponding depth for the 100-year storm must be no more than 12 inches at the deepest point.

C. The outlet must be designed to minimize modifications that affect detention functions. The applicant must evaluate potential future resurfacing activities for impacts to detention volumes and release rates.

D. Ponding water in frequently used portions of parking lots must be avoided. At least two signs are required for all parking lot detention areas. The signs must have a minimum area of 1.5 square feet and contain the following message:

WARNING

This area is a detention basin and is subject to periodic flooding to a depth of (provide design depth).

Sign materials, geometry, and location must be submitted to Development Facilitation and approved by the City's Engineer.

4.9.5 Design Criteria for Pumped Detention

A. A detention facility may not rely on a pump or other mechanical equipment to drain water during a design storm.

4.9.6 Outlet Structures for Detention Facilities

A. Design Frequency

1. *"Water Quality"* storm
2. *"Streambank Protection"* storm
3. *"Conveyance"* storm
4. *"Flood Mitigation"* storm

B. Design Criteria

1. Outlet structures shall be designed in accordance with section 2.2 of the *iSWM™ Hydraulics Technical Manual*. For water quality, refer to Section 2.2.3 for design of extended detention outlets.
2. The required storage volumes for "*Water Quality*", "*Streambank Protection*", "*Conveyance*", and *"Flood Mitigation"* storm events must be estimated.
3. Outlet velocities shall be within the maximum allowable range based on channel material, as shown in Table 4.6-D and Table 4.6-E.
4. Outlet protection and energy dissipation facilities must be designed to avoid erosion problems downstream from outlet devices and emergency spillway(s).
5. Buoyancy calculations must be performed for the outlet structure and footing to ensure the outlet structure will not float. Flotation will occur when the weight of the structure is less than or equal to the buoyant force exerted by the water.
6. Any outflow structure that conveys water through an embankment in a conduit shall be reinforced concrete designed to support the external loads. The conduit shall be able to withstand the internal hydraulic pressure without leakage under full external load or settlement and must convey water at the design velocity without damage to the interior surface of the conduit.
7. The minimum pipe size and box size shall meet the requirements as shown below in Table 4.9-A. These minimum sizes apply even when used in conjunction with weirs or other flow control devices and must be accessible for maintenance.

Table 4.9-A: Outlet Pipe and Box Size

Discharge Pipe Length	Minimum Pipe Size	Minimum Box Size
100 feet or less	18 inches	2-ft. x 2-ft.
Greater than 100 feet	36 inches	3-ft. x 3-ft.

8. The minimum opening of an inlet shall be six (6) inches in diameter or a 6-in. by 6-in. square. Smaller inlet openings may be used with a junction box and properly sized outlet structure.

9. Inlet openings less than one (1) sq. ft. in area shall be designed with trash racks to protect from clogging. The face of the trash rack should extend a minimum of six (6) inches from the face of the inlet opening.
10. Any top orifice on an outlet riser must be designed with a grate to prevent fall injuries.
11. A concrete headwall and wingwalls shall be constructed at the outlet pipe opening. Orientation of the wingwalls will be governed by site specific conditions. Headwalls and wingwalls shall be designed to TxDOT standards.
12. Design guidance is in Section 2.2 of the *i*SWM™ Hydraulics Technical Manual.

DETENTION POND DESIGN

PRINCIPLE SPILLWAY :

Description : _____

Elevation : _____

EMERGENCY SPILLWAY :

Description : _____

Elevation _____

STORAGE - OUTFLOW RELATIONSHIP			
POND ELEV	STORAGE		OUTFLOW (cfs)
	DEPTH (ft)	VOLUME (ac-ft)	
1	2	3	4

HYDROGRAPH DATA									
DESIGN FREQUENCY	PRESENT WATERSHED DEVELOPMENT		ULTIMATE WATERSHED DEVELOPMENT		PROPOSED POND OUTFLOW		POND ELEVATION (ft MSL)	POND STORAGE (ac-ft.)	POND TIME TO PEAK (min.)
	TIME TO PEAK (min)	PEAK FLOW (cfs)	TIME TO PEAK (min)	PEAK FLOW (cfs)	TIME TO PEAK (min)	PEAK FLOW (cfs)			
	5	6	7	8	9	10	11	12	13
5-YR									
10-YR									
25-YR									
50-YR									
100-YR									
*PMF									

Figure 4.9 Computation Sheet for Detention Pond Design

4.10 Energy Dissipation

All drainage system outlets, whether for closed conduits, culverts, bridges, open channels, or storage facilities, shall provide energy dissipation when necessary to protect the receiving drainage element from erosion.

4.10.1 Design Frequency

A. *"Flood Mitigation"* storm

4.10.2 Design Criteria

A. Erosion problems at culvert, pipe and engineered channel outlets are common. Determination of the flow conditions, scour potential, and channel erosion resistance shall be standard procedure for all designs.

B. Energy dissipaters shall be employed whenever the velocity of flows leaving a stormwater management facility exceeds the erosion velocity of the downstream area channel system.

C. Energy dissipater designs will vary based on discharge specifics and tailwater conditions.

D. Outlet structures shall provide uniform redistribution or spreading of the flow without excessive separation and turbulence.

4.10.3 Recommended Energy Dissipater for outlet protection

A. Concrete or grouted rock riprap apron

B. Riprap outlet basins

C. Baffled outlets

D. Grade Control Structures

Design guidance is provided in Section 4.0 of the *iSWM*™ Hydraulics Technical Manual.

4.11 Floodplain

4.11.1 Floodplain Development Criteria

A. Floodplain alterations shall be allowed only if all the following criteria are met:

1. An approved Floodplain Development Permit must be issued by the City before any development is done within the floodplain.
2. Flood studies shall include flows generated for existing conditions and fully-developed conditions for the 10, 50, 100, and 500-year storm events.
3. Alterations shall not increase the 100-year fully-developed water surface elevation on other properties.
4. Alterations to the regulatory Floodway shall not increase the 100-year fully-developed water surface elevation at any point.
5. Alterations shall be in compliance with Federal Emergency Management Agency (FEMA) guidelines.

6. Alterations of the floodplain shall meet the requirements of Section 4.5 of this Manual.
7. Alterations shall result in no loss of valley storage for a Major Creek, as defined by the DDC, and a 15% maximum loss of valley storage for any other tributary for any reach, except at bridge and culvert crossings where it can be proven that there are no detrimental effects upstream or downstream.
8. Alteration of floodplain areas shall not cause any additional expense, including maintenance, related to any current or projected public improvements.
9. The floodplain shall be altered only to the extent permitted by equal conveyance on both sides of the natural channel, as defined by the USACE in a HEC-RAS analysis. The right of equal conveyance applies to all owners and uses, including greenbelt, park areas, and recreational areas. Owners may relinquish their right to equal conveyance by providing a written agreement to the City's Engineer.
10. A grading permit and/or construction plan approval shall be required to perform any grading activities on site.
11. The toe of any fill shall parallel the natural direction of the flow.
12. Floodplain alterations shall incorporate and consider other City planning documents and ordinances such as the Tree Preservation Ordinance (Section 7.7.4 – DDC), , the Subdivision Ordinance (Subchapter 8 – DDC), and the Floodplain Prevention and Protection Ordinance (Chapter 30 – City of Denton, Code of Ordinances).
13. Unless a pre-existing model is in place, USACE's HEC-HMS and HEC-RAS shall be used. A request to use another type of hydrologic or hydraulic model must be submitted for approval through a design deviation request. The Modified Puls method shall be used for flood routing information to ensure that the cumulative effects of the reduction in floodplain storage of floodwater will not cause downstream or upstream increases in water surface elevations and erosive velocities. If the Modified Puls method is not feasible, a request to use another type of flood routing method must be submitted for approval through a design deviation request.

B. The engineer of record is responsible for providing documentation of the relevant USACE approved permits prior to beginning modification of the floodplain and prior to causing any impacts to WOTUS. If applicable, the engineer of record is also responsible for providing a signed and sealed statement detailing why such permits are unnecessary.

C. Verification of Floodplain Alterations:
1. The owner and/or developer shall furnish, at their expense, to Development Services sufficient engineering information to confirm that the minimum FFEs proposed meet the requirements of the Flood Prevention Ordinance.
2. Construction plans will not be released for construction within areas subject to a Conditional Letter of Map Revision (CLOMR) or amendment until such plans are accepted by Development Services and FEMA.
3. Letters of Map Revision (LOMR) applications shall be submitted to Development Services (i) no later than 60-days from the City's final acceptance of the construction and (ii) prior to submittal to FEMA.
4. All submittals to FEMA shall be submitted to Development Services prior to submittal to

FEMA. A copy of all responses to FEMA comments shall be submitted to the City.

D. Development within the floodplain which does not result in any change to the topography, the amount or location of impervious area, or any change in the characteristics of the floodplain cross-section, such as underground utility construction, may not require a flood study, CLOMR, LOMR, or DSA unless requested by the City.

The following decision charts are intended to consolidate the floodplain development criteria in the City of Denton. They reference information found in the DDC Subchapters 7.4 and 7.5, the Code of the City of Denton, Texas, Chapter 30, and this Manual. They are not an exhaustive list of criteria and are only to be used as guidance as to the information provided in the above-referenced documents. Criteria in those documents supersedes the decision charts.

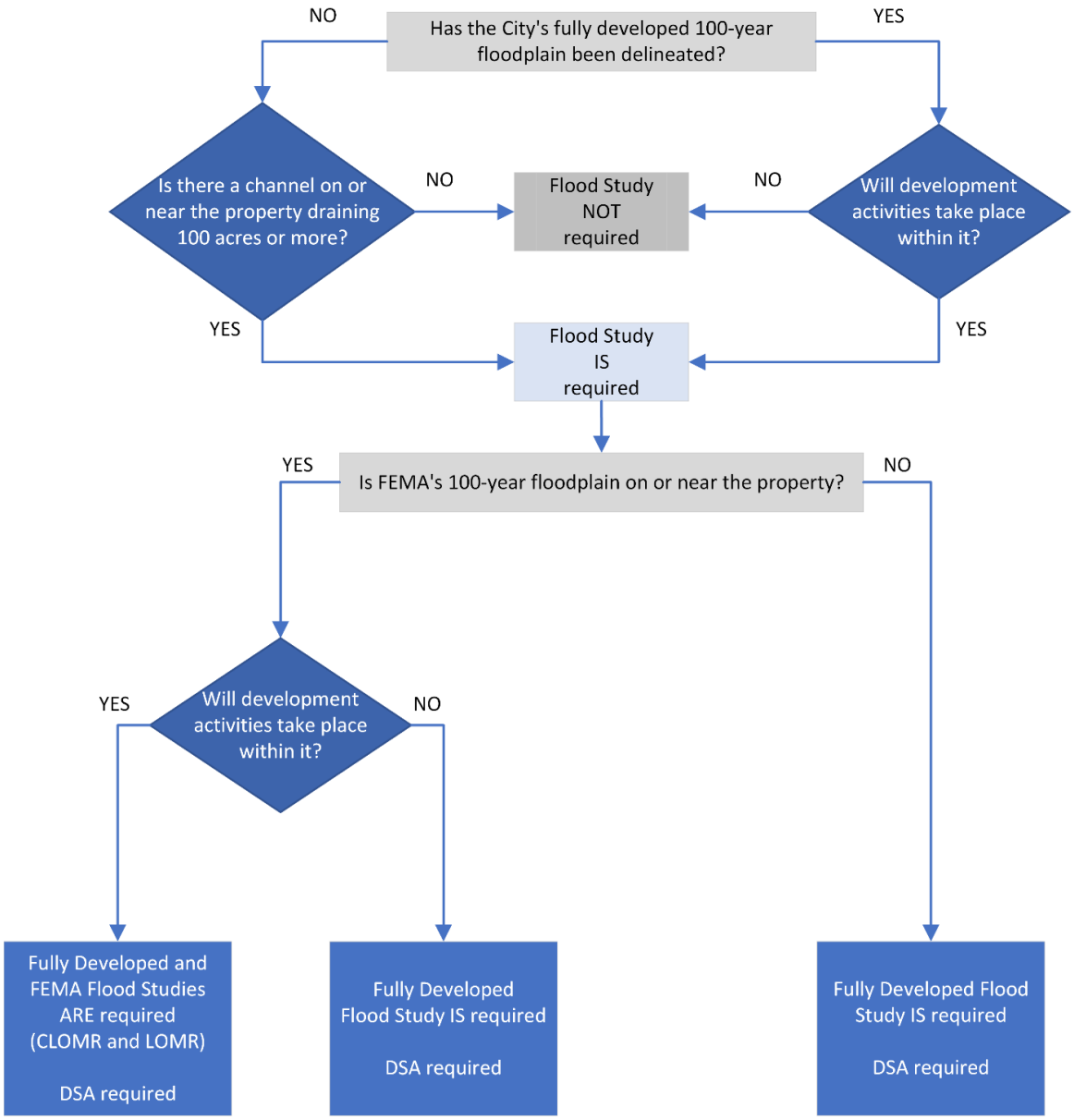

Figure 4.10 Flood Study Decision Chart

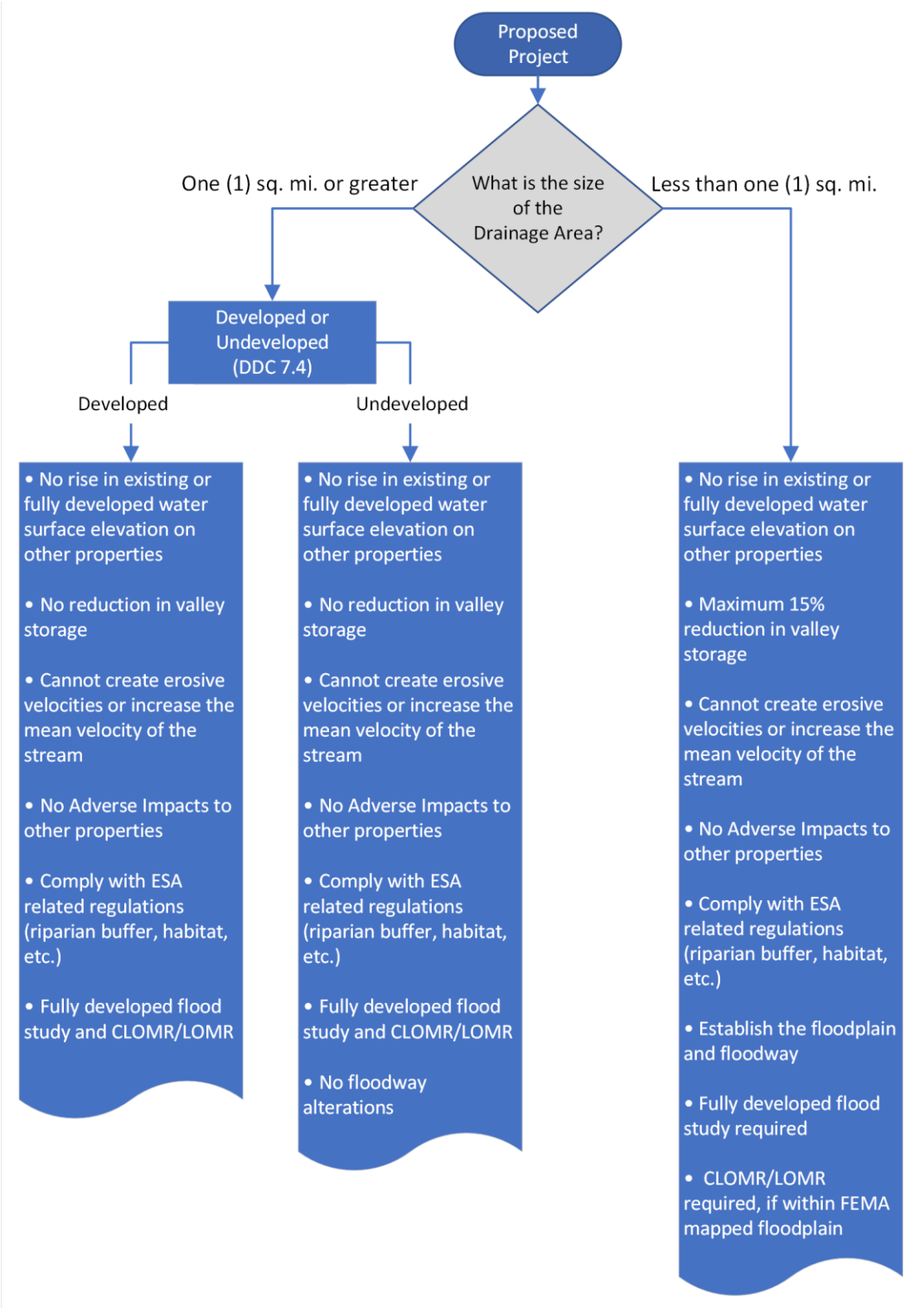

Figure 4.11 Summarized Floodplain Development Procedure

4.11.2 Procedures for Floodplain Alteration

Floodplain development is permitted when it complies with all requirements of the DDC, Flood Prevention Ordinance, and this Manual. The following are the engineering criteria for such requests.

Developments which impact designated FEMA flood plains in the City (Zones AE, A, and X shaded) shall submit minimum data required by FEMA, indicated on the City's CLOMR submittal checklist, and/or indicated in this Manual to FEMA for conditional approval. The Conditional Letter of Map Revision (CLOMR) shall be submitted to the City prior to approval of any Zoning Compliance Plan. Approval of CLOMR from FEMA will be required prior to acceptance of Civil Engineering Plans.

A. A written description of the scope of the proposed project and the methodology used to analyze the project's effects.

B. Hydraulic backwater models for 10, 50, 100, and 500-year floods for the following:
   1. Duplicate of the effective FIS model. The model must include:
      a. Existing conditions (effective FIS model including cross-sections through the project site. All cross-sections should reflect conditions prior to construction of the project); and
      b. Proposed conditions (existing conditions model reflecting the proposed project).

C. Floodway hydraulic backwater models of the following:
   1. Duplicate effective;
   2. Existing condition; and
   3. Proposed conditions.

D. In all the above hydraulic models, the following rules will apply:
   1. The hydraulic parameters, such as bridge loss coefficients, "*n*" values, etc., used in the effective FIS models will only be changed where obvious errors or changes have taken place and must be documented;
   2. The computed water surface elevation profiles must converge with the existing profiles; and
   3. Information should be shown on a map of suitable scale and topographic definition to provide reasonable accuracy.

E. A copy of the FIRM with the project area indicated.

F. Topographic mapping of the entire area covered by the proposed condition model, indicating the locations of all cross-sections used in the hydraulic model and delineating the proposed 100-year flood plain boundary.

G. Topographic mapping of the entire area covered by the proposed conditions model, indicating the locations of all cross-sections used in the hydraulic model and delineating:
   1. The proposed 100-year and 500-year floodplain boundaries; and
   2. The proposed floodway boundary.

H. Projects must comply with the requirements of 44 C.F.R. § 60.3(d)(2).

I. Upon completion of the proposed project, "as-built" and final LOMR plans certified by a Professional Engineer licensed by the State of Texas shall be submitted to the City for review and subsequent transmittal to FEMA. FEMA requires that individual legal notices be sent to all affected property owners when development (cut or fill) occurs in the regulatory floodway that would cause

any rise in the 100-year FIS water surface elevation. Public notice in the official community newspaper is required for proposed modifications to the regulatory floodway.

J. All items should be labeled for easy cross-referencing to the hydraulic model and summary data.

K. FEMA may have questions regarding the project. The engineer of record must address all of FEMA's comments. It is not anticipated, but if revisions to the development are required by FEMA, the developer is responsible for making the changes.

4.11.3 Fully Developed Water Surface Elevation Calculations

A. The following hydraulic data should be submitted to the City, preferably using the USACE HEC-RAS program to compute the channel's water surface elevation. The data should be submitted electronically as part of the CLOMR, LOMR, or flood study submittal.

1. Duplicate of the effective City fully developed backwater model or as developed by developer or property owner and approved by the City.
2. Modified existing condition backwater model – this model should include pre-development cross-sections through the project site obtained from field surveys or updated topographic information.
3. Proposed condition reflecting the development's impact on the flood plain area.
4. Water surface elevation and velocity summary tables tabulating the results of the above analysis.
5. Topographic map at a suitable scale with cross-sections that delineates the existing and proposed 1% chance (100-year) fully developed flood plain and shows the area being developed.
6. Analysis of the existing and proposed valley storage conditions of the area.
7. Documentation from the USACE determining if a 404 permit is required for the project.

4.11.4 Floodplain Alteration Guidelines

A. Side Slopes

1. To ensure maximum accessibility to the floodplain for maintenance and other purposes, and to lessen the probability of slope erosion during periods of high water, maximum slopes of filled area shall usually not exceed 4H:1V. Grass cover is required for all cut and fill slopes unless other armoring is required. Concrete riprap or an approved equal erosion protection measure is required on slopes steeper than 4H:1V. Vertical walls, terracing and other slope treatments will be considered only as:
   a. Part of a landscaping plan submission, and
   b. If no unbalancing of stream flow results.

B. Vegetation/Landscaping

1. Engineering plan submission shall include plans for:
   a. Erosion control of cut and fill slopes;
   b. Restoration of excavated areas; and
   c. Tree protection in and below fill areas.

2. Landscaping should incorporate natural materials (earth, stone, and wood) on cut or fill slopes wherever possible.
3. Applicant shall show in the plan the general nature and extent of existing vegetation on the tract, the location of trees in accordance with the requirements of the tree survey required by Section 7.7.4.E of the DDC, the areas which will be preserved, altered, or removed as a result of the proposed alterations.
4. Locations and construction details should be provided, showing how trees will be preserved in areas which will be altered by filling or paving within the drip line of those trees.
5. Applicant shall also submit plans showing location, type, and size of new plant materials and other landscape features planned for altered flood plain areas.

4.12 Drainage and Floodplain Easements

4.12.1 General

A. Drainage and floodplain easements shall be provided for all open natural streams or manmade drainage facilities. Easements shall encompass all areas lower than a ground elevation defined as being the highest of the following:
   1. 15 feet outside the calculated fully developed water surface elevation and associated flood boundary based on a design storm whose frequency is 100 years. All contributing watersheds are to be treated as fully developed for purposes of calculating the water surface elevation.
   2. The top of the high bank plus a minimum of 20 feet, if higher than stated in A.1. above.
   3. Existing natural banks with a slope steeper than 4H:1V shall have the easement line no closer than the intersection of a 4H:1V line extending from the toe of the slope to the proposed grade at the top of the bank, plus an additional 15 feet.
   4. Additional access area may be required according to the Section 4.12.2 below.

4.12.2 Storm Drain Easements

A. Above Ground Systems

Where an access road is required adjacent to a channel, an additional easement area of a minimum width of 15 feet shall be provided. The maximum cross slope shall be 2%. All access roads adjacent to improved channels shall be located within the drainage easement.

1. No structures, pavement, landscaping, or other above-ground man-made improvement shall be placed in a drainage easement, except where the easement is a public or private open space or park. Any such improvement within a drainage easement must be approved through a design deviation request.

B. Closed Systems

1. Easements for closed drainage systems shall meet the following minimum standards as shown below in Table 4.12-A.

Table 4.12-A: Easement Requirements for Closed Drainage Systems

Pipe or Box Size	Minimum Easement Width (feet)
36 inches and under	16
42 to 54 inches	20
60 to 66 inches	25
72 inches and above	30

2. Utilities such as water and sanitary sewer lines may share a portion of a drainage easement, containing an underground enclosed drainage system where an additional easement width for a minimum of 10 feet is added to create a public drainage and utility easement. No utilities shall be located in any lined channel, pipe, or box in such a way as to interfere with flow capacity or maintenance of or access to the channel, pipe or box.
3. A drainage easement shall be provided for the area within a required outfall channel or ditch to the point where the flowline "day lights" on natural grade or matches existing topography.
4. To provide for maintenance, a drainage easement shall be provided at least 25 feet beyond any outfall headwall.
5. No structures, pavement, landscaping, or other above-ground man-made improvement shall be placed in a drainage easement containing a closed drainage facility.

4.12.3 Channel Access

A. Access areas and ramps shall be provided for all publicly maintained channels to allow for maintenance of the channels. These access areas and ramps shall be contained within a drainage easement. Access areas shall have a width of at least 12 feet, a minimum cross slope of 2%, and a maximum cross slope of 5%.

B. Access easements shall be provided from the public ROW to the access area, if the access area is not directly connected to the public ROW. Access easements shall remain free of obstacles that block the use of the easement, including ungated fencing across the easement.

C. A concrete drive approach serving the access easement must be available and free of obstructions. Any sidewalk crossing the access easement must be constructed using a residential street cross-section, or otherwise designed to accommodate vehicle loads so that equipment may use the access easement without damaging the sidewalk.

D. Access to all improved earthen channels shall be provided by one (1) of the following methods, depending on the size and depth of the channel:
   1. A clear access area must be provided on one side of the improved earthen channel along the full length of the channel; or
   2. If the channel is deeper than 4 feet or has a top width greater than 25 feet, an access area must be provided on both sides along the full length of the channel. Access areas shall have a width of at least 15 feet, a minimum cross slope of 2%, and a maximum cross slope of 5%.

E. All lined channels, and earthen channels with concrete pilot channels shall have a minimum bottom width of ten (10) feet and shall be provided with concrete access ramps. Concrete access ramps

shall have a minimum width of 12 feet, maximum slope of 6H:1V, and maximum cross slope of 5%. All access roads shall be located within a dedicated easement. Access road pavement cross-sections shall conform to the standards of the concrete residential street cross-section detail located in the City of Denton Standard Details.

4.12.4 Detention Facilities Easements

A. Detention facility easements must encompass the entirety of the detention facility plus any required maintenance access areas adjacent or leading to the facility.

B. All detention maintenance access easements must be connected to a public ROW, be a minimum of 10 feet wide, and be free of obstructions which could prevent personnel and equipment from accessing the detention facility.

4.12.5 Post-Construction Water Quality Control Structure Easements

A. All post-construction structural stormwater control structures must be located within an inspection access easement. The intent of this easement is to allow City staff to access and inspect the control structure to ensure it is being maintained in accordance with the SWFMA. This easement must be connected to a public ROW, be a minimum of five (5) feet wide, and be free of obstructions which could prevent City staff from accessing the control structure.

4.12.6 Fences

A. Fences in drainage easements are prohibited by the DDC, except as specifically provided for below.

1. Fences in drainage easements that contain an underground stormwater system may contain any type of non-masonry fence if the fence is constructed with knock-out panels to facilitate maintenance.

2. Fences in drainage easements that contain overland flow may cross the easement if the fence is constructed with wrought iron (pickets and rails), pipe, or pipe and cable. Fence height, minimum picket spacing, and maximum ground clearance spacing shall be governed by appropriate child safety measures.

3. No fences are allowed across inlet or outlet structures of drainage detention facilities. Fences are permitted around the detention facility if they do not block or inhibit the flow conveyance of the detention facility.

4. No fencing is allowed across easements which share water or wastewater facilities with the drainage facility.

B. Fences in the floodplain are prohibited.

4.13 Water Quality

4.13.1 Water Quality Protection Volume

It is recommended that all developments with one (1) acre or more of disturbed land include site development controls necessary to remove 80% of the total suspended solids (TSS) from the water quality protection volume (WQ_V). *See* the *i*SWM™ Water Quality Protection Technical Manual for information regarding the design of this WQ_V and appropriate discharge design. *See* the *i*SWM™ Site Development

Controls Technical Manual for information regarding structural stormwater controls and their ability to remove pollutants in stormwater runoff to protect water quality. Any combination of structural stormwater controls may be used to achieve the recommended 80% TSS removal from all runoff from impervious surfaces on the site.

The percent TSS removal (%TSS) that is achieved on a site can be calculated using equation 4.8 below. This equation is an area-weighted TSS reduction equation that accounts for the TSS reduction attributable to each stormwater treatment best management practice (BMP) that is utilized on the site.

$$\%TSS = \frac{\Sigma_n^1 (TSS_1A_1 + TSS_2A_2 + \ldots + TSS_nA_n)}{\Sigma_n^1 (A_1 + A_2 + \ldots + A_n)} \quad \textbf{[Eqn. 4.8]}$$

Where: TSS_n = TSS removal percentage for each structural BMP located on-site (%);
A_n = the area draining to each BMP (acres).

When two or more BMPs are used in series (stormwater discharges from one BMP into another), a different calculation is necessary. This scenario is called a ***treatment train***. Stormwater discharging from the upper most BMP will be considerably "cleaner" than the influent, meaning TSS particle sizes will be much smaller. Pollutant removal rates for BMPs used in a treatment train are not additive. To calculate the total % TSS removal for a treatment train comprised of two or more structural BMPs, the following equation should be used.

$$TSS_{train} = A + B - \frac{A \times B}{100} \quad \textbf{[Eqn. 4.9]}$$

Where: TSS_{train} = total TSS removal for treatment train (%);
A = % TSS removal of the first (upstream) BMP
B = % TSS removal of the second (downstream) BMP

4.13.2 Water Quality Hotspots

Not all structural stormwater controls are appropriate for receiving runoff from hotspots. Hotspots are land uses or activities which produce higher concentrations of trace metals, hydrocarbons, or other priority pollutants. Examples of hotspots might include gas stations, convenience stores, marinas, public works storage areas, garbage transfer facilities, material storage sites, vehicle service and maintenance areas, commercial nurseries, vehicle washing/steam cleaning sites, landfills, construction sites, industrial sites, industrial rooftops, auto salvage or recycling facilities, and dog parks. Only appropriate structural stormwater controls identified in the *i*SWM™ Site Development Controls Technical Manual may be used for receiving hotspot runoff.

Facilities that discharge stormwater associated with industrial activity permitted under TCEQ Multi-Sector General Permit (TXR050000) may incorporate WQ_v requirements into point source discharge control requirements.

4.13.3 Required Stormwater Facility Maintenance Agreements

All private post-construction structural stormwater controls shall require a SWFMA in accordance with Section 4.14 of this manual.

4.13.4 Construction Erosion and Sediment Control Requirements

All land-disturbing activities must include provisions for erosion and sediment control in accordance with Section 7.3 (Land-Disturbing Activities) of the DDC, the *i*SWM™ Water Quality Technical Manual, the *i*SWM™ Construction Controls Technical Manual, and the *i*SWM™ Site Development Technical Manual.

A. Two-phased erosion control plans are required for non-linear projects with land-disturbing activities totaling five (5) acres or greater. Plans must be shown on separate sheets, and must also depict both existing and proposed contours.

1. Phase 1 – Initial Land Disturbance: this phase must utilize sediment and erosion controls prior to initial land disturbing activities and include structural controls that address low point runoff.

2. Phase 2 – Construction and Individual Lot Phase with Behind Curb Controls: this phase must require sediment and erosion controls during the installation of public/private infrastructure and include any controls to remain in place from Phase 1.

a. Behind the curb controls shall be installed upon the completion of street segments and must be included in Phase 2.

B. Drainage area maps (DAMs) and calculations are required for all three (3) phases of development, as detailed below and shown in Figure 4.12.

1. Calculations for each phase shall utilize a two (2)-year, 24-hour storm for the design of any hydraulic component of the erosion control plan including sediment basins, swales, channels, berm height, weir length, or any other outlet or conveyance structure required by the plan.

2. The DAM requirements for each Phase of development are as follows:

a. Phase 1: Existing Conditions DAM – existing contours and flow arrows reflecting pre-development conditions.

b. Phase 2: Mass Graded DAM – interim contours and flow arrows reflecting mass graded conditions prior to the public/private infrastructure installation stage.

c. Phase 3: Proposed Conditions DAM – proposed contours and flow arrows reflecting post-construction, stabilized conditions.

C. A sedimentation basin or similar impoundment is required where 10 or more acres drain to a common area during any phase of development.

1. Sediment basin(s) or impoundments must provide at least 3,600 cubic feet (cu. ft.) of storage per acre drained until final stabilization of the contributing drainage area. Sedimentation basins or impoundments must be capable of controlling runoff at the site. Existing detention or retention ponds at the site may not be appropriate, as determined by City review staff.

a. Outlet structures shall be designed to provide a minimum dewatering time of 36 hours and a maximum dewatering time of 72 hours.

b. When discharging from sedimentation basins and impoundments, the permittee shall utilize outlet structures that withdraw water from the surface. If this is infeasible, a reason must be provided to City review staff during planning.

D. Vegetative stabilization is required for all permanent and temporary channels and basins. Plant selection guidance is provided in the *i*SWM™ Landscape Technical Manual.

E. Erosion and sediment control BMP design criteria shall adhere to the most current version of the *i*SWM™ Construction Controls Technical Manual, unless one of the following exceptions applies:

1. Linear projects may follow TxDOT standards; or

2. Proprietary erosion or sediment control devices may be utilized when:

a. Independent performance data is provided to prove a demonstrated capability of meeting a stormwater management efficiency equivalent to *i*SWM™ methods; and

b. Supplementary data for systems or devices, such as instruction manuals and specification sheets, are provided and are demonstrated to be appropriate for use in North Central Texas site conditions, as determined by City review staff.

3. Filter Tube Inlet Protection and Rock Sock Inlet Protection methods are prohibited.

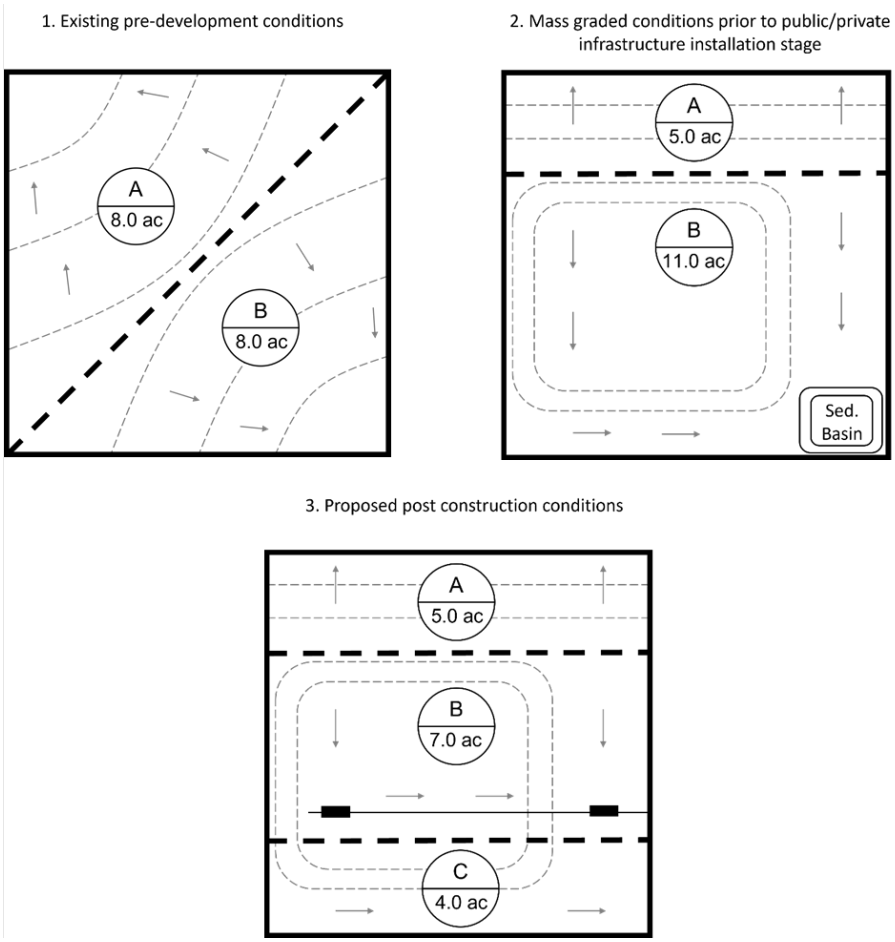

Figure 4.12 Drainage area map examples required for the three (3) development phases

4.14 Stormwater Facility Maintenance Agreements

4.14.1 Maintenance Agreements

All drainage improvements constructed within a development and any existing or natural drainage systems shall require a maintenance agreement that identifies responsible parties for maintenance. The maintenance agreement shall be written such that it remains in force upon sale of transfer of the property.

As part of the Operations and Maintenance Plan submittal, a SWFMA must be prepared by the engineer of record for each stormwater control that will not be wholly maintained by the City. This agreement must outline preventive maintenance tasks and major repairs, identify the schedule for each task, assign clear roles to affected parties, and provide a maintenance checklist to guide future owners, including an annual

self-inspection to be provided to the City. Multiple stormwater controls may be contained within a single Stormwater Facility Maintenance Agreement. When areas are identified for detention that also serve other purposes for the development (e.g. parking lots, loading docks) the requirement for a SWFMA may be waived.

4.14.2 Private Maintenance (SWFMA Required)

A. Private drainage facilities include those drainage improvements which are located on private property and which serve the needs of private development.

B. Private drainage facilities may also include detention or retention ponds, dams, and retaining walls intended to direct or contain runoff. Such facilities must be designed in accordance with sound engineering practices and reviewed and inspected by the City.

C. All SWFMA exhibits shall be reviewed and approved by the City with the civil engineering plans. The agreement for perpetual maintenance of private drainage facilities shall be executed with the City during per-construction. This agreement shall run with the land and can be tied to commercial property or to an owner's association, but not to individual residential lots.

D. The SWFMA shall provide the City with access to all private drainage facilities.

4.14.3 Maintenance Agreement Requirements

Details of the SWFMA must be set forth in a series of exhibits:

A. Exhibit A Legal Description - This includes the Metes and Bounds, a Surveyor's Drawing of the area occupied by the facility, and a copy of the preliminary or recorded plat containing the facility.

B. Exhibit B Design Plan and Specifications - These are summary documents intended for the use of future owners in conducting routine maintenance, inspections, and repairs. The documents include:

   1. Design Data and Calculations - This can be in the form of a letter or statement from the engineer of record which summarizes critical design calculations related to the functionality of the facility, such as storage volume or TSS removal, and attests to the facility conforming to applicable *i*SWM standards;

   2. Schematic Plan - This should be prepared by the engineer of record from construction drawings to show the general layout of the facility. Major features requiring regular or special maintenance should be shown and labeled in general terms understandable to a layman. A profile should be given showing critical elevations that control the function and capacity of the facility, and one or more cross-sections should be provided to indicate the general grading of the facility. A typical example of a schematic plan for a simple detention basin is shown in Figure 4.13 below; and

   3. Landscaping - Vegetation should be shown consistent with the accepted Landscape Plan, either on the Schematic Plan or as a separate drawing.

C. Exhibit C Operations and Maintenance Plan - Specific maintenance tasks should be defined for each element of the facility. Maintenance tasks specific to the facility should be described in simple terms consistent with terminology contained in the Schematic and Landscape plans. An inspection and maintenance frequency should be established for each task.

D. Exhibit D Maintenance Checklist - A checklist consistent with the Operations and Maintenance Plan shall be provided for the use of future owners in performing routine and special maintenance tasks.

This list should describe work required and frequency in language that is easy to understand and specific for the facility to be maintained. This form will be completed by the Owner and submitted to the City annually as part of a regular self-inspection program. *See* Appendix A for an example checklist for preparing a SWFMA for a simple detention basin.

Additional facility maintenance guidance for several types of stormwater controls is provided in the *iSWM Technical Manual*. The engineer of record must certify that the construction has been completed in accordance with the general plans and Schematic Plan. After approval of construction by the City, the engineer of record is expected to provide guidance to the owner's representative in implementing the accepted maintenance program and to co-sign the first annual inspection after the construction.

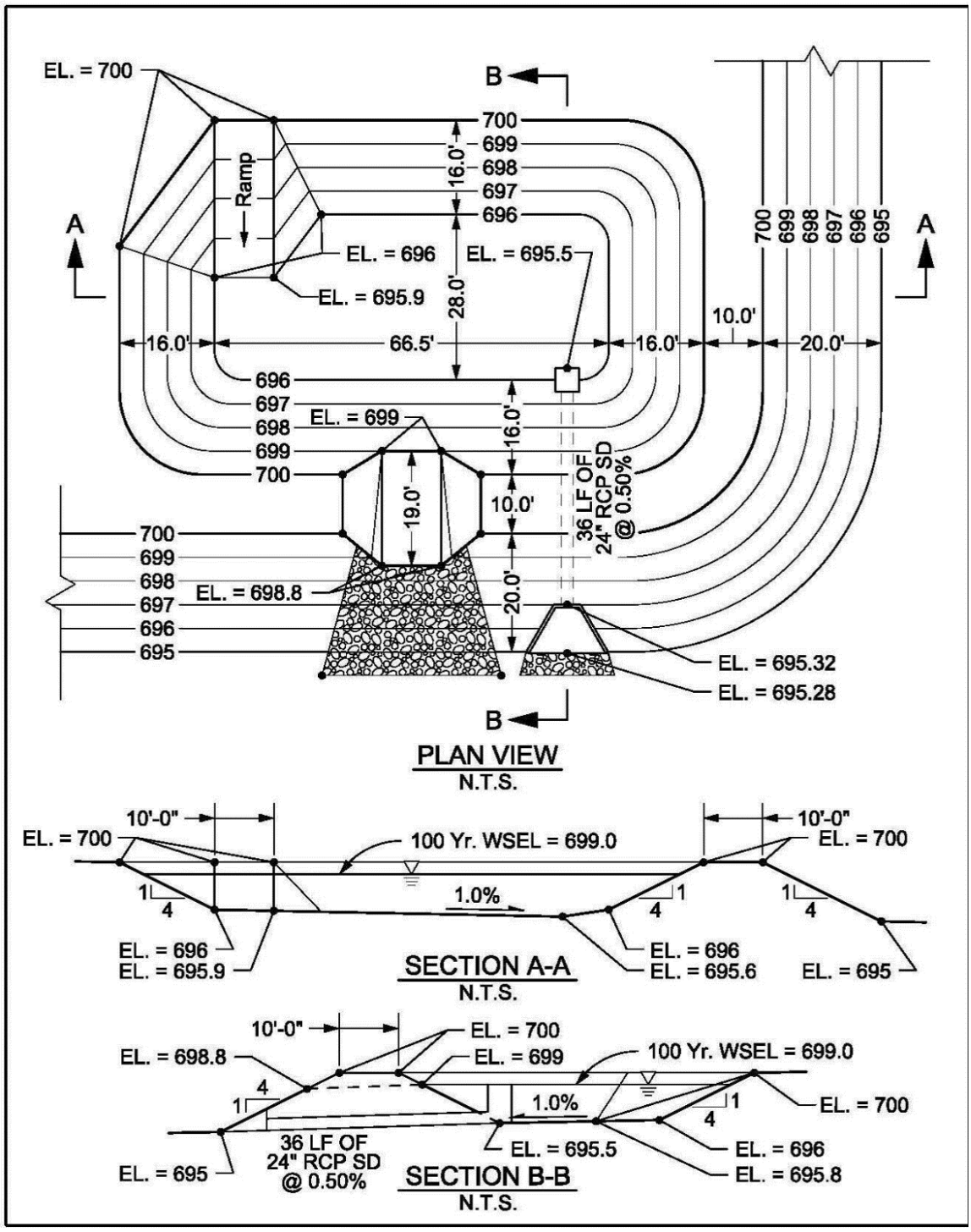

Figure 4.13 Simple Detention Basin Plan Schematic

Section 5: Transportation Design Criteria

5.1 Overview

The purpose of Section 5 – Transportation Design Criteria is to provide ***minimum guidelines*** for the design and construction of transportation infrastructure within the City of Denton, Texas and its extraterritorial jurisdictions using the complete street and context-sensitive solution approach. The goal is to create safer, more livable places that are consistent with their social, environmental and economic values.

It is the responsibility of the design engineer to ensure the final design of transportation infrastructure are in conformance with the most recently adopted versions of the following documents:

A. City of Denton Mobility Plan,

B. City of Denton Code of Ordinances, Chapter 18 – Motor Vehicles and Traffic, and Chapter 25 – Streets, Sidewalks and Public Places,

C. The North Central Texas Council of Governments (NCTCOG) Public Works Construction Standards,

D. DDC Subchapter 7.8 – Access and Circulation,

E. DDC Subchapter 7.9 – Parking and Loading,

F. Americans with Disabilities Act (ADA) Standards for Accessible Design,

G. Public Right-of-Way Accessibility Guidelines (PROWAG),

H. The International Fire Code (IFC),

I. this Manual, and

J. relevant TxDOT, USDOT, NCHRP, FHWA, and AASHTO publications.

The criteria established in this Manual provide basic guidance for the design of transportation systems within the City of Denton. However, ***full responsibility and liability for proper design remains with the design engineer***. ***Users of this Manual should be knowledgeable and experienced in the theory and application of transportation engineering.***

Other design criteria may be warranted from applicable resources. The Federal Government, the State of Texas, NCTCOG, Denton County, Denton County Transit Authority (DCTA) and other related organizations and resources shall be consulted for additional criteria as may be deemed necessary. Along with this Design Manual, the DDC shall be consulted for additional guidance. The criteria established in this Manual do not supersede the policies contained in the DDC. Any revision to the DDC supersedes the criteria in this Manual.

5.1.1 Organization

Section 5 - Transportation Design Criteria is organized as follows:

A. Overview

B. Mobility Framework

C. Roadway Design

D. Intersection Design

E. Auxiliary Roadway Design

F. Access Management

G. Bike and Pedestrian Facility Design

H. Transit Facility Design

I. Traffic Impact Analysis Guidelines

J. Pavement Design Standard

K. Complete and Context-Sensitive Streets

5.2 Mobility Framework

The City of Denton Mobility Plan should be reviewed relative to any proposed development.

It should be noted that the City of Denton Mobility Plan is a living document and is periodically updated to reflect the changes in the characteristics of anticipated traffic flow within the City.

5.2.1 Roadway Classification

The City of Denton Mobility Plan provides definitions for the street classifications. These street classifications apply to developments and/or street improvements within the City of Denton and are to be used for design purposes. These classifications were established in the Thoroughfare Plan based upon expected fully developed traffic volumes.

A. Freeway

Freeways are streets that are intended to move large volumes of traffic through and around the City and are typically maintained by the TxDOT. These street types are to have limited access as defined in Section 5.6 Access Management section of this Manual.

Freeways in the region typically have high design speeds and have on- and off- ramps to control access. In urban areas, these freeways have adjacent frontage roads that provide access to adjacent business that may front onto the corridor.

B. Primary Arterial

Arterial streets are streets that serve major routes into and through the City of Denton. Arterial streets are shown on the City Mobility Plan. These street types are to have limited access as defined in Section 5.6 Access Management section of this Manual.

Primary arterials provide regional connectivity between different areas of Denton County and the DFW region. The design of arterial can vary depending on the surrounding land use and development. In urban areas, arterials may have wider sidewalks with smaller building setbacks, while suburban areas may have limited sidewalks with a larger buffer between the edge of the street and the building fronts.

C. Secondary Arterial

Secondary arterials provide shorter connections and carry less traffic. Secondary arterials are still significant to vehicular travel as they serve trips of moderate length and provide more land access.

D. Collectors

A collector street is a street that collects associated traffic from residential streets, rural streets, commercial streets, or industrial streets as designated on the City Mobility Plan.

Collectors in the City of Denton provide local land access and traffic circulation from residential

neighborhoods to arterials. They typically experience lower traffic volumes and have lower design speeds.

E. Local Streets

A local street is a public street that provides access to adjacent property and are usually contained within the neighborhood. These streets have low speeds and low volumes associated with them. Local streets may be further classified into the following two (2) types:

1. Residential – A residential street is a public street associated with residential development within an urban environment. The residential street may require parking or prohibit parking, dependent on use.
2. Rural – A rural street is a public street that connects rural communities.

Existing or new industrial developments on local streets shall consult with the City's Engineer.

5.2.2 Auxiliary Roadway Classifications

Roadways that cannot be classified as thoroughfare, are grouped together as auxiliary roadways and are classified here as follows:

A. Alleys

An alley (residential or commercial) is designed to provide access to the rear of or side of a lot including solid waste and fire access. Alleys will be required for residential streets prohibiting on-street parking. Alleys are required in non-residential zoning districts where necessary to provide for adequate access for service vehicles, off-street loading or unloading, access for emergency vehicles, fire access or similar reasons consistent with the intent of the DDC.

B. Drives

A drive is an unobstructed paved area providing vehicular access from a street to a developed property. Drives can be classified as follows:

1. Driveway - A driveway is located entirely on private property. It is only for a single-family or a duplex property. It connects a drive approach to a garage, carport, parking pad or the like.
2. Drive Aisle - A drive aisle is located entirely on private property. It is for every other condition other than for a single-family or a duplex property. It connects a drive approach to an area(s) that is to be accessed on the site such as, but not limited to: parking space(s); loading dock(s); loading area(s) (marked or implied - for passengers and/or goods); porte-cochere(s), and/or the like. It can also be a fire lane (in and of itself or in conjunction with other access use[s]). It can also be an access to an adjoining property (in and of itself or in conjunction with other access use[s]).
3. Drive Approach - A drive approach connects a street (city, public or private) or highway (TxDOT) with a drive aisle. Some features of the drive approach may extend into and be a part of the driveway or drive aisle. The drive approach is measured from the face of the roadway curb to the end of the curb return radius on the private property. The following provides the types of drive approaches considered within this Manual:
    a. Single-family residential: A drive approach to a single-family residential lot or one lot duplex.
    b. Multifamily residential: A drive approach to a multifamily lot such as triplexes, fourplexes, and multi-complexes. The drive approach can be either the main entrance

approach or the secondary entrance approach. Each type has specific design requirements.

c. Commercial: A drive approach to a commercial development. The drive approach can be either the main entrance approach or the secondary entrance approach. Each type has specific design requirements.

d. Industrial: A drive approach to an industrial development. The drive approach can be either the main entrance approach or the secondary entrance approach. Each type has specific design requirements.

e. Mixed-use approach: A drive approach that is a mixed-use development shall consider the more stringent criteria for the approach design.

4. Flag Drives - A flag drive is a private road within a private access easement, which may serve up to three (3) residential dwelling units. Flag drives shall have direct access to a public street other than an alley. They shall not, however, provide direct access to an arterial street.

C. Dead-End Streets & Cul-De-Sacs

A Cul-De-Sac is a dead-end street that has a fire-accessible turnaround at the end of the street. A half Cul-De-Sac is a street bend at 90±5 degrees for residential and collector streets. Dead-end streets have the same general geometric aspects of a cul-de-sac, but has an undefined and abrupt termination. Dead-end streets and cul-de-sac should be avoided if possible to enhance street connectivity.

5.3 Roadway Design

5.3.1 Design Controls

Traffic volumes and speed are necessary for the design of roadways, and assist with the planning and design of ROW, number of lanes, turn-lanes, need of intersections, and bicycle and pedestrian facilities. Guidance on these design controls will be discussed at the pre-design meeting.

5.3.2 Street Sections

Street section standards are provided for arterial, collector, and local streets in Table 5.3-A below. Refer to the City of Denton Standard Details for cross-section details. Options for street sections are dependent upon treatment utilization within the street section. Besides defined lanes, other treatments that can be utilized within the street sections include on-street parking, bike lanes, multi-use paths, and transit facilities. The intent is to provide options in order to develop a "complete street" with "context-sensitive" design; *See* Section 5.11 of this Manual. ROW requirements may vary at intersections based upon turning movement requirements.

In general, street grades shall follow the natural contour of the property and be below the existing grade so that the parkway drains towards the street. Excessive cuts and fills solely for the purpose of balancing earthwork are not permitted.

Table 5.3-A: Geometric Roadway Standards

Roadway Classification	No. of Lanes [1]	Min. ROW (feet)	Min. B-B Width [2] (feet)	Min. Center Line Radius [3] (feet)	Min. Horizontal Curve Separation (feet)	Min. Grade (%)	Max. Grade [4] (%)
Freeway	As per TxDOT standards						
Primary Arterial	6	135	104	750	100	0.5	7
Primary Arterial – Modified	6	135	88	750	100	0.5	7
Secondary Arterial	4	110	80	575	100	0.5	7
Secondary Arterial – Modified	4	110	67	575	100	0.5	7
Collector – Commercial	2	65	39	575	100	0.5	7
Collector – Residential	2	65	39	400	100	0.5	7
Local – Residential	2	55	33	200	0	0.5	10
Local – Rural	2	65	25 [5]	200	0	0.5	10
Local – Alley [6]	1	20	15 [5]	100	0	0.5	8

Notes:
[1] Number of travel lanes dependent upon TIA and/or City's Engineer's requirements.
[2] *See* Table 5.4-D, Table 5.4-E, and Table 5.4-F for additional ROW requirements at intersections with turn lanes.
[3] Minimum center line radius based on cross slope of -2% (no super elevation).
[4] Maximum grade within 60 feet of an intersection measured from the intersection curb is 2% or less.
[5] Measurement is edge-of-pavement to edge-of-pavement.
[6] If an alley is to be used for waste collection, then it must meet all alleyway access requirements shown in Section 3: Solid Waste Design Criteria of this Manual.

5.4 Intersection Design

Several components of intersection design are addressed in this section. These standards are to work in concert with the Traffic Impact Analysis (TIA) requirements of this Manual. Additionally, the Pedestrian and Bicycle Facility Design, Transit Facility Design, and the City of Denton Standard drawings for accessibility should be reviewed for additional design requirements.

5.4.1 Geometry

A. Street intersections should be designed to be perpendicular; *see* tolerances shown in Table 5.4-A below. All streets shall be aligned with any existing streets by continuation of the centerline thereof.

B. The staggering of street alignment resulting in "T" intersections shall leave a minimum distance of 150 feet between the centerlines of residential streets, and 200 feet between the centerline of collector streets.

C. Table 5.4-A and Figure 5.1 below provide requirements for ROW corner clips and curb return radius at intersections. These standards provide minimum vision clearance areas without consideration to stopping sight distance. Additional sight clearance evaluation should be performed as necessary, as per Section 5.4.3 below.

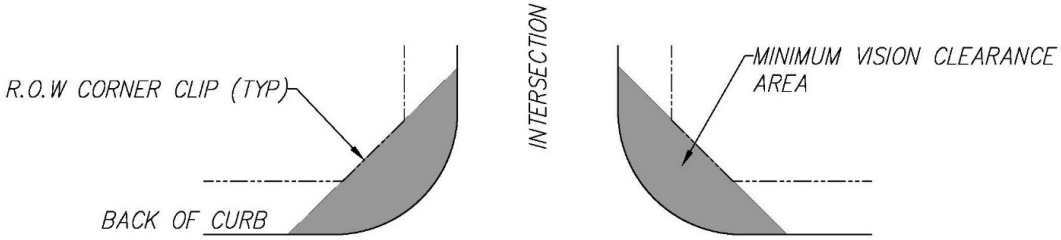

Figure 5.1 Minimum Vision Clearance

Table 5.4-A: Intersection Geometry

Intersection Classification	Intersection Angle (degrees)	ROW Corner Clip [1] (feet)	Curb Return Radius (feet)
Arterial - Arterial	90±5	30	30
Collector - Arterial	90±5	20	30
Collector - Collector	90±5	15	30
Residential Street - Arterial	90±5	15	30
Residential Street - Collector	90±10	15	20
Residential Street - Residential Street	90±10	10	20
Flag Drive - Collector	90±10	5	20
Flag Drive - Residential Street	90±15	5	10
Alley - Collector	90±10	10	30
Alley - Residential Street	90±10	15	30
Alley - Alley	90±10	25	30

Notes:
[1] Shall apply to all corners of the intersection.
[2] Fences must provide a 5-ft. corner clip adjacent to driveways.
[3] Curb Return Radius is for single lane design. Multi-lane and special considerations for truck-turning radius require turn radius analysis, as required by the City's Engineer.

5.4.2 Visibility Standards

Table 5.4-B and Figure 5.2 below shall be used to evaluate the required unobstructed view for motorists at intersections, which are based upon the design speed approaching the intersection. Design speeds are based upon the roadway classification. The values shown in the table are minimum standards. Within the sight line area, no obstruction shall be allowed that will obstruct the view of motorists. A sight visibility easement shall be dedicated to protect and maintain sight visibility.

A. Table 5.4-B below is based upon passenger car right turn and left turn from stop. Where truck traffic warrants additional sight distance, refer to AASHTO Geometric Design of Highways and Streets for single-unit truck and combination truck design requirements, Case B1 and Case B2.

B. Refer to AASHTO Geometric Design of Highways and Streets for multi-lane considerations and other design considerations that may apply for Cases "A" through "F".

C. Lines of sight distance at all intersections shall be clear at an elevation between two (2) feet and nine (9) feet above the nearest gutter elevation.

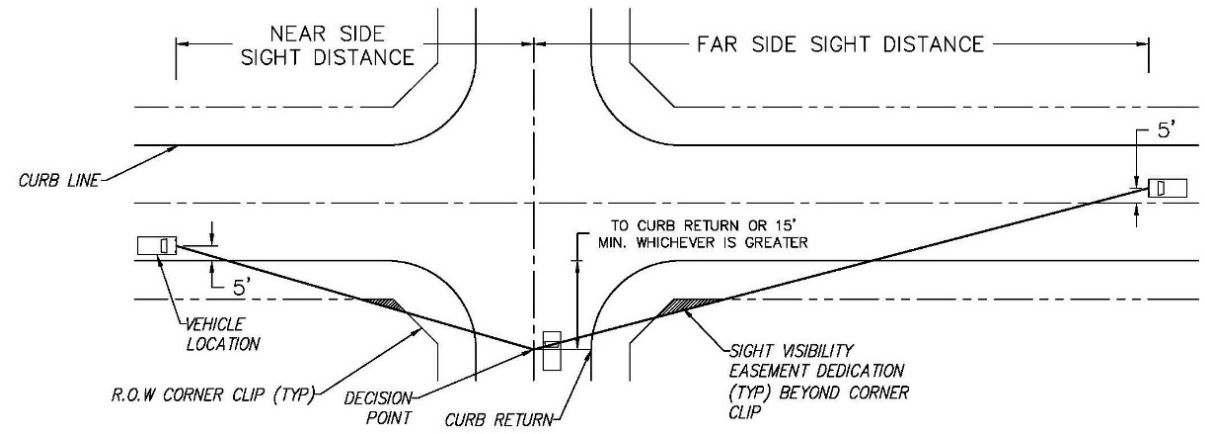

Figure 5.2 Visibility Standards

Table 5.4-B: Visibility Standards		
Design Speed (mph)	**Intersection Sight Distance Near Side (feet)**	**Intersection Sight Distance Near Side (feet)**
30	290	335
35	335	390
40	385	445
45	430	500

Notes:
[1] Driveways accessing roadways shall use above table to satisfy intersection visibility compliance.

5.4.3 Vertical Curve Standards

Vertical curves are required when two (2) street grades intersect at a point of vertical intersection greater than 1%. Minimum vertical lengths for both crests or sags shall be defined by the design speed for the street and the associated stopping sight distance, as well as the minimum K value. Table 5.4-C below shows the minimum K value for various design speeds.

Table 5.4-C: Minimum 'K' Values for Vertical Curves			
Design Speed (mph)	**Stopping Sight Distance (feet)**	**Crest Vertical Curve (K Min)**	**SAG Vertical Curve (K Min)**
30	200	19	37
35	250	29	49
40	305	44	64
45	360	61	79

Notes:
[1] Source: AASHTO Geometric Design of Highways and Streets 'US Greenbook'.

Vertical curve lengths can be calculated as shown in Equation 5.1 below:

$$L = KA \qquad \text{[Eqn. 5.1]}$$

Where: L = Vertical Curve Length

A = Algebraic Difference in Grade

A. No vertical curve required for "A" equal to or less than 1.0%

B. Minimum spacing between successive vertical curves shall be 50 feet for residential, and 100 feet for collectors and arterials.

C. Resultant vertical curve grade shall be no less than 0.3% for concrete pavement, and no less than 0.5% for asphalt pavement.

D. For drainage purposes, 50-ft. vertical curves are required when "A" is greater than 1.0% and less than or equal to 1.2%. Otherwise minimum vertical curve length is 100 feet.

5.4.4 Turn Lane Requirements

Turning lane requirements shall be based upon the following requirements and/or the requirements of the City's Engineer, and the tables within this section.

A. Left-Turn Lane Warrants

When designing an intersection that provides direct or indirect access to the proposed development, left-turn lanes should be provided at driveways and street intersections along major arterial and collector roads, wherever left turns are permitted. Table 5.4-D below provides criteria which warrant left-turn lanes. Figure 5.3 below provides guidance on left-turn lane requirements.

Conditions for requesting a left-turn lane include large truck volume, high crash history, limited sight distance, and significant delay for motorists to make the turn, as determined by the City's Engineer.

Table 5.4-D: Left-Turn Warrants for Urban and Suburban Roadways

Left – Turn Lane Peak Hour Volume (vehicles per hour)	Three-Leg Intersection, Arterial/Collector Volume (vehicles per hour per lane) that Warrants a Left-Turn Lane	Four-Leg Intersection, Arterial/Collector Volume (vehicles per hour per lane) that Warrants a Left-Turn Lane
5	450	50
10	300	50
15	250	50
20	200	50
25	200	50
30	150	50
35	150	50
40	150	50
45	150	<50
50 or More	100	<50

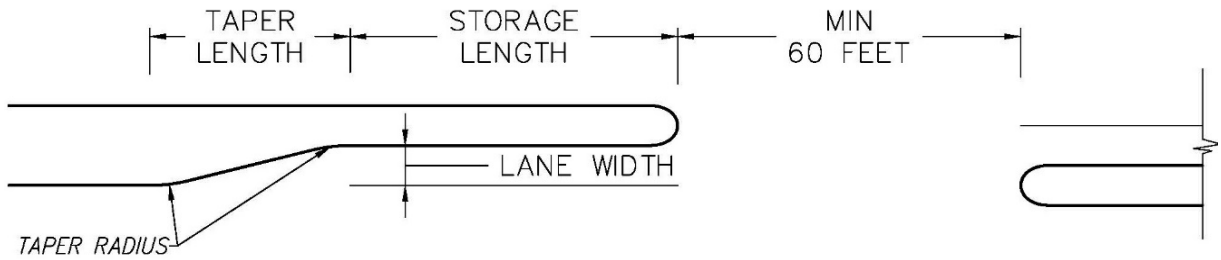

Figure 5.3 Left-Turn Lane

B. Right-Turn Lane Warrants

When designing an intersection that provides direct or indirect access to the proposed development, right-turn lanes should be provided along major arterial and collector roads at driveways when the right turns are permitted and satisfy the following criteria. Table 5.4-E below provides criteria which warrant right-turn lanes. Figure 5.4 below provides guidance on right-turn lane requirements.

Table 5.4-E: Right-Turn Warrants for Urban and Suburban Roadways

Roadway Classification	Speed Limit (mph)	Volume (Vehicles per Hour)
Arterial / Collector	45 or greater	50 or more
Arterial / Collector	Less than 45	60 or more

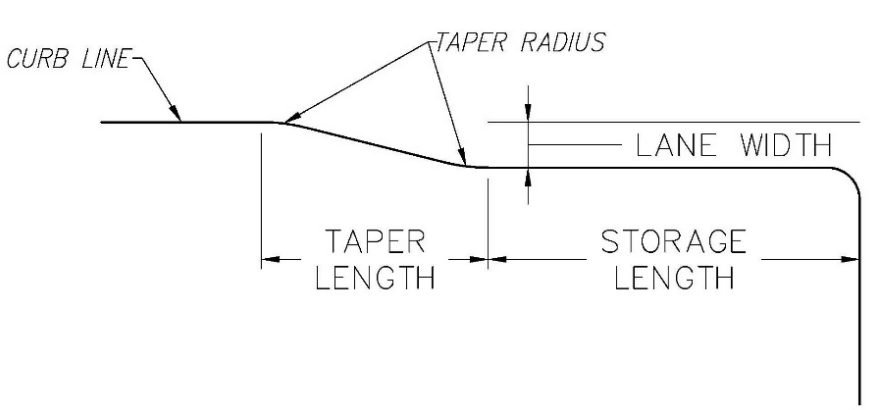

Figure 5.4 Right-Turn Lane

Conditions for requesting an exclusive right-turn lane when right-turn traffic volume projections are less than indicated in Table 5.4-E, include the following, as determined by the City's Engineer:

1. Large volume of truck traffic,
2. High crash history,
3. Roadways with limited sight distance, or
4. Heavier than normal peak flow movements on the main roadway.

C. Turn Lane Geometry

When a turn lane is required, Table 5.4-F below shall be used as the minimum criteria for the turn

lane geometry. Additional consideration shall be given for unique traffic movements such as excessive tractor trailer utilization, extended length transport vehicle movement, etc. *see* Section 5.4.5 below for additional geometry standards for Collectors and Arterials.

Table 5.4-F: Minimum Turn Lane Geometry

Intersection Type	Lane Width (feet)	Minimum Storage Length (feet)	Minimum Taper (feet)		Additional ROW Required (feet)
			LEFT TURN	RIGHT TURN	
Residential Collector	11	100	100	100	15
Commercial/Industrial Collector	11	150	100	150	15
Secondary Arterial	11	150	100	200	15
Primary Arterial	11	200	100	200	15

Notes:
[1] Required turn lane storage may be greater depending upon the TIA.
[2] The Pedestrian Path shall be taken into account for access across the median by utilizing a leave-out or ramp in accordance with accessibility standards described in this manual.
[3] Cross slope of median openings or turn bays shall not be more than 2% or less than 1%.
[4] On TxDOT Roadways TxDOT standards shall supersede City of Denton Standards.
[5] Taper Radius shall be 200 feet minimum.
[6] Additional ROW required per turn lane bay, if ROW is not sufficient.

5.4.5 Intersection Detail for Collectors and Arterials

Figure 5.5 below provides median location details and specific turn lane radius requirements. Also refer to median details shown in the City of Denton Standard Details.

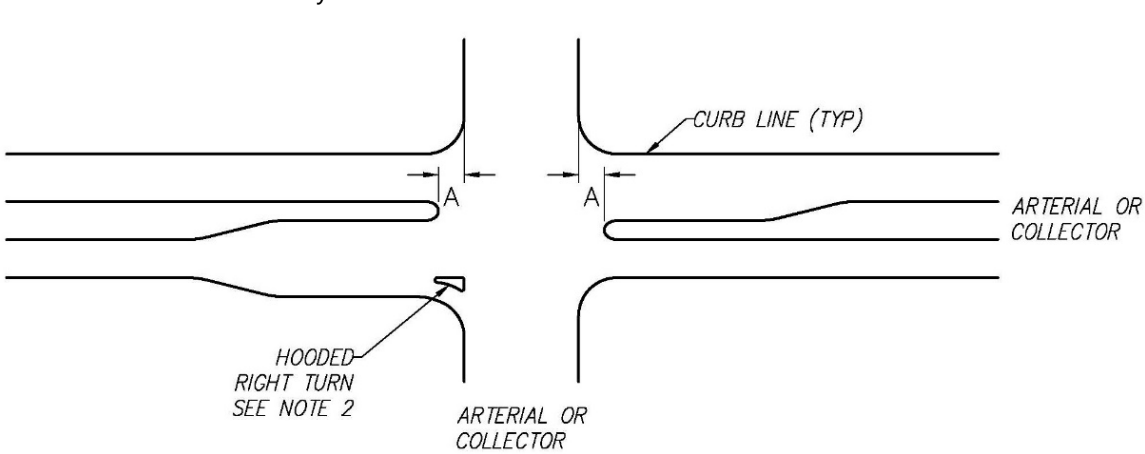

Figure 5.5 Intersection Detail for Collectors and Arterials

Notes:
1. For collector and arterial streets, A = 15 feet minimum.
2. Depending upon traffic flow requirements, the right turn may require a hooded right turn.

5.4.6 Intersection Spacing

Standards for intersection spacing are outlined below in Table 5.4-G.

Table 5.4-G: Minimum Intersection Spacing [1]					
Roadway Classification	**Alley**	**Flag Drive**	**Residential**	**Collector**	**Arterial**
Alley	100 feet	N/A	100 feet	100 feet	N/A
Flag drive	N/A	N/A	75 feet	75 feet	N/A
Residential	100 feet	75 feet	200 feet [2]	200 feet [2]	400 feet
Collector	100 feet	75 feet	200 feet [2]	200 feet [2]	400 feet
Arterial	N/A	N/A	400 feet	400 feet	1200 feet

Notes:
[1] Spacing will be measured between face of the curbs.
[2] 100-ft. minimum to the first intersection for entrances to subdivisions off of an arterial, where lots back up to the arterial.

5.4.7 Roundabouts

Roundabouts are circular intersections that create counter-clockwise traffic movements around a central island, with entering traffic yielding to circulating traffic.

The design of a roundabout shall be in compliance with the Intersection Control Evaluation provided by the FHWA. Normally, each roundabout will be unique in some way, as such a standard roundabout is not included in this Manual. Also, the various analyses and design considerations involved in roundabout design are beyond the scope of this Manual.

A. The following resources shall be used when designing a roundabout:
   1. NCHRP Report 672 - Roundabouts: An Information Guide, Second Edition (2010)
   2. NCHRP Report 745 - Left-Turn Accommodations at Unsignalized Intersections (2013)
   3. TxDOT Auxiliary Lane requirements for right turn lane
   4. Federal Highway Administration Roundabouts, An Information Guide
   5. Federal Highway Administration Roundabouts, Technical Summary

B. In addition to the resources provided above, the roundabout design shall include the following design review process with the City's Engineer and City Staff:
   1. Have a Pre-Application Conference on the project, which will include a separate meeting with the City's Engineer for proposed roundabout design considerations;
   2. Have a TIA review meeting with the City's Engineer. *See* section on TIA requirements;
   3. Develop Preliminary layout of roundabout considering TIA and Pre-Development meetings;
   4. Preliminary Design review meeting with the City's Engineer;
   5. Develop roundabout design based up comments from the City's Engineer; and
   6. Submit roundabout design through the Development Review Process (DRP).

5.5 Auxiliary Roadway Design

5.5.1 Alleys

A. Alleys shall have at least two (2) direct access points to public streets and are subject to the block length criteria included in this Manual.

B. Alleys shall be a minimum of 15 feet wide, with edges sloping towards the centerline at 3% slope

C. Alleys that are intended to provide fire apparatus access must meet the design requirements of Section 5.6.3-Fire Apparatus Access Roads of this Manual.

D. Refer to City of Denton Standard Detail T103C for further details.

5.5.2 Drives

The design criteria for drives detailed in this section should be utilized in conjunction with the DDC. The following standards generally apply to all developments. However, there may be unique situations for which these standards may be impractical. In these situations, the City's Engineer will work with the developer to develop a mutually agreeable solution. In the event that a mutually agreeable solution is not reached, the developer may apply to the Planning and Zoning Commission for consideration of the issue.

A. Drive Approach Standards

Table 5.5-A: Drive Approach Dimensions

Development Type [1]	Drive Approach Widths		Radius
	MIN. WIDTH (FEET)	MAX. WIDTH [2] (FEET)	(FEET)
Residential – Single-family or Duplex	12	20	5 [3]
Residential – Multifamily	24	38	10 to 20
Commercial or Industrial [4]	30	38	20 to 25

Notes:
[1] Refer to Figures 5.6 through 5.10.
[2] Maximum drive approach width is a function of traffic volume.
[3] Add five (5) feet to maximum radius for significant truck traffic.
[4] For shared drive approaches, no lot shall contain less than nine (9) feet of the drive approach and driveway or drive aisle (as may apply). Drive approach shall be centered on lot line, such that maximum drive approach width equals 30 feet.

1. Residential

   a. One (1) single-family or one (1) duplex residential lot accessing a collector may be permitted to have one (1) full-width or circular drive approach (Figure 5.6 below), when alleys are not practical.

   b. Two (2) adjacent single-family or two (2) adjacent duplex residential lots accessing a collector may be permitted to have one (1) shared full-width or circular drive approach, when alleys are not practical.

   c. Three (3) or more contiguous single-family or three (3) or more contiguous duplex residential lots accessing a collector will be required to enter the collector by an alley, flag drive, or residential street.

   d. One (1) single-family or one (1) duplex residential lot accessing an arterial, will be

required to have an on-site facility, allowing entrance into the arterial in a forward manner.

e. For homes with a 3-car garage or greater, where the garage door is street-facing and less than 40 feet from the back of curb, the maximum drive approach width shall be 30 feet.

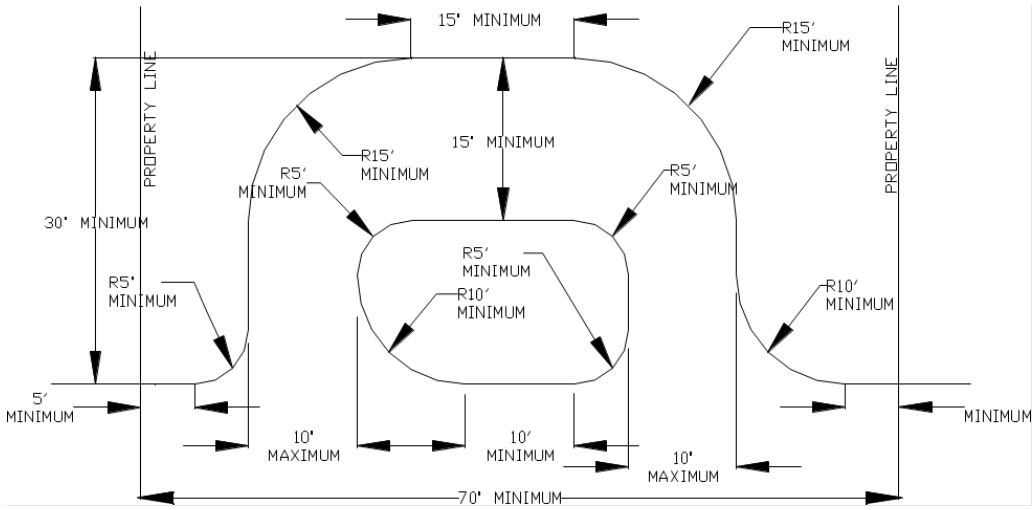

Figure 5.6 Residential Circular Drives

2. Commercial

a. All stop bar markings and stop signs when used shall be on private property, as well as upstream of any pedestrian facility crossing the drive approach and/or drive aisle.

b. All signs and markings should be consistent with TMUTCD.

c. Drive approaches with significant truck traffic may install surmountable curb with textured and colored pavement in the parkway, with a depth equal to or greater than the drive approach pavement requirement.

d. Ingress/Egress Lanes

i. Single Lane Egress/Ingress (Figure 5.7) - The outbound (towards the street) lane shall be a minimum of 12 feet wide; if the width of the driveway is greater than 30 feet, then the inbound (onto the site) lane shall be a minimum of 18 feet wide.

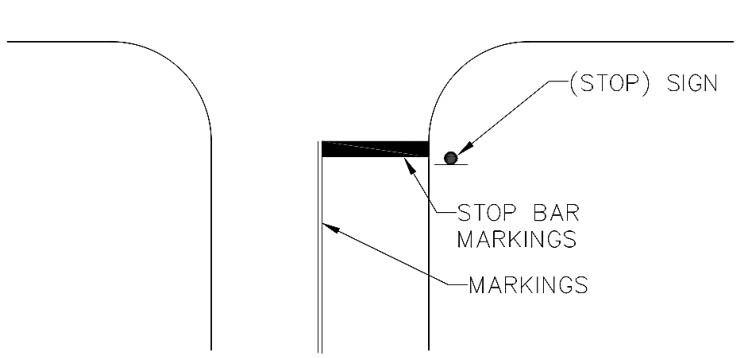

Figure 5.7 Drive Approach: Single Lane Egress/Ingress

ii. Dual Lane Egress, Single Lane Ingress (Figure 5.8) - The outbound lanes shall be 10 feet wide; if the width of the driveway is greater than 30 feet, then outbound lanes shall remain 10 feet wide while the width of the inbound lane shall be increased.

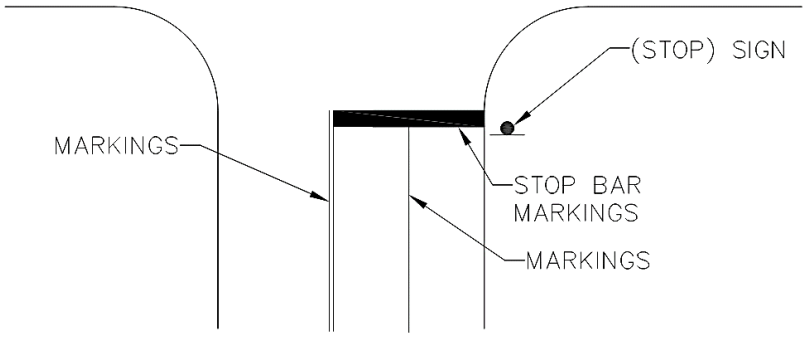

Figure 5.8 Drive Approach – Dual Lane Egress, Single Lane Ingress

iii. Multiple Lane Egress/Ingress (Figure 5.9) - Only allowed when dual left-turn lanes into the site or opposing street/driveway has two (2) or more lanes, of which two (2) are designated as being through lanes.

a) Each of the two (2) outbound and inbound lanes shall be 10 to 12 feet wide.
b) Median shall accommodate any pedestrian facility across the drive approach and/or drive aisle, as projected from both sides thereof.

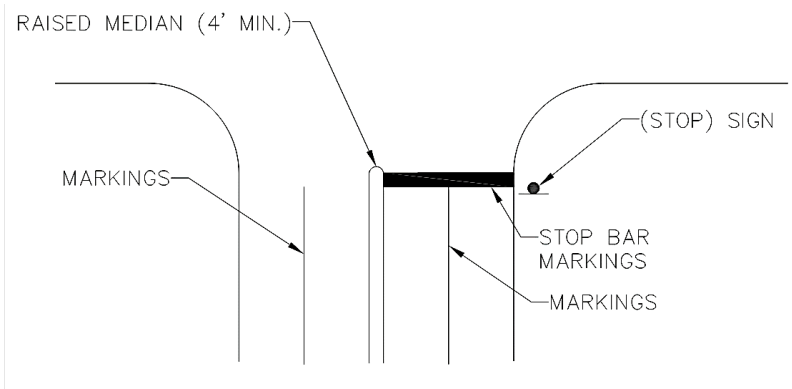

Figure 5.9 Drive Approach – Multiple Lane Egress/Ingress

iv. Right-in or Right-out Egress/Ingress - The minimum width of the drive approach/drive aisle prior to the island, each lane (inbound and outbound) at the island, and the applicable radii shall be determined by the engineer of record, based on expected vehicle type(s), as well as an auto-turn analysis provided to the City's Engineer for review and approval as part of the Civil Engineering Plan submittal.

a) Median/island shall accommodate any pedestrian facility across the drive approach and/or drive aisle as projected from both sides thereof.
b) For "one way in" or "one way out" driveways, the geometry shall be as shown in Figure 5.10 below for the respective side.

c) Through a Design Deviation request, the minimum drive approach width may be reduced based upon acceptable turning radius for emergency vehicles, and determination that truck traffic requiring the larger width will not occur.

d) When the right in/right out drive approach is part of the fire apparatus access road, the minimum width of each drive shall be 24 feet.

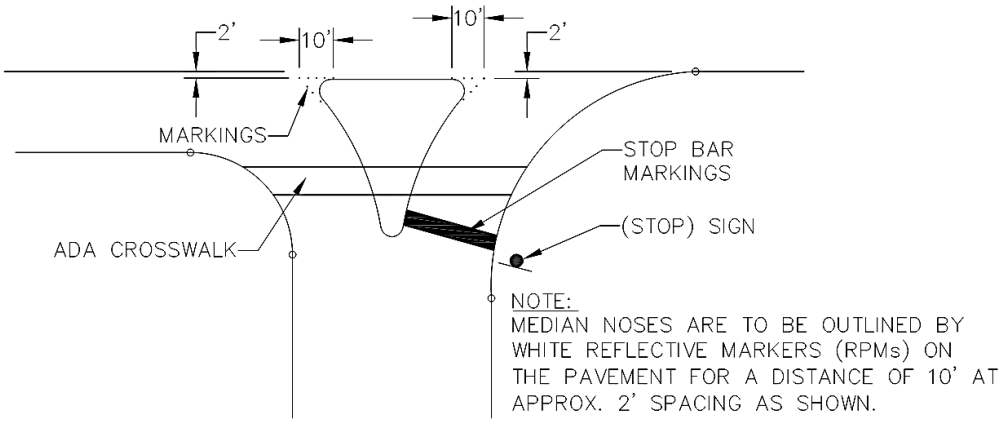

Figure 5.10 Drive Approach – Right in or Right out Egress/Ingress

v. With the exception of multi-lane egress/ingress (shown in Figure 5.9), drive approaches with a median installed in lieu of the double-yellow marking, may exceed the maximum drive approach width by the width of the median only.

B. Drive Approach Spacing

1. Same side of the street

Drive approach spacing shown in Table 5.5-B below applies to drive approaches on the same side of the street, and is measured between the nearest edges of each drive approach, along the back of curb, not including the radius.

Table 5.5-B: Minimum Drive Approach Spacing

Roadway Classification	Min. Spacing [1] (feet)
Primary Arterial	200 [2]
Secondary Arterial	150 [2]
Collector	100 [3]
Residential Street [4]	10
Flag Drive	10
Alley	10

Notes:
[1] Maximum of two (2) drive approaches permitted.
[2] If permitted; drive approaches are not permitted on arterial streets, unless otherwise allowed according to Section 5.6 of this Manual.
[3] If permitted; refer to Section 5.6 of this Manual for permitted access.
[4] For a T-intersection on residential streets, the drive approach shall be offset farthest from the intersection.

2. Near Intersections

Drive Approach spacing shown in Table 5.5-C below applies to drive approaches near intersections, and is measured between the face of the curb of the intersecting street and the nearest edge (face of curb) of the drive approach not including the drive approach radius; *see* Figure 5.11 below.

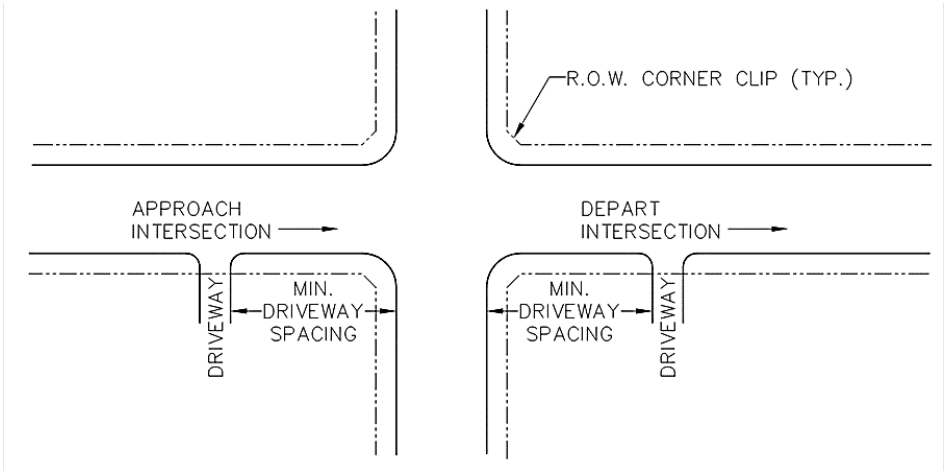

Figure 5.11 Drive Approach Spacing at Intersections

Table 5.5-C: Minimum Drive Approach Spacing at Intersections

Intersection Type	Approaching the Intersection	Departing the Intersection
Arterial - Arterial [1]	150 feet on both streets	200 feet on both streets
Collector - Arterial [1]	75 feet on collector, 150 feet on arterial	100 feet on collector, 200 feet on arterial
Collector - Collector	75 feet on both streets	100 feet on both streets
Residential - Arterial [1]	50 feet on residential, 150 feet on arterial	50 feet on residential, 200 feet on arterial
Residential - Collector	50 feet on residential, 75 on feet collector	50 feet on residential, 100 feet on collector
Residential - Residential [2]	50 feet on both streets	50 feet on both streets
Flag Drive - Collector [1]	20 feet on flag drive, 75 feet on collector	20 feet on flag drive, 100 feet on collector
Flag Drive - Residential [1]	20 feet on flag drive, 50 feet on residential	20 feet on flag drive, 50 feet on residential
Alley - Collector [1]	20 feet on alley, 75 feet on collector	20 feet on alley, 100 feet on collector
Alley - Residential [1]	20 feet on alley, 50 feet on residential	20 feet on alley, 50 feet on residential
Alley - Alley	10 feet on both alleys	10 feet on both alleys

Notes:
[1] If permitted by the City's Engineer.
[2] Driveways across T-intersections on residential streets are exempt.

3. Offset and relative to median openings (See Figures 5.12 and 5.13 below)

   a. For collector streets, drive approaches that do not align across the street from each other must be offset by a minimum of 75 feet between nearest tangent-edge to nearest tangent-edge.

b. For arterial streets without medians, drive approaches must align across the street from each other, and must be approved by the City's Engineer. When this is not physically possible or practical as determined by the City's Engineer, drive approaches that do not align must be offset across the street from each other by a minimum of 150 feet between nearest tangent-edge to nearest tangent-edge.

c. For arterial streets with medians, drive approaches must align with existing or proposed median openings. Where this is not possible or practical as determined by the City's Engineer, drive approaches must be placed as far away from the existing or proposed median opening as is reasonably possible.

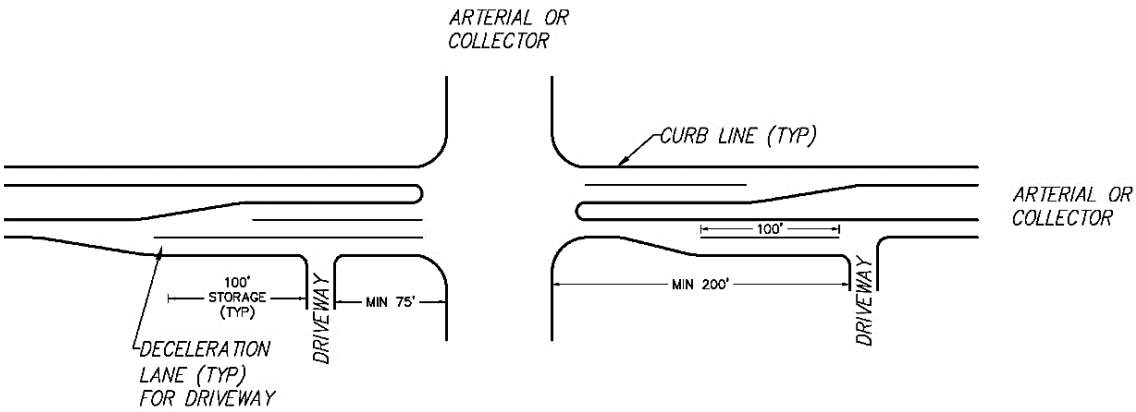

Figure 5.12 Drive Approach Near Turning Movements

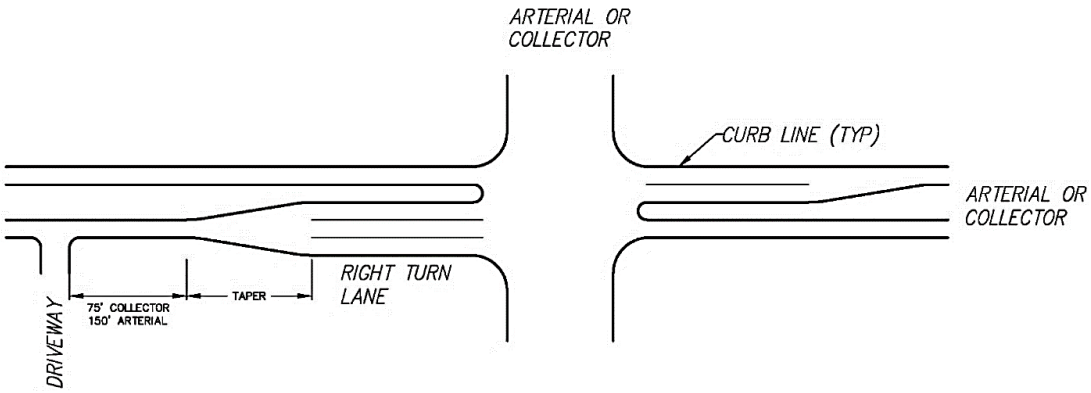

Figure 5.13 Drive Approach Near Turning Movements

C. Drive Approach Grades

1. Minimum Drive Approach Slope:

The minimum drive approach slope shall be determined by:

$$S = (6 + [0.02 \times W \times 12]) / (W \times 12) \qquad \text{[Eqn. 5.2]}$$

Where: W = the width of the parkway in feet as shown on the City of Denton Standard Details.

2. Maximum Drive Approach Slope: Unless otherwise approved by the City's Engineer through a design deviation request (Section 8), the maximum drive approach slope shall be 12%.

3. Difference in Drive Approach Grade: Driveway profiles shall not have a grade difference greater than 5%, without constructing a vertical curve. A minimum K-value of 4 is recommended for driveways accommodating low ground clearance or long wheelbase vehicles.

4. Sidewalks in Drive Approach: Maximum sidewalk cross slope within the limits of the drive approach shall be 2%.

5. Sidewalk Easement Requirement: Where the parkway width is insufficient to provide appropriate drive approach slope, a sidewalk easement will be required, equal to the balance of the sidewalk width needed outside the ROW plus two (2) feet. The additional two (2) feet requirement is for sidewalk installation and maintenance. The balance of the sidewalk width needed is based upon using the minimum drive approach slope calculated in Section 5.5.2.C.1 above. *See* Figure 5.14 below as well as City of Denton Standard Details.

6. Driveway/Drive Aisle Consideration: The drive approach slope from the bottom of the gutter to the nearest edge of the sidewalk (within the limits of the ROW) shall not exceed the driveway/drive aisle slope beginning at the furthermost edge of the sidewalk. Also, it shall not be less than the minimum slope, nor be greater than the maximum slope as noted herein.

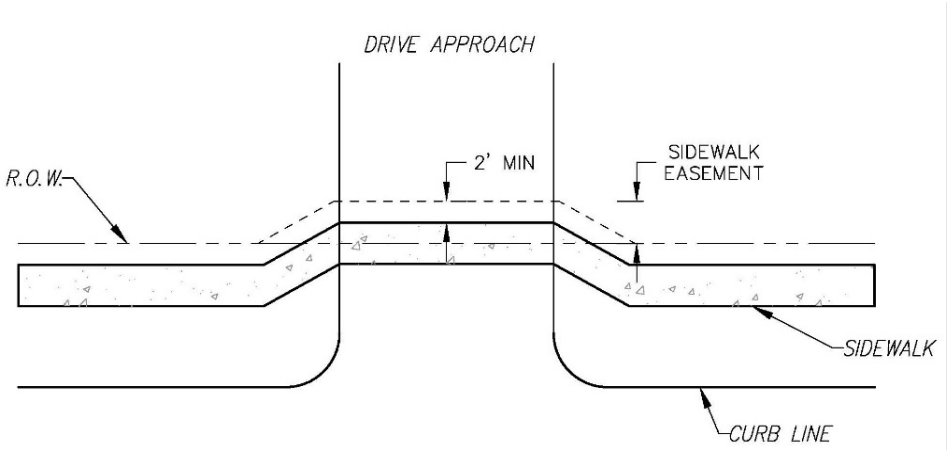

Figure 5.14 Sidewalk Easement to meet Drive Approach Slope

D. Driveway Throat Length Requirements

1. Minimum throat length requirements are shown in Table 5.5-D below. Note that throat length requirement applies to both edges of the drive approach.

2. All drive approaches that access an arterial shall be classified as a primary drive approach. If no drive approaches access an arterial, then the drive approach expected to receive the most traffic is considered to be the primary drive approach.

3. The throat length is measured between the first parking space or drive aisle and the curb line, whichever is closer to the curb line.

4. Parking lots with 10 or less parking spaces may use a minimum throat length of 10 feet for drive approaches accessing a residential or collector street.

5. Queuing analysis required for gated entrances and drive-throughs.

Table 5.5-D: Minimum Throat Length

No. of Parking Spaces	Min. Throat Length for Primary Drive Aisle (feet)	Min. Throat Length for Secondary Drive Aisle (feet)
0 to 100	20	20
101 to 250	40	20
251 to 500	60	40
501 to 1000	80	60
1001 and above	Queuing Analysis Required	Queuing Analysis Required

E. Driveway Separation

Driveways shall be separated in accordance with Table 5.5-B to ensure that all driveways are separated by sufficient distance so as to avoid interfering with the safe movement of traffic. In interpreting and applying the separation requirements, the following shall apply:

1. The separation requirements shall be determined in reference to any proposed or existing driveways on or off the property. Where applied to a property, which is located adjacent to an undeveloped tract, the separation requirements shall account for the placement of future driveways on the adjacent undeveloped property.

2. The minimum separation specified may be reduced for currently developed property, if the amount of street frontage for the property is insufficient to allow for one (1) driveway access that would have the necessary separation from an existing driveway on adjacent property, and joint access with adjacent properties is not physically possible, as determined by the City's Engineer. If a reduction in the minimum separation specified is allowed, the separation shall be reduced only to the degree necessary to allow for the single driveway.

F. Corner Clearance Standards

Corner clearance standards shall be applied in accordance with AASHTO "Green book" to ensure that the traffic movements from driveways do not unduly conflict with the movement of traffic on intersecting public streets. In interpreting and applying the corner clearance standards, the following shall apply:

1. A reduced requirement may only be used if absolutely necessary to provide driveway access to property where no other means of access meeting the corner clearance requirement is reasonably possible, and joint access with adjacent properties is not physically possible as determined by the City's Engineer. If a reduction in the minimum corner clearance specified is allowed, the corner clearance shall be reduced only to the degree necessary to allow for the single driveway.

2. The specified distances shall be measured at the ROW line from the edge of the driveway nearest the intersecting street to the ROW line of the intersecting street. Where ROW corner clips exist or are proposed, the specified distance shall be measured from the edge of the driveway nearest the intersecting street and the end of the corner clip nearest to the subject driveway.

G. Modifications to Existing Drives

Existing non-compliant drives may be modified to comply with criteria set forth in this Manual, but

may not be modified in a way that increases the non-compliance with this Manual.

H. TxDOT Drives

All drives connecting to TxDOT roadways shall meet all required TxDOT standards, in addition to meeting City of Denton standards when applicable.

5.5.3 Cul-de-sacs

A. Geometrical Standards

1. Maximum length of a Cul-de-sac shall be 600 feet measured from the centerline of the intersecting street to the Cul-de-sac radius point, and perpendicular to the intersecting street centerline.
2. Minimum length of a Cul-de-sac shall meet Fire Code requirements.
3. Residential Cul-de-sacs shall not have more than 29 residential lots.
4. The center radius of the Cul-de-sac shall be a minimum of 50 feet for residential developments, and 60 feet for commercial and industrial developments measured from the center point to the face of curb or edge of pavement where there is no curb.
5. The Cul-de-sac return radius shall be 30 feet.
6. Cul-de-sac minimum street grades shall be as shown below in Figure 5.15 and Figure 5.16 below for downward gradient and upward gradient, respectively.

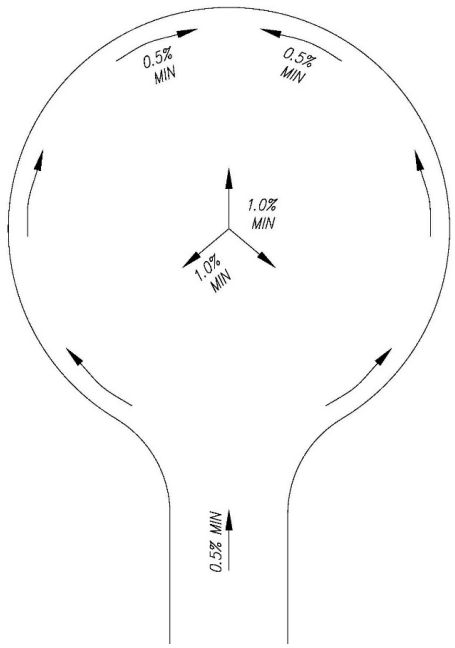

Figure 5.15 Cul-de-sac Minimum Slope - Downward Gradient

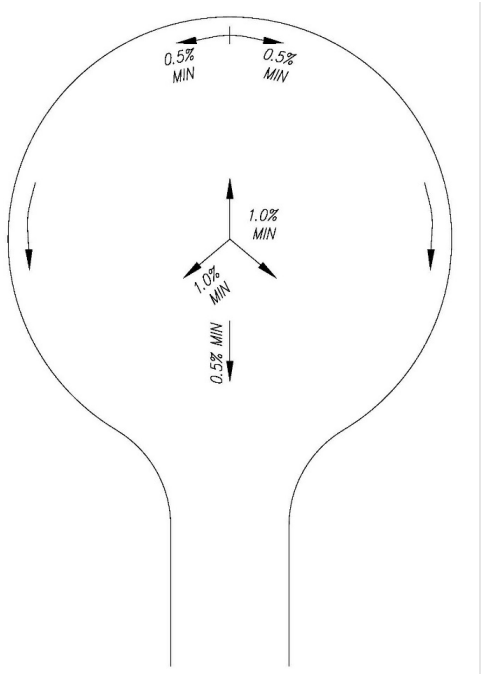

Figure 5.16 Cul-de-sac Minimum Slope - Upward Gradient

B. Offset Cul-de-sacs

1. Offset Cul-de-sacs shall have the same radius and return radius as the standard Cul-de-sac.
2. The length of the offset Cul-de-sac shall be measured from the centerline of the intersecting street to the Cul-de-sac radius point, perpendicular to the intersecting street centerline.

C. Temporary Turn-Around

1. A temporary turn-around shall be limited to approved phase developments where the street will be extended in the future.
2. A temporary turn-around shall meet the requirements of a standard Cul-de-sac for radius and return radius size.
3. The length of street associated with the turn-around shall not be any greater than 600 feet nor less than Fire Code requirements.
4. If the length of street will be greater than 600 feet, then the next block length of street and intersecting streets shall be constructed in order to provide looped traffic flow for emergency vehicles.
5. The turn-around section shall be constructed to the same structural section as the street section less curb and gutter requirements, unless drainage requirements warrant curb and gutter.

5.5.4 Supplementary Design Elements

A. Signage

Signage and pavement markings shall be as shown in the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

B. On-street Parking

Consistent with the requirements of Public Rights of Way Accessibility Guidelines (PROWAG), the following Americans with Disabilities Act (ADA) on-street parking requirements shall be followed:

1. General
   a. On-street parking is permitted for residential and residential collector streets.
   b. On-street parking for proposed commercial/industrial collectors or arterials is not allowed. Where on-street parking is designated, one (1) on-street parking space for each single-family unit on a block is required on the frontage street within that block.
   c. Areas in front of a driveway, within five (5) feet of a driveway, within 20 feet of a street intersection, or within 15 feet of a fire hydrant shall not be counted toward the required on-street parking.
2. Parallel Parking
   a. For parallel parking spaces where the adjacent sidewalk or available ROW is more than 14 feet wide, an access aisle must be provided at street level for the entire length of each accessible parallel parking space.
   b. The access aisle must be a minimum of five (5) feet wide and connect to a pedestrian access route.
   c. The access aisle must not encroach on the vehicular travel lane and must comply with the technical requirements for surfaces.
   d. In alterations where the street or sidewalk adjacent to the parking spaces is not altered, an access aisle is not required, provided the parking spaces are located at the end of the block face.
   e. Where the adjacent sidewalk or available ROW is less than or equal to 14 feet wide, an access aisle is not required, but accessible parallel parking spaces must be located at the end of the block face.

   Figure 5.17 shows the acceptable parking configuration for on-street parallel parking.

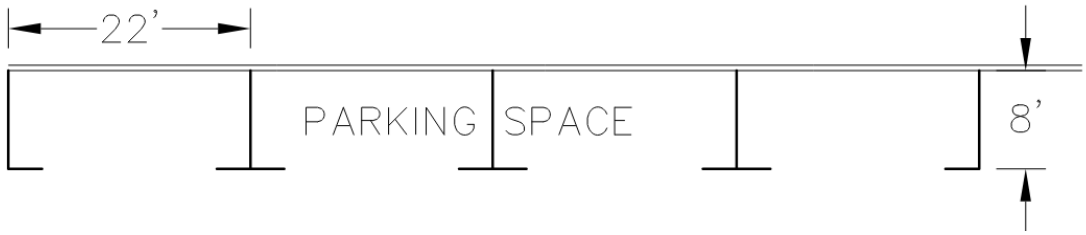

Figure 5.17 Parallel Parking

3. Perpendicular and Angled Parking
   a. For perpendicular and angled parking spaces, an access aisle must be provided at street level for the entire length of each accessible perpendicular or angled parking space.
   b. The access aisle must be a minimum of eight (8) feet wide to accommodate vans with lifts and connect to a pedestrian access route.
   c. Two (2) accessible parking spaces are permitted to share a common access aisle.
   d. The access aisle must be marked to discourage parking in the aisle and comply with the

technical requirements for surfaces.

Figures 5.18 through 5.21 show the acceptable parking configurations for on-street angled parking.

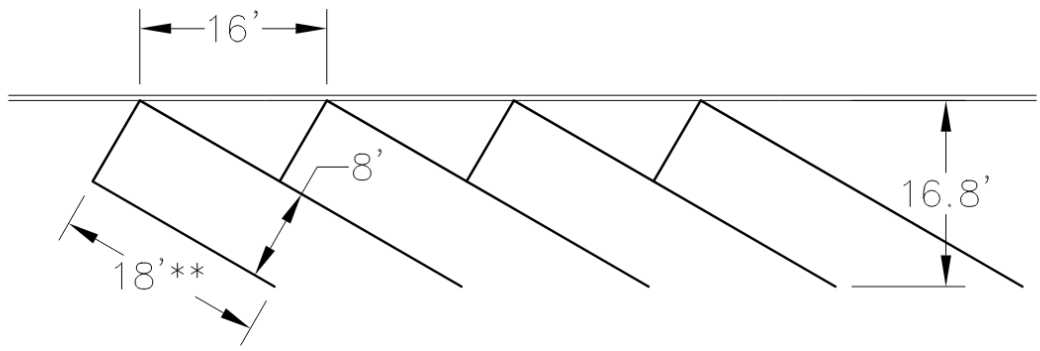

Figure 5.18 Angled Parking – 30 degrees

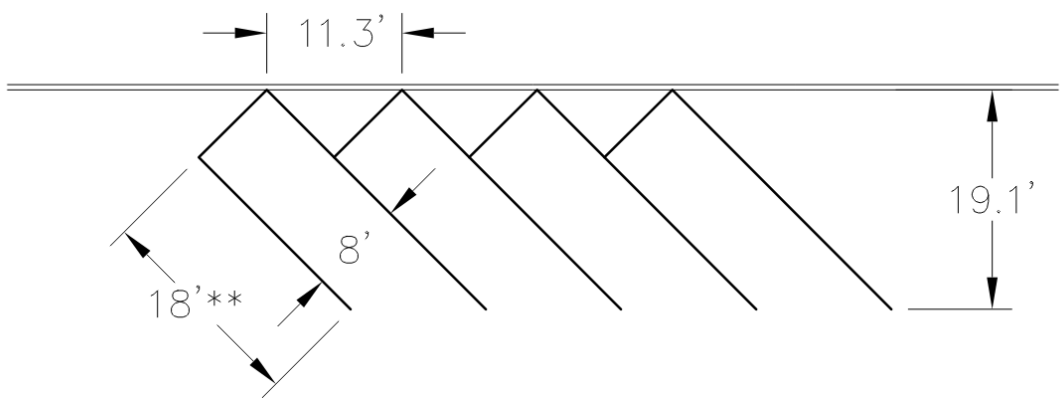

Figure 5.19 Angled Parking - 45 degrees

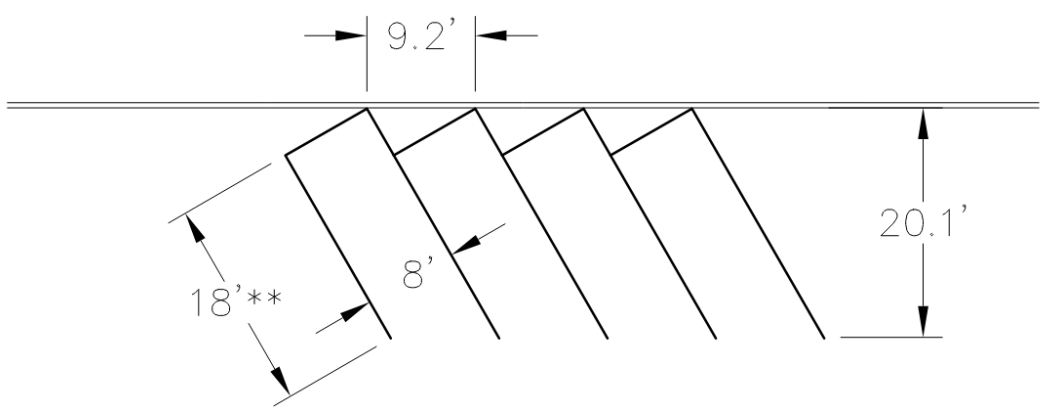

Figure 5.20 Angled Parking - 60 degrees

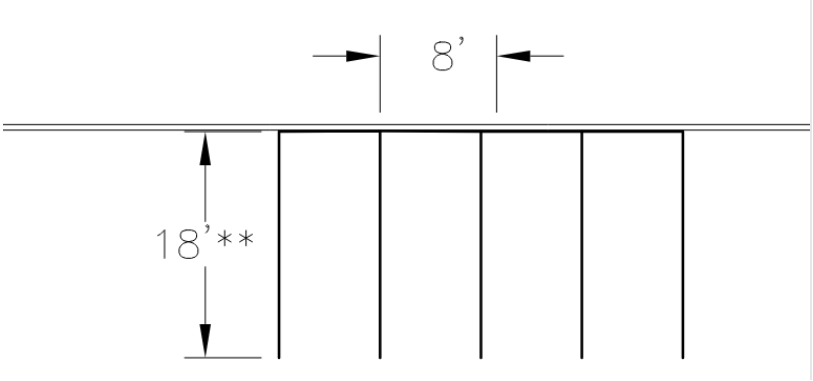

Figure 5.21 Angled Parking - 90 degrees

4. Curb Ramps and Blended Transitions
   a. Curb ramps and blended transitions must connect the access aisle serving each accessible on-street parking space to the pedestrian access route.
   b. Curb ramps are not permitted within the access aisle.
   c. Parking spaces at the end of block face can be served by curb ramps or blended transitions at the pedestrian street crossing.
   d. Detectable warning surfaces are not required on curb ramps and blended transitions that connect the access aisle to the sidewalk, including where the sidewalk is at the same level as the parking spaces, unless the curb ramps and blended transitions also serve pedestrian street crossings.
5. Other
   a. Wheel stops will be required to prevent vehicle overhang into adjacent property, ROW, structures, landscaping or sidewalk (applicable to '**' shown on above figures).
   b. Parking spaces may be reduced to 16.5 feet in length if a two (2) feet overhang is provided.
   c. All standard parking space striping shall be white in color.
   d. On-street motorcycle parking space is half the size of a vehicle parking space.

C. Median Openings

Median openings for collectors and arterials shall be as designated by the City's Engineer. Median opening allowance shall primarily consider the safety and effective flow of traffic within the collector or arterial street, then secondarily consider the effective movement of traffic to and from the development. Whether a median opening is allowed will solely be up to the City's Engineer.

When a development is allowed to have a median opening, it shall be provided in accordance with the following criteria:

1. The width of a median opening shall be 60 feet.
2. Median openings shall center on the intersecting drive.
3. Median openings shall be a minimum of 400 feet apart, measured from nose-to-nose of medians.

4. Whenever a median opening is constructed, the associated left-turn lane serving the development must be constructed at the same time. In the event that there is an existing intersecting street on the opposite side of the street, the new development constructing the median opening shall be required to install both left-turn lanes.

5. Patterned and colored median noses shall be constructed as shown on the City of Denton Standard Details.

D. Traffic Calming

Traffic calming with respect to speed-control devices are not permitted on public ROW. Speed humps on private property are prohibited unless approved by City Fire Code official, and shall comply with IFC standards.

Appropriate signage and pavement markings are to be provided along with all traffic calming devices. Additional ROW may need to be dedicated in order to accomplish adequate traffic calming.

A separate permit is required for the installation of speed control devices located in a fire lane. These devices shall be constructed of durable rubberized material, molded plastic or of concrete.

5.6 Access Management

5.6.1 Purpose and Goals

The purpose of the access management plan is to promote the health, safety, and general welfare of the present and future residents of the city through managing traffic flow and promoting traffic safety.

5.6.2 Access Standards

A. Compliance

1. No person shall construct, reconstruct, replace, relocate, alter, enlarge, improve or perform any work on or make use of any driveway for any property within the City or its extraterritorial jurisdiction, except in accordance with the Access Management standards provided in this Manual or the TxDOT Access Management Manual, when applicable.

2. All driveways shall be designed, installed, located, and constructed in accordance with the approved specifications, plans, conditions, and requirements of the permit issued for the property, and the requirements of this Manual.

3. No certificate of occupancy shall be issued for any building on any property for which a permit is required, until the construction, improvements, alterations or other work covered by the permit is completed in accordance with the permit issued, the requirements of this Manual, or the provisions of any other applicable ordinance.

4. Where no building permit was required in connection with the requested permit, no driveway on the property for which the permit was issued shall be used until and unless the work is completed in accordance with the permit, and this Manual.

B. Access to Freeways

Access to freeways shall only be provided at entrance ramps. Access to frontage roads may be provided in accordance with the standards for access to arterial streets set forth in this Manual, with the following exceptions:

1. No access is allowed in areas where TxDOT owns the Control of Access. Such Control of Access may be found on current TxDOT ROW maps.
2. No access is allowed within a paved gore area or 250 feet past painted gore of an exit ramp. Similarly, no access is allowed within a paved gore area or 200 feet upstream of the painted gore of an entrance ramp.

C. Access to Arterial Streets

Access to an arterial street shall not be permitted unless there is no other reasonable means of providing safe access to the property. Unless designated as a freeway, all TxDOT Highways shall be considered arterials. Additionally, the geometric, hydraulic, and pavement designs of all access driveways to TxDOT roadways must be reviewed by TxDOT to ensure compliance with their standards.

1. No development shall be allowed access to an arterial street if property excluded from the development could have been used to provide reasonable access to a lesser classified street, or if the property has been previously subdivided in violation of state law or the DDC and if access could have been provided to a lesser street except for such unapproved subdivision of the property.
2. Existing commercial or industrial lots created prior to adoption of the DDC by legal subdivision procedures with exclusive frontage on an arterial street may take access to the arterial in accordance with the access standards in this Manual.
3. Existing single-family and duplex lots created prior to adoption of the DDC by legal subdivision procedures with exclusive frontage on an arterial street may be developed with a circular drive. Such drives shall be designed and constructed in accordance with standards for circular drives provided in this Manual.
4. When drives access to an arterial street is the only reasonable means of providing safe and adequate access to the property as determined by the City's Engineer, the drive design, number of drives, location and construction shall be in accordance with this Manual.
5. Drives on an arterial shall align with existing median openings, other driveways, and "T" intersections, or be offset in accordance with this Manual.

D. Access to Collector Streets

1. Access to collector streets for commercial, office, or industrial development is required and shall be designed and constructed in accordance with the standards provided in this Manual.
2. Single-family or duplex lots shall not be designed such that there is no other means of access other than a collector street.
3. Existing single-family and duplex lots developed prior to approval of the DDC with exclusive frontage on a collector street and no alley may be developed with a circular drive. Such drives shall be designed and constructed in accordance with the standards for circular drives provided in this Manual.
4. Drives on a collector street shall align with existing driveways and 'T' intersections on the opposite side of the street, or shall be offset in accordance with this Manual.

5.6.3 Fire Apparatus Access Roads

A. Design

1. Prior to construction, the design of the fire lane shall be submitted to the Fire officials for review and approval.
2. Fire apparatus roads shall have an unobstructed width of not less than 24 feet and unobstructed vertical clearance of not less than 14 feet. These are minimums and may be increased where they are inadequate for fire or rescue operations.
3. Fire lanes shall be constructed to meet the City of Denton's Engineering Standards for a concrete pavement cross-section of a residential street.
4. Fire lane grade shall be no greater than 10%.
5. Fire lanes shall be located so that access to all points of the building served is a maximum of 150 feet, as measured by hose lay. This can be increased to 300 feet, for a building fully equipped with an approved automatic fire suppression system and with the fire code official's approval.

B. Modification of Existing Fire Lanes

Modification of existing fire lanes MUST be approved by the Fire Marshal's Office.

C. Turning Radius

A 24-ft. wide fire lane will require a minimum of a 25-ft. inside turning radius or as approved by a Fire Code Official.

D. Marking

1. Striping

   Fire apparatus access roads shall be marked by painting 6-in. wide red traffic lines at the boundaries of the fire lane, as indicated on the plat. The words "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING" shall be four (4) inches high.

2. Signage

   Signs shall read "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING" and shall be 12-in. wide and 18-in. high. Signs shall be painted on a white background with letters and borders in red, using not less than 2-in. high lettering. Signs shall be permanently affixed to a stationary post, and the bottom of the sign shall be six (6) feet and six (6) inches or 6'-6" above finished grade. Signs shall not be spaced more than 50 feet apart. Signs may be installed on permanent buildings or walls, as approved by the Fire Marshal.

5.7 Bike and Pedestrian Facility Design

The user should be aware of and utilize the DDC Section 7.8.11 Pedestrian and Bicycle Circulation, in conjunction with this section for the design of bike and pedestrian facilities.

5.7.1 Mobility Plan Component

The City of Denton Mobility Plan includes a pedestrian and bicycle component, which should be reviewed, relative to any proposed transportation improvement.

It should be noted that the City of Denton Mobility Plan is a living document and is periodically updated to

reflect the changes in the characteristics of anticipated traffic flow within the City.

5.7.2 Accessibility Standards

The City of Denton considers sidewalks to be accessible routes according to Section 4.3 of Texas Accessibility Standards (TAS) and considers a public sidewalk a "facility". Sidewalks, landings, ramps, and flares shall comply with the most recently adopted TAS, ADA, PROWAG, and FHWA standards. Also, sidewalks, landings, ramps, and flares are subject to the requirements of the Texas Department of Licensing and Registration (TDLR) for inspection purposes. Prior to construction of sidewalks, the Engineer of Record must show proof of TDLR review and approval for accessibility, if the total cost of the public improvements will exceed $50,000.00. Compliance with the regulations shall be the responsibility of the Engineer of Record for the project. Refer to the City of Denton Standard Details for additional requirements.

5.7.3 Geometric Standards

Table 5.7-A shows the standard width of sidewalks and bike lanes for the various roadway classifications. Refer to the City of Denton Standard Details for the locations of sidewalks and bike lanes within the street ROW. The Denton Mobility Plan should be reviewed for any planned bicycle and pedestrian facilities that may exceed those called for by the standard details. Any portion of the proposed facility extending past the ROW shall be contained within a pedestrian access easement. The recorded easement shall extend two (2) feet beyond the edge of the facility.

Table 5.7-A: Bike and Sidewalk Requirements

Roadway Classification	Min. Sidewalk Width [1]	Min. Bike Lane Width [1]
Freeway	N/A	
Arterials – Primary and Secondary	5	10
Collector – Commercial and Residential	5	10
Local – Residential	5	N/A
Local – Rural	N/A	N/A
Local – Alley	N/A	N/A

Notes:
[1] Refer to the City of Denton Standard Details street cross-sections for specific bike and pedestrian recommendations. A minimum 5-ft. wide sidewalk on one side of the street, and a 10-ft. wide bicycle/pedestrian facility on the other side of street will be required.

A. On Bridges

Sidewalks on bridges shall be a minimum width of six (6) feet or wider, as required by the street classification. All street bridges shall have sidewalks on both sides of the bridge. Dependent upon vehicular and pedestrian traffic considerations, a parapet wall may be required to separate the sidewalk from the travel lane. Parapet walls shall be constructed to TxDOT standards. A pedestrian bridge rail shall be constructed on the outside of the bridge to protect sidewalk traffic. Both bridge rails and parapet walls shall meet accessibility standards.

B. On Drainage Crossings

Sidewalk at drainage crossings shall be a minimum width of six (6) feet or wider as required by the street classification. Sidewalk railing shall be provided to protect the sidewalk traffic from the outside edge of the drainage crossing. Dependent upon vehicular and pedestrian traffic considerations, a parapet wall may be required to separate the sidewalk from the travel lane.

Parapet walls shall be constructed to TxDOT standards. Railing and parapet walls shall meet accessibility standards.

C. Adjacent to Screen Walls

A minimum additional sidewalk width of two (2) feet shall be required beyond the standard width of sidewalk, for sidewalks adjacent to screen walls.

D. Adjacent to Retaining Walls

A minimum greenspace width of five (5) feet between the sidewalk and the edge of a retaining wall shall be required, for sidewalks adjacent to retaining walls.

5.7.4 Intersection

A. Curb Ramps

The continuation of accessible routes through intersections shall use approved curb ramps that meet accessibility standards. Refer to the City of Denton Standard Details for curb ramps at intersections. Crosswalks through the intersections shall meet accessibility standards.

B. Bike Lanes

Bike lanes at intersections shall consider other traffic movements and facilities such as turn lane movements, transit facilities, parking, and stop bar locations. The current Urban Intersection Design Guide by TxDOT can be used for bike lane design at intersections. The bike lane design at intersections requires the approval of the City's Engineer.

5.7.5 Signage and Pavement Markings

Signage and pavement markings shall be as shown on the TMUTCD Marking & Sign Drawings, and in accordance with the accessibility standards.

A. Crosswalks

Continental type-high visibility crosswalk markings are to be provided in all uncontrolled street crossings, school crossings, downtown areas, or as directed by the City's Engineer.

B. Bike Lane

Traffic control devices such as vertical flex posts, green pavement markings, and wayfinding signage may be required to enhance the proposed bicycle facility, as directed by the City's Engineer.

5.7.6 Amenities

A. Bike Parking

1. Refer to Bicycle Parking Guideline 2nd Edition by the Association of Pedestrian and Bicycle Professionals (APBP) for general guidelines and resources.
2. All bicycle parking facilities/devices shall be constructed to meet commercial grade structural standards.
3. Location Standard:
    a. Bicycle parking must be on the same lot as the principle use.
    b. Bicycle parking must be located in highly visible and well-lit areas.
    c. Bicycle parking must not interfere with accessible paths of travel or accessible parking

as required by the accessibility standards.

d. Bicycle parking must be located within 50 feet of a main building entrance. In multiple building locations, bicycle parking must be distributed in a manner that serves all entrances.

4. Layout and Design:

a. Bicycle rack design:

i. Support the bicycle in at least two (2) places.

ii. Enable the frame and at least one (1) wheel to be secured.

iii. Designed to accommodate "U" shape locking devices.

iv. Installed to manufacturer's specifications.

v. Each bike rack must be designed to accommodate at least two (2) bikes.

b. Bicycle Parking Space

i. Concrete pad built to City of Denton sidewalk standards.

ii. Must provide clearance of at least two (2) feet from closest wall.

iii. Must provide clearance of at least three (3) feet between bike racks.

iv. Must not interfere with pedestrian pathway.

B. Benches

All benches shall be constructed to meet commercial grade structural standards. Benches shall be secured to prevent displacement. Benches shall not project into any accessible route or alter an accessible route such that it will not meet the accessible route standards.

C. Lighting and Enclosures

Lighting standards and above-ground enclosures shall not extend into any accessible route or alter an accessible route such that it will not meet the accessible route standards.

5.8 Transit Facility Design

5.8.1 General

Bus stops shall meet at a minimum the design standards of the Denton County Transit Authority (DCTA), and the accessibility standards of TAS, PROWAG, and ADA. Figure 5.22 show a general layout of a bus stop at an intersection. Bus stops shall be located on the departing side of a street intersection. The use of a pull-out lane may be considered where the specific site conditions warrant such an arrangement. The determination of the appropriateness of a pull-out lane shall rest with the City's Engineer.

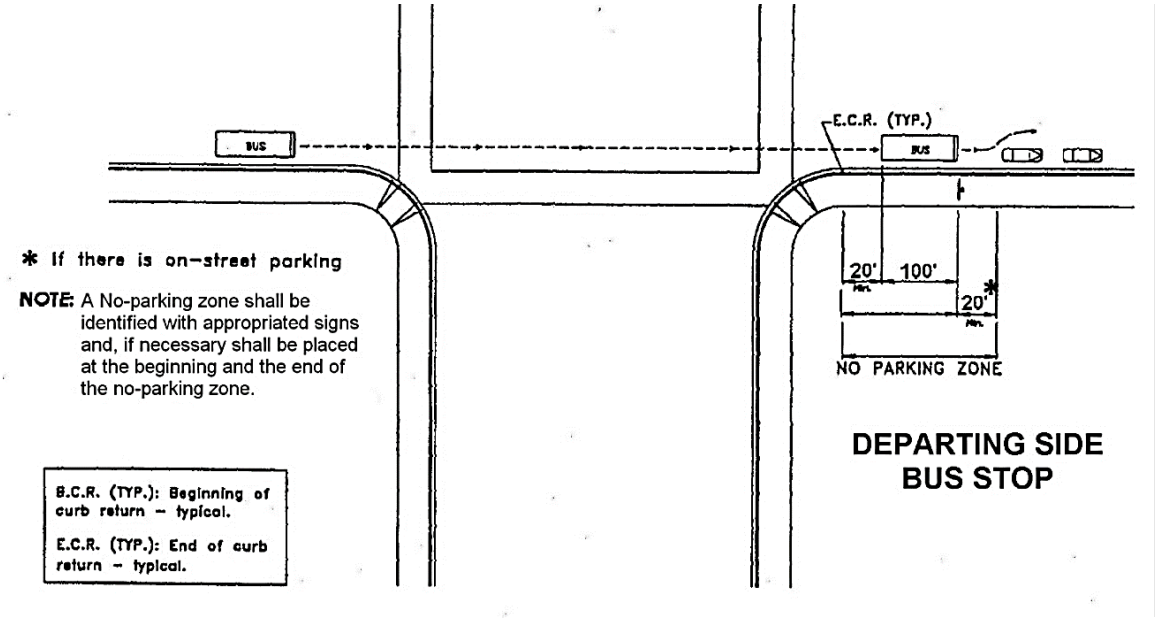

Figure 5.22 Standard Bus Stop Location at Unsignalized Intersection

Note: For signalized intersections an Approach Side Bus Stop is preferred

5.8.2 Bus Stop Placement

Bus stop placement should consider the need for the bus stop, traffic operation concerns, and passenger accessibility. A bus stop should be placed within an area that allows bus stop amenities to be located in the public ROW and where the ingress and egress of the bus does not overly impede the flow of traffic. The warrant for a bus stop shall be as required by the City of Denton in conjunction with DCTA. Elements to consider for bus stop placement include the following:

A. ADA and PROWAG compliance of all elements, including pedestrian routes, shelters, signing, etc.

B. Within Public ROW, or a dedicated access easement.

C. Proximity to major trip generators such as malls, student housing areas, retail commercial zones, park and rides, destination areas, etc.

D. Pedestrian facilities such as sidewalks or multi-use paths, marked cross walks, space provisions for accessibility standards, and curb ramps should be available at the location for a proposed bus stop.

E. Convenient passenger transfers to other routes.

F. Open and visible location for personal security and passenger visibility.

G. Acceptable street illumination or proposed street illumination with placement.

H. Ability to have restrictive parking in bus zone.

I. Adequate space for bus zone.

J. Gentle street grades at bus zone.

K. Return to traffic without overly hindering traffic flow.

L. No interference from driveways.

5.8.3 Bus Stop Amenities

The following are bus stop amenities that shall be considered during the process of design:

A. Accessibility compliant loading area. All bus stops shall have accessibility compliant loading and offloading area. This area shall be integral to the sidewalk pathway, bench area, and shelter area, if provided. The loading area shall be constructed of reinforced concrete with the same thickness as the adjacent sidewalk.

B. Bench and trash receptacle may be warranted based upon Table 5.8-A. Bench and trash receptacle type and installation shall be as required by the City of Denton.

C. A shelter may be warranted based upon Table 5.8-A The shelter type and installation shall be as required by the City of Denton and DCTA. Shelters shall provide space to meet accessibility standards.

D. Illumination shall be provided if illumination is not provided at the street corner adjacent to the bus stop, or if in the opinion of the City's Engineer the existing illumination is inadequate.

E. Bus stops that accumulate 10 points or more may be considered for shelter placement. Bus stops that accumulate six (6) points or greater may warrant a bench and trash receptacle.

Table 5.8-A: Bus Stop Amenities Warrant

Points	Condition
6 points	25 people per day boarding
4 points	Special needs, i.e., Senior Center, Medical Complex, libraries, high accessibility standard usage such as group residences
4 points	High use location, i.e., Student housing area, schools, hospitals, mall
2 points	Request for improvements by citizens, i.e., multiple requests over a one-year time
6 points	15 people per day or greater boarding
4 points	Adjacent to an arterial roadway

5.8.4 Bus Stop Signage and Markings

Bus stop signage and markings shall be according to the City of Denton and DCTA. Signage shall include a "No Parking Zone" sign and a DCTA bus stop sign.

5.9 Traffic Impact Analysis Guidelines

5.9.1 General

The purpose of the traffic impact analysis (TIA) is to assess the impacts of development on the existing roadway system within the study area of the development and to assess the traffic flow needs within the development. The thoroughfare component of the Mobility Plan and the City of Denton traffic model establishes the base conditions for assessing the impacts. The current traffic model and the assessment is based on a Level of Service D according to the current Highway Capacity Manual. The TIA shall be signed and sealed by a PE Licensed by the State of Texas, and shall be valid for a period of 3 years, unless there is a significant change in the plans or surrounding conditions, as determined by City's Engineer.

5.9.2 Preliminary Trip Generation Assessment

All developments are required to prepare a Preliminary Trip Generation Assessment for their proposed projects. The need for a TIA shall be determined by the City's Engineer based upon the information included in the Preliminary Trip Generation Assessment and the criteria in Section 5.9.3 below.

5.9.3 When is a TIA required?

Based on the preliminary trip generation assessment for the proposed project, unless otherwise directed by the City 's Engineer, a TIA will be required for the following conditions:

A. Development will generate equal to or more than 100 Peak-Hour Trips (PHT).

B. Development will generate equal to or more than 1,000 vehicle trips per day (VPD).

C. Project area to be developed is equal to or more than 100 acres.

D. Changes or alterations to the City Thoroughfare plan based on the Mobility Plan will be requested.

E. Access is taken from a TxDOT roadway.

F. Zoning changes that will negatively increase estimated traffic volumes above the current zoning estimated traffic volumes.

G. Access is taken from an existing roadway with current traffic flow congestion based upon observed conditions.

H. Development plus recently approved or pending development projects which have not been constructed located adjacent to the site and/or in proximity to the site, meet the above vehicular trip criteria or acreage criteria as determined by the City's Engineer.

I. If access is taken from a TxDOT roadway, check TxDOT TIA requirements.

5.9.4 TIA Requirements

A. TIA Study Criteria

Table 5.9-A shows the number of analysis periods and study area limits for the TIA. Prior to developing the TIA, a Preliminary Trip Generation Assessment shall be developed and reviewed with the City's Engineer, to verify the number of analysis periods and the study area requirements.

Table 5.9-A: Criteria for Study Requirements

Analysis Category	Site Trips Generated at Full Build-Out	TIA Analysis Periods [1]	Minimum Study Area [3]
I	>50 peak hour driveway trip	1. Existing year 2. Opening year [2]	1. All site access drives
II	100-500 total peak hour trips	1. Existing year 2. Opening year [2] 3. Five years after opening	1. All site access drives 2. All signalized intersections and/or major unsignalized intersections within ½-mile to 1 mile of site boundary, depending on total peak hour trips
III	>500 total peak hour trips	1. Existing year 2. Opening year of each phase 3. Five years after initial opening 4. Twenty years after final opening with full build-out	1. All site access drives 2. All signalized intersections and/or major unsignalized intersections within 1-½ miles of site boundary and/or major intersections along access routes to/from regional corridors

Notes:
[1] Analysis periods shall include build and no-build scenarios. Assume full occupancy when each phase opens.
[2] Assume full build-out.
[3] For certain projects, the City may require an enlarged study area. Land uses within the study area should include recently approved or pending development adjacent to the site and/or in proximity to the site.

B. Specific Requirements of the TIA Report

At a minimum the TIA report will include the following items:

1. Introduction that describes the project and traffic generating modes.
2. Traffic Analysis Map:
   a. Existing and Proposed Land use within Study Area.
   b. Study Area Boundary.
   c. Existing and Proposed Roadways.
   d. Designation of Traffic movement elements.
   e. Thoroughfare Plan Elements within Study Area
3. Trip Generation Calculations as per the most recent ITE Trip Generation Manual:
   a. Daily and Peak Hourly Trip Generation for fully developed project conditions. Include both AM and PM Peak Hours. Provide Summary table and backup tables for calculation methods.
   b. Discount assumptions based upon City's Engineer's approval.
4. Trip Distribution and Assignment Tables and Figures:
   a. For Entrance/Exit from the development.
   b. For boundary streets within study area.
5. Existing and Projected Traffic Volumes for Study based upon Table 5.9-A above:
   a. Average Daily.
   b. Peak Hourly AM and PM.
   c. Additional Traffic Volume Data Provided by the City's Engineer.
6. Traffic Volume Analysis:

a. Level of Service Evaluation for AM and PM Peak Hours.

b. Turn Lane Evaluation for project site and study area. The extent of evaluation to be determined by the City's Engineer.

c. Signalization Evaluation for project site and study area. The extent of the evaluation to be determined by the City's Engineer.

d. Identification of all thoroughfares, driveways, intersections, and individual movements that do not meet LOS-D.

7. Recommendations:

a. Proposed recommendations to mitigate impacts to transportation system within the study area.

8. Document Requirements: The following provides a general outline for the TIA report:

a. Executive Summary

b. Introduction

i. Purpose

ii. Methodology

c. Existing and Proposed Land Use

d. Site Traffic Generation

e. Existing and Proposed Traffic Flow

i. Transportation System

ii. Transportation Volumes

f. Traffic Analysis

i. Level of Service Evaluation

ii. Turning Movement Evaluation

iii. Signalization Evaluation

g. Active Transportation Impact Evaluation

i. Bicycle Paths/Routes and Trail Connection Assessment

ii. Pedestrian Impact Analysis

h. Safety Assessment

i. Mitigation

j. Conclusions and Recommendations

9. Additional Requirements

Dependent upon the site characteristics, the City's Engineer may require additional information to be included in the TIA.

5.9.5 Submission and Review Procedures

A. A Preliminary Trip Generation Assessment of the proposed development shall be conducted to determine the TIA requirements such as limits of study area, need and type of turning movement evaluation, need for signalization evaluation, discount assumptions that can apply, and criteria to be used. Sufficient base information shall be submitted to the City's Engineer in order to provide

proper guidance on TIA requirements for the report. Subsequent to the submittal of the preliminary trip generation assessment, a meeting with the City's Engineer should be scheduled to discuss the specific requirements for the TIA.

B. Upon completion of the TIA report, two (2) copies of the report shall be submitted to the City's Engineer for review.

C. After a TIA is approved and if the development proposed land use and/ or proposed traffic generation characteristics change, the TIA shall be updated and re-submitted to the City for approval.

5.9.6 Safety Assessment

Consistent with the recently adopted Mobility Plan, safety is the number one priority for the City of Denton and as such, all new developments will be required to conduct a safety assessment as part of their TIA. The safety assessment will include a review of safety for all road users (vehicles, pedestrians and bicycles) within the project site as well as along existing public ROWs in the vicinity of the project. The assessment will include a review of the following:

A. Within the project site (Site Circulation).

B. All new intersections including project driveways.

C. All existing intersections included in the TIA.

5.9.7 Bike/Ped TIA

All projects are expected to achieve the minimum acceptable LOS standard for onsite and off-site bicycle and pedestrian facilities. Pedestrian and bike facility demand shall be identified and related items for discussion should include:

A. School routing plans per the TMUTCD between the project and all schools within ½-mile of the project boundary.

B. The demand for pedestrian and bike facilities to serve high pedestrian activity areas within the land use.

C. The need for links of bicycle or pedestrian facilities to neighboring land uses or attractions (trails, etc.) within ¼-mile (or greater if applicable to unique pedestrian-oriented destinations) of the project site.

D. Existing and proposed sidewalk width, separation from traffic, and space available for trees, transit stops (if any), or other related elements (if any).

E. Geometric improvements and recommended traffic control devices to accommodate pedestrians and bicyclists.

F. Existing and proposed pedestrian and bike facilities shall be evaluated for compliance with the following elements:

1. Directness. Walking distance to destinations like transit stops, schools, parks, and commercial or activity areas should be direct. Measurement of directness is the ratio of the actual distance to a destination via a sidewalk or pathway divided by the minimum distance characterized by a grid street system.

2. Continuity. The sidewalk/ walkway system should be complete, without gaps. The pedestrian

corridor should be integrated with the activities along the corridor and should provide continuous access to destinations.

3. Street Crossings. Safety and comfort is essential while crossing streets, intersections and mid-block crossings. Factors that affect the LOS include: number of lanes to cross, crossing delay for pedestrians, signal indication, cross-walks, lighting, raised medians, visibility, curb ramps, pedestrian buttons, convenience, comfort, and security.
4. Visual Interest and Amenity. Pedestrians enjoy visually appealing environments that are compatible with local architecture and include street lighting, fountains, and benches.
5. Security. Pedestrians should be visible to motorists, separated from motor vehicles and bicycles, and under adequate street lighting.
6. Surface Condition. Pedestrian facilities should be free from obstructions, cracks, and interruptions.

The pedestrian Level of Service for the facility/corridor linking these destinations to the project site will be based on the directness, continuity, types of street crossings, walkway surface condition, visual interest/amenity, and security of the selected route(s), as shown in Table 5.9-B below.

Table 5.9-B: Bike/Ped TIA Criteria				
Quality Indicators	**A**	**B**	**C**	**F**
Security	Well used, good lighting levels and unobstructed lines of sight	Unobstructed lines of sight, good lighting levels	Sidewalk configuration and parked cars present sight problems, moderate lighting	Major pedestrian visibility problems, streetscape is pedestrian intolerant
Directness (Sidewalk Distance/ Minimum Distance)	< 1.4	1.4 - 1.8	1.8 - 2.2	> 2.2
Continuity	Quality, continuous pedestrian networks that are physically separated from street and built to current standards	Continuous sidewalk network on both sides of the street. May not be built to current standards	Sidewalk network where there may not be sidewalks on both side of the street or there are minor interruptions in connectivity	Breakdown in pedestrian network to where each pedestrian chooses a different route
Street Crossings (Signalized Intersections)	3 or fewer lanes to cross, clear indications (striping, etc.), well-marked crosswalks, good lighting, standard curb ramps, automatic pedestrian signal, pedestrian amenities, unobstructed views	4 or 5 lanes to cross, clear indications, well-marked crosswalks, pedestrian refuge area, standard curb ramps, pedestrian amenities, standard curb ramps, unobstructed views	6 or more lanes to cross, clear indications, well-marked crosswalks, pedestrian refuge area, standard curb ramps, pedestrian amenities, unobstructed view	Missing 5 elements of A, 4 elements of B, and 2 elements of C
Street Crossings (Unsignalized Intersections)	Well-marked cross walks, good lighting levels, standard curb ramps, street character suggests pedestrian crossing, unobstructed views	Missing 1 element of A	Missing 2 elements of A	Missing 3 or more elements of A
Visual Appeal and Pedestrian Amenities	Visually appealing and compatible with local architecture and artist themes, wide sidewalks, window shopping, pedestrian lighting, trees and street furniture	Wide sidewalks, visual clarity, some street furniture and landscaping	Functionally operational with less importance placed on visual appeal	Design ignores pedestrian with negative metal image, intimidating
Surface Condition	Smooth asphalt or concrete with few breaks or cracks	Relatively smooth asphalt or concrete with frequent breaks or cracks	Rougher, broken surface such as older concrete or cobblestone	Difficult, unpaved terrain such as hiking trails

Table 5.9-C below can be used to identify the pedestrian destinations within ¼-mile (½ mile for schools) of the project boundary.

Table 5.9-C: Bike/Ped Destination Identification

ORIGIN (project land use)	DESTINATION						
	RECREATION	RESIDENTIAL	INSTITUTION	OFFICE/ BUSINESS	COMMERCIAL	INDUSTRIAL	OTHER (SPECIFY)
RECREATION							
RESIDENTIAL							
INSTITUTION (SCHOOL, CHURCH, CIVIC)							
OFFICE/BUSINESS							
COMMERCIAL							
INDUSTRIAL							
OTHER (SPECIFY)							

5.10 Pavement Design Standard

5.10.1 Streets

The minimum pavement section requirements for each classification of roadway are contained within the City of Denton Standard Details for pavement cross-sections.

A. A geotechnical report shall be prepared that documents the existing soil characteristics of the proposed roadway subgrade for any proposed street improvements. Soil testing shall be performed whenever the soil characteristics change or every 500 feet, whichever is less. The report shall include recommendations for the type and treatment level of subgrade stabilization based upon ultimate traffic conditions.

B. Flex-base may be used as an option for subgrade treatment. Depth of flex-base required shall be based upon the geotechnical report for the street improvements based upon ultimate traffic conditions.

C. Alternative pavement sections may be proposed only if supported by a geotechnical report that provides sufficient evidence to demonstrate that the alternate section shall meet the ultimate traffic loading requirements.

5.10.2 Drive Approach

Refer to the City of Denton Standard Details for drive approach section requirements.

5.11 Complete and Context-Sensitive Streets

Complete streets are transportation facilities that are planned, designed, operated and maintained to provide safe mobility for all users (including bicyclists, pedestrians, transit vehicles, truckers and motorists) appropriate to the function and context of the facility. Context-sensitive solutions formulate a complete street design considering contextual applications. Contextual applications can be of geographical nature such as Urban Core, General Urban, Suburban, University Core and other typical service areas that require unique components to address the overall transportation facilities.

Within the geometric standards are options that relate to developing a complete street that accounts for all transportation facilities within the context of the associate area. Connectivity and context-sensitive solutions are essential to meeting the goals of the standards. Refer to the City of Denton Standard Details for cross-section details, and the pedestrian and bicycle components of the 2022 Mobility Plan for planned facilities, or as required by the City of Denton during development review.

BIKE LANES – Bike lanes shall be six (6) feet wide unless otherwise approved by the City's Engineer. Buffered or separated bike lanes are generally preferred to increase level of comfort in the bicycle facility.

OFF-STREET MULTI-USE PATH – Some development areas will warrant the use of off-street multi-use paths for pedestrian and bicycle traffic connectivity to other facilities as identified by the City of Denton. Multi-use paths shall be 10 feet wide, unless otherwise approved by the City's Engineer.

TRANSIT – Bus stop locations may be required by the City of Denton for connectivity of the transit system. *See* Section 5.8 of this Manual for details.

MEDIAN VS. CONTINOUS LEFT TURN LANE – Selection of a median or continuous left turn lane shall be based upon the TIA, connectivity, adjacent uses, and other factors required by the City's Engineer. Medians shall be 24 feet back of curb to back of curb, unless otherwise approved by the City's Engineer. Continuous left turn lanes shall be 11 feet wide.

MODIFICATIONS TO STANDARDS – Modifications to the standards may have to be considered in some instances based upon context-sensitive use. An example of context-sensitive use which may require the standards to be modified is a roadway corridor restriction that creates limitations that cannot be altered. An example of a roadway corridor restrictions would be existing infrastructure and/or buildings that must remain. Another example is infill development. Modifications to the standards based upon context-sensitive use shall be at the sole discretion of the City's Engineer.

Section 6: Water and Wastewater Design Criteria

6.1 Overview

The purpose of Section 6 - Water and Wastewater Design Criteria is to provide minimum, non-exhaustive guidelines for the design and construction of water distribution and wastewater collection systems within the City of Denton, Texas and its extraterritorial jurisdictions.

Section 6: Water and Wastewater Design Criteria is organized as follows:

A. Overview

B. Water Design Guidelines

C. Wastewater Design Guidelines

D. Construction Plans

It is the responsibility of the design engineer to ensure the final design of water distribution and wastewater collection systems are in conformance with the most recently adopted versions of the following documents:

A. Texas Administrative Code (TAC) Title 30, Part 1, TCEQ – Ch. 290;

B. Texas Administrative Code (TAC) Title 30, Part 1, TCEQ – Ch. 217;

C. Texas Administrative Code (TAC) Title 16, Part 2, PUCT – Ch. 24;

D. City of Denton Code of Ordinances and the DDC;

E. The City of Denton's Standard Details and Standard Specifications for Construction;

F. City of Denton Water Distribution System Master Plan;

G. City of Denton Wastewater Master Plan;

H. American Water Works Association (AWWA) Standards;

I. The International Building Code (IBC);

J. The International Plumbing Code (IPC);

K. The International Fire Code (IFC); and

L. This Manual.

The criteria established in Section 6 of this Manual provide basic guidance for the design of water and wastewater systems. However, ***full responsibility and liability for proper design remains with the design engineer.*** Users of this Manual should be knowledgeable and experienced in the theory and application of water and wastewater engineering. If criteria established in Section 6 overlap with state statutes, rules, or regulations, –the more stringent requirement shall apply. The criteria established in this Section do not supersede the criteria contained in the DDC. In the case of conflict between this Section, City of Denton Standard Details, or other cited City regulations and standards, the more stringent requirement shall apply.

The Director of Water Utilities reserves the right to require extended review of vertical water utility infrastructure, and large horizontal infrastructure including, but not limited to, water treatment plants, elevated storage tanks, booster pump stations, water transmission mains over 16 inches in diameter,

wastewater reclamation plants, peak flow detention facilities, sewer lift stations and sewer interceptors over 12 inches in diameter. The Director of Water Utilities reserves the right to deny proposals at his or her discretion.

6.2 Water Design Guidelines

6.2.1 Water Main Separation from Wastewater Mains

Water mains shall be separated from wastewater mains as set forth in 30 TAC § 290.44(e) - Location of Waterlines, as amended.

6.2.2 Size of Water Distribution Mains

A. General

Water mains shall be sized to meet the calculated water demand, fire flow protection requirements, and to conform to the City of Denton's Water Distribution System Master Plan (Water Master Plan or WMP). All residential, commercial, industrial, and any other development connecting to the City's water distribution system shall use the following guidelines:

1. The design engineer shall obtain the record drawing water maps from the Capital Improvement Projects & Engineering Division and use the following criteria, based on the City's WMP, for sizing the water lines.
   a. Average daily demand in gallons per capita per day = 160 GPCD
   b. Maximum daily demand / Average daily demand = 2.0
   c. Peak hour demand / Maximum daily demand = 1.5
   d. For Single-Family Residential – Use 3.2 people/unit
   e. For Multifamily Residential – Use 2.5 people/unit
   f. Refer to 30 TAC § 290.45 (d)(1) Table A - Non-community water systems
2. Water systems shall be provided with sufficient number of connections to the City's existing water system, and shall be of sufficient size to furnish adequate water supply for fire protection to all lots and conform to the City WMP. Every new water system shall include two (2) or more connections to the existing City water system when feasible, to ensure an adequate and reliable water supply in the event of a water main break or routine system maintenance. The City may require two (2) or more meter connections, particularly for larger developments. Good engineering judgement is required to ensure reliability is considered in the design of all proposed water systems
3. Sites that require an irrigation meter shall have two separate service line connections onto the main: one for the domestic meter, the other for the irrigation meter.
4. Water pipe shall be a minimum of eight (8) inches in diameter. The standard pipe sizes that shall be used for water main lines are 8-in., 12-in., 16-in., 20-in., 24-in., 30-in., 36-in., and 42-in. pipes. Pipe sizes of 6-in., 10-in., 14-in., 18-in., 21-in., and 33-in. are considered non-standard by the City and shall not be used for water main lines. A 6-in. pipe may be used for fire hydrant connections.
5. Every development shall provide adequate water capacity for fire protection purposes. Fire flow capacity requirements are in addition to daily demand requirements. The procedure for

determining fire flow requirements for buildings or portions of buildings shall be in accordance with the version of the IFC adopted by the City. For any platted lot where the end use is not defined, the standards in Table 6.2-A shall apply

6. The cost for modeling a project's impact with the City's distribution system model will be the responsibility of the developer and paid to the City.

B. Distribution System Operational Limits

The City observes the following operational limits for the distribution system under normal usage:

1. Velocity for proposed mains (greater than 16 inches): 3 to 5 fps
2. Maximum velocity for proposed mains (less than or equal to 16 inches): 5 fps
3. Maximum head loss (less than or equal to 12 inches): 5 feet per 1,000 feet
4. Maximum head loss (greater than or equal to 16 inches): 3 feet per 1,000 feet
5. Hazen-Williams Roughness Coefficient (C): 130

Proposed impacts to the City's system determined to, or likely to, cause (through hydraulic modeling or other analysis) these limits to be exceeded, are prohibited without additional improvements to the public system so the system can be operated within these parameters.

Table 6.2-A: Water Capacity for Fire Flow

Area	GPM
One (1) and two (2) family dwellings - less than 3,600 sq. ft.	1,000
Buildings other than one (1) and two (2) family dwellings - less than 3,600 sq. ft.	1,500
Medium-intensity commercial and light industrial	3,000
High-intensity commercial and industrial	4,000

Notes:
[1] All fire flows to be calculated with 20 psi residual pressures.
[2] In addition to the fire flow requirements specified above, all developments shall provide adequate water capacity to satisfy the greater of: (a) Peak Hour demand for the Peak Day, or (b) Average Hour demand plus fire flow for the Peak Day.
[3] Special exceptions to the above standards may be made by the City's Engineer for unique situations.

C. Public Fire Hydrants

Fire flow requirements shall be in accordance with the IFC as adopted by the City of Denton or Denton County, as appropriate.

D. Private Fire Mains

In addition to the requirements of Section 6.2.2.B of this Manual, private fire protection water mains shall be installed in accordance with NFPA 24 and 2021 IFC requirements. Private fire protection mains and associated hydrants shall be permitted by the Fire Marshal's Office with jurisdiction over the area.

E. Fire Flow Tests

Fire flow tests are normally requested by the design engineer, the Mechanical, Electrical and Plumbing (MEP) engineer, and other engineers to determine available water system capacity at or near the point of interest. If a fire flow test on the existing water system is necessary, contact the Water Metering Department at (940) 349-8456 directly.

6.2.3 Depth of Cover for Water Mains

The following table shall govern depth of cover for water main installations:

Table 6.2-B: Minimum Depth of Cover for Water Mains

Pipe Size	From Surface to Top of Pipe	
	UNDER UNPAVED AREAS	UNDER PROPOSED OR EXISTING PAVEMENT
12-in. and smaller	5 feet	42 inches
16-in.	-	5 feet
16-in. and larger	6 feet	-
20-in. and larger	-	6 feet

Notes:
[1] Additional depth of cover shall be required for low-lying areas where future drainage improvements are anticipated.

6.2.4 Pipe and Fittings

A. Specifying the appropriate pipe material is the responsibility of the design engineer, based on the analysis of specific site and loading conditions, and pressure requirements. The minimum requirements in this Section are based on pipe size only, and in no way relieve the design engineer of the responsibility of specifying the pipe material applicable to the specific project. Pipe gasket material shall be that recommended by the manufacturer for the specified pipe. Special attention shall be given by the design engineer for unique pipe fitting and pipe assembly situations.

B. See Table 6.2-C below for the City's minimum pipe materials, fittings, polywrap, thrust restraint, and embedment requirements, as a function of pipe size.

C. All fittings for pipe sizes less than 30 inches in diameter, including vertical and horizontal bends, shall have concrete thrust blocking. *See* City of Denton Standard Details.

D. All vertical and horizontal fittings and valves shall require restrained joints in addition to concrete thrust blocking. The joint restraints shall be designed as though there is no concrete thrust blocking, and the concrete thrust blocking shall be designed as though there are no joint restraints. Flanged tees should be used to secure all branch valves to fittings. Table 6.2-C below includes the minimum lengths of pipe to be restrained for 8-inch and 12-inch PVC water mains. For water lines greater than 12 inches in diameter, additional restrained joints may need to be installed beyond the fitting (i.e., may need to be installed on several pipe joints on each side of the fitting), depending on the required restrained length calculated. Restrained length calculations shall be included in the lay schedule in the material submittal package and shall use approved methods of joint restraint. *See* City of Denton Standard Details, specific product listings and Table 6.2-C below.

Table 6.2-C: Restraint Lengths for Fittings and Bends

Pipe Size (inches)	Plugs, Tees, and Valves [1]	Bends [1]			
		90°	45°	22.5°	11.25°
8	88 ft	33 ft	14 ft	7 ft	4 ft
12	126 ft	45 ft	19 ft	9 ft	5 ft

Notes:
[1] Length to be restrained on each side of the bend or fitting. Assumptions: 1.5 safety factor, SP soil type, Type 4 trench.

Table 6.2-D: Minimum Requirements for Pipe and Fittings

Pipe Size and Material	Ductile Iron Fittings	Polywrap (Pipe & Fittings)	Thrust Restraint	Embedment
8-IN. TO 12-IN.				
PVC (AWWA C900, DR – 14)	Mechanical joint; Compact or Full-Body	8-mil V-Bio Enhanced Polywrap (fitting only)	Wedge-action mechanical joint restraint glands, at fittings.	See drawings U201, U202, U203A, U203C in City of Denton Standard Details
16-IN. TO 20-IN.				
Ductile Iron, AWWA C151, Special Thickness Class 52, push-on-joints (where unrestrained; e.g.: American Flex-Ring joint)	Mechanical joint; Full-Body	8-mil V-Bio Enhanced Polywrap (inner layer), plus 4-mil cross-linked (outer layer)	Wedge-action mechanical joint restraint glands, at fittings. Boltless Restrained connections (Example: American Flex-Ring joint), at several pipe joints either side of each fitting, depending on the required restrained length calculated.	See drawings U201, U202, U203A, U203C in City of Denton Standard Details
Reinforced Concrete Steel Cylinder, AWWA C303 Bar Wrapped	N/A	Bonded joint and Cathodic Protection (CP) System required	Full Circle Welded Joints required for thrust restraint	Contact Water Utilities Dept.
24-IN.				
Ductile Iron, AWWA C151, Special Thickness Class 52, push-on joints (where unrestrained; e.g.: American Flex-Ring joint)	Mechanical joint; Full-Body	8-mil V-Bio Enhanced Polywrap (inner layer), plus 4-mil cross-linked (outer layer)	Wedge-action mechanical joint restraint glands, at fittings. Boltless Restrained connections (Example: American Flex-Ring joint), at several pipe joints either side of each fitting, depending on the required restrained length calculated.	Crushed Stone
Reinforced Concrete Steel Cylinder, AWWA C303 Bar Wrapped	N/A	Bonded joint and Cathodic Protection (CP) System required	Full Circle Welded Joints required for thrust restraint.	Contact Water Utilities Dept.
30-IN. AND LARGER				
Ductile Iron, Pressure Class 350; push-on joints (where unrestrained; e.g.: American Flex-Ring joint)	Mechanical joint; Full-Body	8-mil V-Bio Enhanced Polywrap (inner layer), plus 4-mil cross-linked (outer layer)	Wedge-action mechanical joint restraint glands, at fittings. Boltless Restrained connections (Example: American Flex-Ring joint), at several pipe joints either side of each fitting, depending on the required restrained length calculated.	Crushed Stone
Reinforced Concrete Steel Cylinder, AWWA C303 Bar Wrapped	N/A	Bonded joint and Cathodic Protection (CP) System required	Full Circle Welded Joints required for thrust restraint.	Contact Water Utilities Dept.

6.2.5 Meters and Meters Cans/Vaults

The City allows the following water meters, depending on the volume and nature of the customer flow demands:

Table 6.2-E: Allowable Water Meters

Service Size	Meter Size	Type	AWWA Standard
1-in.	⅝-in. x ¾-in.	Positive Displacement	AWWA C700
1-in.	¾-in. x ¾-in.	Positive Displacement	AWWA C700
1-in.	1-in.	Positive Displacement	AWWA C700
2-in.	1½-in.	Positive Displacement	AWWA C700
2-in.	2-in.	Positive Displacement	AWWA C700
4-in.	3-in. Tru/Flo	Compound	See City Standard Specification 33 14 18
4-in.	4-in. Tru/Flo	Compound	See City Standard Specification 33 14 18
6-in.	6-in. Tru/Flo	Compound	See City Standard Specification 33 14 18
6-in.	6-in. Protectus III Fire Service (Shall be used for combination of domestic and fire service)	Compound	See City Standard Specification 33 14 18
8-in.	8-in. Protectus III Fire Service (Shall be used for combination of domestic and fire service)	Compound	See City Standard Specification 33 14 18

Notes:
[1] Turbine meters shall be allowed for irrigation meters; not for domestic meters.
[2] Venturi meters shall be allowed when recommended by City Water Utilities based on Single-Family Equivalent calculations.
[3] Fire hydrant meters shall only be used for non-potable purposes.
[4] Vaults are required for all meters greater than two (2) inches.
[5] *See* Section 6.2.5.D for Furnishing and Installing meters.
[6] Non-standard sized water services are not allowed. Refer to the water service connection drawings on the City of Denton Standard Details.
[7] Sites that require an irrigation meter shall have two (2) separate service line connections onto the main; one (1) for the domestic meter, and the other for the irrigation meter.

A. Number of Meters

One (1) meter is required for each residential, commercial, or industrial service connection, in accordance with the Code of the City of Denton, Texas, Chapter 26, Article I, Sec. 26-9. An apartment building, condominium, manufactured housing community, or mobile home park may be considered a single commercial facility for the purpose of this section. The City's standard policy is that only one (1) meter for domestic use will be furnished to each lot. Exceptions to that policy are:

1. Commercial, industrial, or institutional sites shall have a separate irrigation meter from the domestic meter;
2. Multifamily developments with greater than 200 units shall be required to have two (2) domestic meters for redundancy and reliability of water service, where each meter is located on a different water main or separated by an inline valve;
3. Multi-building sites where the configuration or size of the site makes a single meter location impractical or infeasible;
4. Institutional Group I-2 Facilities as per IBC Sec. 308.3 and IPC Sec. 609; and
5. Submetering by the property owner to tenants of multifamily developments with a minimum

of five (5) units per building (or by condominium associations to member) shall be done at the owner's expense, with privately purchased and maintained meters, and in accordance with the Public Utilities Commission 16 TAC Chapter 24 Subchapter I, as amended.

B. Sizing

In commercial and industrial projects, the design engineer shall consult with the owner or the MEP engineer to identify proposed sizes and locations for domestic water meters, fire sprinkler connections, and irrigation meters.

During Building Permit review, the City evaluates adequacy of meter size using Table E201.1, "Minimum Size of Water Meters, Mains and Distribution Piping Based on Water Supply Fixture Unit Values (w.s.f.u.)" of the version of the International Plumbing Code (IPC) as adopted by the City (copy included herein as Table 6.2-F). The City's Building Permit Plans Review uses the version of the International Residential Code as adopted by the City, Table P2903.6, "Water-Supply Fixture-Unit Values for Various Plumbing Fixture and Fixture Groups" (see Table 6.2-G) to estimate w.s.f.u. To facilitate review of the proposed meter size, the design engineer shall submit a tabulation of w.s.f.u.; a sample tabulation is provided herein in Table 6.2-I.

Contact the Water Utilities Department regarding criteria for sizing fire-rated master meters.

For commercial or industrial sites that utilize large amounts of water in their production process, the developer shall provide estimated peak daily demand. Meter to be sized to 1.25 times (1.25x) the peak daily demand.

Table 6.2-F: Minimum Size of Water Meters, Mains, and Distribution Piping based on water-supply fixture-unit (w.s.f.u) values

Meter and Service Pipe (inches)	Distribution Pipe (inches)	Maximum Development Length (feet)									
PRESSURE RANGE 30 TO 39 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1]	2.5	2	1.5	1.5	1	1	0.5	0.5	0	0
3/4	3/4	9.5	7.5	6	5.5	4	3.5	3	2.5	2	1.5
3/4	1	32	25	20	16.5	11	9	7.8	6.5	5.5	4.5
1	1	32	32	27	21	13.5	10	8	7	5.5	5
3/4	1-1/4	32	32	32	32	30	24	20	17	13	10.5
1	1-1/4	80	80	70	61	45	34	27	22	16	12
1-1/2	1-1/4	80	80	80	75	54	40	31	25	17.5	13
1	1-1/2	87	87	87	87	84	73	64	56	45	36
1-1/2	1-1/2	151	151	151	151	117	92	79	69	54	43
2	1-1/2	151	151	151	151	128	99	83	72	56	45
1	2	87	87	87	87	87	87	87	87	87	86
1-1/2	2	275	275	275	275	258	223	196	174	144	122
2	2	365	365	365	365	318	266	229	201	160	134
2	2-1/2	533	533	533	533	533	495	448	409	353	311
PRESSURE RANGE 40 TO 49 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1]	3	2.5	2	1.5	1.5	1	1	0.5	0.5	0.5
3/4	3/4	9.5	9.5	8.5	7	5.5	4.5	3.5	3	2.5	2
3/4	1	32	32	32	26	18	13.5	10.5	9	7.5	6
1	1	32	32	32	32	21	15	11.5	9.5	7.5	6.5
3/4	1-1/4	32	32	32	32	32	32	32	27	21	16.5
1	1-1/4	80	80	80	80	65	52	42	35	26	20
1-1/2	1-1/4	80	80	80	80	75	59	48	39	28	21
1	1-1/2	87	87	87	87	87	87	87	78	65	55
1-1/2	1-1/2	151	151	151	151	151	130	109	93	75	63
2	1-1/2	151	151	151	151	151	139	115	98	77	64
1	2	87	87	87	87	87	87	87	87	87	87
1-1/2	2	275	275	275	275	275	275	264	238	198	169
2	2	365	365	365	365	365	349	304	270	220	185
2	2-1/2	533	533	533	533	533	533	533	528	456	403
PRESSURE RANGE 50 TO 60 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1]	3	3	2.5	2	1.5	1	1	1	0.5	0.5
3/4	3/4	9.5	9.5	9.5	8.5	6.5	5	4.5	4	3	2.5
3/4	1	32	32	32	32	25	18.5	14.5	12	9.5	8
1	1	32	32	32	32	30	22	16.5	13	10	8
3/4	1-1/4	32	32	32	32	32	32	32	32	29	24
1	1-1/4	80	80	80	80	80	68	57	48	35	28
1-1/2	1-1/4	80	80	80	80	80	75	63	53	39	29
1	1-1/2	87	87	87	87	87	87	87	87	82	70
1-1/2	1-1/2	151	151	151	151	151	151	139	120	94	79
2	1-1/2	151	151	151	151	151	151	146	126	97	81
1	2	87	87	87	87	87	87	87	87	87	87

Table 6.2-F: Minimum Size of Water Meters, Mains, and Distribution Piping based on water-supply fixture-unit (w.s.f.u) values

Meter and Service Pipe (inches)	Distribution Pipe (inches)	Maximum Development Length (feet)									
1-1/2	2	275	275	275	275	275	275	275	275	247	213
2	2	365	365	365	365	365	365	365	329	272	232
2	2-1/2	533	533	533	533	533	533	533	533	533	486
PRESSURE RANGE OVER 60 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1]	3	3	3	2.5	2	1.5	1.5	1	1	0.5
3/4	3/4	9.5	9.5	9.5	9.5	7.5	6	5	4.5	3.5	3
3/4	1	32	32	32	32	32	24	19.5	15.5	11.5	9.5
1	1	32	32	32	32	32	28	28	17	12	9.5
3/4	1-1/4	32	32	32	32	32	32	32	32	32	30
1	1-1/4	80	80	80	80	80	80	69	60	46	36
1-1/2	1-1/4	80	80	80	80	80	80	76	65	50	38
1	1-1/2	87	87	87	87	87	87	87	87	87	84
1-1/2	1-1/2	151	151	151	151	151	151	151	144	114	94
2	1-1/2	151	151	151	151	151	151	151	151	118	97
1	2	87	87	87	87	87	87	87	87	87	87
1-1/2	2	275	275	275	275	275	275	275	275	275	252
2	2	365	368	368	368	368	368	368	368	318	273
2	2-1/2	533	533	533	533	533	533	533	533	533	533

Notes:

[1] Minimum size of building supply is ¾-in. pipe.

[2] User shall follow the most recently adopted code; above table was the most recent version at the time of publication of this Manual.

Source: 2021 International Plumbing Code – Table E201.1

Table 6.2-G: Water-supply fixture-unit (w.s.f.u) values for Various Plumbing fixtures and Fixture Groups

Type of Fixtures or Group of Fixtures	Load in w.s.f.u. values		
	HOT	COLD	COMBINED
Bathtub (with/without overhead shower head)	1.0	1.0	1.4
Clothes washer	1.0	1.0	1.4
Dishwasher	1.4	—	1.4
Full-bath group with bathtub (with/without shower head) or shower stall	1.5	2.7	3.6
Half-bath group (water closet and lavatory)	0.5	2.5	2.6
Hose bibb (sillcock)[1]	—	2.5	2.5
Kitchen group (dishwasher and sink with/without garbage grinder)	1.9	1.0	2.5
Kitchen sink	1.0	1.0	1.4
Laundry group (clothes washer standpipe and laundry tub)	1.8	1.8	2.5
Laundry tub	1.0	1.0	1.4
Lavatory	0.5	0.5	0.7
Shower stall	1.0	1.0	1.4
Water closet (tank type)	—	2.2	2.2

Notes:

[1] The fixture unit value 2.5 assumes a flow demand of 2.5 GPM, such as for an individual lawn sprinkler device. If a hose bibb/sill cock will be required to furnish a greater flow, the equivalent fixture-unit value may be obtained from this table or Table P2903.6(1).

[2] Supply loads in the building water-distribution system shall be determined by total load on the pipe being sized, in terms of w.s.f.u., as shown in Table P2903.6, and gallons per minute (GPM) flow rates [see Table P2903.6(1)]. For fixtures not listed, choose a w.s.f.u. value of a fixture with similar flow characteristics.

[3] For SI units: 1 GPM = 3.785 Liters per minute (L/m).

[4] User shall follow the most recently adopted code. The above table was the most recent version at the time of publication of this Manual.

Source: 2021 International Residential Code – Table P2903.6

Table 6.2-H: Load Values assigned to Fixtures [1]

Fixture	Occupancy	Type of Supply Control	Load in w.s.f.u values		
			COLD	HOT	COMBINED
Bathroom group	Private	Flush tank	2.7	1.5	3.6
Bathroom group	Private	Flushometer-valve	6.0	3.0	8.0
Bathtub	Private	Faucet	1.0	1.0	1.4
Bathtub	Public	Faucet	3.0	3.0	4.0
Bidet	Private	Faucet	1.5	1.5	2.0
Combination fixture	Private	Faucet	2.25	2.25	3.0
Dishwashing machine	Private	Automatic	—	1.4	1.4
Drinking fountain	Offices, etc.	⅜-in. valve	0.25	—	0.25
Kitchen sink	Private	Faucet	1.0	1.0	1.4
Kitchen sink	Hotel, restaurant	Faucet	3.0	3.0	4.0
Laundry trays (1 to 3)	Private	Faucet	1.0	1.0	1.4
Lavatory	Private	Faucet	0.5	0.5	0.7
Lavatory	Public	Faucet	1.5	1.5	2.0
Service sink	Offices, etc.	Faucet	2.25	2.25	3.0
Shower head	Public	Mixing valve	3.0	3.0	4.0
Shower head	Private	Mixing valve	1.0	1.0	1.4
Urinal	Public	1-in. flushometer-valve	10.0	—	10.0
Urinal	Public	¾-in. flushometer-valve	5.0	—	5.0
Urinal	Public	Flush tank	3.0	—	3.0
Washing machine (8-lb.)	Private	Automatic	1.0	1.0	1.4
Washing machine (8-lb.)	Public	Automatic	2.25	2.25	3.0
Washing machine (15-lb.)	Public	Automatic	3.0	3.0	4.0
Water closet	Private	Flushometer valve	6.0	—	6.0
Water closet	Private	Flush tank	2.2	—	2.2
Water closet	Public	Flushometer valve	10.0	—	10.0
Water closet	Public	Flush tank	5.0	—	5.0
Water closet	Public or private	Flushometer tank	2.0	—	2.0

Notes:

[1] For fixtures not listed, loads should be assumed by comparing the fixture to one listed using water in similar quantities and at similar rates. The assigned loads for fixtures with both hot and cold water supplies are given for separate hot and cold water loads and for total load. The separate hot and cold water loads are three-fourths of the total load for the fixture in each case.

[3] For SI units: 1 inch = 25.4 mm, 1 pound = 0.454 kg.

[4] User shall follow the most recently adopted code. The above table was the most recent version at the time of publication of this Manual.

Source: 2021 International Plumbing Code – Table E103.3(2)

Table 6.2-I: Sample w.s.f.u Tabulation

Fixture	Quantity	Load Values, in Total w.s.f.u (each)	Total Fixture Units
Water Closet (Public; Flush Valve)	9	10.0	90
Water Closet (Public; Flush Tank)	3	5.0	15
Urinal (Public; ¾-in. Flush Valve)	5	5.0	25
Lavatory (Public)	10	2.0	20
Kitchen Sink (Hotel, Restaurant)	2	4.0	8
Service Sink	1	3.0	3
Shower Head (Private)	1	1.4	1.4
		Total	**162.4**

Table 6.2-J: Land Use and Service Units/SFE Equivalencies

Meter Type	Meter Size	Typical Land Use	Single-Family Equivalents (SFEs)
Positive Displacement	⅝-in. x ¾-in.	Residential – Single-Family (Building less than 1,300 sq. ft. per lot size less than 6,000 sq. ft.)	0.5
Positive Displacement	⅝-in. x ¾-in.	Residential – Single-Family	1.0
Positive Displacement	¾-in. x ¾-in.	Residential / Commercial	1.5
Positive Displacement	1-in.	Residential / Commercial	2.5
Positive Displacement	1½-in.	Commercial	5.0
Positive Displacement	2-in.	Commercial	8.0
Compound	3-in.	Commercial / Industrial	22.5
Compound	4-in.	Commercial / Industrial	50.0

Notes:

[1] The total service units for multifamily apartment projects with eight (8) or more units shall be determined by multiplying the total number of bedrooms in the multifamily apartment project by 0.26 Single-Family Equivalents (SFEs).

Source: City of Denton Approved Meter Manufacturer's Specifications;
City of Denton Code of Ordinances Section 26-218 - Water and Wastewater Facilities - Exhibit F

C. Location

Water meters and meter cans and vaults shall be placed within a City ROW, Public Utility Easement or Public Water Easement. Placement shall also satisfy the following requirements:

1. Located as close as possible to the public water main;
2. Easily accessible to City of Denton employees; and
3. Located in an unpaved area that does not conflict with vehicular or pedestrian traffic.

D. Furnishing and Installing

All meters two (2) inches and smaller, shall be furnished and installed by City Water Utilities for fees per the current Fee Schedule. All meter assemblies three (3) inches and larger and their associated vaults, shall be furnished and installed by Contractor at their expense and inspected by Public Works

Inspection and City Water Utilities.

E. Details

Details of the meter can assemblies for meter sizes two (2) inches and smaller are shown in the City of Denton Standard Details.

Details of the meter vault assemblies for meter sizes three (3) inches and larger are shown in the City of Denton Standard Details.

F. Backflow Prevention

Backflow Prevention Assemblies are required in accordance with the International Plumbing Code, 2021 IFC, 30 TAC § 290.44. Backflow Prevention Assemblies must be utilized:.

1. At each dedicated fire line connection. A flanged fire line valve shall be required to connect to the tee located on the main line and a fire line valve shall be required outside the downstream side of the vault or ROW line whichever applies.
2. After each meter of any site served by redundant domestic meters.
3. At facilities supporting Recreational Vehicle (RV) connections for the purpose of flushing waste tanks.
4. At all services outside City limits, in accordance with 30 TAC § 290.47(f)); and
5. At all properties that have an auxiliary water source. These properties must protect connections to the public water system using a reduced pressure backflow assembly (RPBA).

Backflow prevention devices shall be placed at the ROW or an easement line adjacent to the connection to the public water system.

6.2.6 Water Main Horizontal and Vertical Alignment

The following guidelines should be followed by the design engineer in placement of water lines:

A. In existing streets, water lines shall be placed in the pavement four (4) feet from back of curb. For new residential development, water lines shall be placed on the north and east sides of the streets, where possible, four (4) feet from back of curb. *See* the City of Denton Standard Details.

B. All water lines shall be laid as straight as possible. Avoid excessive number of high points and low points between cross street connections, as they trap air pockets. *See* Section 6.2.16.B of this Manual for placement of air release valves.

C. Minimum radius of curvature and maximum deflection angle of pipe joints are restricted to the manufacturer's recommendation, after which, horizontal or vertical bends are required. Deflection of pipe shall only be permitted through joint deflection; no bending of pipe is allowed.

D. Vertical bends shall be no greater than 45 degrees.

E. Except for transverse pipe crossings, no other utility shall be installed over, under or within five (5) feet horizontally of a water line.

F. There shall be at least two (2) feet of vertical separation between a water line and any utility or storm drain crossing it.

G. Water lines shall not be located closer than 10 feet to any building or structure.

6.2.7 Highway Crossings

Crossings of State or County-controlled roads shall require the review and approval of the appropriate regulatory agency. Crossings shall meet the requirements provided by the controlling agency and by the City of Denton Standards. In the event of different requirement levels for the same item, the more stringent standard shall apply.

6.2.8 Railroad Crossings

The design engineer shall, prior to the design of any railroad crossing, contact the appropriate railroad company and regulatory agency to determine if there are any special requirements. In the event the City of Denton Design Criteria are more stringent than those of the Railroad Company or regulatory agency, the City's standards shall apply.

6.2.9 Creek Crossings

Where a water main is laid under any flowing stream or semi-permanent body of water, such as a marsh or pond, or an identified ESA (*See* DDC 7.4) the water main shall be installed in a separate watertight encasement pipe, with valves on each side of the crossing to allow for the isolation and testing of that portion of the water main to determine if there are any leaks, and to facilitate future repairs.

A primary consideration in the design of creek crossings is the prevention of soil erosion in the areas of trench backfill. The design engineer shall determine the need and limits of any special embedment, and determine and specify the limits for specialized backfills.

6.2.10 Tunneling, Boring, Jacking and Casing

Tunneling, boring, jacking and casing are methods used for water line placement under restrictive conditions when open-cut construction is not allowed. Only straight pipe alignments for both horizontal and vertical alignment are allowed.

Design engineers should consider the location, size, and depth of boring and receiving pits when choosing the beginning and ending stations for boring. A typical bore pit is between 35 and 40 feet in length to accommodate the boring machine and one (1) joint of pipe. Width of the bore pit can vary depending on the depth and size of pipe, with the narrowest width being approximately 15 feet. Additional size and spacing requirements may be required as outlined in DDC 7.4 when working adjacent to confirmed ESAs. The preferred location for the bore pit is the lower elevation end of the bore; allowing any groundwater and/or boring slurry to drain from the tunnel into the bore pit. The water can then be removed by pumping.

Steel casing pipe, where required for open-cut or other than open-cut installation, shall conform to the City Standard Specification 33 05 07 Steel Casing Pipe, and have an inside diameter (ID) large enough to accommodate a carrier pipe of at least two (2) standard sizes above the pipe being installed. Consult with Water Utilities Department for project specific design, sealed and signed by a Professional Engineer, licensed by the State of Texas.

Carrier pipes may be PVC with external harness restrained joints (requires larger casing than for pipe alone) or ductile iron with restrained joints. All carrier pipes shall be installed in accordance with the pipe manufacturer's recommendations, properly restrained and supported with approved spacers and casing end seals. Pipe joint restraint shall be achieved using only City approved pipe manufacturer externally restrained joint systems. Refer to City of Denton Standard Detail U208A and the current City approved Materials Submittal List.

6.2.11 Elevated Crossings

Elevated crossings are not permitted for water mains except for special cases approved by the City's Engineer. Design requirements for approved elevated crossings shall be tailored to the specific project characteristics.

6.2.12 Underground Utility Crossing

Where water mains are laid under or over another buried utility line or underground facility (i.e., storm drain, culvert boxes, franchise utilities, etc.), special requirements may be necessary for the protection of the water main. Table 6.2-K provides requirements for different crossing situations. This table is not a replacement for separation requirements for sewer and water lines as governed by 30 TAC §§ 217.53 and 290.44, respectively.

Table 6.2-K: Utility Crossing Requirements

Water Utility	Crossing	Utility Line Size (in.)	Separation (feet)	Special Requirement
New/existing Water	Under	< 24	≥ 2	None
New/existing Sewer	Under	< 24	≥ 2	None
New/existing Water	Under	24 to 42	≥ 2	None
New/existing Sewer	Under	24 to 42	≥ 2	None
New Water	Under	> 42	≥ 2	Encased in 150±psi pressure class pipe
Existing Water	Under	> 42	≥ 2	Encased in split steel casing
New Sewer	Under	> 42	≥ 2	Encased in 150±psi pressure class pipe
Existing Sewer	Under	> 42	≥ 2	Encased in split steel casing
New Water	Under	≥ 10	≥ 2	Cased in steel pipe
Existing Water	Under	≥ 10	≥ 2	Cased in split steel pipe
New Sewer	Under	≥ 10	≥ 2	Cased in steel pipe
Existing Sewer	Under	≥ 10	≥ 2	Cased in split steel pipe
New/existing Water	Over	< 24	≥ 2	None
New/existing Sewer	Over	< 24	≥ 2	None
New/existing Water	Over	≥ 24	≥ 2	None
New/existing Sewer	Over	≥ 24	≥ 2	None

A. To minimize crossing impacts, crossings must be perpendicular, if possible.

B. Utility crossings with less than two (2) feet of separation require a design deviation request (which will include special requirements) after providing a thorough analysis detailing physical and economic factors involved.

C. Pursuant to the Code of the City of Denton, Texas, Chapter 25, Article II, Sec. 25-80-Facility Size and Locations, all ROW user facilities are required to maintain a minimum separation of 24 inches from all City utility system facilities. If a ROW user may encounter a hardship due to this requirement, the ROW user may request a design deviation as detailed in Section 8 of this Manual.

D. Split-steel casing shall follow sizing requirements of pressure-rated casing.

E. See City Standard Specification Section 33 05 07 Steel Casing Pipe.

F. Casing spacers shall be placed not more than five (5) feet apart.

G. Encasement shall be extended a minimum of three (3) feet beyond the edge of the utility or facility to be crossed. Water mains that cross utility lines in private easements must adhere to the requirements of the easement owner, as well as those listed above.

6.2.13 Fence or Wall Crossings

A. Water mains should be routed to avoid entering private property. In circumstances where it is impractical to avoid doing so, provisions are required to allow City staff to inspect, maintain, and repair its infrastructure. Water mains crossing fences will require a design deviation request as per Section 8 of this Manual, to be reviewed by the City's Engineer, after thorough consideration of the physical and economic factors involved. Design deviations may require additional provisions beyond this Manual.

B. Water mains crossing under privacy fencing (wood, chain-link, or plastic) shall not require any special protection.

C. Water mains crossing under other types of fencing will require the fence to be constructed of easily removable panels or have gates that can be removed from the easement.

D. Water mains may not cross under retaining walls.

E. There must be at least two (2) feet of vertical separation between a water line and any utility or storm drain crossing it.

6.2.14 Existing Water Main Replacement

A. Whenever an existing main is to be replaced by a new main, use the following guidelines for alignment and design:

1. The new line should be located as near as possible to the existing line; while allowing the existing line to remain in service, until the new line is ready to be put into service.
2. If the existing line is in or next to a roadway, the new line should be placed under existing pavement, not behind the curb in the parkway area.
3. The new line should be designed to utilize the existing metering locations where possible.

B. The size of the new line should match the size of the existing line. If the existing line is a non-standard size (i.e., 6-in. or 10-in.) then the new line should be sized for the next larger standard size. The design engineer shall perform field investigations to determine pavement condition over the existing main. The pavement may have been patched due to breaks in the existing main over the years. Based on field investigations, the design engineer shall include additional quantities for pavement replacement, if necessary.

6.2.15 Methods of Connection

A. Pressure Zones

The City of Denton's Water Distribution System is divided into several water pressure zones to ensure even water-pressure gradients. Prior to the design of connection points between a proposed main and any existing main, the design engineer shall investigate and determine if the proposed water main crosses the boundary between different pressure zones.

Even though physical connections of water pipes exist between pressure zones, they are designed with valves which are closed at the boundary points so that each pressure zone is isolated.

Proposed mains that approach pressure zone boundaries shall be designed to loop within their designated pressure zones and with no or minimum lengths of dead-end mains.

Connections between pressure zones must be approved by the Director of Water Utilities, and may require pressure-reducing valve stations. The design engineer can determine the pressure zone boundaries by consulting the record drawing water maps which show the designated closed valves between pressure zones and by contacting Water Utilities. *See* Figure 6.1 below for a Pressure Zone Map.

Note that the developer will be responsible for all surface rehabilitation associated with connecting to the City's Water Utilities. Surface rehabilitation must match existing site conditions or better.

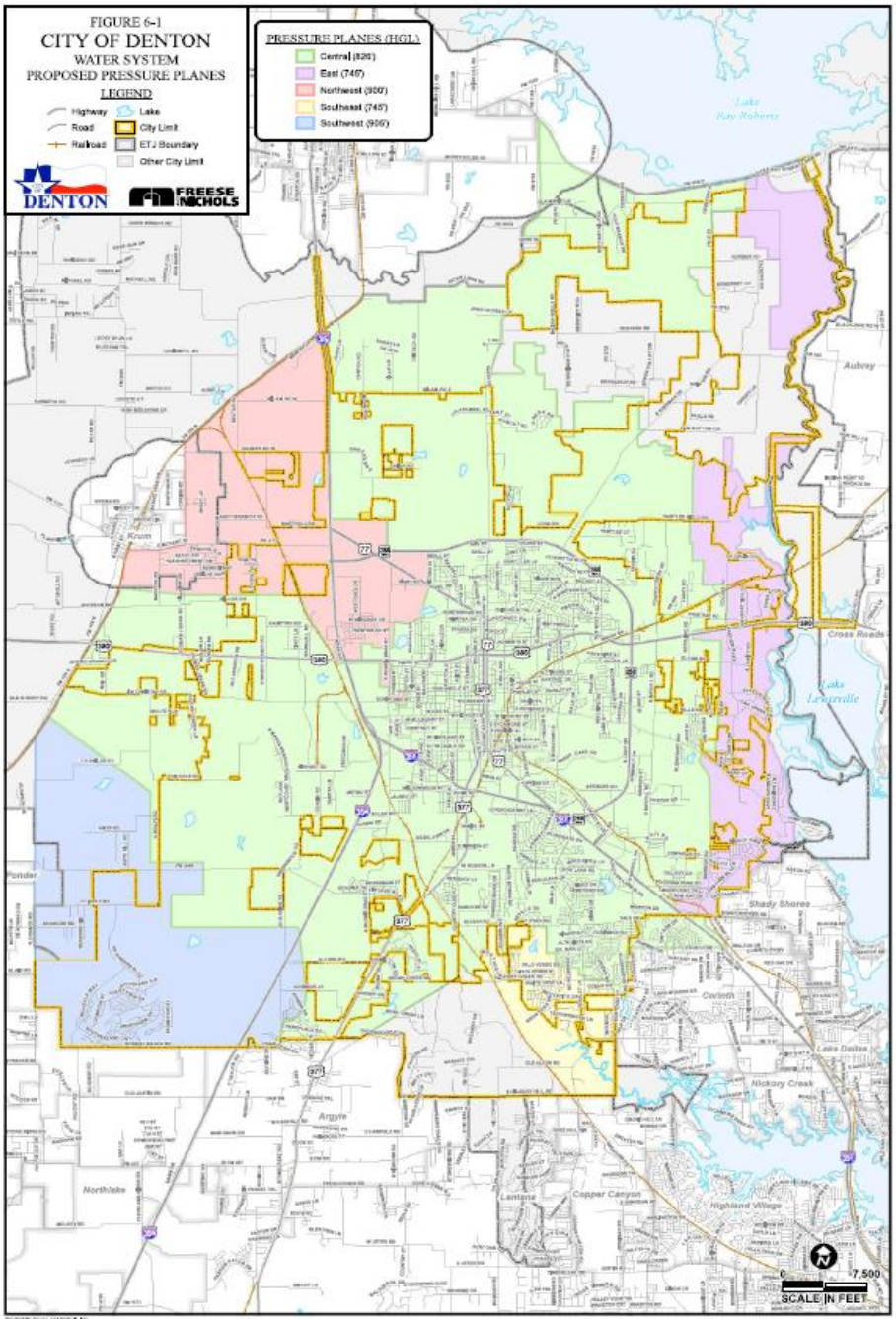

Figure 6.1 2018 Water Master Plan Pressure Zone Map

B. Tapping Sleeve and Valve

Tapping sleeves with tapping valves shall be used whenever possible for connections to existing mains to avoid interruption of water services. *See* Figure 3.1 in Drawing PIAZ13 of the City of Denton Standard Details.

1. As per AWWA C223, size-on-size taps are allowed up to 12 inches (e.g.: 12-in. x 12-in.)
2. Taps on 16-in. and larger pipes must be approved in writing in advance by the City's Engineer. *See* Figure 3.2 in Drawing PIAZ13 of the City of Denton Standard Details. (e.g.: 16-in. x 12-

in., 16-in. x 8-in., and 16-in. x 6-in. taps may be allowed).

3. Connections to fire hydrant leads are not allowed.

4. All water service lines, two (2) inches and smaller, require taps as per City of Denton Standard Details.

C. Cut-in Connection

Cut-in connections are only allowed to existing mains larger than 12 inches, where a size-on-size connection is needed. *See* Figure 3.4 in Drawing PIAZ14 of the City of Denton Standard Details.

D. Main Extensions

A new valve shall be installed at the point of connection for water main extensions. This will facilitate the testing and chlorination of the new main prior to its placement into service. *See* Figure 3.5 in Drawing PIAZ14 the City of Denton Standard Details.

6.2.16 Valves

A. Isolation Valves

1. Location

Isolation valves shall be provided to allow for the proper operation and maintenance of the water distribution system, and to ensure water quality can be maintained for each individual water customer connected to the system.

The location of valves needs to properly address the ability of the Department of Water Utilities to remove a water line from service to perform necessary repairs, while critically minimizing the interruption of service for fire protection and to customers. Isolation of any given section of water line should generally be able to be accomplished by closure of the least number of valves, as would generally be expected under good engineering design practices and utility engineering standards. The Department of Water Utilities reserves the right to require changes to proposed designs to satisfy these objectives.

The design engineer shall place valves on proposed water mains so they may be easily located in the future by operations and maintenance crews.

The following guidelines should be used by the design engineer in placement of isolation valves on proposed water mains:

a. Two (2) valves are to be installed at every main branch tee location, one (1) flanged to the branch of the tee and the other a mechanical joint connection on one (1) of the two (2) runs of the tee. *See* Figure 3.6 in Drawing PIAZ15 of the City of Denton Standard Details. Three (3) valves are to be installed at every cross location, each a mechanical joint connection.

b. Valves for line sizes 12 inches in diameter or less should not be spaced any farther apart than 1,000 feet. For city blocks that are longer than 1,000 feet between street intersections, placement of a valve will be required between street intersections.

c. Valves should be generally located so that no more than four (4) valves are required to isolate a section of main. *See* Figure 3.7 in Drawing PIAZ15 of the City of Denton Standard Details. For mains larger than 12 inches in diameter, valve spacing and placement shall be subject to alternate criteria approved by the City's Engineer.

d. All fire hydrant leads must be designed with a valve that is flanged to the main line. *See* Drawings W401A and W401B of the City of Denton Standard Details.

2. Specifications

Refer to Table 6.2-L and Standard Specifications 33 14 20 Resilient Seated (Wedge) Gate Valves and 33 14 21 AWWA Rubber-Seated Butterfly Valves.

Table 6.2-L: Isolation Valve Requirements

Size	4-in. to 12-in.	16-in. to 20-in.	24-in.	30-in.	36-in. or larger
Type	Gate Valve (AWWA C509 resilient-seat)	Gate Valve (AWWA C515 resilient-seat)	Gate Valve (AWWA C515 resilient-seat)	Gate Valve (AWWA C515 resilient-seat)	Gate Valve (AWWA C515 resilient-seat) or butterfly, to be determined by City on a case-by-case basis
Orientation	Vertical	Vertical	Vertical	Vertical or horizontal; to be determined by City on a case-by-case basis	Vertical or horizontal; to be determined by City on a case-by-case basis
Gear Operator Required	No	No	Yes	Yes	Yes
Vault Required	No	No	Yes	Yes	Yes
Bypass Required	No	No	No	Yes	Yes

3. Details

Refer to Drawings W104, W105, W106A, W106B, and W601 of the City of Denton Standard Details.

B. Air Release Valves and Air/Vacuum-Air Release Valves

For water mains less than 16 inches in diameter in certain situations where the topography, remoteness, or some other hydraulic factor necessitates it, air release valves are required at local high points to facilitate automatic release of accumulated air.

For water mains 16 inches and larger, the City requires air/vacuum-air release valves at local high points to facilitate automatic release of accumulated air and to facilitate automatic prevention of vacuum conditions within the line. *See* Drawings W801 and W802 of the City Standard Details.

Manholes shall not be placed in sidewalks, pedestrian ramps, driveway approaches, or in the bottom or on the slopes of a drainage channel or drainage structure. Manholes shall be kept a minimum of 40 feet from any railroad track.

6.2.17 Dead-End Mains

A. Dead-end main situations should be avoided whenever possible.

B. In lieu of dead-end mains, the design should loop through public ROW or a dedicated public utility easement (with adequate assurance of access and fencing prohibited) to another nearby water main using the same size pipe.

C. If a dead-end main situation is unavoidable, it shall be designed so that it may be periodically flushed of stagnant water by locating a fire hydrant or other flushing device near the main's end and past the last service connection. *See* City of Denton Standard Detail W603.

6.2.18 Fire Hydrant Locations and Coverage

A. The design engineer should locate fire hydrants as close as possible to street intersections, but outside of the curb radius. This positioning of fire hydrants provides coverage along several streets. When spacing requirements necessitate the installation of fire hydrants between street intersections, they should be placed at the projection of lot lines between property owners. For main replacement projects in established neighborhoods, fire hydrants should be designed as close as possible to the old fire hydrant location, provided coverage is adequate. Neighborhood residents are familiar with the fire hydrant being at that location and normally expect a replacement fire hydrant to be placed at the same location. Fire hydrants are not to be installed closer than nine (9) feet to any wastewater main, manhole, or appurtenance.

B. Fire hydrant spacing shall comply with the 2021 IFC Appendix C Fire Hydrant Locations and Distribution, and be easily accessible by City staff and First Responders. *See* City of Denton Standard Details W401A and 401B, and Standard Specifications 33 14 40 Fire Hydrants. Fire hydrants shall be placed at a maximum of 500 feet apart in single-family residential areas and a maximum of 300 feet apart in all other areas, unless a closer spacing is required by the IFC.

6.2.19 Requirements for Abandoning Water Mains

The design engineer should note the limits and appropriate conditions for the abandoning of existing water mains which are to be replaced by the construction of any proposed water mains.

The design engineer should also make allowances in the design to provide for the existing and proposed mains to be in service simultaneously, until all customer services are transferred from the old main to the new main with minimum interruption of service. If the construction of a proposed main necessitates the abandoning of the existing main prior to the new main's placement into service, then provisions for a temporary water main with services must be addressed by the design.

Typically, abandoned lines may be left in place with only the ends being plugged with grout or concrete. However, the City may require special abandonment actions including, but not limited to, filling the abandoned water main with grout, removal and proper disposal of all above ground appurtenances, and removal and proper disposal of the abandoned pipe.

A. Replacement Mains

On occasions when connecting to an existing main, it may be desirable to have an additional valve on the existing main. In this situation, the design engineer should consider using a cut-in connection with a tee and valve being cut into the existing main. *See* Figure 3.4 in Drawing PIAZ14 of the City of Denton Standard Details.

B. Extension Mains

A new valve shall be installed at the point of connection for water main extensions. This will facilitate the testing and chlorination of the new main prior to its placement into service. *See* Figure 3.5 in Drawing PIAZ14 the City of Denton Standard Details.

C. Fire Hydrants

A new valve shall be installed at the point of connection for water main extensions. This will facilitate

the testing and chlorination of the new main prior to its placement into service. *See* Figure 3.5 in Drawing PIAZ14 the City of Denton Standard Details.

6.2.20 Flushing and Disinfection

Prior to making permanent connections to the distribution system, water distribution mains, valves, and appurtenances shall be adequately flushed and disinfected in accordance with the most current revision to AWWA C651, and bacteriological testing shall be completed to meet the standards established by the Water Utilities Department and 30 TAC Chapter 290. Additionally, heavily chlorinated water shall be flushed from all segments of the newly constructed mains before final connections are made.

Before commencement of construction of water distribution infrastructure, the contractor or engineer shall submit a flushing and disinfection plan for review by the Department of Water Utilities. At a minimum the plan shall describe:

A. Flushing procedures;

B. Hydraulic calculations to demonstrate adequate flushing velocities, or demonstrate conformance with the conditions outlined in AWWA C651 Table 3;

C. The method of chlorination;

D. Bacteriological sampling plan;

E. Dechlorinating procedures (Refer to AWWA C655); and

F. Disposal of chlorinated water and methods used to ensure discharges to surface waters or storm sewer systems do not exceed 0.1 mg/L total chlorine.

6.3 Wastewater Design Guidelines

6.3.1 Estimated Wastewater Flows

For sewers in new developments, sewer lines and lift stations shall be designed to accommodate the projected buildout flows from all residential, commercial, industrial, or institutional sources upstream of the proposed sewer improvement. Figure: 30 TAC § 217.32(a)(3) Table B.1. - Design Organic Loadings and Flows for a New Wastewater Treatment Facility (*see* excerpted information in Table 6.3-A) shall be used as a guide to generate wastewater flows. However, minimum flow capacity for sizing of sewers for peak flow condition shall not be less than the results of the following calculation procedures:

A. Delineate the wastewater drainage area that will drain into the sewer main or lift station. Include all upstream offsite areas.

B. For the development site, use the following design parameters:

   1. Table 6.3-A to generate the wastewater loading by type of use.

   2. 3.2 capita per lot for single-family.

   3. 2.5 capita per unit for multifamily.

   4. Apply a 4.0 multiplier to the average daily flow to determine the peak flow.

C. For undeveloped upstream areas, use the following design parameters:

   1. 4 lots per acre.

2. 3.2 capita per lot.
3. Average daily flow of 90 GPCD.
4. Apply a 4.0 multiplier to the average daily flow to determine the peak flow.

D. For developed residential upstream areas, use the following design parameters:
1. Count number of single-family lots.
2. Obtain number of multifamily units (available through DCAD)
3. 3.2 capita per lot for single-family.
4. 2.5 capita per unit for multifamily.
5. Average daily flow of 90 GPCD
6. Apply a 4.0 multiplier to the average daily flow to determine the peak flow

E. For developed non-residential upstream areas, use the following design parameters:
1. Average daily flow of 1,500 GPD per acre.
2. Apply a 4.0 multiplier to the average daily flow to determine the peak flow.

For replacement of existing sewers and construction of parallel sewers for additional capacity, wastewater flow data may be provided by the City from data generated by City sewershed computer models. The cost for modeling a project's impact with the City's collection system model will be the responsibility of the developer and paid to the City.

Proposed impacts to the City's system determined to, or likely to, cause (through hydraulic modeling or other analysis) these limits to be exceeded, are prohibited without additional improvements to the public system so the system can be operated within these parameters.

Table 6.3-A: Design Flows for a New Wastewater Treatment Facility

Source	Remarks	Daily Wastewater Flow (Gal. per person)[1]
Municipality	Residential	75 - 100
Subdivision	Residential	75 - 100
Trailer Park [2] (Transient)	2½ Persons per Trailer	50 - 60
Mobile Home Park [2]	3 Persons per Trailer	50 - 75
School	Cafeteria & Showers Cafeteria/ No Showers	20 15
Recreational Parks	Overnight User Day User	30 5
Office Building or Factory	Facility must be designed for the largest shift	20
Hotel/Motel	Per Bed	50 - 75
Restaurant	Per Meal	7 - 10
Restaurant with bar or cocktail lounge	Per Meal	9 - 12
Hospital	Per Bed	200
Nursing Home	Per Bed	75 - 100
Alternative Collection Systems, e.g., septic tanks	Per Capita	75

Notes:
[1] City of Denton requires usage of the highest number of the TCEQ ranges.
[2] At the time of updating this Manual, the TCEQ is evaluating criteria for tiny homes, and should be consulted as appropriate.
Source: TCEQ Rules - 30 TAC §217.32(a)(3), Table B.1

6.3.2 Separation between Water and Wastewater Collection Facilities

Wastewater mains and manholes shall be separated from water mains as set forth in 30 TAC §217.53(d) - Separation Distances and 30 TAC §290.44 - Water Distribution.

6.3.3 Size and Slope of Sewers

After the design engineer has determined the wastewater flows per Section 6.3.1 of this Manual, the sewer size can be determined using the following criteria. However, no sewer, other than service laterals and force mains, shall be less than eight (8) inches in diameter.

The size and grade of the proposed sewer shall be evaluated using Manning's formula

$$V = 1.49/n\ (R)^{0.67}\ (S)^{0.50} \qquad \textbf{[Eqn. 6.1]}$$

Where: V = velocity (in fps)

n = Manning's coefficient of roughness; minimum 0.013

R = hydraulic radius (feet)

S = slope of energy grade line (feet per foot)

Proposed sewers shall be designed with slopes sufficient for velocity of three (3.0) fps, with a minimum required velocity of two (2.0) fps. The minimum acceptable Manning's "*n*" factor for design shall be 0.013, which takes into consideration the slime, grit and grease layers that will affect hydraulics or hinder flow as the pipe matures. The sewer pipe grades shown in Table 6.3-B are based on an "*n*" value of 0.013 and are the minimum acceptable slope for sewer lines.

Table 6.3-B: Minimum and Maximum Pipe Slopes

Size of Pipe - ID (inches)	Minimum Slope (%)	Maximum Slope (%)	Capacity Flowing Full at Min. Slope (MGD)
8	0.335	8.40	0.45
10	0.25	6.23	0.71
12	0.20	4.88	1.03
15	0.15	3.62	1.62
18	0.115	2.83	2.25
21	0.095	2.30	3.07
24	0.08	1.93	4.14
7	0.07	1.65	4.91
30	0.06	1.43	6.23
33	0.055	1.26	7.66
36	0.045	1.12	9.17

The capacity of the sewer pipe flowing full shall be computed by the following equation:

$$C = 0.299/n\ (D)^{2.67}\ (S)^{0.50} \qquad \textbf{[Eqn. 6.2]}$$

Where: C = capacity (million gallons per day-MGD)

n = Manning's coefficient of roughness; minimum 0.013

D = inside diameter (feet)

S = slope of the energy grade line (feet per foot)

Sewer mains shall be designed to convey peak flow at no more than 80% of full pipe capacity at system buildout.

A. High Velocity Protection

Where velocities greater than 10 fps will occur when a pipe flows full, based on Manning's Equation and an "n" value of 0.013, restrained joint pipe or external restraint systems must be utilized.

6.3.4 Sewer Main Depth

Minimum depth for the design of sewer mains shall be determined by providing a 2% grade for the lateral from the center of the house or building to the center of the proposed main and including an additional two (2) feet drop. Therefore, for a house 100 feet from the proposed sewer main, the designed depth of the main shall be at least four (4) feet below the FFE of the house since:

2 feet + (2% of 100 feet) = 4 feet **[Eqn. 6.3]**

The lateral also must have at least two (2) feet of cover at its shallowest point. The design engineer is responsible for ensuring sufficient depth and grade is maintained to serve all building sites in the sewer shed.

The maximum depth of sewer mains is 30 feet.

6.3.5 Recommended Cover

Recommended cover for all sewer mains is four (4) feet to six (6) feet. Minimum cover shall be three (3) feet and six (6) inches or 3-½ feet. Any main approved to have less than minimum cover shall be encased in Class "B" embedment per City Standard Specifications. *See* Drawing U204 of the City of Denton Standard Details.

When establishing depth for proposed wastewater mains, design engineers shall consider the impact of proposed water and drainage improvements especially on service laterals that cross those improvements to connect to the wastewater main.

6.3.6 Sewer Alignment

Design engineers shall be guided by the following in the alignment of wastewater lines:

A. For new construction in areas not served, sewer mains shall be laid straight between manholes. No horizontal or vertical bends are allowed between manholes;

B. Avoid shifting mains from one side of the ROW to the other side of the ROW between street intersections;

C. Where the bypass of existing flows is feasible, it is recommended that replacement mains be constructed horizontally in the same trench; and

D. Except for pipe crossings, no franchise utility shall be installed within five (5) feet of a sewer main.

6.3.7 Sewer Laterals

A. Water Utilities, Field Operations, or Engineering and Planning staff reserve the right to permit utility-

supervised connections to the collection system by non-City staff. Note that the developer will be responsible for all surface rehabilitation associated with connecting to the City's Water Utilities. Surface rehabilitation must match existing site conditions or better.

B. Laterals may not serve more than one (1) lot.

C. Minimum lateral sizes from the sewer main to the public cleanout are:

1. 4-in. minimum for single-family
2. 6-in. minimum for residential duplex, triplex, and quadplex
3. 6-in. minimum for local retail, light commercial, apartment, manufacturing and industrial

D. Single-way clean-outs shall be provided on laterals at the public easement or ROW line. Double-way cleanouts are not allowed. *See* Drawings S403 and S404 of the City of Denton Standard Details.

E. Manholes shall be provided for lateral connections when the lateral pipe diameter is equal to the main sewer pipe diameter or if the lateral is eight (8) inches in diameter or larger.

F. Laterals shall be constructed to the property line and shall be located at a point five (5) feet downstream from the center of the lot on unimproved property. For improved property, design engineers should use technical judgement in lateral placement.

G. Preferred grade for lateral construction within the ROW/PUE is 2%. Laterals within ROW/PUE shall not be designed with less than 1% grade.

6.3.8 Gravity and Force Main Sewer Pipe Material

Gravity and Force Main sewer pipe shall meet the following criteria unless special circumstances require an alternative and is approved by the City's Engineer. Slope of grade across cover shall be a maximum of 4H:1V.

Table 6.3-C: Minimum and Maximum Pipe Slopes

Pipe Diameter	Application	Pipe Material
8-in. to 12-in.	Gravity	PVC – ASTM D3034, SDR 26; HDPE – ASTM D3350, DR-17
15-in.	Gravity	PVC – ASTM D3034, SDR 26
18-in. to 24-in.	Gravity	PVC – ASTM F 679, PS115; Fiberglass Reinforced Plastic – ASTM D3262
6-in. to 60-in.	Force Main	HDPE – ASTM D3350, DR-13.5; DIP – AWWA C150/C151, CL52 or PC 350, epoxy interior lining

A. For gravity sewer pipe sizes over 24 inches in diameter, design calculations and pipe selection shall be submitted by the development design engineer for review. Approvals will be provided on a project specific basis.

B. Force main sewer pipe shall be designed to meet the working and surge pressure requirements of the specific application. Design calculations and pipe selection shall be submitted by the development design engineer for review.

C. Different pipe materials shall not be mixed between manholes. If it is anticipated that a mixing of materials will occur, the design engineer shall design a manhole at the point of transition of pipe materials. For previously placed stub-out of a material other than PVC pipe, design engineer shall add a note to the plans calling for removal of the stub-out or change the material of the proposed

pipe for that section of pipe between manholes.

6.3.9 Sewer Pipe Embedment

The types of embedment and backfill for sewer mains are shown in Drawings U201, U202, U203A, and U203C of the City of Denton Standard Details. Embedment requirements shall be based on sewer mains under proposed pavement, unpaved areas and existing pavement.

6.3.10 Manholes

Manholes constructed on existing or proposed sewer lines shall be sized as follows:

Table 6.3-D: Manhole Sizing

Pipe Diameter	Manhole Diameter
8-in. to 12-in.	4.0 feet (For depths greater than 12 feet, use 5.0 feet)
15-in. to 27-in.	5.0 feet
30-in. to 36-in.	6.0 feet

Notes:
[1] Special manholes shall be designed for mains larger than 36-in. diameter pipe.

The types of manholes allowed by the City are shown in Drawings S101, S102, S103, and S107B of the City of Denton Standard Details. Additionally, connections to manholes must comply with City Standard Specifications.

Generally, manholes shall be stationed on the main run, and where known, the stations of the side mains should also be indicated. When connecting a proposed main to an existing main at a manhole, the connection shall have the top inside elevation of the outfall main level with the top inside elevation of the proposed main. Connections to brick manholes are prohibited.

At the discretion of Water Utilities, Field Operations, or Planning and Engineering Division staff, manholes with known deficiencies will be required to be replaced.

A. Manhole Locations

Manholes shall be provided at the following locations to facilitate maintenance, cleaning, and inspection:

1. At the location of lateral connections that are 8-in. diameter or larger;
2. At 500 feet intervals on sewer mains 15-in. diameter or smaller; at 800 feet internals on mains 18-in. diameter through 30-in. diameter; at 1,000 feet intervals on mains 36-in. diameter through 48-in. diameter; and at 2,000 feet intervals for 54-in. diameter and larger;
3. At all locations where pipe diameter or pipe material changes;
4. At all locations where the horizontal or vertical alignment of the sewer main changes;
5. At the ends of all mains with service connections. Two main upstream ends may not be combined in one manhole;
6. At the end of any pipe segment at least 150 feet long;
7. At the end of every end-of-line (EOL);

8. Sewer service laterals are to be connected to the sewer main line and not into a manhole unless it is a size-on-size connection;
9. Manholes shall not be placed in sidewalks, pedestrian ramps, driveway approaches, or in the bottom or on the slopes of a drainage channel or drainage structure;
10. At a minimum of 40 feet from any railroad track; and
11. Separation of utilities around manholes shall be a minimum distance of five (5) feet , to allow for maintenance and repair.

6.3.11 Highway Crossings

Crossings of State or County-controlled roads shall require the review and approval of the appropriate regulatory agency. Crossings shall meet the requirements made by the controlling agency and by City of Denton Standards. In the event of different requirement levels for the same item, the more stringent standard shall apply.

6.3.12 Railroad Crossings

The design engineer shall, prior to the design of any railroad crossing, contact the appropriate railroad company and regulatory agency and determine if there are any special requirements. In the event City of Denton Design Criteria are more stringent than those of the Railroad Company or regulatory agency, the City's standards shall apply.

6.3.13 Tunneling, Borings, Jacking, and Casing

A. Tunneling, boring, jacking and casing are methods used for sewer line placement under restrictive conditions when open cut construction is not allowed. Only straight pipe alignments for both horizontal and vertical alignments are allowed.

B. Design engineers should consider the location, size and depth of boring and receiving pits when choosing the beginning and ending stations for boring. A typical bore pit is between 35 and 40 feet in length to accommodate the boring machine and one joint of pipe. Width of the bore pit can vary depending on the depth and size of pipe, with the narrowest width being approximately 15 feet. The preferred location for the bore pit is the lower elevation end of the bore; allowing any groundwater and/or boring slurry to drain from the tunnel into the bore pit. The water can then be removed by pumping.

C. Steel casing pipe, where required for open-cut or other than open-cut installation, shall conform to City Standard Specification 33 05 07 Steel Casing Pipe, and have an ID large enough to accommodate a carrier pipe of at least two (2) standard sizes above the pipe being installed.

D. Force mains through casings shall follow the same requirements as are laid out for water mains in Section 6.2.10 of this Manual.

6.3.14 Underground Utility Crossings

The requirements of Section 6.2.12 of this Manual shall govern the crossing of underground utility lines by wastewater mains.

6.3.15 Fence or Wall Crossings

The requirements of Section 6.2.13 of this Manual shall govern the crossing of fences or walls by wastewater mains.

6.3.16 Creek Crossings

When a sewer main crosses a creek or channel, the design engineer must evaluate the condition of the creek bed and ensure erosion control is provided. Backfill material and minimum construction criteria are shown in the City of Denton Standard Details S701 and S702. These criteria include creek bed soil and condition, as well as presence of exposed rock. When working in these areas, minimize storage of soil, materials, and equipment near floodways and waterways.

6.3.17 Siphons

For creek or channel crossings where a Low-Water Channel Crossing is not feasible, design of an inverted siphon crossing is permissible when approved by the City's Engineer through a design deviation request. Inverted siphons shall not have less than two (2) barrels, with a minimum pipe size of eight (8) inches, and shall be provided with necessary appurtenances for convenient flushing and maintenance. Access structures are required at each end of the siphon, with adequate clearance for maintenance and cleaning purposes. Bank and channel stabilization may be required to protect the crossing lines and casing of the carrier pipe may be required to meet environmental or other restrictions.

6.3.18 Abandonment of Sewer Mains

A. The design engineer should note the limits and appropriate conditions for the abandoning of existing wastewater mains which are to be replaced by the construction of any proposed wastewater mains.

B. The design engineer should also make allowances in the design to provide for the existing and proposed mains to be in service simultaneously until all customer services are transferred from the old main to the new main with minimum interruption of service. If the construction of a proposed main necessitates the abandoning of the existing main prior to the new main's placement into service, then provisions for a temporary wastewater main with services must be addressed by the design.

C. Typically, abandoned lines may be left in place with only the ends being plugged with grout or concrete. However, the City may require special abandonment actions including, but not limited to, filling the abandoned wastewater main with grout, removal and proper disposal of all above ground appurtenances, and removal and proper disposal of the abandoned pipe. In situations where a manhole is being left in service even though one (1) or more lines into the manhole are being abandoned, the abandoned line shall be cut and plugged outside of the manhole. However, if the City determines that the pavement is in good condition the City may allow the abandoned line to be plugged from inside of the manhole.

6.3.19 Abandonment of Manholes

If a manhole as well as the sewer main is to be abandoned, the method described in ***Abandonment of Sewer Mains***, above, along with the minimum guidelines shown in Drawing S105 of the City Standard Details, shall be used.

6.3.20 Lift Stations

The need to construct a lift station should be determined only after a thorough analysis of the physical and economic factors involved. A Preliminary Engineering Report is required, which lists all factors and adheres to current state regulations. The City reserves the right to review each proposal and determine whether there is enough merit to justify a lift station. Any lift station located in the City of Denton CCN must adhere to these requirements.

A. Preliminary Design Submittal

A preliminary design submittal is required for each lift station proposed. The submittal shall include a written report and a map prepared by a Professional Engineer, licensed by the State of Texas.

1. The plans submitted shall contain the following information, at a minimum:
    a. Be to scale, with the scale indicated;
    b. A north arrow;
    c. A location map;
    d. Delineation of the boundary of the proposed development;
    e. Delineation of the boundary of the sewershed in which the development lies;
    f. The area in acres of the development;
    g. The area in acres of the sewershed contributing to the lift station;
    h. The proposed land use or uses for the development;
    i. The proposed land use or uses for the sewer basin;
    j. The proposed lift station site, along with the GPS coordinates;
    k. The proposed force main routing and size;
    l. Delineation of the 100-year flood plain and ESAs;
    m. Location and size of the existing collection system at the tie-in point;
    n. Contour lines (2-ft. intervals);
    o. Show how storm drainage is taken off site; and
    p. Property lines.
2. The written report shall include the following information:
    a. A general narrative about the proposed development and the circumstances that warrant a lift station;
    b. Influent hydraulic calculations showing:
        i. Area in acres of the sewer basin and the development;
        ii. The area of each proposed land use for the development and for the projected land use(s) for the basin;
        iii. The design flow for the basin and the development;
        iv. The peak flow for the basin and the development;
        v. Elevation of the proposed lift station site; and
        vi. The elevation of the proposed discharge point of the force main.
    c. Preliminary wet well volume calculations;

d. Preliminary force main size;

e. Cost estimates for proposed lift station(s) and force main(s), and cost estimates for a gravity line in lieu of the lift station if possible;

f. Ground water levels in proposed site areas; and

g. A copy of the summary transmittal letter to TCEQ showing agency approval of proposed plans.

B. Site Layout

1. Station Siting:

The following are the minimum criteria for station sites:

a. The station shall be protected from the 100-year flood and shall be accessible during a 100-year flood;

b. The station should be located as remotely as possible from populated areas. The entire station site shall be completely enclosed with an 8-ft. high, opaque concrete or masonry wall, with an opaque sliding gate with a minimum width of 16 feet on track flush with the ground. All shall be of an architectural style and colors blending with the development architecture, as approved by the city;

c. The station shall have a minimum 16-ft. wide drive approach and be accessible by City of Denton service trucks, without requiring vehicles to turn after entering the drive approach to the station;

d. The station will include an approved odor-control system;

e. The station site and its access shall be dedicated as a separate lot to the City, as City property;

f. The station site cannot be located within the boundaries of any private entity intended to regulate property including, but not limited to, HOAs, COAs, and POAs;

g. The station site shall be located so it may serve as much as the entire sewer basin as possible. This may require the station to be located off-site of the development. When it is required that the station serve a larger area than the proposed development, the developer may enter into a pro-rata contract with the City to be reimbursed the cost of excess capacity as other developments tie to the system; and

h. The on-site generator must have an unobstructed 36-in. buffer on all sides and be accessible by City service vehicles.

2. Wet Well/ Dry Well Arrangement

a. Orientation shall consider the routing of incoming sewers and force main;

b. Orientation shall allow a 2-ton vehicle to directly access the wet well or the dry well, forwards and backwards;

c. Wet wells and dry wells shall be separated by at least a water and gas tight wall with separate entrances;

d. Wet wells shall have sloped bottoms to avoid excess sludge deposits;

e. The wet well shall have a lockable aluminum door with an aluminum frame and safety grating. The minimum opening size shall be 4-ft. x 6-ft. with two (2) doors large enough to adequately maintain the wet well. Door and frame shall be Bilco Type K, KD or an

approved equal;

f. The dry well or valve vault shall have a lockable aluminum door with an aluminum frame and safety grating. The minimum opening size shall be 2-ft. x 3-ft. or large enough to adequately maintain the dry well or meter vault. Door and frame shall be Bilco Type K, KD or an approved equal;

g. The wet wells, dry wells, manholes, valve vaults and meter vaults, including decks, shall all be cast-in-place concrete only. No other materials are acceptable. *See* City Standard Specification 33 05 64 Concrete Wet wells, Valve Vaults, and Appurtenances for Lift Stations;

h. The coating for the wet well exterior and interior walls shall be coated as specified in Table 6.3-E and 6.3-F below, respectively;

i. The wet well shall be hydrostatically tested to the top of the wet well for 48 hours prior to placing the lift station into service. Only losses due to evaporation will be acceptable; and

j. Provisions shall be made to remove water from the dry well, valve vault or meter vault without allowing gas or water from the wet well into these structures.

3. Exterior Walls (below grade, to be backfilled)

Table 6.3-E: Exterior Wall Coating

Surface Preparation	Coating System
Clean and Dry	Tnemec Series 46H-413 Polyamide Epoxy – Coal Tar 8 – 10 mils in two coats for a total of 13.0 to 20.0 dry mils

4. Interior Walls (Thick Film System)

Table 6.3-F: Interior Wall Coating

Surface Preparation	Coating System	
	PRIMER	FINISH
Brush-off Blast Cleaning	Tnemec Series 218 Mortarclad ¼-in.	Tnemec Series 436 Perma-Shield 100 – 125 dry mils

Notes:

[1] In addition to this coating system, the lining products listed in Drawing S101 of the City of Denton Standard Details and Standard Specification 33 01 40 Liners for Sanitary Sewer Structures are acceptable.

5. Site Access

a. Access will be provided by an all-weather surface of flex-base or better from a public street to the station site;

b. Access shall be functional during a 100-year flood. The road surface shall be above the water level caused by a 100-year return period storm;

c. Every station more than 100 feet from a public street requires a turn-around adjacent to the lift station, sized large enough to accommodate a City service truck with generator;

d. The equipment rack shall not obstruct vehicle access to the wet well or the dry well; the location must be approved during the review process. It shall be placed at an easily accessible elevation and include a canopy; and

e. Site inside the fence shall be an all-weather surface, such as ¾-in. crushed rock or flex-base.

6. Passive Ventilation

a. Passive ventilation shall be screened to prevent insect access to the wet well. Minimum diameter of air vents shall be four (4) inches. Vent outlet shall be at least one (1) foot above the 100-year flood elevation. The passive ventilation system must be sized to vent at a rate equal to the maximum pumping rate of a lift station, but not to exceed 600 fpm through a vent pipe.

C. Hydraulic Design

For influent flow, the preliminary design report shall include the design flow and the peak flow for the development and the sewer basin. The design flow shall be calculated in accordance with TCEQ rules. Refer to Section 6.3.1 - Estimated Wastewater Flows herein for peak flow calculations.

1. Pump Capacity

a. Firm pumping capacity is the pumping capacity of the station with the largest pump out of service.

b. The firm pumping capacity shall be greater than the peak flow for the entire sewer basin. If the sewer basin is significantly larger than the proposed development and it is not feasible to design for this flow, the firm pumping capacity may be designed to handle a portion of the basin with approval from the City's Engineer.

c. The pump curves shall be selected so the pumps will run near the best efficiency point during normal operating conditions. The selected curves shall also be such that the pumps do not approach shut-off head when they are running simultaneously.

d. System head curves, pump curves and head calculations shall be submitted. Calculations and pump curves at both minimum (all pumps off) and maximum (last normal operating pump on) static heads, for a C value of both 100 and 140, must be provided for each pump and for the combination of pumps with modified pump curves.

2. Wet Well Volume

a. Wet well volume for a submersible pump station is the volume contained above the top of the motor, or as specified by the pump manufacturer, to the bottom of the influent pipe. TCEQ Rule §217.60(b)(4) (d) A gravity pipe discharging to a wet well must be located so that the invert elevation is above the liquid level of a pump's "ON" setting.

b. Wet well volume for all other non-submersible pump stations is the volume contained in an area from a minimum of two (2) feet above or distance at which vortexing does not occur above the top of the intake of the pump.

c. High level alarm elevation shall be a minimum of 48 inches below the top of the wet well or 48 inches below the flow line elevation of the lowest influent pipe, whichever elevation is lower. Wet well volume shall be calculated by the following method:

$$T = V/(D - Q) + V/Q \qquad \textbf{[Eqn. 6.4]}$$

Where: T = Total time between successive pump starts in minutes (operating cycle)

D = Rated pump capacity (in GPM)

V = Storage volume between lead pump on and pump off elevations (in gallons)

Q = Inflow to wet well (in GPM)

Note: The operation cycle 'T' shall not be less than 10 minutes for Average Flow and not more than 60 minutes for Minimum Flow conditions.

d. Per TCEQ Rules, 30 TAC § 217.63:

(g) Systems for preventing the discharge of wastewater must operate for a duration at least equal to the longest power outage on record for the past 60 months, or at least 20 minutes, whichever is longer. The design must be based on peak flows, inflow, and infiltration. If the longest power outage on record for the past 60 consecutive months is greater than 48 hours and generators will be used to provide backup power, then the owner must have a contract in place that guarantees fuel supply during an emergency. The owner must also have sufficient storage capacity at the wastewater treatment facility for the fuel required for the duration of the emergency.

(h) For calculation purposes, the owner must assume that the lift station wet well is full to the pump activation level when the power outage period begins.

3. Force Main Capacity

a. Force main capacity shall be sized to meet the capacity of the entire sewer basin. The force main may be designed to handle a portion of the basin with approval from the City's Engineer.

b. The minimum force main size shall be four (4) inches in diameter, except for Grinder Pump lift stations.

c. The minimum recommended velocity is three (3) fps, and the velocity shall not be less than two (2) fps when only the smallest pump is in operation.

d. The maximum velocity through a force main shall not be more than six (6) fps and will require confirmation per 30 TAC §217.67 that the pipeline will not fail.

D. Pumps

Pump specifications are listed in the City of Denton Specification 33 25 02 Sewage Pumps. Substitutions or deviations from the list of acceptable pumps requires the approval of the City's Engineer. The number of pumps must comply with 30 TAC § 217.61(e). If pumps are to have a variable capacity, Variable Frequency Drives (VFDs) are to be specified. Stations requiring three pumps must be equipped with VFDs on at least two of the pumps.

E. Mechanical

1. Force Mains

a. Force mains shall be laid to City of Denton Standard Specifications.

b. Plans shall include plan and profile for the force main, including valves every 2,000 feet per 30 TAC § 217.67.

i. Valves must be resilient wedge gate valves and conform to the Section 33 14 20 Resilient Seated (Wedge) Gate Valves of the City of Denton Standard Specifications;

ii. Valves must be in a manhole and conform to Section 6.3.10 of this criteria manual and Section 33 05 61 Cast-In-Place Concrete Manholes of the City Standard Specifications; and

iii. The force main shall have an isolation valve immediately downstream of the flow meter vault.

2. Lift Station Interior Piping

a. Piping inside the lift station shall be ductile iron meeting AWWA C-150 and C-151. All fittings shall be ductile iron meeting AWWA C-110 or C-150. Interior of the pipe and fittings shall be lined with American Polybond Plus, which consists of a primer layer of 5 mils thick fusion bonded epoxy and 55 mils thick of modified DuPont Fusabond Polyethylene, or approved equal.

b. All nut and bolt assemblies inside the wet well shall be ASTM 316 stainless steel.

3. Isolation Valves

a. Each pump shall have one (1) isolation valve downstream of the pump, in a separate vault.

b. Isolation valves shall be resilient seat gate valves or plug valves meeting the City of Denton Standard Construction Specifications.

4. Check Valves

a. Check valves shall be controlled closing swing check valves with a lever arm or a ball check. There must be at least 15 feet of vertical head downstream in order to use a ball check valve.

b. A check valve shall be located upstream of the isolation valve in a separate vault.

c. All nuts and bolts shall be stainless steel.

5. Air Release / Vacuum Valves

a. Air release valves of a type suitable for wastewater service shall be installed along the force main where the force main would be prone to trapped air.

b. The type of valve shall be air release or a combination of air release and vacuum breaker (see Drawing S803 on Sheet 6 of the City Standard Details). The design engineer shall determine the type and location, subject to approval of the City's Engineer.

c. Calculations for valve type and valve sizing shall be provided to the City.

d. Locations of the air release/vacuum valves shall be shown on the plan and profile sheets for the force main.

e. Isolation valves for air release valves that are three (3) inches or smaller shall be all bronze or brass. Isolation valves four (4) inches or larger shall meet City of Denton Standard Construction Specification for resilient seat gate valve. The first fitting placed into the force main shall be a brass corporate valve (male corporate fitting).

f. Air release valves shall be fitted with blow off valves, quick disconnect coupling and hose to permit back flushing after installation without dismantling the valve.

g. Air release valves must be located in a vault as shown in Standard Details.

6. Generators

   a. On-site generators shall be installed to serve as the source of back-up power for lift stations.

   b. Generators shall be mounted on a concrete foundation designed to handle the weight of the generator.

F. Electrical, Instrumentation, and Supervisory Control and Data Acquisition (SCADA) Requirements

The City of Denton Water Reclamation Department performs the build and install of SCADA and telemetry packages. Developers should request the packet and the City of Denton will provide a bill of materials for this service.

6.3.21 Low-Pressure or Alternative Collection Systems

Low pressure collection systems may be allowed with specific approval by the City's Engineer.

6.3.22 On-Site Sewage Facilities

A. General

Planning, design and operation of on-site sewage facilities within the City of Denton must comply with the current 30 TAC Ch. 285 for On-Site Sewage Facilities, as amended. The property owner proposing to use an on-site sewage facility shall comply with the criteria listed in this Section, and Section 7.6.16 of the City of Denton DDC, as amended.

B. Permits Required

Any owner of a residential, commercial, or institutional building who utilizes an on-site sewage facility is required to secure a permit from the City of Denton to construct, alter, repair, or extend an on-site sewage facility regardless of the size of the lot or tract of land. Contact the Environmental Services Division at the Pecan Creek Water Reclamation Plant for details on permit fees and maintenance requirements.

C. Site Evaluations

A Professional Engineer or a professional sanitarian, licensed by the State of Texas, must perform site evaluations.

D. Planning Requirements

A Professional Engineer or a professional sanitarian, licensed by the State of Texas, must prepare on-site sewage facility plans.

E. On-Site Sewage Facility Land Use Requirements

Lots or tracts of land where an on-site sewage facility is proposed must have the following minimum area size.

1. A minimum of one (1) acre when a public water system serves the tract or lot; and
2. A minimum of two (2) acres when a private water well is located on the tract or lot.

6.3.23 Grease Traps / Grit Traps

A. General

Planning, design, and operation of grease traps within the City of Denton must comply with the most current City of Denton Plumbing Code, Chapter 28; Article VII; Section 26-56 as amended. The property owner proposing to use and operate a grease trap shall comply with the criteria listed in this Section and abide by required responsibilities outlined in City of Denton Code of Ordinances Chapter 26; Article XII – Liquid Waste.

B. Device Required

Any user of the publicly owned treatment works (POTW), as defined by Section 26-153, and meeting the definition of "food service facilities" or "facilities which perform washing, cleaning, or servicing of automobiles, trucks, buses or similar equipment," shall be required to install a grease trap or grit trap in accordance with locally adopted plumbing codes as amended. Food service establishments shall not share grease interceptors unless specifically authorized by the City's Engineer.

C. Sample Port Required

Any pretreatment device must have a sample port allowing for the instantaneous grab sampling of the effluent of the device. The sample port must be solely representative of the process wastewater and sanitary tie-ins must be done down-stream of the sampling port. The proposed sampling port must allow for a wide-mouthed 250-mL amber glass bottle to be submerged / partially submerged into the effluent.

D. Review Required

Plumbing plans for new facilities must be prepared by a plumber or a Professional Engineer, licensed by the State of Texas, and submitted as a part of the development process. These plans must show the fixtures draining into the pretreatment device. Plans must also include the flow-through rating of the pretreatment device as well as the grease or solids retention capacity. Plans must also show the location of the down-stream sampling port.

E. Sizing Requirements

1. Definitions

   a. Heavy Food Preparation: Any area in which foods are prepared utilizing a grill, griddle, deep-fat fryer, commercial type ovens, and/or any similar food preparation equipment; or any area subject to flooding type of wet cleaning procedures due to the cutting or processing of meat, poultry, fish or pork; or any facility subject to rinsing preparation equipment that is exposed to dairy products. Heavy food preparation includes, but is not limited to, cafeterias, coffee shops, fast food restaurants, full service restaurants; pizza preparation, donut preparation, and meat and fish markets, etc.

   b. Light Food Preparation: Any area in which foods are prepared exclusive of the use of fryers, grills or similar equipment. Light food preparation is usually limited to the preparation of hot dogs, sandwiches, salads or other similar foods and fountain-type cold drinks. Light food preparation includes, but is not limited to, sandwich shops, limited-menu concession stands, etc.

   c. No Food Preparation: Any area in which foods are provided pre-wrapped, from an approved source, with microwave oven type heating being the maximum handling involved. No food preparation is limited to pre-packaged sandwiches or similar foods, candies and containerized beverages.

2. Grease Trap Design Criteria

Table 6.3-G: Grease Trap Design Criteria[1]

Classification	Seating Capacity[2] > 50	Seating Capacity[2] < 50
Heavy Food Preparation	750-gal. gravity grease interceptor	250-gal. grease interceptor
Light Food Preparation	250-gal. gravity grease interceptor	20 GPM flow-through rating or 40-lb. retention capacity
No Food Preparation	No interceptor required	

Notes:

[1] Or the minimum size established by the currently adopted International Plumbing Code; whichever is more stringent.

[2] Seating Capacity is measured using locally adopted Maximum Floor Area Allowances per Occupant, found in the currently adopted version of the International Building Code.

6.3.24 Inspections Required

New installations or existing pretreatment devices must be inspected by the City of Denton Pretreatment Program prior to the issuance of a Certificate of Occupancy for new businesses.

6.4 Construction Plans

6.4.1 General

Before any public works construction relative to a development may begin, City staff will verify the construction plans have been approved. Construction may not begin until the construction plans have been approved, all materials used for public improvements have been submitted and approved, all fees (including review and inspection fees) have been paid, all necessary agreements and bonds have been provided, and a Pre-Construction Conference has been held by the City.

6.4.2 Responsibility

The sealing engineer is responsible for the accuracy, completeness, and conformance of the submitted plans to City standards. The purpose of the City review is to ensure conformance to City policies and standards. The City review is limited to facts as presented on the plans submitted. The City has no project engineering design or quality control review responsibility. The engineer of record certifying the plans is responsible for the accuracy and completeness of the plan documents. The City reserves the right to require plan corrections to fit actual field conditions or meet City standards requirements, which are found to be contrary to or omitted from the plans.

6.4.3 Format

Construction plans shall be digitally drawn on 24-in. x 36-in. size sheets with borders of 22-in. x 34-in., so half-size reproduced plans will be to half-scale fitting 11-in. x 17-in. sheets. Each sheet shall be legible when reduced to half-size. Digital copies of the plans shall also be provided.

6.4.4 Plan Requirements

Construction Plans must contain, as a minimum, information listed in the following sections before they can be approved:

A. General

North arrow, scale, date, and mean sea level elevations of all improvements, based on North America Vertical Datum 1988 (NAVD 88). Only NAVD 88 shall be used for plan elevations; no assumed or NGVD 29 elevations. Plans shall be drawn with a horizontal scale of one (1) inch equals 40 feet as a minimum, and appropriate corresponding vertical scale. The plans shall provide a reference to the elevation benchmark or monument used in the development of the plans. Show all crossings of existing and proposed underground utilities. Plans shall account for future changes in topography. The construction plans shall be signed and sealed by a Professional Engineer, licensed by the State of Texas, prior to bidding the project for construction.

B. Water Systems

Plan sheets must show the horizontal alignment of the proposed water system within street ROWs and easements, with horizontal control points for location of the ROWs and easements and for location of the water system within the ROWs and easements. Sizing of pipe, valves, fittings and appurtenances must be shown on the plan view. All valves, fittings, fire hydrants, and other appurtenances must be stationed and given GPS coordinates (with an accuracy of ± six (6) inches) based on the City of Denton's grid coordinate system. Profile views of water mains 12 inches or larger must be provided showing proposed grade, pipe material, casing pipe size and thickness (if any), and the location, elevation and size of any underground conduit or facility to be crossed. Deflections (if any) must be shown on the plan and profile views, as applicable, with stationing and the degree of deflection. Approved design deviations (if any) from City Standard Details must be provided. Show all service lines up to and including the meter can/vault. Service lines do not need to be stationed or have GPS coordinates. Adequate detail of other planned and existing improvements shall be shown to indicate planned crossings of utilities, storm drains, and stormwater facilities and potential conflict points.

C. Sanitary Sewer Systems

Plan sheets must show the horizontal alignment of the proposed sanitary sewer system within street ROWs and easements, with horizontal control points for location of the ROWs and easements and for location of the sanitary sewer system within the ROWs and easements. Sizing of pipe, manholes, fittings and appurtenances must be shown on the plan view. Manhole rim elevations, and pipe "IN" and "OUT" elevations must be shown. All manholes, fittings, and other appurtenances must be stationed and given GPS coordinates (with an accuracy of ± six (6) inches). based on the City of Denton's grid coordinate system. Every sanitary sewer line shall be profiled. Profile views shall show proposed grade, pipe material, casing pipe size and thickness (if any), manhole information, and the location, elevation and size of any underground conduit or facility to be crossed. Approved design deviations (if any) from City Standard Details must be provided. The plan view shall include arrows indicating direction of flow in pipe. Show all service lines to and including the public cleanout. Service lines do not need to be stationed or have GPS coordinates. Adequate detail of other planned and existing improvements shall be shown to indicate planned crossings of utilities, storm drains, and stormwater facilities and potential conflict points.

D. Grading

For situations involving proposed grading over existing water or sanitary sewer systems, provide a grading plan and profile showing the existing and proposed topography in 2-ft. contours. The grading plan shall consist of contours and spot elevations with water directional arrows to define the flow patterns.

Section 7: Streetlight Design Criteria

7.1 Overview

The purpose of Section 7 – Streetlight Design Criteria is to assist developers and engineers in creating an aesthetic, consistent, and safe lighting plan for our streets, sidewalks, and neighborhoods. This section outlines the process for design, review, and approval of new lighting projects, as well as criteria for modernizing existing lighting infrastructure. Streetlights are usually owned by Denton Municipal Electric (DME) which is a part of the City of Denton (the City), however they may be installed, operated, and maintained by DME, other electric utilities, or private owners depending on the location. This section of the DCM has been created to help navigate the process for selecting, permitting, placing, and maintaining streetlighting throughout the city. This manual does not apply to security, area, pathway, private, or other lighting not associated with a public road.

This manual cannot cover all the situations that might be encountered, required, or requested in the construction and installation of streetlighting. Any apparent discrepancy, omission, error, or requirement necessitating further explanation or interpretation should be referred to DME Engineering (940-349-7117 or 940-349-4173) for further clarification.

The goal of the criteria laid out in this Section 7 is to implement the following guiding principles into the application of street designs in the City of Denton:

A. Enhance safety of the community for pedestrians and drivers alike

B. Conserve energy by prioritizing efficient lighting design

C. Minimize impact to the environment including light pollution

D. Minimize impact to neighborhoods and residences by reducing light trespass

E. Provide for a uniform and aesthetic look throughout the city

F. Be fiscally responsible through effective application of design principles

7.1.1 Applicability

The existing streetlight installations throughout the City of Denton have been accepted as is at the time of approval of this manual. Retro-active replacements and upgrades solely for the purpose of bringing existing lighting up to the standards of this manual are not required. This manual is intended to apply to all new projects in the City beginning July 1, 2024. (This means the project has been approved/permitted by Development Services on or after July 1, 2024).

7.1.2 Organization

Section 7 – Streetlight Design Criteria is organized as follows:

A. Overview

B. Requirements

C. Developer & DME Responsibilities

7.2 Requirements

7.2.1 General

The City adheres to the guidance of ANSI RP-8 Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting for all highways and streets *except for local residential streets with speed limits of 30 mph or less*. ANSI RP-8 acknowledges that vehicle headlights may provide adequate illumination for slower speeds when the driver has sufficient time for reaction and stopping. As per ANSI RP-8, Section 11.6.3.1 – 'When Residential Street Lighting May Not be Needed', for local residential streets (e.g., within a residential development) with speed limits of 30 mph or less, street lighting shall be placed no more than 250 feet apart. A photometric (lighting) study will be required for all new installations except for local residential streets with speed limits of 30 mph or less.

These standards shall apply to all new streetlight installations, upgrades, replacements, and conversions from the date of the adoption of these standards onward.

Easement, right-of-way, and permitting regulations that are not listed in this manual still apply to streetlights. The developer is responsible for knowing and adhering to any laws and regulations governing development and construction relating to the work being done.

Developers are responsible for the design, materials, and installation costs of all streetlighting on public streets within and adjacent to their project. *See* the Developer and DME Responsibilities Section of this manual for more specific descriptions of responsibilities. DME will only energize new streetlights after the installation has been approved by DME. For most lighting installations, following energization, DME will accept ownership and maintenance of streetlights unless the lighting is located on a private drive (i.e. the City has not taken ownership of the street / streetlights) or the lighting is non-standard and will not be owned or maintained by DME.

Streetlights are not normally metered. The City (or customer in certain cases) is charged a monthly usage and maintenance fee per light according to the Denton Municipal Utility Rates Manual. This does not apply to private drives and other private properties where the developer or customer chooses to install lighting other than the standard city approved options. In such cases, DME will provide a metered service point only and the customer will be responsible for all installation, maintenance, and fees associated with the lighting installation in accordance with applicable city codes, ordinances, and utility service standards for the life of the installation.

City streets and street projects will not be considered complete until adequate streetlighting has been installed, approved, and energized. For example, for the streets in a new development to be accepted by and turned over to the City, street lighting must be complete.

7.2.2 Roadway Lighting Requirements

A. Roadway Designations

To determine the proper lighting for a roadway, it is important to determine what type of vehicle and pedestrian traffic the roadway is meant to accommodate. Roadways may be classed into several different categories based on these two variables. The lighting requirements are then applied to provide adequate lighting to mitigate the risks of collision by a vehicle with another object, vehicle, or pedestrian.

Roadways may be classified as *highways and freeways, arterials, collectors,* and *local roads*. In this section of the DCM, local roads may also refer to auxiliary roadways such as *alleys, drives, dead-ends,* and *cul-de-sacs*. Local roads may be residential streets (providing direct access to homes) or other local roads providing access to businesses and connecting larger roads together. Local roads

generally have speed limits of 30 mph or less, while highways, arterials, and collectors will have higher speed limits. *Local roads* are further broken down into *residential* and *non-residential streets* in portions of this section to allow flexibility in managing light levels in residential neighborhoods. Specific road classification and design information may be found in Section 5 – Transportation Design Criteria of this DCM.

B. Lighting Evaluations and Design

For streetlighting of highways and streets, *except local residential streets with speed limits of 30 mph or less,* lighting shall be designed per ANSI RP-8. A photometric (lighting) study will be required for these new installations. ANSI RP-8 requires that a pedestrian activity classification be made to determine the required lighting levels. *See* ANSI RP-8 for further guidance on pedestrian activity classification and streetlighting design requirements. Additional information may also be found in the TxDOT Highway Illumination Manual, and AASHTO GL-7, "Roadway Lighting Design Guide". All designs adhering to ANSI RP-8 standards shall be verified and documented using appropriate lighting design software. A licensed Professional Engineer in the state of Texas shall stamp all lighting designs before each submittal.

For all local *residential* streets with speed limits of 30 mph or less, street lighting shall be installed at intersections, cul-de-sacs, and no more than 250 feet apart for the remainder of the street. Lighting may be installed along one side of the street, both sides in parallel, both sides alternating, or in the median. Separation distances should be measured along the centerline of the street. Additional lighting may need to be considered if there are obstacles or road geometries that cutoff some of the light. *See* the Sample Local Residential Streetlighting Layout shown below in Figure 7.1.

When designing or adding streetlights to existing roadways and/or neighborhoods, consideration should be given to the style and placement of any existing fixtures. New streetlighting shall be chosen from the available styles that most closely matches the style of the existing lighting in the area. Historic poles are only approved for specific applications and areas designated as historic districts or within the Downtown Implementation Plan area.

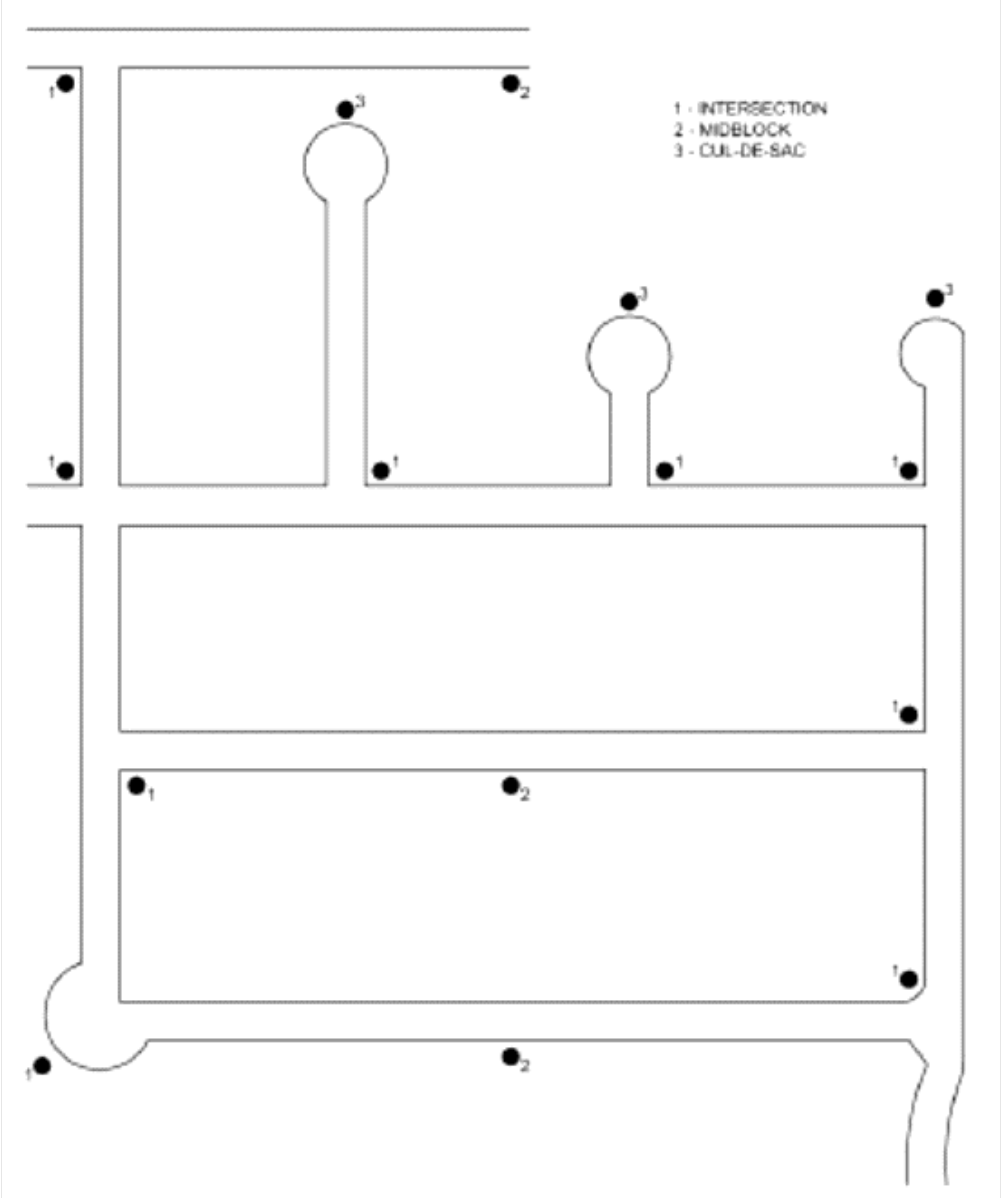

Figure 7.1 Sample Local Residential Street Lighting Layout

(Lights are shown at intersections, cul-de-sacs, and mid-block when spacing between lights exceeds 250 feet)

C. Intersection and Crosswalks

Intersections have a much higher number of potential conflict points as vehicles and pedestrians are permitted to cross through normal lanes of traffic. Therefore, additional care is needed when planning intersection lighting. ANSI RP-8 should be used to design lighting at intersections for larger, busier streets as stated previously. *See* Figure 7.2 shown below.

Because of the additional safety concerns for vehicles, cyclists, and pedestrians at crosswalks and intersections, the following examples (taken from ANSI RP-8) are provided to assist streetlight design for local streets. While not strictly required, they should be considered as good lighting practice for these types of locations.

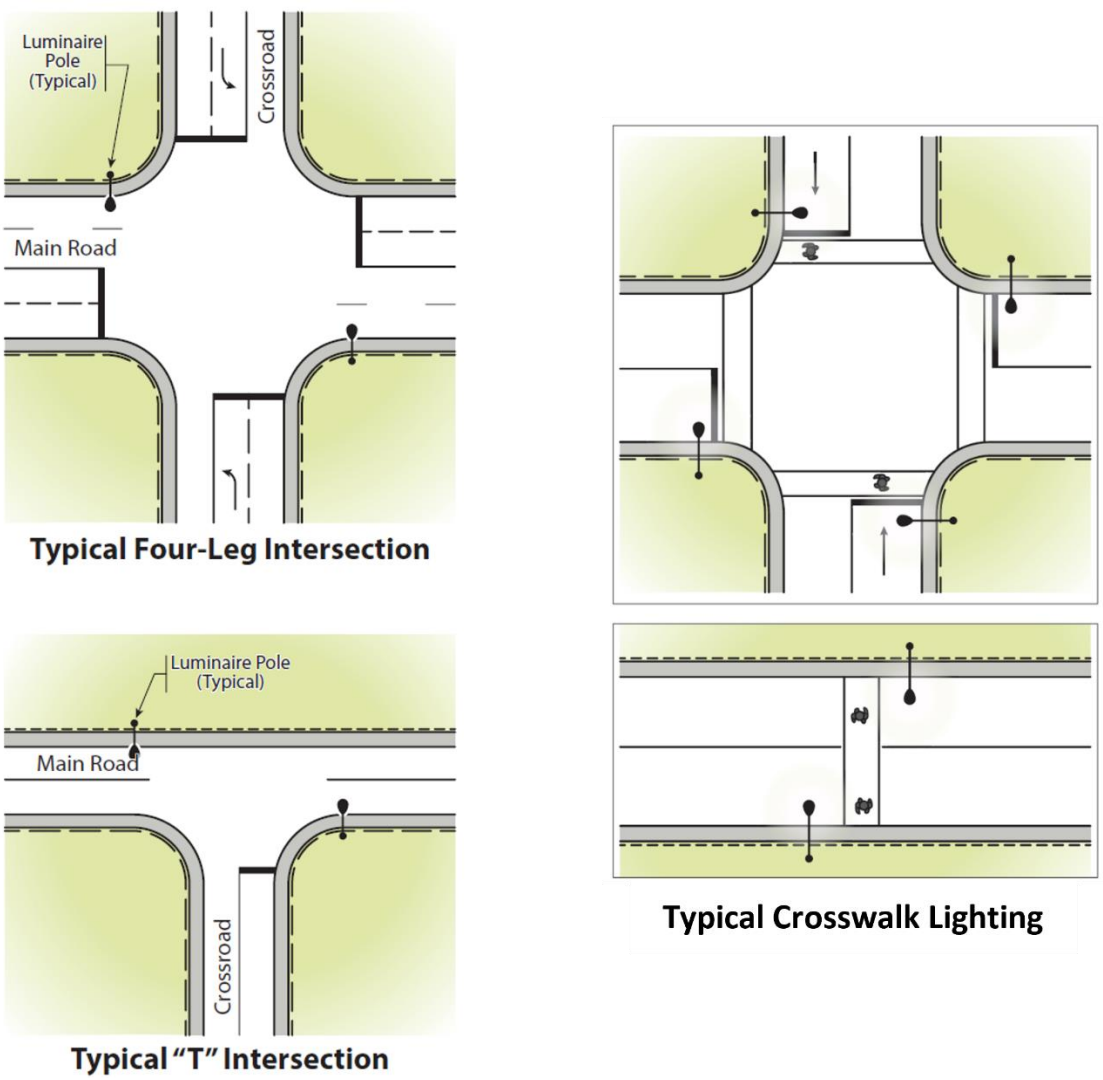

Figure 7.2 Typical Lighting Schematic for Intersections

D. Roundabouts and Traffic Circles

Like intersections, roundabouts and traffic circles have a higher number of potential conflict points than normal streets. ANSI RP-8 should be used to design lighting at traffic circles and roundabouts of larger streets. For local streets, an example of round-about lighting design considerations is shown below. Some locations may not require as much lighting as shown depending on the size of the traffic circle. *See* Figure 7.3 shown below.

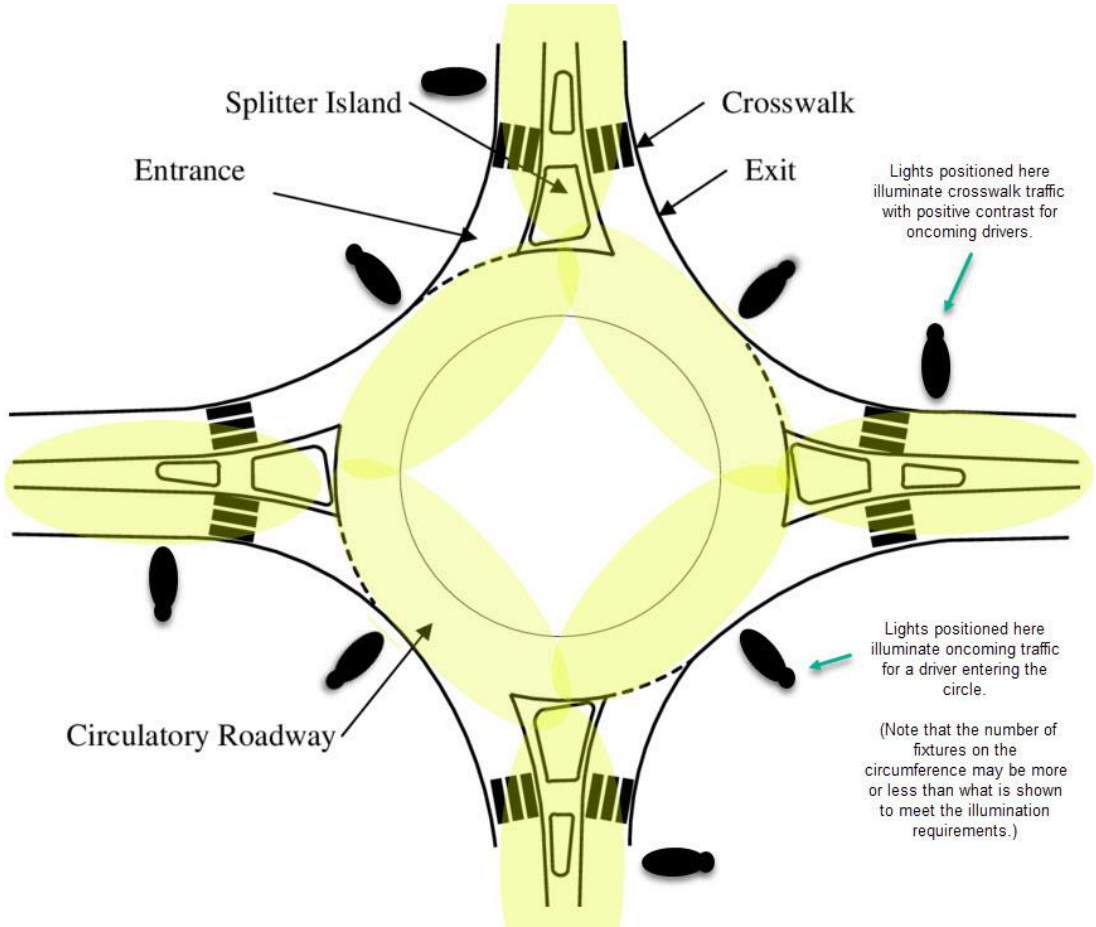

Figure 7.3 Roundabout Lighting Placement Schematic

E. Railroad Crossings

Railroad crossings are slightly different than normal intersections and require lighting adjustments accordingly. It is of course, vitally important that drivers are able to see a train that is crossing, and conversely, that the train engineer has a clear picture of any obstructions while approaching an intersection. Street lighting at railroad crossings should therefore illuminate the intersection while not causing glare for the drivers or train engineer. The following figure illustrates the recommended lighting placement for a railroad crossing. *See* Figure 7.4 shown below.

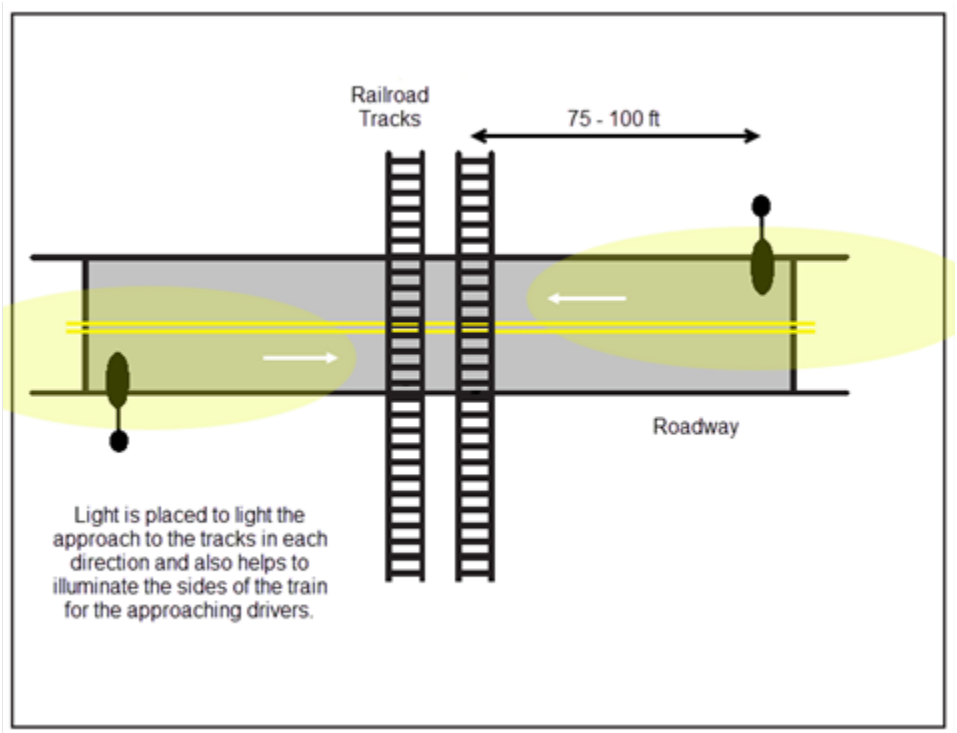

Figure 7.4 Railroad Crossing Schematic

7.2.3 Installation Requirements

A. Placement

1. Highways and Streets (except for local residential streets with speed limits of 30 mph or less)

   Installation should follow TxDOT recommendations in the TxDOT Highway Illumination Manual. Where TxDOT requirements do not apply, the streetlight system shall be installed in the right-of-way or within public utility easements and poles should be placed approximately 2.5 feet back from curbs and 10 feet back from edge of paving for uncurbed roads or, where there is sidewalk abutting the curb, approximately 1 foot behind the sidewalk. Deviations of more than 1 foot in either direction from these requirements must be approved by DME Engineering.

2. Local Residential Streets (speed limits of 30 mph or less)

   The streetlight system shall be installed in the right-of-way or within public utility easements. Poles should be placed approximately 2 feet back from the curb of 10 feet from un-curbed pavement. If a sidewalk abuts the curb, then the pole should be placed approximately 1 foot behind the sidewalk. In a residential neighborhood, streetlights should be placed within 5 feet of common property lines (e.g. between neighbors).

B. Vertical and Horizontal Clearance

New streetlights should not interfere with existing structures or rights-of-way, including sidewalks, nor should the placement preclude the ability to perform maintenance on the pole in a safe manner. *See* National Electric Safety Code (NESC) section 234 for specific clearances required for overhead

electric installations. The exception to this requirement is when streetlight arms are mounted directly to wooden distribution poles.

Proposed trees should be located at least 25 feet from any streetlight location. When installing new lights in a location with existing trees, consideration should be given to the age and maturity of the tree and whether it will interfere with the light when it is fully grown. DME will be responsible for tree trimming around streetlights to preserve the integrity of streetlighting as needed.

Median-mounted poles should be installed at least 20 feet back from an intersection to minimize the number of vehicle-streetlight collisions due to vehicles and trucks turning too sharply at the intersection.

In areas predominantly served by overhead electric powerlines, streetlights are usually installed by attaching streetlight arms to existing wood distribution poles. Care should be given when planning for lighting in these areas as overhead lines pose a conflict when placing new lighting poles. Clearances must be maintained for safety. Redesign/relocation of existing overhead power lines just to accommodate lighting is costly and time consuming. Utilizing existing wood pole locations and installations on the opposite side of the street are two ideas for additional placement options in these areas.

C. Approved Fixtures and Materials

The approved streetlight components for each class of roadway are listed below in Tables 7.2-A and 7.2-B.

Table 7.2-A: Approved Luminaires and Hardware by Location					
	ROADWAY CLASSIFICATION				
	HIGHWAYS AND FREEWAYS (UNLESS OTHERWISE SPECIFIED BY TXDOT)	ARTERIALS AND LARGE COLLECTORS	COLLECTORS AND LOCAL STREETS	EXISTING RESIDENTIAL LOCAL STREETS (ALSO USED IN HISTORIC DISTRICTS)	NEW RESIDENTIAL LOCAL STREETS (≤ 30 MPH)
Make	Signify Lumec RFL	Signify Lumec RFM	Signify Lumec RFM	Hadco	Gardco
Model	RFL-241W112LED-4K-G2-R2M-UNV-DMG-ML-RCD7-API-GY3	RFM-160W48LED-4K-G2-R2M-UNV-DMG-ML-RCD7-API-GY3	RFM-85W24LED-3K-G2-R2M-UNV-DMG-ML-RCD7-API-GY3	C-1891P RL34AANN2ASNR7 WA3 NNNNSP1	OPF-S-P05-730-T2M-AR1-UNV-SP2-TR7
Wattage	241W LED	160W LED	85W LED	69W LED	66W LED
Lumens	30,188	19,489	8,753	7,734	11,253
Color Temperature	4000k	4000K	3000K	3000K	3000K
Light Distribution Type	Type II	Type II	Type II	N/A	Light II
Voltage	120 – 277V or 347 – 480V	120 – 277V or 347 – 480V	120 – 277V or 347 – 480V	120 - 277V	120 – 277V
B-U-G Rating	B4-U0-G4	B3-U0-G3	B3-U0-G3	B2-U5-G4	B2-U0-G2
Pole Type	Steel, white concrete, or wood	Steel, white concrete, or wood	Steel, white concrete, or wood	Residential - Concrete aggregate Historic – Cast Aluminum	Steel, square, gray
Globe Type	N/A	N/A	N/A	Hadco, RL34 Acrylic Victorian	N/A
Arm Type	8-ft. metal (specs depend on pole type)	8-ft. metal (specs depend on pole type)	8-ft. metal (specs depend on pole type)	N/A	Std-mount, no arm

Table 7.2-B: Approved Pole Types by Location

Part Information	Part Description	Highway and Freeway [1]	Arterial and Large Collector	Collector and Local Street	Existing Res. Local Street	Historic District [2]	New Res. Local Street [3]
POLE TYPE – WOOD DISTRIBUTION							
N/A	Wood pole. Various heights, but standard id 35 feet. DME warehouse item. Direct buried. Overhead electric service.	Yes	Yes	Yes	Yes	No	No
Arm - Shakespeare #OPAR-8-H	8-ft. curved aluminum arm. DME warehouse item.	-	-	-	-	-	-
POLE TYPE – WHITE CONCRETE							
Lonestar #351101	35-ft. Concrete pole, white color. Single or double arm available. DME warehouse item. Direct buried. Underground electric service.	Yes	Yes	Yes	Yes	No	No
Arm - Curlee #2009032TG-Flat Base	8-ft. flat aluminum arm. DME warehouse item.	-	-	-	-	-	-
POLE TYPE – CONCRETE AGGREGATE							
Lonestar #20004-SJB (Waterford Series)	20-ft. Concrete aggregate pole. Post-top luminaire configuration. Direct buried. Underground electric service.	No	No	No	Yes	No	No
POLE TYPE – ANTIQUE ALUMINUM							
Acuity #PX-CP18-12-F4-AB3/133T3-ANBK	12-ft. antique, decorative aluminum pole. Post-top luminaire configuration. Requires concrete foundation. Underground service.	No	No	Yes[2]	Yes[2]	Yes[2]	No
POLE TYPE - STEEL							
(Single Arm) KW Industries RTSU35-8-11-Gray-18S-N	35-ft. round steel pole, gray color. Single or double arm available. Used for TxDOT designed streetlighting.	Yes[4]	Yes[4]	No	No	No	No
(Double Arm) KW Industries RTSU35-8-11-Gray-28S-N	Part numbers may vary slightly depending on application. Not stocked by DME – custom order item. Breakaway bases with concrete foundations may be required for certain installations and bridges. Direct burial available also. Underground electric service						
Arm(s) – N/A	Arms are included with pole when ordering.	-	-	-	-	-	-
Breakaway base – N/A	Breakaway base included with pole when ordering.	-	-	-	-	-	-

Part Information	Part Description	Highway and Freeway [1]	Arterial and Large Collector	Collector and Local Street	Existing Res. Local Street	Historic District [2]	New Res. Local Street [3]
POLE TYPE – STEEL RESIDENTIAL							
KW Ind., Part# SSP20-4-11-DGY GARDCO-DM10-BC	20-ft., dark gray, 4-in. square steel pole. Drilled for single-luminaire with std mounting pattern. Includes 3-in. by5-in. handhole and 8-in. bolt circle base pattern. Requires concrete foundation. Underground service.	No	No	No	No	No	Yes

Notes:
[1] Unless, otherwise specified by TxDOT.
[2] Historic streetlighting is only available for use in designated historic districts.
[3] Speed limits of 30 mph or less.
[4] Steel streetlight poles are only used for highways and roadways where TxDOT or City-approved plans require placement of break-away bases or non-standard mounting heights.

D. Historic Lighting

Historic lighting is a modern light fixture with a decorative pole and fixture that give the lighting the look of early 20th century lighting. Historic lighting has been approved for use only in the *designated historic* districts of Denton. All requests for historic lighting within these districts must be submitted to DME Engineering for design and approval. Historic lighting is not approved for installations outside of the historic districts. The requesting organization, developer, or agency shall be responsible for all costs related to the design and installation of historic streetlights.

E. Control System

All new streetlighting in the DME service area shall have a control node installed which, at a minimum, will turn the light on and off according to ambient light conditions (photocell control) and shall be compatible with the CityTouch lighting control system. *See* Table 7.2-C shown below. Where street lighting is installed by the developer, DME shall provide and install control nodes at the developer's expense. DME will commission the control nodes into the CityTouch program.

Where streetlighting is served by other electric utilities than DME, DME does not require or install control nodes.

Table 7.2-C: CityTouch-compatible control node models

Model Number	Voltage (V)	Use	Function
LLC7290	120 – 277	Cobra head lights	Photocell controller
LLC7294	347 – 480	High-voltage cobra head lights	Photocell controller
LLC7291	120 - 277	Post-top lights	Astro-clock (GPS location-based timers)

F. Dimming and Light Trespass

The City adheres to ANSI RP-8 lighting levels for all streets *except* local residential streets with speed limits of 30 mph or less. Lighting that has been designed to ANSI RP-8 cannot be dimmed without diminishing the lighting level which, by definition, no longer meets the RP-8 standard. Thus, all streetlighting that is not in residential neighborhoods with speed limits of 30 mph or less will be maintained at full brightness.

On local residential streets with speed limits of 30 mph or less, the streetlights may be dimmed by resident request at specific locations due to light pollution concerns by residents. DME will dim residential streetlights down as low as 60%.

The City also reserves the right to install house side shields (available only on cobrahead lights) and make other reasonable modifications to the luminaires to minimize impacts to the residents at the DME's discretion.

G. Migratory Birds and Other Flying Species

DME will dim residential streetlights down as low as 50% during select animal migration or activity periods as specified by the City Environmental Services & Sustainability Department.

H. International Dark Sky Association

DME installs and maintains two types of streetlight luminaires (light fixtures), post-top and cobrahead. The cobrahead light fixtures are endorsed by the International Dark Sky Associate (IDA) which makes recommendations on lighting with minimal up-light. The existing post-top lighting fixtures are not IDA endorsed, however an acceptable IDA approved alternate is being considered for all residential streets with speeds less than 30 mph.

7.2.4 Construction Requirements

Streetlight construction (e.g. conduit, wiring, etc.) shall follow the DME Standard Construction Drawings, stated below:

A. DSL-ARM

B. DSL-STD

C. DSL-12A

D. DSL-20C

E. DSL-35

Conduit runs should not exceed 700 feet between pulling locations. When bends total 180 degrees conduit runs should be limited to 500 feet or less. No run of conduit should have more than 360 degrees of total bend between pulling points.

The total length of a single lighting circuit at 120V should be less than 1,000 feet, the total length of a single lighting circuit at 240V should be less than 2,000 feet, and the total length of a circuit at 480V should be less than 4,000 feet unless circuit design and loading has been validated by engineering.

Additional design information may be found in the *TxDOT Highway Illumination Manual*.

7.3 Developer and DME Responsibilities

7.3.1 Highways and Streets (except local residential streets with speed ≤ 30 mph)

Developer is responsible for streetlighting design that meets the requirements of ANSI RP-8 for the appropriate roadway characteristics. A photometric (lighting) study shall be required. The final design must be approved and stamped by a Texas licensed professional engineer. Final design must also be approved by DME Engineering.

Lighting levels, placement, and compliance with ANSI RP-8 must be verified and documented with lighting design software. At a minimum, documentation shall be provided to DME Engineering showing:

A. Street geometry (width, number of lanes, median size)

B. Street classifications (arterial, collector, etc.)

C. Pedestrian activity classification

D. Criteria levels applied (illuminance vs. luminance method, and levels)

E. Lighting placements (median, side, parallel, staggered)

F. Maximum separation distance*

As an alternative to displaying the maximum separation distance as stated in 7.3.1.F above, a layout drawing of the project may be provided with calculation grid values and/or light level isolines indicating that the

installation meets the applicable requirements.

For TxDOT projects, the design contractor will provide specific lighting requirements, if any. The design package should dictate where lighting should be placed and what types of poles and fixtures should be used.

For City initiated projects, the City's Engineer or their contractor will design the street lighting and submit to DME Engineering for approval. Once approved, the city's contractor will perform all civil work, and pull wiring and install streetlights and poles. DME will provide service points as needed. DME will also install and commission control nodes for interconnection with CityTouch.

A monthly maintenance, repair, and usage fee will be charged to the City thereafter for all streetlights on public streets per current DME rates.

7.3.2 Local Residential Streets (with speed limits ≤ 30mph)

The Developer (or DME if DME is responsible for the given project) is responsible for the design and layout of streetlights at all intersections, cul-de-sacs, and no more than 250 feet between. DME Engineering shall approve the final design. Once the project is approved and permitted, the Developer is responsible for providing all civil work including grading, trenching, installation of conduit and pull-boxes, etc.

DME is responsible for installation of wire, streetlights and poles, and service points. DME will charge an initial installation cost to the developer based on the number of lights.

A monthly maintenance, repair, and usage fee will be charged to The City thereafter for all streetlights on public streets per current DME rates.

For City initiated projects, the City's Engineer or their contractor will design the street lighting and submit to DME for approval. Once approved, the city's contractor will perform all civil work, and pull wiring and install streetlights and poles. DME will provide service points as needed. DME will also install and commission control nodes for interconnection with CityTouch.

For private streets and drives (where the City of Denton does not take ownership of the roadway or streetlights), one of the following will occur:

A. If non-standard lights are installed, DME will provide a metered service point. Developer is responsible for installation of entire streetlighting system. Designated customer (individual, HOA, etc.) will be responsible for monthly power costs and all maintenance. **OR**

B. If standard DME lighting is installed, Developer is responsible for all civil work (grading, trenching, installation of conduit, etc.) and installation of poles and streetlights. DME will pull wires and connect the lights at the Developer's expense. Designated customer (individual, HOA, etc.) will be responsible the monthly streetlight power and maintenance rates. **OR**

C. Exceptions to this rule must be agreed upon by all parties in a formal agreement.

7.3.3 Streetlighting in Non-DME-Served Areas

Standard streetlights have been approved by the City as listed in the General Requirements section of this manual. Electric utilities other than DME may or may not be able to provide the same luminaires. Non-standard lights will not be maintained by DME or the City. DME will provide, install, maintain, and repair standard the City streetlights at the Developer's expense. The electric service provider will charge the City according to the rates agreed upon between the City and the electric service provider.

For streets in non-DME service territories, Developer should coordinate with the electric utility, DME, and the City at the earliest stage of development to determine and agree upon the following:

A. Developer, City/DME, and Customer responsibilities

B. Service points and project design

C. Mode of disconnect for safe maintenance (e.g. in-line fuses, etc.)

D. Mode of billing (metered usage, monthly rate, etc.)

E. Designated customer/developer responsible for fees

F. Other concerns as applicable

7.3.4 Customer/Citizen Requests for addition/removal of Streetlighting

When additional/modified/decreased lighting is requested by a customer, DME will perform an analysis of the lighting to determine if the modifications would provide added safety, visibility, and aesthetic value to a location. Light intrusion, cost, and feasibility will also be considered. At DME's discretion, lighting may be added or modified to bring the streetlighting closer in line with this manual or meet other specific concerns.

In coordination with the City's Environmental Services & Sustainability Department, DME may dim streetlights in residential areas to no lower than 50% brightness.

Section 8: Design Deviations

8.1 Overview

8.1.1 General

All developments within the City and its extraterrestrial jurisdictions shall conform to the design criteria established in this DCM. In the event that a development cannot comply with the design criteria established, a design deviation process is used to evaluate, document, and approve proposed alternative methods.

Any deviation from the required design criteria for design of facilities outlined in this DCM must be submitted as a design deviation request to the City's Engineer and Department Reviewer, prior to incorporating it into the final design of a project.

8.2 Design Deviation Procedure

8.2.1 Request for Design Deviation Submittal and Processing

A. All design deviation requests must be submitted as a formal request to Development Project Facilitation using the 'Request for Design Deviation Form' included in Appendix B, along with supporting documentation.

1. The 'Request for Design Deviation Form' shall be filled out completely with exception of the portions noted as "For Use by City".
2. Supporting documentation shall include:
   a. All pertinent information on the facilities involved or to be involved. The specific portion of this DCM, policies, or design standard(s) for which a design deviation is sought;
   b. Description(s) of all other design alternatives which the applicant has evaluated in attempts to comply with the design criteria prior to the request for design deviation; and
   c. A statement that provides justification for the requested design deviation and how it is the necessary and optimal solution when compared with reasonable alternatives for the scenario presented.
3. Design deviation requests that do not contain the required Request for Design Deviation Form and supporting documentation are incomplete and will not be reviewed.

B. The request and supporting documentation shall be submitted concurrently with Civil Engineering Plans, Zoning Compliance Plans, Planned Development, or Specific Use Permit submittal.

8.2.2 Criteria for Granting of Design Deviation

A. The review of a design deviation request by the City's Engineer and Department Reviewer shall assess whether the request:

1. Clearly demonstrates an exceptional hardship which prevents the design criteria from being met. This hardship cannot be solely self-imposed and should be based upon physical characteristics of the property, environmental conditions, or existing conditions created by surrounding development;

2. Is not detrimental to the public welfare;
3. Does not adversely impact the operations of the system or the public facility in question;
4. Is supported by a signed and sealed engineering analysis performed by a Licensed Professional Engineer in the State of Texas, if requested by the Engineering Department; and
5. Shall not be solely to mitigate a financial hardship.

B. The decision of the City's Engineer and Department Reviewer is guided by the criteria for approval, but is ultimately discretionary based on their engineering judgment and professional experience.

C. All approved design deviation requests shall be signed by the City's Engineer and Department Reviewer, before implementation.

D. The decision of the City's Engineer and Department Reviewer to grant a design deviation shall not relieve the applicant's Engineer of the professional obligation and responsibility to ensure any approved alternatives to the use of the material, design, or method of construction are fit for the intended purposes of the facilities at issue.

E. If a design deviation request is denied by the City's Engineer and Department Reviewer, the applicant may consider reviewing alternatives and resubmitting the application with more information as is deemed necessary, for re-evaluation by the City's Engineer and Department Reviewer.

8.3 Revocation of an Approved Design Deviation

8.3.1 Applicability and Procedure

A. An approved design deviation request may be revoked by the City's Engineer and Department Reviewer, if:

1. The supporting documentation that the City's Engineer and Department Reviewer used to review and approve the design deviation request is materially altered or updated. Any individual or entity that receives an approved design deviation request must provide the City's Engineer and Department Reviewer with any change in plans or conditions to the project that affect the requested deviation as soon as practicable after any such change occurs. Failure to provide these updates may result in design deviation revocation by the City.
2. The applicant is shown to have provided inaccurate or incomplete information during review of the design deviation request.
3. The City determines there is a failure to comply with any term, condition, or requirement applicable to a design deviation;

B. A decision to revoke a design deviation is effective immediately. Notice of the decision shall be communicated to the applicant.

Appendix A: Example Stormwater Facility Checklists

INSPECTION CHECKLIST FOR SIMPLE DETENTION BASIN

Facility Name: _____ **Facility Agreement Number:** _____

Basin/Pond Number: _____ **Inspected By:** _____ **Date:** _____

Type of Inspection: Annual _____, Quarterly _____, Monthly _____, Routine _____, or Storm Event _____, (# days since event _____)

Basin Conditions:

1. Is there standing water or wet spots? Yes____No _____Comments _____
2. Does sides or bottom show signs of erosion, settling, cracking, etc? Yes____No _____Comments _____
3. Does dam or emergency spillway show signs of erosion, settling, cracking, or other problems Yes____No _____Comments _____
4. Is there evidence of animal burrowing in dam? Yes____No _____Comments _____
5. Is there evidence of changes in shape or volume of basin? Yes____No _____Comments _____
6. Do vegetated areas need mowing? Yes____No _____Comments _____
7. Are there trees or woody growth in dam? Yes____No _____Comments _____
8. Are there areas that need to be re-vegetated? Yes____No _____Comments _____
9. Is there any accumulation of silt, trash, debris or litter in the basin? Yes____No _____Comments _____
10. Are there any other basin maintenance activities needed? Yes____No _____Comments _____

Structural Components:

1. Are pipes, channels, trash racks, etc. free of obstructions? Yes____No _____Comments _____
2. Are pipes, spillway or trash racks in need of repair? Yes____No _____Comments _____
3. Is the low flow or trickle channel in need of repair? Yes____No _____Comments _____
4. Is the outfall channel in need of repair? Yes____No _____Comments _____
5. Are there any other structural maintenance activities needed? Yes____No _____Comments _____

Plan for correcting deficiencies:

_____

_____

_____

_____

Signature:

_____

Owner's Representative

Date:

_____

ENGINEER'S CHECKLIST FOR STORMWATER FACILITY MAINTENANCE AGREEMENT

Please attach additional sheets as necessary for comments and descriptions. Fit all sheets to 8½" x 11".

ORGANIZATION INFORMATION	
1. Company (Applicant)	**Address:**
2. Contact's Information: Contact Name Mailing Address Telephone Number(s) Email	**3. Execution Information:** Signatory's Name Mailing Address Telephone Number(s) Email

4. Property Location:

(Note: If the property has not been addressed, please enter the legal description)

5. Associated Plat Numbers:

(Note: if request is related to multiple plat applications, please list each individually)

6. Associated Building Permit Numbers:

(Note: if request is related to multiple permits, please list each individually)

AGREEMENT & ATTACHMENT INSTRUCTIONS

If the property owner is a **corporation**, the agreement must be signed by a person who is duly authorized to bind the corporation including, but not limited to, a President or Vice President. . If a **partnership**, the agreement must be signed by the managing partner. If the applicant is a **sole proprietor**, he/she signs the agreement on behalf of him or herself. Additionally, for corporations and partnerships, a copy of the *Articles of Incorporation*, showing signature authority for whoever signs the agreement must also be submitted (Note: Applicants may also submit a board resolution or power of attorney authorizing an agent or assign to sign on behalf of the property owner. The agreement must be completely filled out and three copies submitted to the Planning and Development Department. Signatures on all three agreement drafts must be original and notarized. Lastly, please submit a copy of the deed for the noted property.

NOTE: Agreement and all attachments should be submitted on 8 ½" x 11".

	Yes	No	N/A	Comments/Descriptions
1. Legal Agreement – Standard agreement form provided by the City.	___	___	___	_____
2. Exhibit "A" - Legal Description (Attached)				
A. Metes and Bounds.	___	___	___	_____
B. Surveyor's Drawing, with seal affixed and marked as "Drainage Easement".	___	___	___	_____
C. Preliminary Plat.	___	___	___	_____
3. Exhibit "B" - Design Plan and Specifications (Attached)				
A. Design Calculations – in accordance with iSWM.	___	___	___	_____
B. Schematic Plan (See Example Detention Plan Schematic)- prepared in accordance with approved construction plans:	___	___	___	_____
• Plan View showing critical structural elements .	___	___	___	_____
• Critical structural elements are clearly labeled in layman terms.	___	___	___	_____
• Profile including a longitudinal section showing all critical structural elements with elevations.	___	___	___	_____
• Cross-sections as needed to show size and general grading. **NOTE: All Schematics should be submitted on 8 ½" x 11".**	___	___	___	_____
C. Landscaping shown per approved Landscape Plans.	___	___	___	_____
4. Exhibit "C" - Operations and Maintenance Plan (Attached)				
A. Routine Maintenance Specifications:				
1. Mowing as needed to control weeds and woody plants.	___	___	___	_____
2. Trash removal from critical structural elements.	___	___	___	_____
3. Additional maintenance.	___	___	___	_____
B. Non-routine Maintenance Activities:				
1. Bank repair and stabilization.	___	___	___	_____
2. Re-vegetation - required when 30% or more of area is unprotected.	___	___	___	_____

	Yes	No	N/A	Comments/Descriptions
3. Sediment removal from the detention/retention facility when:	___	___	___	_____
• Detention basin – when water depth is reduced 25% or more, or basin does not drain within 72 hours.	___	___	___	_____
• Retention pond – when water depth is 4' or less.	___	___	___	_____
• Sediment traps/forebay – when depth is reduced by 50% or more.	___	___	___	_____
4. Structural repair/replacement for all damaged or deteriorated structures, trickle channel, trash rack, etc.	___	___	___	_____
5. Mechanical equipment repairs.	___	___	___	_____
6. Other maintenance Activities.	___	___	___	_____

5. Exhibit "D" - Maintenance Checklist *

A. Covers ordinary needs, in layman terms.	___	___	___	_____
B. Structural components labeled consistent with Schematic Plan.	___	___	___	_____

*See attached Inspection Checklist for Detention Basin

NOTE: All Exhibits should be submitted on 8 ½" x 11".

(seal)	I certify that this Stormwater Facility Maintenance Agreement, checklist, required attachments, and additional comments, was prepared under my responsible supervision and that the information presented on this checklist and attachments is correct to the best of my knowledge. I also understand that an acceptance of this plan by the City does not waive any City standards or requirements unless a specific waiver request has been submitted and approved. Signed_____Date_____ Print Name:_____

[*page left blank intentionally*]

Appendix B: Design Deviation Request Form

Development Services
401 N. Elm Street, Denton, TX 76201 (940) 349-8541

City of Denton Design Deviation Request Form

Submitted by:_____Phone:_____Email:_____
Company:_____Date:_____

Project Information
City of Denton Project Number:_____Project:_____
Type of Development:_____
Location:_____ (include map)

Design Deviation Request (Each deviation from criteria requires a separate submittal and will be evaluated independently.)
Specify section of the DCM/DDC/design standard(s) for which a deviation is sought:

Please explain how the project is unable to meet the design criteria.
(This hardship cannot be solely self-imposed and should be based upon physical characteristics of the property, environmental condition, or existing conditions created by surrounding development.)

What other design alternatives have been evaluated to comply with the design criteria, prior to the request for design deviation:

Detailed explanation of requested design deviation:

The deviation request will be evaluated based on the criteria set forth in DCM 8.2.2.
_____ By submitting the design deviation request, the applicant hereby acknowledges and understands the design deviation procedure. (Please check.)

1 of 2

CITY OF DENTON

Development Services

401 N. Elm Street, Denton, TX 76201 (940) 349-8541

Supporting Documentation

List and provide attachments supporting the design deviation as stated in the DCM Section 8.2.1.

(drawings, calculations, topographic information, photographs, maps, or other pertinent information)

FOR USE BY THE CITY OF DENTON

Justification of Decision:

Deviation Decision: ☐ Accepted ☐ Denied

Reviewing Department: ☐ Solid Waste ☐ Stormwater ☐ Transportation

☐ Water/Wastewater ☐ Street Light

Department Reviewer:_____ City's Engineer:_____

Date:_____ Date:_____

Signature:_____ Signature:_____

(The deviation request decision must be signed by both the Department Reviewer and the City's Engineer.)

2 of 2

Note: Request the fillable Deviation Request form from your Facilitator.

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Appendix C: Poles and Luminaires - Standard Lighting Fixtures

Figure C.1: Residential Lighting – 20-ft. concrete aggregate pole woth post-top luminaire

Figure C.2: General Street Lighting – Wood (distribution) pole with single-mast arm and cobra head luminaire

Figure C.3: General Street Lighting – 35-ft. white concrete pole with single or double-mast arms and cobra head luminaire

Figure C.4: Historic District Lighting – 12-ft. concrete aggregate pole woth post-top luminaire

Design Criteria Manual

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Section 1: Introduction

1.1 Title and Effective Date

1.1.1 This document is ~~Chapter 35 of the Municipal Code of Ordinances~~the Design Criteria Manual of the City of Denton, Texas. It shall be officially known and cited as the "Denton ~~Development Code~~Design Criteria Manual," and is referred to internally in this document as "this ~~D~~DCM~~DC~~" and "this Manual~~Code~~."

1.1.2 This D~~DC~~CM shall become effective on ~~October 1~~July 1, 202~~4~~~~19~~.

1.2 Purpose

The purpose of the Denton Design Criteria Manual (DCM) is to provide minimum, non-exhaustive guidelines for the design and construction of ***solid waste, stormwater, transportation, water and wastewater, and streetlight infrastructure*** within the City of Denton, Texas and its extra-territorial jurisdictions. The criteria established in this Manual have been developed from a review of various applicable publications, regulatory requirements, and City of Denton offices which oversee the design, construction and maintenance of the facilities.

These guidelines are to be used by design engineers in the City of Denton Capital Projects Engineering Division, consulting engineers employed by the City, and engineers of subdivision and land development infrastructure projects proposed for construction and acceptance by the City, within the City and its extraterritorial jurisdictions.

Along with this Manual, the Denton Development Code (DDC) should be consulted for additional criteria. ***The criteria established in this Manual do not supersede the criteria contained in the DDC.*** In the case of conflict among this Manual, City of Denton Standard Details, or other cited regulations and standards, the more stringent requirement shall apply.

This DCM is ***not*** intended to be an all-inclusive design document for all circumstances and conditions. The DDC and City of Denton Code of Ordinances ~~shall~~must be consulted for possible impacts to the proposed design. The Federal Government, the State of Texas, NCTCOG, Denton County, Denton County Transit Authority (DCTA), and other related organizations and resources should~~all~~ be consulted for additional criteria, as may be deemed necessary.

1.3 Organization

In addition to the design criteria established in this DCM, guidance is also provided for design deviations from the required design criteria. The contents of this Manual are categorized into sections shown below:

A. Section 1: Introduction

B. Section 2: Abbreviations and Definitions

C. Section 3: Solid Waste Design

D. Section 4: Stormwater Design

E. Section 5: Transportation Design

F. Section 6: Water and Wastewater Design

G. Section 7: Streetlight Design Criteria

H. Section 8: Design Deviations

Section 2: Abbreviations and Definitions

2.1 Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
APBP	Association of Pedestrian and Bicycle Professionals
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
BFE	Base Flood Elevation
BMP	Best Management Practices
CCN	Certificate of Convenience and Necessity
cfs	cubic feet per second
CLOMR	Conditional Letter of Map Revision
COA	Condominium Owner's Association
CP	Cathodic Protection
cu. ft.	cubic feet
DCAD	Denton Central Appraisal District
DCM	Design Criteria Manual
DCTA	Denton County Transit Authority
DDC	Denton Development Code
DFW	Dallas-Fort Worth Metroplex
DIP	Ductile-Iron Pipe
DRP	Development Review Process
DSA	Down Stream Assessment
EOL	End-of-Line
ESA	Environmentally Sensitive Area
ft.	foot or feet
FEMA	Federal Emergency Management Agency
FFE	Finished Floor Elevation
FHWA	Federal Highway Administration
FIRM	Federal Insurance Rate Map
FIS	Flood Insurance Study
FM	Farm to Market

fps	feet per second
gal.	gallon(s)
GPCD	gallons per capita per day
GPD	gallons per day
GPM	gallons per minute
GPS	Global Positioning System
HDPE	High Density Polyethylene
HEC-HMS	Hydrologic Engineering Center's Hydrologic Modeling System
HEC-RAS	Hydrologic Engineering Center's River Analysis System
HGL	Hydraulic Grade Line
HOA	Home Owner~~'s~~' Association
IBC	International Building Code
ID	Inner Diameter
IFC	International Fire Code
IH	Interstate Highway
in.	inch(es)
IPC	International Plumbing Code
ITE	Institute of Transportation Engineers
*i*SWM™	Integrated Stormwater Management
kg.	kilogram(s)
lb.	pound or pounds
LOMR	Letter of Map Revision
LOS	Level-of-Service
MEP	Mechanical, Electrical, and Plumbing
MGD	Million Gallons per Day
mL	milli-liter(s)
mph	miles per hour
NAVD	North American Vertical Datum
NCHRP	National Cooperative Highway Research Program Report
NCTCOG	North Central Texas Council of Governments
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NGVD	National Geodetic Vertical Datum

NOAA	National Oceanic and Atmospheric Administration
PHT	Peak-Hour Trips
PMF	Probable Maximum Flood
PMP	Probable Maximum Precipitation
POA	Property Owner's' Association
POTW	Publicly Owned Treatment Works
PROWAG	Public Rights of Way Accessibility Guidelines
psi	pounds per square inch
PUCT	Public Utilities Commission of Texas
PUE	Public Utility Easement
PVC	Polyvinyl Chloride
PZC	Planning and Zoning Commission
RCP	Reinforced Concrete Pipe
ROW	Right-of-Way
RPBA	Reduced Pressure Backflow Assembly
SCADA	Supervisory Control and Data Acquisition
SCS	Soil Conservation Service
SDR	Standard Dimension Ratio
SFE	Single-Family Equivalent
SETP-PD	Safety End Treatment Plan – Parallel Drainage
SFHA	Special Flood Hazard Area
SH	State Highway
sq. ft.	square feet
sq. mi.	square mile(s)
SWFMA	Stormwater Facility Maintenance Agreement or Maintenance Agreement
TAC	Texas Administrative Code
TAS	Texas Accessibility Standards
TCEQ	Texas Commission on Environmental Quality
TDLR	Texas Department of Licensing and Registration
TIA	Traffic Impact Analysis
TMUTCD	Texas Manual on Uniform Traffic Control Devices
TSS	Total Suspended Solids
TxDOT	Texas Department of Transportation

U.S.	United States of America
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
VPD	Vehicle-trips per day
WoUS	Waters of the United Stated of America
WMP	Water Master Plan
WSEL	Water surface elevation
w.s.f.u.	Water-Supply Fixture-Unit(s)
ZOI	Zone of Influence

2.2 Definitions

20-Year Horizon

The estimated traffic volume for the study area based on a 20-year growth period.

Abutment
A wall supporting the end of a bridge or span and sustaining the pressure of the bordering earth.

Applicant
Any firm, entity, partnership, company, public utility company, or individual that submits a formal request or application.

Apron
A floor or lining of concrete, timber, or other suitable material at the toe of a dam, entrance or discharge side of a spillway, a chute, or other discharge structure, to protect the waterway from erosion from falling water or turbulent flow.

Area of Special Flood Hazard
The area designated as subject to flooding from the 1% chance flood on the flood insurance rate map. For purposes of these criteria, the term "special flood hazard area" is synonymous in meaning with the phrase "area of special flood hazard" and may be referred to as "SFHA".

Backwater
The rise of the water level upstream due to an obstruction or constriction in the channel.

Backwater Curve
The term applied to the longitudinal profile of the water surface in an open channel when flow is steady but non-uniform.

Baffles
Deflector vanes, guides, grids, gratings, or similar devices constructed or placed in flowing water, to: (1) check or effect a more uniform distribution of velocities; (2) absorb energy; (3) divert, guide, or agitate the stormwater flow; and (4) check eddy currents.

Baffle Chute
A drop structure in a channel with baffles for energy dissipation to permit the lowering of the hydraulic energy gradient in a short distance to accommodate topography.

Base Flood Elevation
The elevation shown on the Flood Insurance Rate Map (FIRM) and found in the accompanying Flood Insurance Study (FIS) for Zones A, AE, AH, A1-30, AR, V1-30, or VE that indicates the water surface elevation resulting from the flood that has a 1% chance of equaling or exceeding that level in any given year.

Calibration
Process of checking, adjusting, or standardizing operating characteristics of instruments and model appurtenances on a physical model or coefficients in a mathematical model. The process of evaluating the scale readings of an instrument in terms of the physical quantity to be measured.

Carrier Pipe
A pipe used to carry stormwater, water, or wastewater, as opposed to an exterior protective casing pipe.

Casing Pipe
An exterior protective pipe that encases a carrier pipe for various types of crossings, including roadways, creeks, and railroads. Also known as encasement pipe.

Channel
A man-made drainageway or watercourse, generally constructed to straighten a stream or increase its capacity.

Channel Roughness
Irregularities in channel configuration which attenuate the flow of water and dissipate its energy.

Chute
An inclined conduit or structure used for conveying water to a lower level.

City's Engineer
A Professional Engineer, licensed by the State of Texas, who is the subject matter expert of the relevant topic of discussion, and employed by the City o~~O~~f Denton.

Conduit
Any open or closed structure for conveying flowing water.

Corner Clip
ROW dedication at intersection corners to provide sufficient room for intersection visibility, pedestrian access, and other street facilities.

Critical Flow
The state of flow for a given discharge at which the specific energy is a minimum with respect to the bottom of the conduit. The Froude Number is equal to 1.0 for critical flow conditions.

Crown
The highest point on a transverse section of conduit or the highest point of a roadway cross-section.

Culvert
Large pipe or other conduit through which a small stream passes under a road or street.

Curb
A vertical or sloping structure located along the edge of a roadway, normally constructed integrally with the gutter, which strengthens and protects the pavement edge and clearly defines the pavement edge to vehicle operators.

Dam
A barrier constructed across a watercourse for the purpose of creating a reservoir or diverting water from a conduit or channel.

Degradation
The progressive general lowering of a stream channel by erosion, other than that caused by a constriction.

Department Reviewer
A member of a City of Denton department, designated by the Department Director, with subject matter expertise related to the Design Criteria Manual who is designated as being responsible for the review of design deviation requests.

Depression Storage
Collection and storage of rainfall in natural depressions after exceeding infiltration capacity of the soil.

Design Storm or Flood
The storm or flood which is used as the basis for design.

Detention
The storage of storm runoff for a controlled release during or immediately following the design storm.

1. Off-site detention - A detention pond located outside the boundary of the area it serves.
2. On-site detention - A detention pond which is located within and serves only a specific site or subdivision.
3. Regional detention - Detention facilities provided to control excess runoff based on a watershed-wide hydrologic analysis.

Development
Any man-made change to improved or unimproved real estate, including but not limited to, buildings or other structures, paving, drainage, or utilities. Development activities include: subdivision of land; construction or alteration of structures, roads, parking, fences, pools, signs, temporary uses, utilities, and other facilities; installation of septic systems; grading; excavation, mining or drilling operations; deposit of refuse, debris, or fill materials; and clearing of natural vegetative cover (with the exception of agricultural activities as defined and as permitted). Routine repair and maintenance activities are exempted.

Development Project Facilitation
Division within the City of Denton that assists developers move projects through the City's various development review process and authorized to process the review of design deviation requests.

Drop Structures
A sloping or vertical section of a channel designed to reduce the elevation of flowing water without increasing its velocity.

Energy Dissipaters
Engineered devices such as riprap aprons or concrete baffles placed at the outlet of storm water conveyance systems for the purpose of reducing the velocity, energy and turbulence of the discharged flow.

Entrance Head
The head required to cause flow into a conduit or other structure; it includes both entrance loss and velocity head.

Entrance Loss
Head lost in eddies or friction at the inlet to a conduit, headwall or structure.

Existing Traffic
Existing traffic conditions based on the most recent traffic counts. Existing traffic conditions do not include the traffic created or associated with the development.

Flash Flood
A flood of short duration with a relatively high peak rate of flow, usually resulting from a high intensity rainfall over a small area.

Flood Control
The elimination or reduction of flood losses by the construction of flood storage reservoirs, channel improvements, dikes and levees, by-pass channels, or other engineering works.

Flood Hazard Area
Area subject to flooding by 1% chance floods.

Flood Management or Flood Hazard Mitigation–
Any program or activity designed to reduce damages from flooding, including stream erosion.

Floodplain–
The area that is subject to flooding from the 1% chance flood. The floodplain includes the regulatory floodway and floodway fringe.

Floodway
The channel and adjacent lands of a watercourse that must be reserved in order to discharge the base flood without increasing the water surface elevation more than the regulatory designated height.

Floodway Fringe
The area located within the floodplain and outside the floodway.

Freeboard
The distance between the normal operating level and the top of the side of an open conduit left to allow for wave action, floating debris, or any other condition or emergency without overtopping the structure.

Frequency (of storms, floods)
Average recurrence interval of events, over long periods of time. Mathematically, frequency is the reciprocal of the exceedance probability.

Froude Number
A flow parameter, which is a measure of the extent to which gravitational action affects the flow. A Froude number greater than one (1) indicates supercritical flow and a value less than 1 subcritical flow. The simplest form of the Froude number is given by the following equation:

$$F = V / (g D)^{0.5} \qquad \text{[Eqn. 2.1]}$$

Where: V = Velocity
g = the acceleration due to gravity (32.2 ft/s^2)
D = depth

Fully Developed Conditions
A description of hydrologic conditions in a watershed, if the watershed has been completely built out based on the zoning and future land use maps of the City. If there is no designated future land use, the runoff coefficient will be assumed to be (0.6) for purposes of determining fully developed water surface elevations. This term is interchangeable with the term "Ultimate Developed Conditions". This is not to be confused with a Developed Floodplain as defined in Subchapter 9.2 of the DDC, which refers to the character of the streambed itself.

Gabion
A wire container filled with rock and used in the construction of dams, retaining walls, and protection against erosion.

Grade
1. The inclination or slope of a channel, canal, conduit, etc., or natural ground surface, usually expressed in terms of the percentage of number of units of vertical rise (or fall) per unit of horizontal distance.
2. The elevation of the invert of the bottom of a conduit, canal, culvert, sewer, etc.
3. The finished surface of a canal bed, road bed, top of an embankment, or bottom of excavation.

Gutter
A generally shallow waterway adjacent to a curb used to convey stormwater.

Headwater
1. The upper reaches of a stream near its sources;
2. The region where ground waters emerge to form a surface stream;
3. The water upstream from a structure.

Hydraulic Control
The hydraulic characteristic which determines the stage-discharge relationship in a conduit. The control is usually critical depth, tailwater depth, or uniform depth.

Hydraulic Grade Line
A line representing the pressure head available at any given point within the system.

Hydraulic Gradient
A hydraulic profile of the piezometric level of the water, representing the sum of the depth of flow and the pressure head. In open channel flow it is the water surface.

Hydraulic Jump
The hydraulic jump is an abrupt rise in the water surface which occurs in an open channel when water flowing at supercritical velocity is retarded by water flowing at subcritical velocity. The transition through the jump results in a marked loss of energy, evidenced by turbulence of the flow within the area of the jump. The hydraulic jump is sometimes used as a means of energy dissipation.

Hydraulics
A branch of science that deals with practical applications of the mechanics of water movement.

Hydrograph
A graph showing stage, flow, velocity, or other property of water versus time at a given point on a stream or conduit. Examples include: Dimensionless Unit hydrograph, Unit Hydrograph.

Hydrology
The science dealing with the properties, distribution, and circulation of water on and below the Earth's surface and in the atmosphere.

Hyetograph
A histogram or graph of rainfall intensity versus time of storm.

Impervious
A term applied to a material through which water cannot pass~~,~~ or passes with great difficulty.

Infiltration
1. The entering of water through the interstices or pores of a soil or other porous medium.
2. The entrance of water from the ground into a sewer or drain through breaks, defective joints, or porous walls.
3. The absorption of water by the soil, either as it falls as precipitation, or from a stream flowing over the surface.

Inlet
Inlets are drainage structures used to collect surface water through grate or curb openings and convey it to storm drains or direct outlet to culverts.
Inlets used for the drainage of roadway surfaces can be divided into four major classes:
1. Grate Inlets – These inlets include grate inlets consisting of an opening in the gutter covered by one or more grates, and slotted inlets consisting of a pipe cut along the longitudinal axis with a grate or spacer bars to form slot openings.
2. Curb-Opening Inlets – These inlets are vertical openings in the curb covered by a top slab.
3. Combination Inlets – These inlets usually consist of both a curb-opening inlet and a grate inlet placed in a side-by-side configuration, but the curb opening may be located upstream of the grate.
4. Drop Inlet (Y-Inlet) -A storm drain intake structure typically located in unpaved areas. The inlet may extend above the ground level with openings on one or more sides of the inlet or it may be flush with the ground with a grated cover.

Intensity
As applied to rainfall, a rate usually expressed in inches per hour.

Interception
As applied to hydrology, refers to the process by which precipitation is caught and held by foliage, twigs, and branches of trees, shrubs and buildings, never reaching the surface of the ground, and then lost by evaporation.

Invert
The floor, bottom, or lowest portion of the internal cross-section of a conduit.

Lag Time
The time difference between two occurrences such as between rainfall and runoff or pumping of a well and effect on the stream. *See* Time of Concentration.

Level of Service
A qualitative measure of traffic flow and congestion, representing quality of service. It describes operational conditions within a traffic stream, generally described in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety.

Lining
Impervious material such as concrete, clay, grass, plastic, puddled earth, etc., placed on the sides and bottom of a ditch, channel, and reservoir to prevent or reduce seepage of water through the sides and bottom and/or to prevent erosion.

Lip
A small wall on the downstream end of an apron to break the flow from the apron.

Major Stream
Waterways with a contributing drainage area of one square mile or more.

Manning's Coefficient
The coefficient of roughness used in Manning's Equation for flow in open channels.

Manning's Equation
A uniform flow equation used to relate velocity, hydraulic radius and the energy gradient slope.

Median
The portion of a divided roadway separating the opposing traffic flows. A median may be traversable or non-traversable.

Median Opening
An opening in a non-traversable median that allows accessing or crossing the opposing traffic lanes.

Minimum building elevation
The elevation to which new and substantially improved structures within the floodway or within ~~two hundred (~~200~~)~~ feet of the floodplain or SFHA are required to be elevated or floodproofed. This elevation would be equal ~~eighteen (~~18~~)~~ inches above the ~~one-hundred~~100-year water surface elevation based on fully developed conditions or ~~thirty (~~30~~)~~ inches above the BFE as indicated in the flood insurance study or, if the BFE is unavailable, ~~thirty (~~30~~)~~ inches above the ~~one-hundred~~100-year flood elevation based on current development watershed conditions.

Model
Mathematical systems analysis by computer, applied to evaluate rainfall-runoff relationships; simulate watershed characteristics, predict flood and reservoir routings, or use other aspects of planning.

Nappe
The sheet or curtain of water overflowing a weir or dam. When freely overflowing any given structure, it has a well-defined upper and lower surface.

100-year Event
Event (rainfall or flood) that has a 1% chance of being equaled or exceeded in any given year.

Open Channel
A conduit in which water flows with a free surface.

Orifice
1. An opening with closed perimeter, and of regular form in a plate, wall, or partition through which water may flow.
2. The end of a small tube, such as a Pilot tube, piezometer, etc.

Peak Flow (Peak Rate of Runoff)
The maximum rate of runoff during a given runoff event.

Percolation
To pass through a permeable substance such as ground water flowing through an aquifer.

Permeability
The property of a material which permits movement of water through it when saturated and actuated by hydrostatic pressure.

Pervious
Applied to a material through which water passes relatively freely.

Pilot Channel
A constructed pathway that guides base streamflow or runoff along a specified route through a drainage facility or drainage feature.

Porosity
1. An index of the void characteristics of a soil or stratum as pertaining to percolation; degree of perviousness.
2. The ratio, usually expressed as a percentage, of (a) the volume of the interstices in a given quantity of material, to (b) the total volume of the material.

Positive Overflow
When the inlets do not function properly, or when the design capacity of the conduit is exceeded, the excess flow must be conveyed overland along a paved course. This could mean along a street or alley but could require a concrete flume and the dedication of special drainage easements on private property.

Post-development
The condition of the given site and drainage area after the anticipated development has taken place.

Precipitation
Any moisture that falls from the atmosphere, including snow, sleet, rain and hail.

Pre-development
The condition of the given site and drainage area prior to development.

Probable Maximum Flood
The flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible in the region.

Probable Maximum Precipitation
The critical depth-duration-area rainfall relationship for a given area during the seasons of the year which would result from a storm containing the most critical meteorological conditions considered probable of occurring.

Projected Growth Rate
The estimated growth rate per year for the study area based upon the average growth in the previous 5-year period along arterials in the vicinity of the proposed project.

Proposed Site Traffic Volumes
The number of vehicles per day and per hour projected to be generated by the development.

Rainfall Duration
The length of time over which a single rainfall event occurs.

Rainfall Frequency
The average recurrence interval of rainfall events.

Rainfall Intensity
The rate of accumulation of rainfall, usually in inches or millimeters per hour.

Rational Formula
A traditional method of computing peak flow using intensity of the storm rainfall.

Reach
Any length of river or channel. Usually used to refer to sections which are uniform with respect to discharge, depth, area or slope, or sections between gaging stations.

Recurrence Interval
The average interval of time within which a given event will be equaled or exceeded once. For an annual series (as opposed to a partial duration series) the probability of occurrence in anyone year is the inverse of the recurrence interval. Thus, a flood having a recurrence interval of 100 years has a 1% probability of being equaled or exceeded in any one year.

Regulatory Floodway

The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

Retention
The storage of a portion or all of the storm runoff for purposes of permanent use of the retained water. Retention facilities are similar to detention facilities with the main difference being that all of the storm runoff will not be released to the downstream drainage network.

Return Period
See Recurrence Interval

Reynold's Number (Re)
A flow parameter which is a measure of the viscous effects on the flow. Typically defined as shown in the equation below:

$$Re = (V.\ D) / v \qquad \text{[Eqn. 2.2]}$$

Where: V = Velocity
D = Depth
v = kinematic viscosity of the fluid

Riprap (Revetment)
Forms of bank protection, usually using rock or concrete.

Routing
Routing is a technique used to predict the temporal and spatial variations of a flood wave as it traverses a river reach or reservoir. Generally, routing technique may be classified into two categories - hydrologic routing and hydraulic routing.

Right-of-Way
A designated section of- a street, sidewalk, alley, waterway or utility easement and/or related facilities, that is dedicated for municipal usage.

Right-of-Way Width
The shortest horizontal distance between the lines which delineate the right-of-way of a street.

Runoff
That part of the precipitation which reaches a stream, drain, sewer, etc., directly or indirectly.

1. Direct Runoff - The total amount of surface runoff and subsurface storm runoff which reaches stream channels.
2. Overland Runoff - Water flowing over the land surface before it reaches a definite stream channel or body of water.

Runoff Coefficient
A decimal number used in the Rational Formula which defines the runoff characteristics of the drainage area under consideration. It may be applied to an entire drainage basin as a composite representation or it may be applied to a small individual area such as one residential lot.

Runoff Total
The total volume of flow from a drainage area for a definite period of time such as a day, month, or a year, or it may be for the duration of a ~~par~~ particular ~~ticular~~ storm.

Scour
The erosive action of running water in streams or channels in excavating and carrying away material from the bed and banks.

SCS Runoff Curve Number
Index number used by the National Resource Conservation Service, formerly the Soil Conservation Service, as a measure of the tendency of rainfall to run off into streams rather than evaporate or infiltrate.

Sediment
Material of soil and rock origin transported, carried, or deposited by water.

Sedimentation Basin
A sediment control basin required to catch runoff from common drainage areas with 10 acres or more disturbed at one time during any phase of development that dewaters from the surface unless infeasible.

Sidewalk
A paved area within the street ROW or sidewalk easement specifically designed for pedestrians and/or bicyclists.

Sight Distance
The distance visible to the driver of a passenger vehicle measured along the normal travel path of a roadway from a designated location and to a specified height above the roadway when the view is unobstructed by traffic.

Slope, Critical
The slope or grade of a channel that is exactly equal to the loss of head per foot resulting from flow at a depth that will give uniform flow at critical depth; the minimum slope of a conduit which will produce critical flow.

Slope, Friction
The friction head or loss per unit length of channel or conduit. For uniform flow the friction slope coincides with the energy gradient, but where a distinction is made between energy losses due to bends, expansions, impacts, etc., a distinction must also be made between the friction scope and the energy gradient. The friction slope is equal to the bed or surface slope only for uniform flow in uniform open channels.

Soffit
In a stormwater pipe, the uppermost point of the interior of the pipe wall. The crown is the uppermost point on the outside of the pipe wall.

Spillway
A waterway in or about a dam or other hydraulic structure, for the overflow of excess water.

Standard Details

A collection of uniform detail drawings of structures or devices adopted as standard construction details by the City of Denton.

Steady Flow
Open channel flow is said to be steady if the depth of flow does not change or if it can be assumed to be constant during the time interval of consideration.

Stormwater Facility Maintenance Agreement or Maintenance Agreement
A legal agreement between the C~~OD~~ity of Denton and a property owner, including HOAs and POAs, for perpetual maintenance of a structural BMP.

Stream
A natural drainageway that conveys stormwater, may also be referred to as a creek. References to a stream or creek in this Manual refer to the entire stormwater carrying component of the stream to the limits of the floodplain, not just to the streambed.

Stilling Basin
Pool of water conventionally used, as part of a drop structure or other structure, to dissipate energy.

Stopping Sight Distance
The distance required by a driver of a vehicle, traveling at a given speed, to bring the vehicle to a stop after an object on the roadway becomes visible. It includes the distance traveled during driver perception time, reaction time, and the vehicle braking distance.

Storage Length
The portion of an auxiliary lane required to store the number of vehicles expected to accumulate in the lane during an average peak period.

Storm Hydrology
The branch of hydrology that concentrates on the calculation of runoff from storm rainfall.

Stormwater Management
The control of storm runoff on-site or on small streams, by means of land use restrictions, detention storage, erosion control, and/or drainage measures.

Stormwater Model
Mathematical representation of a stormwater network.

Study area
The boundaries of the assessment area as determined by the City's Engineer.

Subcritical Flow
The Froude Number is less than 1.0 for subcritical flow conditions.

Supercritical Flow
The Froude Number is greater than 1.0 for supercritical flow conditions.

Tailwater
The depth of flow in the stream directly downstream of a drainage facility.

Time of Concentration
The estimated time in minutes required for runoff to flow from the most remote section of the drainage area to the point at which the flow is to be determined.

Total Head Line (Energy Line)
A line representing the energy in flowing water. The elevation of the energy line is equal to the elevation of the flow line plus the depth plus the velocity head plus the pressure head.

Traffic Queue
Vehicles within a storage queue awaiting traffic movement in a single lane, within one traffic signal cycle.

Trash Rack
Racks, gratings, or mesh designed so as to prevent leaves and rubbish from plugging the outlets from a dam or detention basin.

Trip Distribution
An estimate of the spatial pattern of trips or other flows between given sets of origins and destination pairs. Trip distribution models connect the trip origins and destination, estimated by the trip generation models to create estimated trips based on the Base year and Buildout years (24 hour counts or turning movement counts). Different trip distribution models are developed for each of the trip purposes for which trip generation has been estimated.

Trunk Line
The main line of a storm drain system extending from manhole to manhole or from manhole to outlet structure.

TxDOT Highways
State-operated highways that include Farm to Market (FM) roadways, State Highways (SH), Interstate Highway (IH), IH Frontage Roads, and United States (US) Highways.

Uniform Channel
A channel with a constant cross-section and roughness.

Uniform Flow
Open channel flow is said to be uniform if the depth of flow is the same at every section of the channel.

Unit Hydrograph
The direct runoff hydrograph resulting from one inch of precipitation excess distributed uniformly over a watershed for a specified duration.

Valley Storage
Refers to the water storage capacity of a stream and is a volume that is measured below the base flood elevation. Restrictions on loss of valley storage refer to compensation for the loss of storage caused by fill below the base flood elevation.

Velocity Head

The energy per unit weight of water due to its velocity (v). The velocity head also represents the vertical distance water must fall freely under gravity to reach its velocity (v). The velocity head can be computed from the following equation:

$$\text{Velocity Head} = v^2 / 2g \qquad \text{[Eqn. 2.3]}$$

Where: v = velocity
g = acceleration due to gravity (32.2 ft/s^2)

Water Year

The water year commonly used in the United States is the period from October 1 to September 30 of the following calendar year.

Watershed

The area contributing storm runoff to a stream or drainage system. Other terms are drainage area, drainage basin and catchment area.

Zone of Influence

A point downstream where the increased discharge from a proposed development results in 0.00' increase in flood elevation.

Section 3: Solid Waste Design Criteria

3.1 Overview

The purpose of Section 3 - ~~t~~Solid Waste Design~~his~~ Criteria of this DCM ~~a Manual~~ is to provide basic criteria and standards for the development and maintenance of solid waste and recycling container enclosures.

The Solid Waste Design Criteria established in this Manual shall apply as set forth in~~have been developed from a review of~~:

A. City of Denton Code of Ordinances – Chapter 24,

B. DDC Subchapter 7, Section 7.2 – Applicability, and

C. DDC Subchapter 7, ~~7.12~~Section 7.12 – Solid Waste and Recycling Design Standards.

The City Code ~~and~~ of Ordinances ~~require~~ states that t~~T~~he City of Denton shall be the exclusive provider of solid waste collection and disposal services within the C~~c~~ity L~~l~~imits including, but not limited to, services provided for preconstruction activities, construction activities, and ~~ultimately~~ residential, multi-family, and ~~or~~ commercial activities. All~~LL~~ contractors and sub-contractors should call ~~the~~ City of Denton Customer Service (940-349-8700) to initiate service. Third-Party solid waste providers may~~MAY~~ not~~NOT~~ be used for any onsite solid waste services within the City Limits. ~~Commercial recycling services may be offered by an appropriately franchised third-party recycling provider provided the C&+D material is truly being diverted for reuse. Recycle boxes containing putrescible (food) waste and/or contamination level exceeding 10% MUST be managed by the City of Denton.~~

3.2 Design Standards

3.2.1 General

~~A. The design standards and requirements in this Criteria Manual shall apply as set forth in Section 7.2: Applicability and Section 7.12 Solid Waste and Recycling Design Standards of the .~~

A. Nonresidential on-site solid waste and recycling container enclosures shall be located on each platted lot of non-residential property~~,~~ and shall be constructed and maintained by the property owner or developer and made available for use by the City of Denton Solid Waste Department or commercial recycling service provider.

B. Nonresidential on-site solid waste and recycling container enclosures shall be available for the storage of all municipal solid waste and recyclables generated for each platted property. The C~~c~~ity reserves the ability to determine ~~which, if~~whether any~~,~~ parcel~~s~~ or area~~s~~ (~~e.g.,~~For example, Downtown Square, strip centers, multi-family residential, etc.) ~~may be recommended for~~must have shared container service or an~~other~~ alternative service. Container enclosures shall be of adequate size to contain all solid wastes, ~~and~~ liquid wastes, and recyclables generated on the property~~; which may include~~, including, but ~~are~~ not limited to, municipal solid waste, recyclables, grease and oils, process by-products and wastes, hazardous waste, medical waste, and any special wastes, contained ~~as necessary to meet~~in accordance with Chapter 24, City of Denton Code of Ordinances. ~~disposal standards published by the Ccity.~~

C. The container enclosures shall meet the Container Enclosure and Storage Space Dimensional Requirements ~~be constructed to such capacitys~~ prescribed in Section ~~Section 3.~~3.2.2 of this Manual,

as well as Chapter 469 of the Texas Government Code, as amended.

D. New nonresidential uses of 999 square feet ("sq. ft.") or less will be evaluated by C~~c~~ity staff to determine the applicability of constructing an enclosure. Trash and ~~Solid Waste and R~~recycling carts may be appropriate, thereby eliminating the need for construction of an enclosure.

E. ~~The use of C~~cart storage ~~for~~may be utilized on property converted from a residential to non-residential use ~~can be accommodated~~ if the converted property ~~converted~~ is a structure of less than 2,500 gross sq.~~uare~~ ft.~~eet~~, has a waste generation rate applicable for cart service, and is in an area where commercial cart service is available ~~availability of commercial cart service is available in the area.~~

F. Proposed future building expansion (evaluated at 50% or more of the current square footage) and phased development shall be considered in ~~the~~ site design with regards to sizing, location(s), and access of future solid waste and recyclables container enclosures. Solid waste and recycling areas necessary for future building expansion shall be available ~~for development~~, but need not be ~~developed~~utilized, nor container enclosures constructed, until ~~the~~ future building expansion occurs.

G. Containers for solid waste and recycling service shall be screened from the public right-of-way ~~(ROW)~~ ("ROW") ~~(any designated public street, sidewalk, or alley)~~ and from adjacent property owners.

H. Proper construction of the container enclosures shall be completed prior to final ~~acceptance~~ approval of the development or property by the City's Solid Waste Department.

I. Container enclosure designs shall be consistent with the engineering drawings and specifications~~, as~~ shown in ~~the City of Denton's Standard Details. Refer to~~ the Solid Waste and Recycling Container Enclosure Construction Drawings in~~.~~ the City of Denton's Standard Details.

3.2.2 Container Enclosure and Storage Space Dimensional Requirements

A. All single container enclosures shall ~~be a~~have ~~minimum~~ inside walls with dimensions ~~of~~measuring a minumum of 13 feet wide and 1~~0~~1.5 feet deep. The Rear face of the bollard must be three (3) feet from the rear of enclosure and the front of bollard must be eight (8) feet from the front of enclosure, leaving six (6) inches of space equal to~~-~~ the size of the bollard. Only solid waste and recycling containers are allowed in the enclosures. Other storage containers such as grease and oil receptacles, and other items shall be stored and located in a different enclosure. These enclosures shall be located where they will not impede the service of the solid waste and/or recycling containers.

B. All dual container enclosures shall ~~be~~ have inside walls ~~a minimum inside wall~~with dimensions measuring ~~of~~ 26 feet wide and 1~~0~~1.5 feet deep. The Rear face of the bollard must be three (3) feet from the rear of the enclosure and the front of bollard must be eight (8) feet from front of enclosure, leaving six (6) inches of space equal to~~-~~ the size of the bollard. Only solid waste and recycling containers are allowed in the enclosures. Other storage containers such as grease and oil receptacles, and other items shall be stored and located in a different enclosure. These enclosures shall be located where they will not impede the service of the solid waste and/or recycling containers.

C. All roll-off compactor enclosures shall have ~~be a~~ ~~minimum~~ inside walls with ~~-~~dimensions ~~of~~ measuring a minimum of 16 feet wide. ~~with the~~The depth of inside walls ~~to be determined by~~must accomodate the compactor size selected.

D. ~~Refer to the~~The City of Denton's Standard Details contain the required ~~for~~ construction specifications for container enclosures ~~,~~and storage spaces.

E. All developments shall be required to install container enclosures as specified in Table 3.2-A ~~Table 3.2-A below~~.

F. Nonresidential uses which ~~are not specifically listed in the~~are not required to meet the above storage space and enclosure requirements, will be reviewed for adequate solid waste and recyclables enclosures based on site-specific information and the following Solid Waste and Recycling Design Factors:

1. Type of business; ~~and~~
~~1.~~2. W~~w~~aste generation potential;~~;~~
~~2.~~3. Waste generation of similar businesses;~~;~~
4. Square footage of the development and structures; ~~and the~~
~~3.~~5. N~~n~~umber of floors;
~~4.~~6. Location of the business;~~;~~
~~5.~~7. Hours of business operation;~~;~~
~~6.~~8. Business site plan;~~;~~ and
~~7.~~9. Phased development and future use plans.

Table 3.2-A: Minimum Container Enclosure Requirements

Development Use	Required Enclosure(s) ~~or Container(s)~~
RESIDENTIAL ~~MULTIFAMILY DWELLING~~	
~~1 – 48 units~~Single-family Townhomes – 4 units and fewer	~~2 single enclosures or 1 dual enclosure~~Residential curbside cart pick-up
~~49 – 64 units~~	~~1 single enclosure and 1 dual enclosure or 3 single enclosures~~
~~65 – 200 units~~	~~4 single enclosures or 2 dual enclosures or 2 roll-off compactor enclosure~~
~~GENERAL OFFICE~~RESIDENTIAL - MULTIFAMILY	
~~1,000 – 10,000 sq. ft~~	~~1 single enclosure~~
~~10,001 – 25,000 sq. ft~~	~~2 single enclosures or 1 dual enclosure~~
5 – 48 units~~25,001 – 50,000 sq. ft~~	2 front-load containers enclosed~~2 single enclosures or 1 dual enclosure~~
49 – 64 units	3 front-load containers enclosed
65 – 200 units	1 compactor and 1 front-load container for recycling or 4 front-load containers enclosed
200+ units~~50,001 – 100,000 sq. ft~~	1 compactor and 1 front-load containers enclosed~~1 single enclosure and 1 dual enclosure or 3 single enclosures or 4 single enclosures or 2 dual enclosures or 1 roll-off compactor enclosure~~
GENERAL COMMERCIAL~~, WAREHOUSING, INDOOR RECREATION~~	

1,000 – 15,000 sq. ft.	2 front-load containers enclosed1 single enclosure
5,001 – 15,000 sq. ft	2 single enclosures or 1 dual enclosure
15,001 – 50,000 sq. ft.	1 dual enclosure or 2 single enclosures or 3 single front-load containers enclosedures
50,001 – 200,000 sq. ft.	1 compactor and 1 front-load container for recycling or 4 front-load containers enclosed
50,001 –Over 1200,000 sq. ft.	1 single enclosure and 1 dual enclosure or 3 single enclosures or 2 dual enclosures or 4 single enclosures or 1 roll-off compactor enclosure and 1 front-load container enclosed
SHOPPING CENTER, MIXED-USE, LIGHT MANUFACTURING	
1,000 – 2,500 sq. ft	1 single enclosure
2,501 – 10,000 sq. ft	2 single enclosures or 1 dual enclosure
10,001 – 50,000 sq. ft	1 single enclosure and 1 dual enclosure or 3 single enclosures
50,001 – 100,000 sq. ft	1 single enclosure and 1 dual enclosure or 4 single enclosures or 2 dual enclosures or 1 roll-off compactor enclosure
100,001 – 200,000 sq. ft	4 single enclosures or 2 dual enclosures or 2 roll-off compactor enclosures
RESTAURANT, BARS, GRILLS, GROCERY STORES, MOVIE THEATERS, AND OTHER FOOD SERVICE ESTABLISHMENTS	
1,000 – 2,500 sq. ft	1 single enclosure
2,501 – 7,500 sq. ft	2 single enclosures or 1 dual enclosure
7,501 – 15,000 sq. ft	1 single enclosure and 1 dual enclosure or 3 single enclosures or 1 roll-off compactor enclosure
DEPARTMENT STORE, SUPERMARKET, SERVICE STATION	
1,000 – 5,000 sq. ft	1 single enclosure
5.001 – 25,000 sq. ft	2 single enclosures or 1 dual enclosure
25,001 – 50,000 sq. ft	1 single enclosure and 1 dual enclosure or 3 single enclosures or 1 roll-off compactor enclosure+1single enclosure

Notes:50,001 – 100,000 sq. ft
[1] For industrial/warehouse development, container(s) do not require enclosures, but container(s) must be screened from public view. 1 single enclosure

3.2.3 Container Enclosure Design Requirements

A. Materials used for container enclosure construction shall be compatible with the main building architecture and appearance of the main building and may include the following materials:

1. Concrete Block – Tinted, colored, painted, or with textured facing;
2. Concrete – Poured or tilt wall construction;
3. Brick - Double brick thickness minimum;
4. Stone;
5. Metal;
6. Wood;
7. Vinyl;
8. Composite Material; or

9. ~~Combinations of the above materials~~Any combination of materials 1-8.

B. Front-~~-~~load enclosures shall have walls constructed to a minimum height of six (6) feet~~-foot height~~, or as tall as required to conceal the container. Compactor enclosure walls ~~are required to~~must be~~construction~~ a minimum height of eight (8) feet~~, in height~~ in order to conceal the compactor and mechanical equipment.

C. Gates shall be required when the interior of the enclosure is visible from the public ~~right-of-way~~ROW ~~(any designated public street, sidewalk, or alley)~~ or~~and~~ when it is visible from the lot of an adjacent property owner~~s~~.

D. Personal access side gates are recommended as a feature of all gated enclosures. These ~~doors/~~gates should be fitted with emergency egress strike bars.

3.2.4 Enclosure Access, Placement, Ingress, and Egress Requirements

A. The required number of enclosures ~~needed depends~~will be determined based ~~-~~on the type and size of the development.

B. Dumpster enclosures ~~are to be~~must be angled no more than 30 degrees from the center line of the solid waste collection vehicle route.

C. There must~~Must~~ be~~provide~~ 50 feet or more of unobstructed truck access in front of each container.

D. For safety purposes, solid waste collection vehicles will not back up more than 100 feet after servicing a container and will not make any turns while backing up.

E. Turn Radii Requirements: The turn radii must be a minimum of 30 feet for any intersection to accommodate occasional turning trucks for weekly pick-up.

F. The collection vehicle ~~shall~~will travel through a site once without backtracking. For an example of ~~f~~ a typical solid waste collection route. t~~T~~ake note of the Typical Solid Waste Collection Route Schematic ~~Solid waste collection route~~ shown in Figure 3.1 below. ~~The collection vehicle shall travel through a site once without backtracking.~~

~~E. Enclosure access requirements shall be in compliance with the requirements of Chapter 469 of the Texas Government Code as amended and the as amended.~~

~~F.~~G. Container enclosures shall not be located in a fire lane, public ~~right-of-way~~ROW, public utility easements, or sidewalk area.

H. No solid waste container enclosure shall be located within the required front yard or protrude in front of any buildings along the designated lot frontage.

~~G.~~I. ~~-~~Parking spaces shall begin after enclosure gates open. No obstructions permitted around enclosure or gate openings equivalent to the length of gate.

~~H.~~J. The location of container enclosures may not cause the obstruction of traffic for excessive lengths of time while being serviced.

~~I.~~K. The solid waste service truck shall be on the property owner's property during service operations, if the site design permits.

~~J.~~L. Ingress and egress routes shall be designed to facilitate exiting the property in a forward driving direction for all interstate and state roads, arterial streets, and collector streets with four lanes. *See* the Backing Clearance Schematic ~~figures and notes for Solid Waste collection routes~~ in Figure 3.2

below.~~on the next page.~~

~~K.~~M. Utility wires and structure overhangs should have a minimum height clearance of 20 feet along the ingress and egress route. No utility wires shall extend over the enclosure approach and service area.

N. ~~Dead end streets, which are planned for extension in future development phases, will have sufficient all weather turn around areas for Class 7 trucks constructed of a suitable road base material.~~Container enclosures shall be located a minimum of 30 feet away from any storm drain or drainage flow areas. Where site configuration allows, container enclosures shall also be placed downslope of any storm drain.

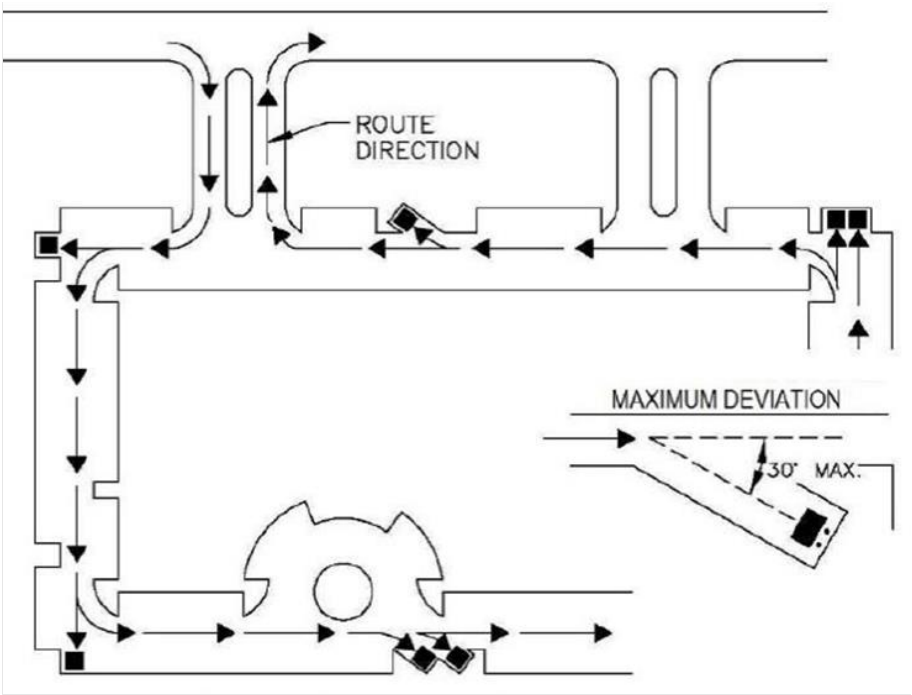


Figure 3.1~~3.13.1~~ Typical Solid Waste Collection Route Schematic

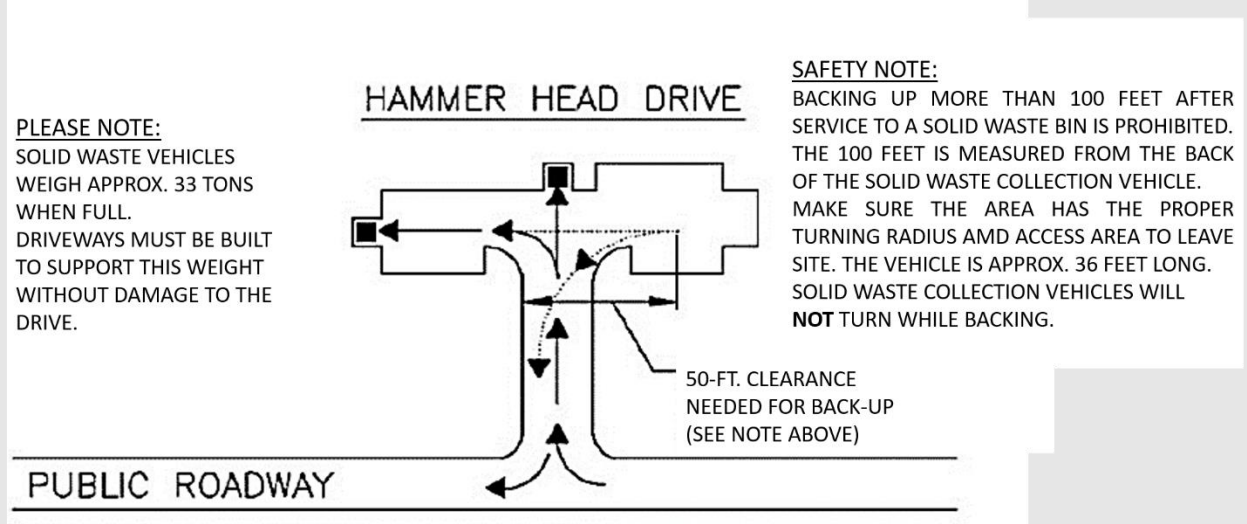


Figure 3.2~~3.23.2~~ Backing Clearance Schematic

3.2.5 Alleyway Access

An alley (residential or commercial) is a private street designed to provide fire and solid waste collection access to the rear of or side of a lot, ~~including solid waste and fire access~~. Dead-ends are not permitted in ~~for~~ alleys. Alleys used for solid waste collection must comply with the ~~Section 5:~~ Transportation Design Criteria in Section 5 of this Manual ~~of this Manual~~.~~All alleys shall have at least two direct access point to public streets and are subject to the block length criteria.~~ Alleyway access must comply with the following criteria:

A. Design Factors:
   1. Turn Radius;
   2. Street Widths;
   3. Horizontal and Vertical Clearances;
   4. Pavement; and
   5. Multifamily Units

B. Turn Radii Requirements: Texas Department of Transportation (TxDOT) recommends, via AASHTO, that the turn radii be a minimum of 30 feet for alley-~~-~~to-~~-~~alley intersections with occasional turning trucks~~,~~ for weekly trash pick-up per TCEQ regulations. Turn radii must be s~~S~~ufficient for side-~~-~~load residential collection vehicles to navigate alleyways ~~ways~~ lined with trash and recycle carts on both sides. *See* Figure 3.3 below.

C. Alley Width Requirements: Alleys must be paved and a m~~M~~inimum of 15-~~-~~f~~ee~~t. wide. ~~paved alley required for collection operations.~~ Additionally, ~~ensure alley width allow~~alleys must be wide enough~~s space for cart set-out~~to accommodate carts, to allow ~~As required for~~ vehicles to safely service carts, and to comply with the ~~accommodates~~ing trucks~~,~~ ~~and space for cart set-out. In accordance with the Transportation Criteria Manual~~ Transportation Design Criteria in Section 5 of this Manual.

D. Horizontal and Vertical Clearance Requirements: Balconies, landscaping, ~~o~~ or~~r~~ other elements shall

not encroach into approved horizontal or vertical clearances for vehicle travel, backing, -loading, or other operations along any alley~~ way~~.

E. The horizontal operating travel clearance ~~is~~ must be 20 feet.

F. The vertical operating travel clearance must be~~is~~ 15 feet.

~~G.~~ Pavement Requirements: ~~Build~~ Pavement must be built to~~to~~ standards ~~suitable for~~that allow two (2) 33-ton vehicles to travel~~ing~~ down all alley~~ way~~s twice~~,~~ each service day. Alternatively, a responsible party, HOA, or POA ~~to~~ must provide a waiver ~~(~~recorded with the property~~)~~ for potential damage caused over time by normal hauler operations.

G.

H. Multifamily Unit Requirements: ~~For the purposes of solid waste alley way requirements,~~ A~~a~~ny attached residential arrangement of five (5) or more dwelling units per lot will fall under the Commercial Business Category as defined by City of Denton Code of Ordinances 24-2 Definitions (Commercial), which requires~~ requiring~~ a solid waste and recycling storage facility (container enclosure). *See* the Site Plan Criteria for Municipal Solid Waste & Recyclables Storage & Enclosure Requirements in the City of Denton Standard Details.

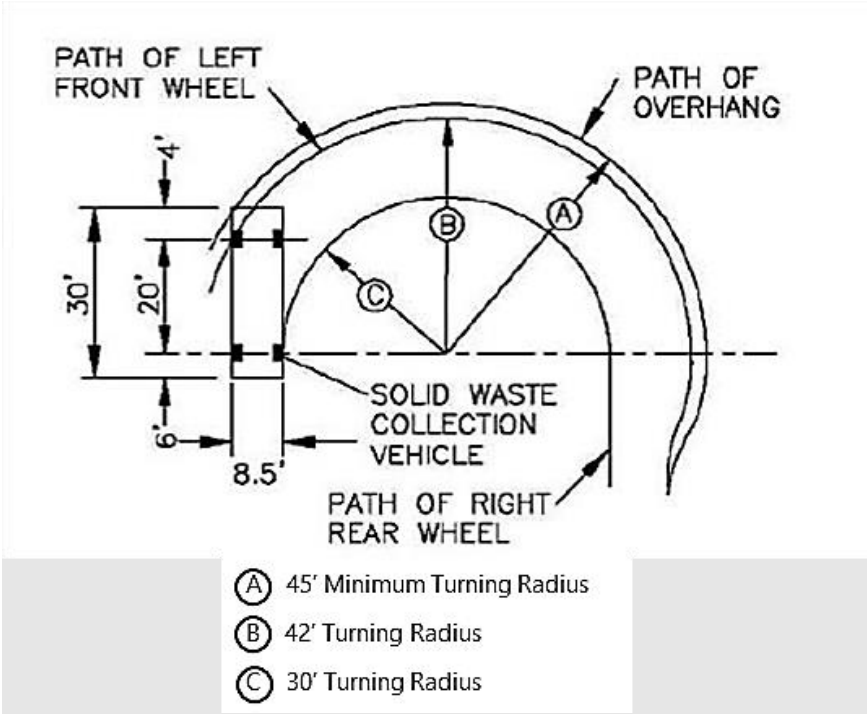


Figure 3.3~~3.33.3~~ Solid Waste Collection Vehicle Turn Radius Schematic

Section 4: Stormwater Design Criteria

4.1 Overview

The purpose of Section 4 - Stormwater Design Criteria of this DCM ~~the Stormwater Design Criteria Manual~~ is to establish standard principles and practices for the design and construction of storm drainage systems, to implement the policies set forth in the DDC and the City of Denton Code of Ordinances, Subpart B, Chapter 30 (Denton Flood Prevention and Protection Ordinance) within the City of Denton, Texas~~,~~ and its extraterritorial jurisdiction.

The following ~~technical~~ documents govern the design and construction of stormwater drainage systems:

A. City of Denton Code of Ordinances, ~~City of Denton Code of Ordinances, Chapter 30 Flood Prevention and Protection~~Chapter 30, Flood Prevention and Protection;~~,~~

B. DDC Subchapter 7.4 – Environmentally Sensitive Areas;~~,~~

C. DDC Subchapter 7.5 – Drainage Standards;~~,~~

D. *i*SWM™ Planning Technical Manual Document;~~,~~

E. *i*SWM™ Water Quality Technical Manual Document;~~,~~

F. *i*SWM™ Hydrology Technical Manual Document;~~,~~

G. *i*swm™ Hydraulics Technical Manual Document;

H. *i*SWM™ Site Development Controls Technical Manual Document;~~,~~

I. *i*SWM™ Construction Controls Technical Manual Document;~~,~~

J. *i*SWM™ Construction Control Standard Details Technical Manual Document;~~,~~ and

K. *i*SWM™ Landscape Technical Manual Document.

The design factors, formulae, graphs, and procedures specified in this document are intended for use as minimum engineering criteria for the design of drainage systems with regards to the quantity, rate of flow, method of collection, storage, conveyance, detention, and disposal of storm water***. Responsibility for actual design remains with the design engineer. Users of this Manual should be knowledgeable and experienced in the theory and application of drainage engineering.***

The stormwater criteria contained in this Manual ~~DOES~~ supersede any design criteria contained in the *i*SWM™ Planning, Water Quality, Hydraulics, and Hydrology Technical Manual Documents. The stormwater design criteria contained in this Manual ***do not*** supersede the criteria contained in the DDC or Chapter 30 of the City of Denton Code of Ordinances. ~~Denton Municipal Code and any~~ Any revisions to the DDC~~those documents~~ or Chapter 30 of the City of Denton Code of Ordinances ~~-~~shall supersede the criteria in this Manual. In case of any conflict, the more stringent requirement shall apply.

~~The stormwater criteria contained in this manual DOES supersede any design criteria contained in the *i*SWM™ Planning, Water Quality, Hydraulics, and Hydrology Technical Manual Documents.~~

The requirements of this M~~m~~anual shall apply to all public facilities~~,~~ and to private facilities when the performance of such private facility has an effect on the public interest, health, or welfare.

4.1.0 Organization

Section 4 - Stormwater Design Criteria is categorized as follows:

A. Overview

B. Design Focus

C. Design Storms

D. Hydrologic Methods

E. Acceptable Downstream Conditions for Open Channels and Floodplains

F. Stormwater System Design

G. Culverts

H. Bridges

I. Detention Facilities

J. Energy Dissipation

K. Recommended Energy Dissipater for outlet protection

A. Concrete or grouted rock riprap apron

B. Riprap outlet basins

C. Baffled outlets

D. Grade Control Structures

Design guidance is provided in Section 4.0 of the *iSWMTM* Hydraulics Technical Manual.

~~K.~~E. Floodplain

~~L.~~F. Drainage and Floodplain Easements

~~M.~~G. Water Quality

~~N.~~H. Stormwater Facility Maintenance Agreements

4.2 Design Focus

The design criteria for stormwater management primarily focus on:

4.2.1 Streambank Protection - Regulate discharge from the site to minimize downstream bank and channel erosion;~~.~~

4.2.2 Flood Mitigation and Conveyance - Control runoff within and from the site to minimize flood risk to people and properties for the conveyance storm ~~as well as~~and the 1% ~~percent~~ chance storm; and~~.~~

~~**4.2.2**~~**4.2.3** Water Quality ~~-~~ Reduce pollutants from stormwater by either infiltrating the water quality volume, or removing 80% of TSS from any *"W~~w~~ater Q~~q~~uality"* storm event discharge.

4.3 Design Storms

Design is typically based on four (4) storm events, as detailed in Table 4.3-A.

Table 4.3-A: Design Storm Events

Storm Event Name	Storm Event Description
"Water Quality"	Criteria based on a volume of 1.5 inches of rainfall, not ~~a~~ storm frequency
"Streambank Protection"	1-year, 24-hour storm event
"Conveyance"	25-year, 24-hour storm event
"Flood Mitigation"	100-year, 24-hour storm event

Notes:
[1] Throughout the manual, the storms will be referred to by their storm event names.

Drainage facilities shall be designed utilizing the "*Flood Mitigation*" storm event. Replacement or modification of existing drainage facilities shall not reduce capacity, but such ~~but~~ facility replacements or modifications may be designed according to the requirements of the specific project and may utilize the "*Conveyance*" storm as the design storm event, through an approved design deviation request~~as directedupon approval by the City's EngineerEngineer or designee~~.

4.4 Hydrologic Methods

4.4.1 Types of Hydrologic Methods

~~There are several empirical hydrologic methods available to estimate runoff characteristics for a site or drainage sub basin. However, the~~The following empirical hydrologic methods ~~have been selected to~~ support hydrologic site analysis for the design methods and procedures included in this M~~m~~anual:

A. Rational Method;

B. SCS Unit Hydrograph Method;

C. Modified Rational Method;

D. Snyder's Unit Hydrograph Method; and

E. USGS & T~~X~~xDOT Regression Equations

Table 4.4-A lists the hydrologic methods and the circumstances ~~for their use~~when they may be used in various analysis and design applications. ~~–~~Table 4.4-B provides some additional ~~limitations~~ constraints on the use of several methods.

~~The Rational Method is acceptable for small, highly impervious drainage areas, such as parking lots and roadways draining into inlets and gutters.~~

~~The U.S. Geological Survey (USGS) and Texas Department of Transportation (TXDOT) regression equations are acceptable for drainage areas with characteristics within the ranges given for the equations shown in Table 4.4-B. These equations should not be used when there are significant storage areas within the drainage basin or where other drainage characteristics indicate general regression equations are not appropriate.~~

Table 4.4-A: Applications of the ~~Recommended~~ Hydrologic Methods

Method	Rational Method	SCS Method	Modified Rational	Snyder's Unit Hydrograph Method	USGS &~~/~~ T~~x~~DOT Equations
Streambank Protection Volume (SP_V)		✓		✓	
Flood Mitigation Discharge (Q_f)		✓		✓	✓
Storage Facilities		✓	✓	✓	
Outlet Structures		✓		✓	
Gutter Flow and Inlets	✓	✓			
Storm Drain Pipes	✓	✓		✓	
Culverts	✓	✓		✓	✓
Bridges		✓		✓	
Small Ditches	✓	✓		✓	
Open Channels	✓	✓		✓	✓

Table 4.4-B: Constraints on Using ~~Recommended~~ Hydrologic Methods

Method	Size Limitations [1]	Used for Estimating
Rational [2]	0 – 100 acres	Peak flows and design of small site or subdivision storm sewer systems.
Modified Rational [3~~2~~]	0 – 200 acres	Runoff volumes for storage design.
Unit Hydrograph (SCS) [4~~3~~]	Any Size	Peak flows and hydrographs for all design applications.
Unit Hydrograph (Snyder's) [5~~4~~]	1 acre and larger	Peak flows and hydrographs for all design applications.
T~~X~~xDOT Regression Equations [6]	10 ~~to~~ – 100 sq. mi.~~mi²~~	Peak flows for rural design applications.
USGS Regression Equations [6]	3 – 40 sq. mi.~~mi²~~	Peak flows for urban design applications.

Notes:
[1] Size limitation refers to the drainage basin for the stormwater management facility (e.g., culvert, inlet).
[2] Acceptable for small, highly impervious drainage areas, such as parking lots and roadways draining into inlets and gutters.
[3] U~~Where the Modified Rational Method is u~~sed for conceptualizing~~;~~, the engineer of record must use ~~the~~ *i*SWM™ Hydrology Technical Manual Document when using this method.
[3~~4~~] R~~This r~~efers to SCS routing methodology included in many readily~~-~~available programs (such as HEC-HMS or HEC-1) ~~that utilize this methodology~~which utilize it.
[5~~4~~] R~~This r~~efers to ~~the~~ Snyder's methodology included in many readily~~-~~available programs (such as HEC-HMS or HEC-1) ~~that utilize this methodology~~which utilize it.
[6] The USGS and TxDOT equations should not be used when there are significant storage areas within the drainage basin or where other drainage characteristics indicate general regression equations are not appropriate.

4.4.2 Rainfall Estimation

Rainfall intensities, provided ~~from~~in Table 5.3 of the iSWM™ Hydrology Technical Manual, are based on Atlas 14 and shall be used for all hydrologic analysis within Denton ~~County~~ County.~~.~~

~~https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=tx~~

4.5 Acceptable Downstream Conditions for Open Channels and Floodplains

Storm water discharge from a development shall not cause adverse impacts to adjacent, upstream, or downstream properties or facilities. The design of a storm drain facility must account for the offsite flows that are routed through the development, flows generated by the development, and the impacts of the development and the drainage system on downstream facilities.

4.5.1 Downstream Assessments

The downstream impacts of development must be carefully evaluated for the two (2) focus areas of Streambank Protection and Flood Mitigation (*S~~s~~ee* Section 4.2 of this Manual~~.~~). —The purpose of the downstream assessment is to protect downstream properties from increased flooding and downstream channels from increased erosion potential due to upstream development. The importance of the downstream assessment is particularly evident for larger sites or developments that have the potential to dramatically impact downstream areas. The cumulative effect of smaller sites, however, can be just as dramatic and, as such, following the Focus Areas is just as important for the smaller sites as it is for the larger sites.

A downstream assessment will be required for all developments which alter flow patterns or increase the amount of impervious surface and do not limit the peak discharge to pre-development conditions at each outfall from their site. The assessment shall extend from the outfall of a proposed development to a point downstream where there is no calculated increase in WSEL (water surface elevation) or mean velocity within the ~~ the discharge from a proposed development no longer has a significant impact, in terms of flooding increase or velocity above allowable, on the~~ receiving stream or storm drainage system. The City shall be consulted to obtain records and maps related to the National Flood Insurance Program (NFIP) and the availability of Flood Insurance Studies (FIS) and Flood Insurance Rate Maps (FIRMs) which will be helpful in this assessment. The assessment must include the following properties:

A. Hydrologic analysis of the pre- and post-development on-site conditions.
B. Drainage path that defines extent of the analysis.
C. Capacity analysis of all existing constraint points along the drainage path, such as existing floodplain developments, underground storm drainage systems culverts, bridges, tributary confluences, or channels.
D. Offsite undeveloped areas are considered as "fully developed ~~build-out~~" for both the pre- and post-development analyses.
E. Evaluation of peak discharges and velocities for three (3) 24-hour storm events:
   1. "*Streambank protection*" storm
   2. "*Conveyance*" storm
   3. "*Flood ~~m~~Mitigation*" storm
F. Separate analysis for each major outfall from the proposed development.

Once the analysis is complete, the designer must answer the following questions at each determined junction downstream:

A. Are the post-development discharges greater than the pre-development discharges?
B. Are the post-development velocities greater than the pre-development velocities?
C. Are the post-development velocities greater than the velocities allowed for the receiving system?
D. Are there any increases in post-development flood heights above the pre-development flood heights?

These questions shall be answered for each of the three (3) storm events. The answers to these questions will determine the necessity, type, and size of non-structural and structural controls to be placed on-site or downstream of the proposed development.

Section 2.0 of the iSWM™ Hydrology Technical Manual ~~*Document*~~ , as amended, gives additional guidance on calculating the discharges and velocities, as well as determining the downstream extent of the assessment.

4.5.2 Adverse Impacts

Downstream Assessments shall evaluate the capacity of the downstream system within the Zone of Influence (ZOI). If the downstream system has less than fully developed capacity, the study shall demonstrate the development will produce no adverse impacts during the one (1), 25, and 100-year storm events. No adverse impacts may include, but are not limited to:

A. No new or increased flooding of existing structures;~~.~~

B. Zero increases (0.00') in water surface elevations unless contained within the banks of an existing channel including 1-ft. freeboard. Dry lane requirements set forth in Section 4.6.2 shall also be met;~~.~~

C. Increasing channel velocity is prohibited where existing velocities are erosive. Any increase in channel velocity in other areas must remain below the maximum allowable velocity as defined in Table 4.6-E;~~.~~

D. No increases in downstream discharges caused by the proposed development that, in combination with off-~~-~~site discharges, exceeds the existing capacity of the downstream storm drainage system;~~.~~

E. The *Downstream Assessment* shall extend to a point downstream, known as the ZOI, where the proposed development creates no adverse impacts. The ZOI will be defined by a detailed hydrologic and hydraulic modeling analysis. The City's Engineer may require analysis beyond the ZOI established by the Engineer of Record based on the criteria above and known flooding issues. ~~-~~ZOI does not automatically end based the rule of thumb known as the "10% rule"; and~~.~~

F. If the subject development is part of a larger development, the *Downstream Assessment* must include the larger development, and the ZOI shall be determined based on the entire property.

4.5.3 Stormwater Diversions

Diversion of storm water away from the natural watercourse or existing discharge points will not be allowed, except within the property boundaries controlled by the developer under the following conditions:

A. The storm water is returned to its natural flowing watercourse prior to leaving the developer's property,~~;~~ or

~~F.~~B. A timing analysis of the existing and diverted hydrograph must be performed to confirm that the peak flow rate has not been increased at the point that it reenters the watercourse, as a result of the diversion. The City's Engineer ~~Engineer or designee~~ may require additional downstream analysis if there are known downstream flooding or volume ~~-~~-sensitive areas.

~~4.5.1~~4.5.4 Streambank Protection

There are two (2) options by which a developer can provide adequate streambank protection downstream of a proposed development. The first step is to perform the required downstream assessment as described

earlier in Section 4.5.1~~.1~~ ~~.~~of this Manual. If it is determined that the proposed project does not exceed acceptable downstream velocities or the downstream conditions are improved to adequately handle the increased velocity, then no additional streambank protection is required. ~~If on-site or downstream improvements are required for streambank protection, easements or right-of-entry agreements will need to be obtained in accordance with of this manual.~~ If the downstream assessment shows that the velocities are within acceptable limits, then no streambank protection is required. Acceptable limits for velocity control are provided in Table 4.6-D and Table 4.6-E~~Tables 4.7-E and 4.7-F~~ of this ~~m~~Manual. If existing stream velocities exceed the maximum allowable velocities, then no increase in velocities will be permitted. If the downstream assessment shows an increase in velocity beyond the acceptable limits, then on-site or downstream improvements are required for streambank protection, easements or right-of-entry agreements will need to be obtained in accordance with Section 4.12~~3~~ of this Manual, and one of the two options below must be utilized for streambank protection. ~~If the downstream assessment shows that the velocities are within acceptable limits, then no streambank protection is required. Acceptable limits for velocity control are provided in Table 4.6-E and Table 4.6-FTables 4.7-E and 4.7-F of this manual. If existing stream velocities exceed the maximum allowable velocities, then no increase in velocities will be permitted.~~

Option 1: Reinforce/Stabilize Downstream Conditions

If the increased velocities are greater than the allowable velocity of the downstream receiving system, then the developer must reinforce/stabilize the downstream conveyance system. The proposed modifications must be designed so that the downstream system is protected from the post-development velocities. The developer must provide supporting calculations and/or documentation that the downstream velocities do not exceed the allowable range once the downstream modifications are installed.

Allowable bank protection methods include stone riprap, gabions, and bio-engineered methods. Sections 3.2 and 4.0 of the *i*SWM™ Hydraulics Technical Manual give design guidance for designing stone riprap for open channels, culvert outfall protection, riprap aprons for erosion protection at outfalls, and riprap basins for energy dissipation.

If the downstream receiving system is designated as an Environmentally Sensitive Area (ESA) this option may not be a viable option. *See* S~~s~~ection~~s 9.2 and~~ 7.4 of the ~~Denton Development Code~~DDC for more information about the various types of ESAs, permitted encroachments, and processes for assessing and modifying ESAs.~~.~~

Option 2: Install Stormwater Controls to Maintain Existing Downstream Conditions

The developer must use on-site controls to keep downstream post-development discharges at or below allowable velocity limits. The developer must provide supporting calculations and/or documentation that the on-site controls will be designed such that downstream velocities for the three (3) storm events (*"Streambank Protection"*, *"Conveyance"*, and *"Flood Mitigation"*) are within an allowable range once the controls are installed.

~~4.5.2~~4.5.5 Flood Mitigation

A. Introduction

Flood analysis is based on the *"F~~f~~lood M~~m~~itigation"* storm event (see Table 4.3-A ~~Table 4.4-A~~). The intent of the flood mitigation criteria is to provide for public safety; minimize on-site and downstream flood impacts from the *"Flood Mitigation"* ~~flood mitigation~~ storm event; maintain the boundaries of the mapped 100-year floodplain; and protect the physical integrity of the on-site stormwater controls and the downstream stormwater and flood mitigation facilities.

Flood mitigation must be provided for on-site conveyance systems, as well as downstream outfalls as described in the following sections.

B. Flood Mitigation Design Options

There are three (3) options by which a developer may address downstream flood mitigation as discussed below. When on-site or downstream modifications are required for downstream flood mitigation, easements or right-of-entry agreements will need to be obtained.

The developer will provide all supporting calculations and/or documentation to show that the existing downstream conveyance system has capacity (Q_f) to safely pass the fully-developed ~~build-out~~ flood mitigation storm discharge.

Option 1: Provide or Document Adequate Downstream Conveyance Systems

When the downstream receiving system does not have adequate capacity, then the developer shall provide modifications to the off-site, downstream conveyance system. If this option is chosen, the proposed modifications must be designed to adequately convey the full build-out stormwater peak discharges for the *"F~~f~~lood M~~m~~itigation"* storm event. The modifications must also extend to the point at which the discharge from the proposed development no longer has an impact on the receiving stream or storm drainage system.

The developer must provide supporting calculations and/or documentation that the downstream peak discharges are safely conveyed by the proposed system, without endangering downstream properties, structures, bridges, roadways, or other facilities, and no increase in water surface elevation.

Option 2: Install Stormwater Controls to Maintain Existing Downstream Conditions

When the downstream receiving system does not have adequate capacity, then the developer shall provide stormwater controls to reduce downstream flood impacts. These controls include on-site controls such as detention, regional controls, and, as a last resort, local flood protection such as levees, floodwalls, floodproofing, etc.

The developer must provide supporting calculations and/or documentation for each existing discharge point indicating that the controls will be designed and constructed so that there is no increase in downstream peak discharges or water surface elevations due to development ~~for each existing discharge point~~.

Option 3: In lieu of a Downstream Assessment, Maintain Existing On-Site Runoff Conditions

Lastly with Option 3, on-site controls shall be used to maintain the pre-development peak discharges for each existing discharge point from the site. –The developer must provide supporting calculations and/or documentation that the on-site controls will be designed and constructed to maintain on-site existing conditions.

It is important to note that Option 3 may not require a downstream assessment. It is a detention-based approach to addressing downstream flood mitigation after the application of the integrated site design practices. However, a downstream assessment may be required for sites adjacent to or near streams in which delayed release of flows from detention facilities could potentially increase the peak flow in the stream due to coincident peaks. This assessment of the impact of coincident peaks is required for all sites with a contributing drainage area greater than or equal to ~~ten percent (~~10%~~)~~ of the stream drainage area at the subject discharge point.

4.6 Stormwater System Design

4.6.1 Introduction

Stormwater system design is an integral component of both site and overall stormwater management design. Good drainage design must strive to maintain compatibility and minimize interference with existing drainage patterns; control flooding of property, structures, and roadways for design flood events; and minimize the potential environmental impacts of~~n~~ stormwater runoff.

Stormwater collection systems must be designed to provide adequate surface drainage while at the same time meeting other stormwater management goals such as water quality, streambank protection, habitat protection, and flood mitigation. Fully developed watershed conditions shall be used for determining runoff for the *"Flood Mitigation"* ~~'flood mitigation'~~ storm event.

4.6.2 Hydraulic Design Criteria for Streets and Closed Conduits

A. Introduction

This section is intended to provide criteria and guidance for the design of on-site flood mitigation system components including:

1. Street and roadway gutters;~~,~~
2. Stormwater inlets;~~,~~
3. Storm drainpipe systems;~~,~~ and
4. Parking lot sheet flow.

B. Streets and ROW

1. Design Criteria
   a. Flow spread limits for curbed streets are shown in Table 4.6~~7~~-A below.
   b. Inverted crown sections are permitted only in alleys.
   c. Street crowns shall be reduced for approximately ~~one hundred (~~100~~)~~ feet on each side of the valley gutters. No valley gutters will be permitted across collectors or arterials.
   d. For non-curbed streets the *"Flood Mitigation"* ~~flood mitigation~~ storm event shall be contained within paralleling roadside ditches, within the public ~~right-of-way~~ROW (Figure 4. 1 below). ~~1).~~
   e. Roadside ditches shall be designed to carry the *"F~~f~~lood ~~-m~~Mitigation"* runoff below the roadway elevation.
   f. Streets or alleys adjacent to an open channel shall have the edge of the pavement designed with a minimum ~~n~~ elevation of ~~minimum of~~ one (1) foot above the *"Flood Mitigation"* elevation or as directed by the City-'s Engineer~~Engineer or designee~~.
   g. Where additional hydraulic capacity is required on the street, the proposed street gradient must be increased, or curb inlets and storm sewers installed to remove a portion of the flow.
   h. The maximum concentrated flow directed into the street (from a driveway or flume, etc.) is three (3) cubic feet per second (cfs).
2. Flow Spread Limits
   a. Inlets shall be spaced so that the spread of flow in the street for the *"Flood Mitigation"* ~~flood mitigation~~ storm shall not exceed the guidelines listed below in Table 4.6-A, as measured from the gutter or face of the curb:

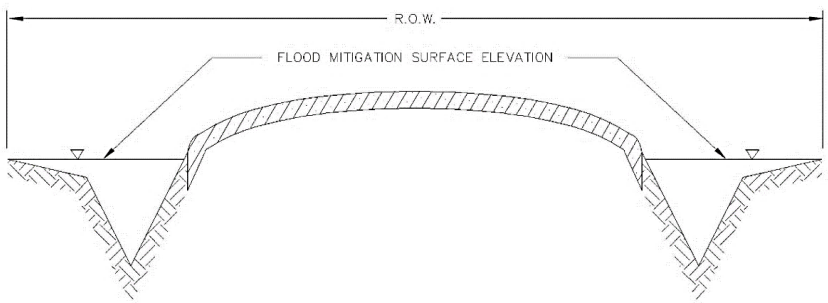
Table 4.6-A: Flow Spread Limits

Street Classification	Allowable Encroachment
Collectors	one travel lane remains open
Arterials	one travel lane in each direction remains open
Residential Streets	curb depth

b. The allowable drainage flow across street intersections for the *"Flood Mitigation"* ~~flood mitigation~~ storm event shall be as shown in Table 4.6~~7~~-B as follows:

Table 4.6-B: Permissible Flow Across Street Intersections

Street Classification	Cross Flow
Arterial Street (divided and undivided)	None
Non-Residential Collector Street	None
Residential Street and Residential Collector	Gutter Flow of 2 inches or less



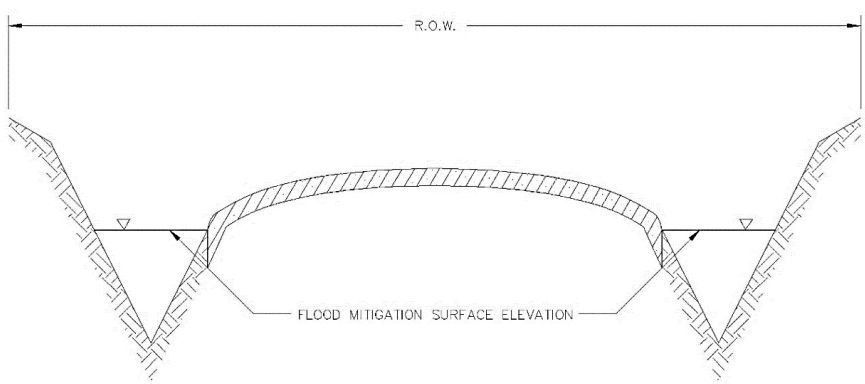


Figure 4.1~~4.14.1~~ Water Spread Limits for Non-Curbed Roadways

3. Minimum Street or Alley Elevations

No lowering of the standard height of street crown shall be allowed for the purposes of obtaining additional hydraulic capacity. Street crowns shall be in accordance with the City of Denton Standard Details.

C. Drainage Related Minimum Elevations

~~4. Lots shall have a minimum elevation for the buildable area (including parking areas) of the lot to be at leastof - 18 inches above the one1 percent % chance (100-year) base flood elevation (BFE), or as directed by the City Engineer or designee.~~

~~5. Where lots are positioned on a downhill side of a steep lead-in road to a "T" or "L" intersection, or a sharp turn in a steep alley, the portion of the lot facing toward the high-water flooding danger area will be six (6) inches above the top of the curb.~~

1. For lots in the influence of a sag area and a positive overflow, the finished ~~lot~~ floor elevation (FFE) ~~elevation~~ will be at least one (1) foot above the sag area top of the curb, or one (1) foot above the possible maximum pool elevation when the positive overflow is functioning, whichever elevation is higher.

2. New and substantially improved structures within the floodplain~~way~~ or within 200 feet of the floodplain or SFHA must have their finished floor elevated to the minimum building elevation as defined in the City's Chapter 30 Flood Prevention and Protection Ordinance.

3. ~~Where lots do not abut a natural or excavated channel,~~In all other areas, the minimum ~~floor elevations~~FFE shall be a minimum of one (1) foot above the street curb, edge of alley, or rear property line (at the midpoint of the lot), whichever is lower~~lower, unless otherwise approved by the City Engineer or designee~~.

~~C.~~D. Storm Inlet Design

1. Permissible Types of Inlet

   a. Drop Inlets (Y-inlet) – Drop inlets are sump inlets which are not located along the curb line of a roadway.

   b. Grate Inlets – The use of grate inlets is not allowed on public drainage systems unless through an approved design deviation request~~without prior consent from the City 's Engineer~~Engineer or designee. If allowed, the inlet opening shall be designed twice as large as the calculated opening to compensate for clogging. Grate inlets may be used on private systems.

   c. Curb Inlets – Curb inlets may be located at roadway low points (sumps) or on grade at such points as to meet the water spread limitations and cross-flow depth requirements. Curb inlets may be one of the following:

      i. Recessed curb inlet – Recessed curb inlets are curb inlets constructed such that the front of the inlet is two (2).~~0~~ feet behind the normal face of curb and the depression does not extend into the traffic lanes.

      ii. Standard curb inlet – Standard curb inlets are curb inlets that are in line with the roadway curb.

      iii. Type 2 curb inlet – Type 2 curb inlets are standard curb inlets where the inlet box is located underneath the outer roadway lane instead of behind the curb. They are only to be utilized in situations where there is insufficient parkway area or an encumbered parkway area for a standard curb inlet.

2. Design Criteria

a. Public curb inlet size shall be 10, 15, or 20 feet. Maximum length of inlet at any one (1) curb location shall be 20 feet on each side of the street. Inlets will be placed only in straight sections of curb~~,~~ and at least 10 feet from ~~the~~any curb return. Inlets required in cul-de-sacs are the only exceptions to the straight curb section requirement. Curb inlets are not allowed in intersection or curb returns.

b. Recessed inlets will be required on arterial and non-residential collector streets.

c. The maximum inlet opening shall be six (6~~"~~) inches. Openings larger than six (6) inches shall require approval through a design deviation request ~~by the City's Engineer Engineer or designee~~ and shall contain a bar~~,~~ or other form of restraint.

d. Inlets shall be located in the following locations:

i. At low points;~~,~~

ii. Upstream of pavement crown transitions at intersections (or ~~or~~ the developer may identify flow patterns and depths to show these inlets are not needed);~~,~~ and

iii. Where street flow spread limits or permissible intersection depths are exceeded.

e. Where possible, inlets at intersections shall be located on the street with the lesser classification~~,~~ or on alleys.

f. A by~~-~~pass of no more than 5% of the inlet capacity will be allowed for the *"Flood Mitigation"* ~~flood mitigation~~ storm event.

g. To prevent water flowing across the street for the "*Flood Mitigation*" storm event, water flowing in gutters of arterials should be picked up prior to reaching super-elevated sections.

~~Water flowing in gutters of arterials should be picked up prior to super-elevated sections to prevent water flowing across the street for the *"Flood Mitigation"* flood mitigation storm event.~~

~~g.~~h. In super-elevated sections of divided arterials, inlets placed against the center medians shall have no gutter depressions. Interior gutter flow (flow along the median) shall be intercepted at the point of superelevation transition to prevent street cross~~-~~flow.

~~h.~~i. At bridges with curbed approaches, water should be intercepted before flowing onto the bridge to prevent icing during cold weather.

~~i.~~j. ~~The use of recessed inlets shall only be allowed where they do not adversely impact the width or, location of sidewalk facilities and where they are in, or compliance of sidewalk facilitieswith to , as amended,on Standards and City of Denton standards.~~ New inlets shall not be constructed within a sidewalk of other pedestrian path.~~)~~

~~j.~~k. The use of recessed inlets shall only be allowed where they do not adversely impact the access or functionality of existing utility facilities.

~~k.~~l. Design and location of inlets shall take into consideration pedestrian and bicycle traffic.

~~l.~~m. The use of slotted drains is discouraged except in instances where there is no alternative ~~and requires approval by the City 's EngineerEngineer or designee~~. Any use of slotted drains requires approval through a design deviation request~~by the City's Engineer~~ . If used, the manufacturer's design guidelines should be followed.

~~m.~~n. Depressed inlets are recommended on continuous grades that exceed ~~one percent~~1%.~~;~~

although their use in traffic lanes should be avoided whenever possible.

n.o. Redundant Inlets. A redundant, flanking inlet is required wherever a sag point or low point inlet is identified and no positive overflow path is provided. The redundant inlet shall have the same size as the sag or low point inlet but will not be considered in the hydraulic capacity calculations. The redundant inlet shall have a maximumn inlet elevation of no more than six (6) inches" above the sag or low point inlet elevation to ensure ponding does not overtop the curb.

3. Inlet Computations

a. Sump Inlets and Drop Inlets

Curb inlets and drop inlets in a sump or low point can be considered to function as a rectangular broad-crested weir with a coefficient of discharge of 3.06. The capacity shall be based on the following weir equation:

$$Q_{/} / L \text{ or } Q_{/} / P = 3.06\ H^{3/2} \qquad \text{[Eqn. 4.1]}$$

Where: Q = Capacity in cfs. of curb opening inlet or capacity in cfs. of drop inlet (*cfs*)

H = Head at the inlet (*in feet*)
L = Length of curb opening inlet (*in feet*); or
P = Length of portion of perimeter of inlet opening, through which water
enters the drop inlet (*in feet*)

Inlets should be located such that the inlet openings do not become submerged. In some cases where this is not possible, and the inlet operates under completely submerged conditions, the orifice equation [Eqn. 4.2] should be used to compute the inlet capacity, rather than the weir formula [Eqn. 4.1]. The capacity of a completely submerged inlet shall be based on the following orifice equation:

$$Q = 4.84\ A\ H^{1/2} \qquad \text{[Eqn. 4.2]}$$

Where: A = Area of inlet opening

The curves shown in Figures 6-2Figure 4.2 and 6-3Figure 4.3 provide for direct solution of the above equations.

In order to facilitate the computations required in determining the various hydraulic properties for curb inlets and drop inlets in sump conditions, Figure 4.4 shows Computation Sheet (6-1) has been prepared.

Column 1	Inlet number and designation.
Column 2	Total flow in *cfs* to inlet. For inlets other than the first inlet in a system, flow is the sum of runoff from the contributing area plus carry-over flow from inlet or inlets upstream.
Column 3	Assumed length of inlet opening or perimeter in feet.
Column 4	Total area of inlet opening based on assumed inlet opening length

and opening height.

Column 5 Discharge per unit foot of inlet opening. Column 2 divided by Column 3.

Column 6 Computed head at inlet for weir flow conditions based on Figures ~~6-~~4.2~~2~~ or ~~6-~~4.3~~3~~ or the following equation:

$$H = (q \cancel{/} / 3)^{2/3} \qquad \text{[Eqn. 4.3]}$$

Column 7 Computed head at inlet for orifice flow conditions (submerged inlet) based on Figures ~~6-~~4.2 or ~~6-~~4.3 or the following equation:

$$H = [(Q \cancel{/} / A \cancel{)/}) / 4.82]^2 \qquad \text{[Eqn. 4.4]}$$

Column 8 Maximum allowable head at sump inlet. This value is determined from topographic conditions at the sump inlet site.

Column 9 Width of spread of water for curb inlets in sump. ~~Use Figure 5-3 or 5-4, or Appendix B to determine S_p for roadways.~~

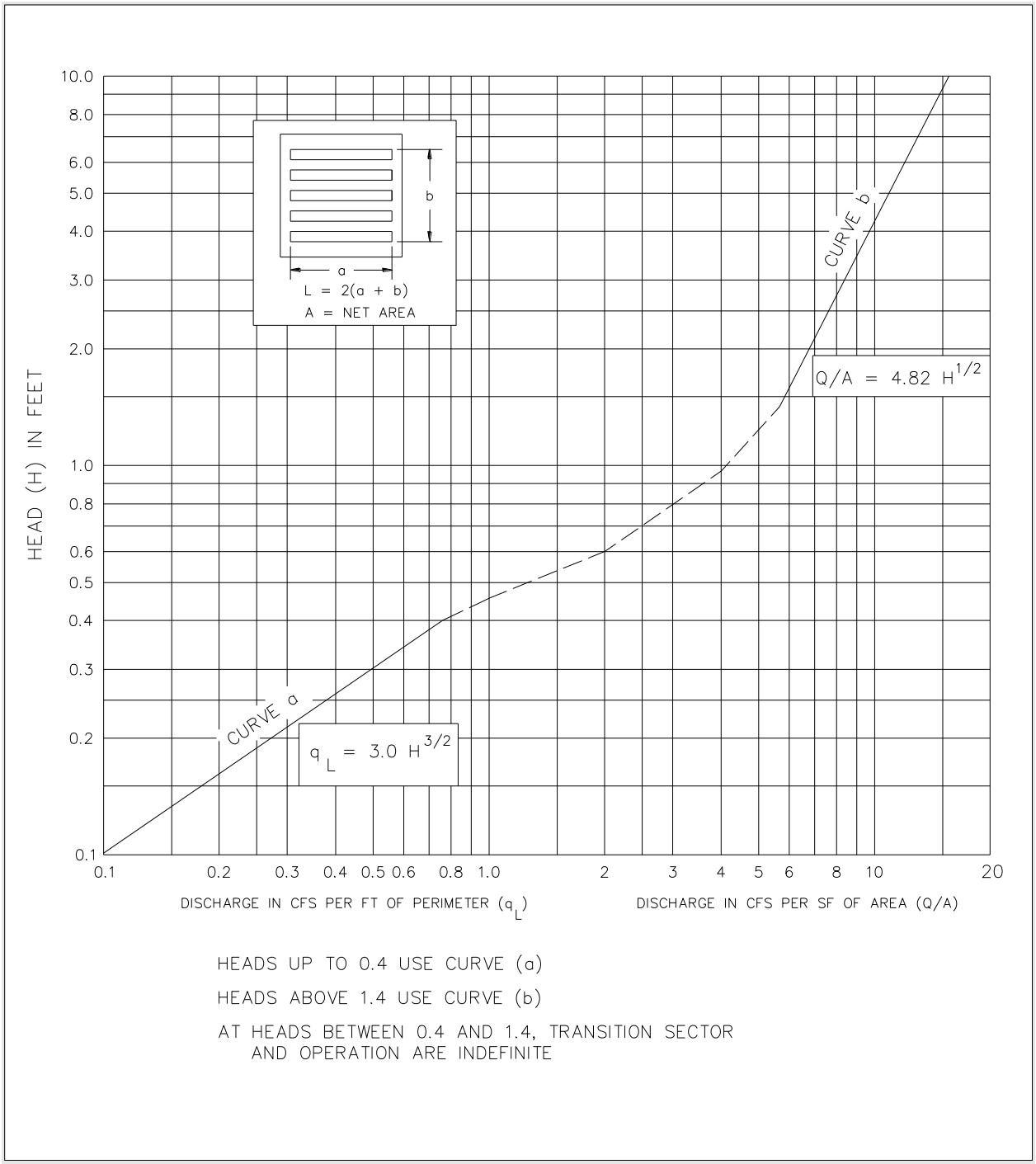


Figure 4.2~~4.24.2~~ Capacity of Grate Inlet in Sump

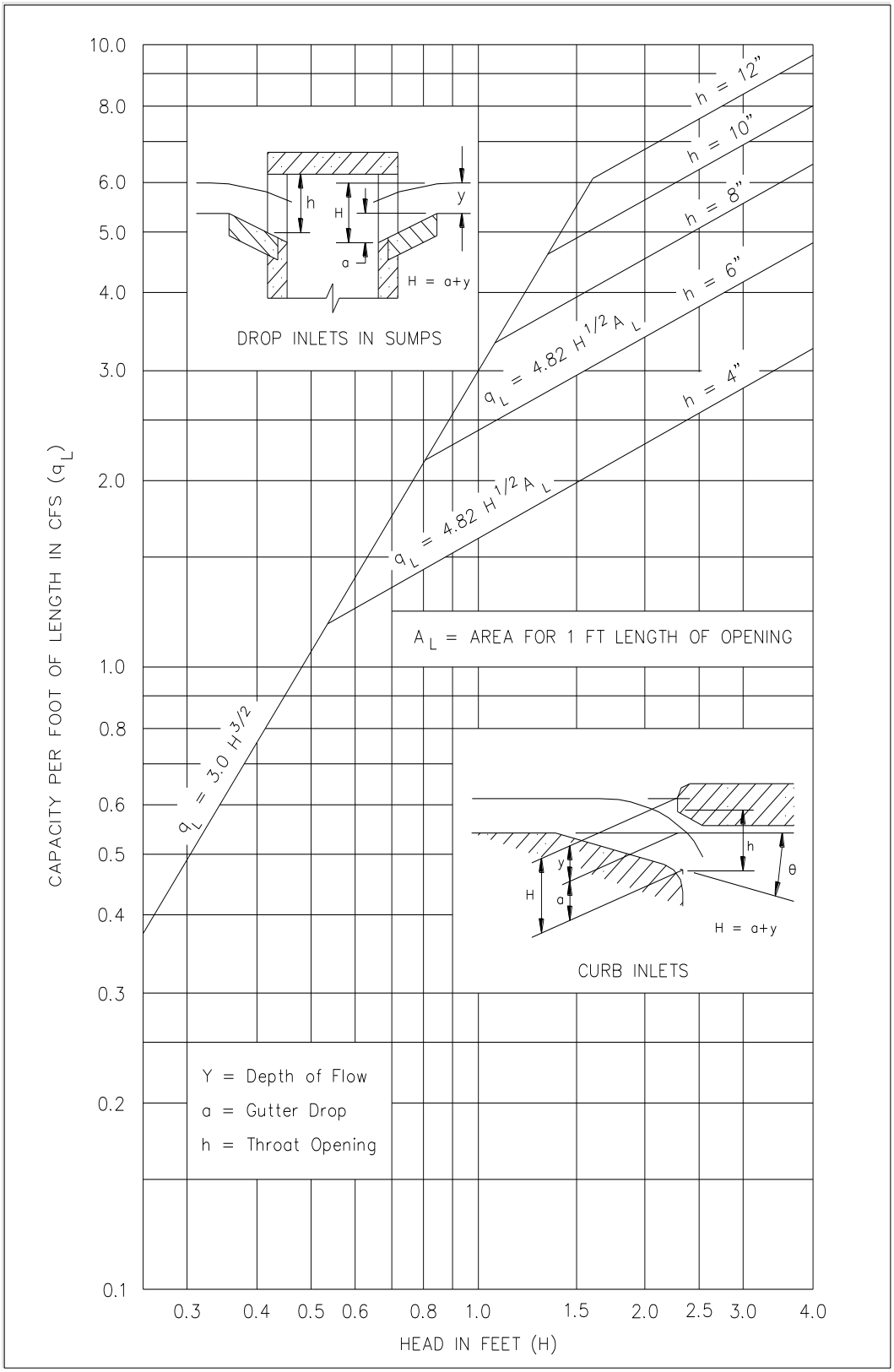


Figure 4.3~~4.34.3~~ Capacity of Drop Inlets and Curb Inlets in Sumps ~~(Fig 6-3)~~

COMPUTATION SHEET 6–1

CURB INLETS AND DROP INLETS IN SUMPS

INLET NO.	FLOW TO INLET Q (cfs)	LENGTH OF INLET OPENING L (ft)	AREA OF INLET OPENING A (sq. ft)	DISCHARGE PER UNIT FOOT OF OPENING q = Q/L (cfs/ft)	COMPUTED HEAD AT INLET: WEIR FLOW $H = (q/3)^{2/3}$ (ft)	COMPUTED HEAD AT INLET: ORIFICE FLOW $H = [(Q/A)/4.82]^2$ (ft)	MAXIMUM ALLOWABLE HEAD H (ft)	WATER SPREAD LIMITS S_p (ft)	NOTES
1	2	3	4	5	6	7	8	9	10

COMPUTATION SHEET 6–1

Figure 4.44~~4.44.4~~ Computation Sheet ~~(6-1)~~ for Curb Inlets and Drop Inlets in Sumps

b. Inlets on Grade

The capacity of a curb inlet on grade will be based on the following equation~~7~~:~~.~~

$$Q\cancel{/}\ /\ L_o\ \cancel{=}\ \cancel{-}\ =\ 0.7\ [1\cancel{/}\ /\ y_{\cancel{0}o}]\ [(H)^{5/2}\cancel{-(}\ -\ (a)^{5/2}] \qquad \text{[Eqn. 4.5]}$$

Where:

Q = Discharge into inlet (~~in~~ cfs~~.~~)

L_o = Length of inlet opening (~~in~~ feet)

~~H = a + y_o~~

a = Gutter depression (~~in~~ feet)

y_o = Depth of flow in approach gutter (~~in~~ feet)

H = a + y_o

The curve shown in Figure ~~6-4~~4.6 provides for the direct solution of the above equation when the value of y_o is known. The curve shown in Figure ~~6-5~~4.7 provides for the determination of the ratio of the intercepted flow by the inlet to the total flow in the gutter.

In order to facilitate the computations required in determining the various hydraulic properties for curb inlets on grade, Figure 4.5 shows Computation Sheet 6-2 prepared.

Column 1	Inlet Type and number.
Column 2	Location of inlet by station number.
Column 3	Drainage Area designation of area entering between the previous pick up point and the inlet being designed.
Column 4	Peak Discharge (Q_p) from area of Column 3.
Column 5	Carry-over flow (q) which has been passed by the last preceding inlet to the inlet under consideration.
Column 6	Total gutter flow (Q_o) in cfs. For inlets other than the first inlet in the system, total gutter flow is the sum of the runoff from the contributing area plus carry-over flow from the inlet or inlets upstream. Column 4 plus Column 5.
Column 7	Reciprocal of the pavement cross slope for pavements with straight crown slopes.
Column 8	Reciprocal of the pavement cross slope (Z) divided by the pavement roughness coefficient (n).
Column 9	Slope of approach gutter (S_o) in ~~ft. per ft.~~feet per feet.
Column 10	Depth of gutter flow "y_o" in approach gutter direct from Manning's equation for triangular gutters: $$y_o = 1.245\ (Q^{3/8})[n^{3/8}/\ S^{3/16}]\ [1\cancel{/}\ /\ Z]^{3/8} \qquad \text{[Eqn. 4.6]}$$
Column 11	Spread of water (S_p) or width of ponding in the gutter measured from the face of curb. Column 7 times Column 10. ~~(Figure 5-3 or Appendix B).~~
Column 12	Width of street and height of parabolic crown.
Column 13	Slope of approach gutter (S_o) in ~~ft. per ft.~~feet per feet.
Column 14	Depth of gutter flow " y_o " in approach gutter ~~from Figure 5-4 or Appendix B~~.

Column 15 Spread of water (S_p) or width of ponding in the gutter measured from face of curb~~ from Figure 5-4 or Appendix B.~~.

Column 16 Discharge (Q) in ~~cubic feet per second~~ cfs~~(Q)~~ which will be intercepted by an inlet one (1) foot in length for a given depth of flow in the approach gutter (y_o). Determined from Figure ~~6-4~~4.6 or from the solution of the following equation:

$$Q\cancel{/}\,/\,L_o = 0.7\,[1\cancel{/}\,/\,y_o]\,[(H)^{5/2}\cancel{-}\,(\,-\,(a)^{5/2}] \qquad \text{[Eqn. 4.7]}$$

Column 17 Length of inlet (L_o) in feet which is necessary to intercept a given discharge Q_o. Column 6 divided by Column 16.

Column 18 Actual length (L) in feet of inlet which is to be provided.

Column 19 Ratio of the length of inlet provided (L), to the length of the inlet required for 100% interception (L_o). Column 18 divided by Column 17.

Column 20 Percentage of discharge intercepted by the inlet in question determined from Figure ~~6-5~~4.7 using the values determined in Column 19 and Column 10 or Column 14.

Column 21 Discharge (Q) in ~~cubic feet per second~~ cfs which the inlet in question actually intercepts. Column 6 times Column 20.

Column 22 Carry-over flow (q) is the amount of water which passes any inlet, and is the difference between the total flow (Q_o) of Column 6 and the intercepted flow (Q) of Column 21.

COMPUTATION SHEET 6-2

CURB INLETS ON GRADE

INLET		DRAINAGE AREA NO.	SUB-AREA PEAK FLOW Q_p (cfs)	CARRY-OVER FROM UPSTRM INLET q (cfs)	TOTAL FLOW Q (cfs)	STRAIGHT CROWN SLOPES					PARABOLIC STREET SLOPES				CAPACITY PER FOOT OF INLET Q/L_o (cfs/ft)	LENGTH OF INLET REQ'D FOR Q_o (ft)	INLET LENGTH L (ft)	L/L_o	Q/Q_o	FLOW INTRCPTD $Q = Q_o \times Q/Q_o$ (cfs)	CARRY-OVER FLOW q (cfs)	COMMENTS
TYPE & NO.	STATION					CROWN SLOPE Z	Z/N	STREET SLOPE S_o (ft/ft)	FLOW DEPTH y_o (ft)	WIDTH OF SPREAD S_p (ft)	TYPE OF STREET SECTION	STREET SLOPE S_o (ft/ft)	FLOW DEPTH y_o (ft)	WIDTH OF SPREAD S_p (ft)							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

COMPUTATION SHEET 6-2

Figure 4.54~~4.54.5~~ Computation Sheet ~~(6-2)~~ for Curb Inlets On Grade

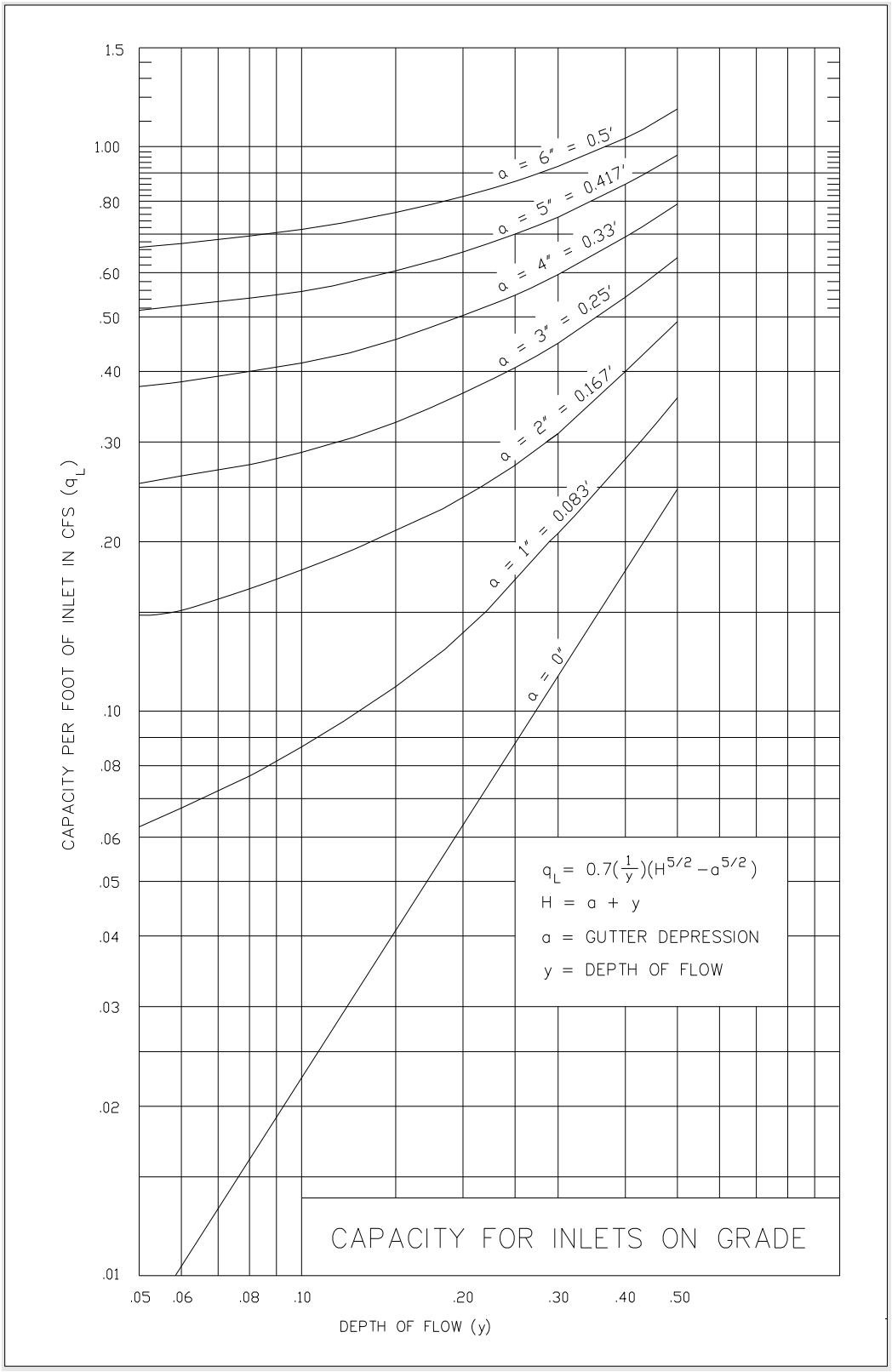


Figure 4.6~~4.6.4.6~~ Capacity for Inlets On Grade

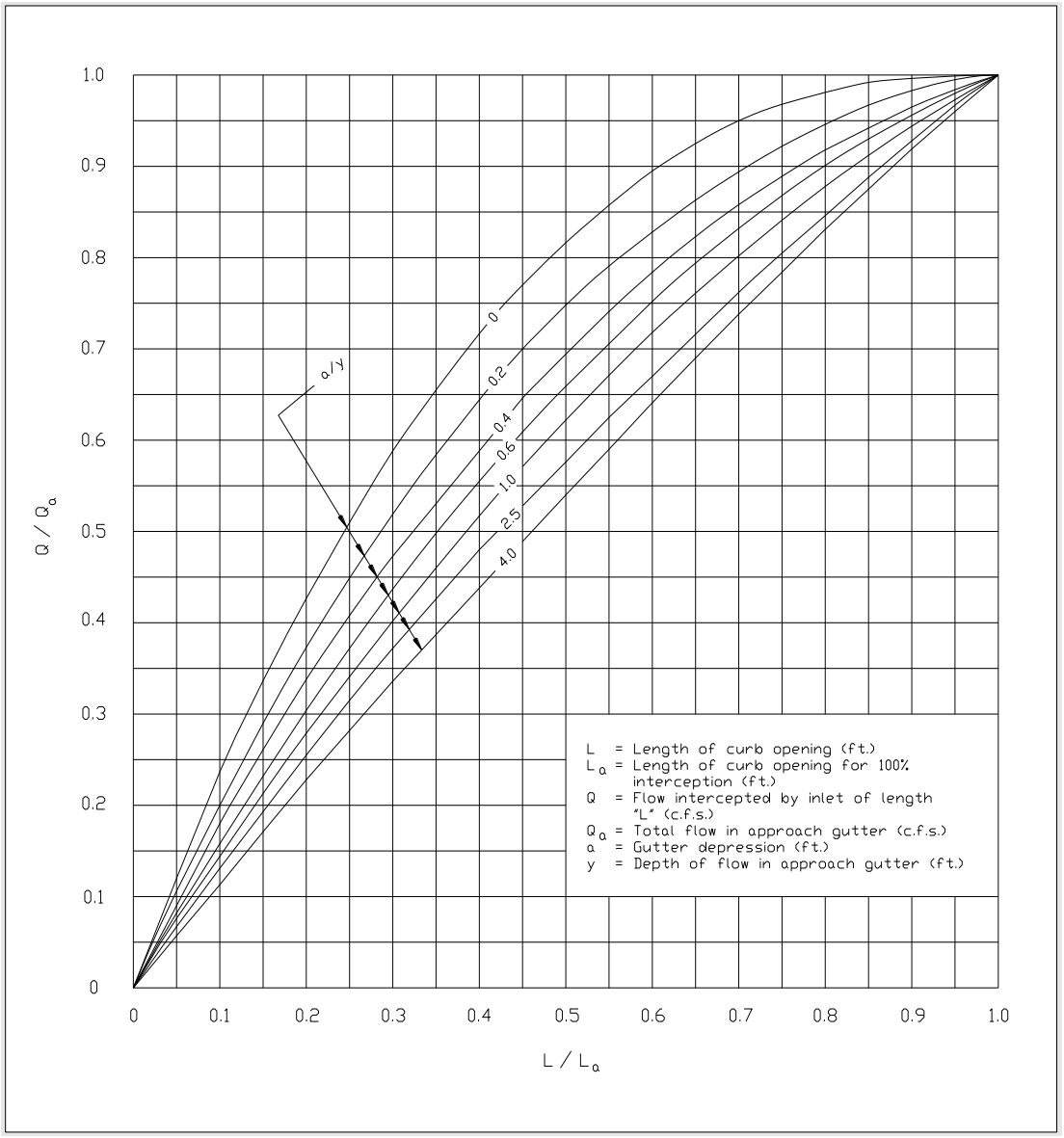


Figure 4.74~~.74.7~~ Ratio of Intercepted Flow to Total Flow for Inlet On Grade

~~D.~~E. Storm Drain Pipe Design

1. Design Frequency

   Pipe Design: *"Flood Mitigation"* ~~flood mitigation~~ storm event.

2. Design Criteria

   a. Storm drain systems capable of conveying the *"Flood Mitigation"* ~~flood mitigation~~ storm event are required when water spread, intersection cross-~~-~~flow, and lot-~~-~~to-~~-~~lot drainage flow limits are exceeded, or when the minimum time of concentration shown in *Table 1.5 of the iSWM™ Hydrology Technical Manual Document* are reached. Closed pipe systems are required for discharges up to and including 300 cfs in public systems.

   b. Pipe material in a public storm drain system or in public ~~right-of-way~~ROW shall be reinforced concrete for all pipe sizes with appropriate bedding and class type depending on cover.

   c. Proposed storm drains may discharge into existing watercourses. *See Section 1.2.10 of the iSWM™ Hydraulics Technical Manual Document* for guidance related to the Tailwater elevation to be used for hydraulic grade line calculations.

   d. The maximum hydraulic gradient shall not produce a velocity that exceeds 15 ~~feet per second (~~fps~~)~~. Table 4.~~7~~6-C shows the desirable velocities for most storm drainage design. Storm drains shall be designed to have a minimum mean velocity flowing full at 2.5 fps. ~~Storm drains shall be designed to have a minimum mean velocity flowing full at 2.5 fps.~~

Table 4.6-C: Desirable Velocity in Storm Drains

Description	Max. Desirable Velocity (fps)
Culverts (All types)	15
Inlet laterals	No Limit
Collectors (≤ ~~up to~~ 24 inches~~"~~)	15
Mains (~~Larger than~~> 24~~"~~ inches)	12

   e. The minimum desirable physical slope shall be 0.5% or the slope that will produce a velocity of 2.5 f~~eet per second~~ps~~,~~ as required~~,~~ for the *"Streambank Protection"* s~~S~~torm event when the culvert is flowing partially full, whichever is greater.

   f. The potential hydraulic grade line elevation shall not exceed ground elevation or the gutter flow line, whichever is lowest.

   g. Access junction boxes are required ~~at intermediate points~~ along straight runs of closed conduits~~.~~, with a maximum spacing of 500 feet for all pipe and box sizes. ~~Table 4.7-D gives maximum spacing criteria.~~

~~Table 4.6-D: Access Junction Box Spacing Criteria~~

~~Pipe Size (Inches)~~	~~Max. Spacing (feet)~~
~~18~~ to ~~36~~ inches	5~~600~~
≥ ~~42 inches inches and larger~~	5~~1000~~

h. Junction Boxes shall also be located at:

i. any point where three (3) or more drainage conduits (laterals or trunk lines) come together;

ii. any point where a trunk line size changes ~~where either the inlet pipe or outlet pipe is greater than 24 inches in diameter~~;

~~iii. pipe junctions involving a pipe with at least 36 inches in diameter;~~

~~iv.~~iii. grade changes;

~~v.~~iv. the upstream end of the storm drain system;

~~vi.~~v. Bends greater than ~~30~~ 45 degrees;

~~vii.~~vi. Pipe junctions greater than 45 degrees;

~~viii.~~vii. At the connection point between public and private storm sewer pipes or boxes. If this connection point is in the public ~~right-of-way~~ROW, pipe materials on the private system must meet public storm drain system materials requirements. If the connection point is on private property, then the public portion of the system must be contained in an easement.

i. Inlets will not be allowed to serve as a junction box except through an approved design deviation request. ~~Under special circumstances the City Engineer or designee may allow an inlet to serve as a junction box.~~ Where inlets are permitted to serve as a junction box, the width of the inlet, at a minimum, shall be doubled in size. Storm drain systems parallel to the street will not be permitted to run directly through inlets.

j. Bends without junction boxes shall be limited to ~~30~~ 45 degrees or less.

k. Pipe junctions without junction boxes shall be limited to 45 degrees or less.

l. The minimum storm drain pipe diameter shall be ~~eighteen (~~18~~)~~ inches.

m. Pipe diameters shall not decrease downstream.

~~n. Manufactured Pipe inverts at change in sizes should be set at the same elevation.~~

~~o. A prefabricated eccentric reducer shall be used when pipe size changes are required on trunk lines between 18-inch and 24-inch diameter pipes. Cast-in-place pipe collars are not allowed.~~

~~p.~~n. Laterals shall be connected to ~~collector or main~~ trunk lines using a junction box ~~manholes~~ or manufactured wye connections. Cut-in or punch-in connections to trunk lines are prohibited~~Special situations may require laterals to be connected to the trunk lines by a cut-in (punch-in), and such cut-ins must be approved by the City Engineer or designee~~.

o. All cut-in or punch-in connections to precast inlets, junction boxes, box culverts, etc. will require a concrete color to be poured around the connection.

~~q.~~p. Vertical or horizontal curves/deflections in the conduit will not be permitted.

~~E.~~F. Parking Lot Design

Parking lots shall be designed for the *"Flood Mitigation"* ~~flood mitigation~~ storm not to exceed top of curb with a maximum depth at low points of one (1) foot. The *"Flood Mitigation"* ~~flood mitigation~~ storm shall be contained on-site or within dedicated easements. The portion of the parking lot ~~below the lowest curb elevation~~ detaining water during the *"Flood Mitigation"* storm may be considered as part of the detention calculation for the site.

~~**Driveway Culverts**~~

~~Driveway culverts are only permitted in non-curbed roadway sections. All driveway culvert construction shall be inspected by the City during construction. Public Works Inspection Department will not approve the driveway approach formwork for concrete pours until the driveway culvert, ditch survey, and material invoice have been reviewed and accepted by the Drainage Department. All driveway culverts shall meet the following requirements:~~

~~All new driveway culverts will be designed to convey the flood mitigation storm. Replacement driveway culverts shall be designed to convey the maximum reasonable discharge based on the existing ditch dimensions adjacent to the culvert.~~

~~Culverts shall have a minimum pipe diameter of 18 inches.~~

~~Acceptable Culvert Material shall be Reinforced Concrete Pipe (RCP) (Class III minimum) (18" to 42" diameter)~~

~~Box culverts shall have a minimum height of 24". Culverts under City streets used for entrances to a subdivision shall be made of approved classes of reinforced concrete pipe or box.~~

~~The top of pipe elevation must be at or below the adjacent roadway edge of pavement elevation.~~

~~Pipe culverts shall utilize a safety end treatment conforming to the most current version of Texas Department of Transportation (TxDOT) standard detail SETP-PD with the slope of the rip-rap being 6:1.~~

~~A driveway approach may utilize a low water crossing in lieu of a driveway culvert if all of the following conditions are met:~~

~~The lowest elevation of the proposed crossing can be no more than 8 inches below the road edge elevation.~~

~~The proposed low water crossing cannot create a ponding effect on the upstream ditch (i.e., ditch flow line must be equal to or higher than the crossing).~~

~~Minimum cross slope for the crossing of 1.5%.~~

~~Low water crossing shall be constructed of concrete adhering to~~

~~Toe walls on each side of the crossing shall be extended at least 15" below grade to prevent undercutting.~~

~~Culverts Slope requirements:~~

~~Must provide positive drainage.~~

~~Culvert slope shall be set as shown on the approved subdivision construction plans.~~

~~Minimum slope shall be 0.3%.~~

~~Ditch Slope Requirements~~

~~The ditch shall be graded upstream and downstream as far as necessary to provide positive drainage with no areas of standing water.~~

~~Minimum earthen slope is 0.5%.~~

~~Minimum concrete slope is 0.3% for 2-foot concrete pilot channels if 0.5% earthen is unobtainable.~~

4.6.3 ~~Hydraulic Design Criteria for Structures~~Open Channels

~~**A. Introduction**~~

~~**B. This section is intended to provide design criteria and guidance on several on-site flood**~~

~~**mitigation system components, including culverts, bridges, vegetated and lined open channels, storage design, outlet structures, and energy dissipation devices for outlet protection.**~~

~~**C. Open Channels**~~

~~D.~~A. Design Frequency

1. Open channels, including all natural or improved channels, swales, and ditches shall be designed for the *"Flood Mitigation"* ~~flood mitigation~~ storm event.

~~E.~~B. Design Criteria

1. Depending on velocities (See Table 4.6-E ~~Table 4.7-F~~), constructed or improved channels shall be designed with either an earthen channel or a 10-ft. minimum concrete pilot channel section and appropriate side slope protection up to the streambank protection elevation, as described in Section 4.3 ~~Section 3.2.1~~.

2. All channels with contributing drainage basins larger than one (1) square mile (sq. mi.) shall remain in their natural condition.

3. Channels with a contributing drainage area of less than one (1) ~~square mile~~sq. mi. shall remain in their natural condition if they are identified as being within an ~~Environmentally Sensitive Area (~~ESA~~)~~ by the current City of Denton ESA map. Channels not identified as being within an ESA may be channelized, with the channelization method being determined by analysis of the erosive velocities.

4. All improved channels shall be designed to carry the flood mitigation flow and shall have one (1) foot of freeboard as illustrated in Figure 4.8~~Figure 8-1~~. Freeboard requirements at bends in all improved channels shall be the greater of the following:

   a. One (1) foot or

   b. ~~Ten (~~10~~) percent~~% of the flow depth

5. At a minimum, channels that require concrete lining shall be lined up to an elevation of the water surface resulting from the *"Flood Mitigation"* ~~flood mitigation~~ storm event.

~~5.~~6. Concrete lining of a stream channel is adding fill material into Waters of the United States and must comply with Section 404 of the Clean Water Act, and all requirements outlined in DDC Section 7.4. Provide either proof of mitigation or letter of permission from the United States Army Corps of Engineers (USACE).

~~6.~~7. Unlined improved channels that contain bends may be required to be armored if maximum permissible velocities are exceeded.

~~7.~~8. Unlined improved channels shall have side slopes no steeper than 4H:1V and concrete-~~-~~lined channels shall have side slopes no steeper than 2H:1V.

~~8.~~9. The minimum grade allowed on any channel, outfall channel, or ditch shall be three-tenths (3/10~~th~~) foot per ~~one hundred (~~100~~)~~ feet for concrete-~~-~~lined channels and five-tenths (5/10~~th~~) foot per ~~one hundred (~~100~~)~~ feet for grass-~~-~~lined channels.

~~9.~~10. Geotechnical investigations will be required for open channel designs to determine the type ~~p~~of soils present and allowable velocities shown in Table 4.6-D and Table 4.6-E~~, except in cases where the City Engineer or designee deems it not necessary~~.

~~10.~~11. For vegetative channels, flow velocities within the channel shall not exceed the maximum permissible velocities given in Table 4.6-D and Table 4.6-E~~77~~.

~~11. If relocation of a stream channel is unavoidable, the cross-sectional shape, meander, pattern, roughness, sediment transport, and slope shall conform to the existing conditions insofar as practicable. Energy dissipation will be necessary when existing conditions cannot be duplicated.~~

12. An evaluation of streambank stabilization shall be included in the design of open channel improvements for areas upstream and downstream of the proposed improvement. Where indicated by the analysis, stabilization of the offsite bank areas shall be included in the proposed design.

13. HEC-RAS, or similarly capable software approved by the City's Engineer, ~~entity with jurisdiction,~~ shall be used to confirm the water surface profiles in open channels.

14. The final design of artificial open channels shall be consistent with the velocity limitations for the selected channel lining. Maximum velocity values for selected lining categories are presented in Table 4.6~~7~~-D below~~E~~.

15. If relocation of a stream channel is unavoidable, fill material into Waters of the United States must comply with Section 404 of the Clean Water Act, and all requirements outlined in DDC Section 7.4 . Provide either proof of mitigation or letter of permission from the United States Army Corps of Engineers (USACE).

The design of stable rock riprap lining depends on the intersection of the velocity (local boundary shear) and the size and gradation of the riprap material. More information on calculating acceptable riprap velocity limits is available in Section 3.2.7 of the *i*SWM™ Hydraulics Technical Manual Document.

Table 4.6-D: Roughness Coefficients (Manning's *n*) and Allowable Velocities for Natural Channels

Channel Description	Manning's *n*	Max. Permissible Channel Velocity (f~~p~~t/s)
MINOR NATURAL STREAMS		
Fairly regular section		
1. Some grass weeds	0.030	3 to ~~6~~6
2. Dense growth of weeds, depth of flow materially greater than weed height	0.035	3 to 6
3. Some weeds, light brush on banks	0.035	3 to 6
4. Some weeds, heavy brush on banks	0.050	3 to 6
5. Some weeds, dense willows on banks	0.060	3 to 6
- For trees within channels with branches submerged at high stage, increase values by	0.010	
- Irregular section with pools, slight channel meander, increase above values by	0.010	
Floodplain - Pasture		
1. Short grass	0.030	3 to 6
2. Tall grass	0.035	3 to 6
Floodplain – Cultivated Areas		
1. No crop	0.030	3 to 6

2. Mature row crops	0.035	3 to 6
3. Mature field crops	0.040	3 to 6
Floodplain – Uncleared		
1. Heavy weeds scattered brush	0.050	3 to 6
2. Wooded	0.120	3 to 6
MAJOR NATURAL STREAMS		
Roughness coefficient is usually less than for minor streams of similar description on account of less effective resistance offered by irregular banks or vegetation on banks. Values of 'n' for larger streams of mostly regular sections , with no boulders or brush	0.028 to 0.060	3 to 6
UNLINED VEGETATED CHANNELS		
Clays (Bermuda Glass)	0.035	5 to 6
Sandy and Silty Soils (Bermuda Glass)	0.035	3 to 5
UNLINED NON-VEGETATED CHANNELS		
Sandy Soils	0.030	1.5 to 2.5
Silts	0.030	0.7 to 1.5
Sandy Silts	0.030	2.5 to 3.0
Clays	0.030	3.0 to 5.0
Coarse Gravels	0.030	5.0 to 6.0
Shale	0.030	6.0 to 10.0
Rock	0.025	15

Notes:
[1] For natural channels with specific vegetation type, refer to Table 4.76-EF for more detailed velocity control.

Table 4.6-E: Maximum Velocities for Vegetative Channel Linings

Vegetation Type	Slope Range [1] (%)	Max. Velocity [2] (fpt/s)
Bermuda Grass	0 – 5	6
Bahia	-	4
Tall fescue grass mixtures [3]	0 – 10	4
Kentucky bluegrass	0 – 5	6
Buffalo grass [4]	5 – 10 > 10	5 4
Grass mixture [4]	0 – 5 5 – 10	4 3
Sericea lespedeza, Weeping lovegrass, Alfalfa	0 – 5	3
Annuals [5]	0 – 5	3
Sod	-	4
Lapped Sod	-	5

Notes:
[1] Do not use on slopes steeper than 10% except for side-slope in combination channel.
[2] Use velocities exceeding 5 fpt/s only where good stands can be maintained.
[3] Mixtures of Tall Fescue, Bahia and/or Bermuda.

~~[4] Do not use on slopes steeper than 5% except for side-slope in combination channel.~~
[~~5~~4] Buffalo Grass and Grass Mixture will be required over other vegetation types where the maximum velocity is not exceeded.
[5] Annuals – used on mild slopes or as temporary protection until permanent covers are established.

Source: Manual for Erosion and Sediment Control in Georgia, 1996.

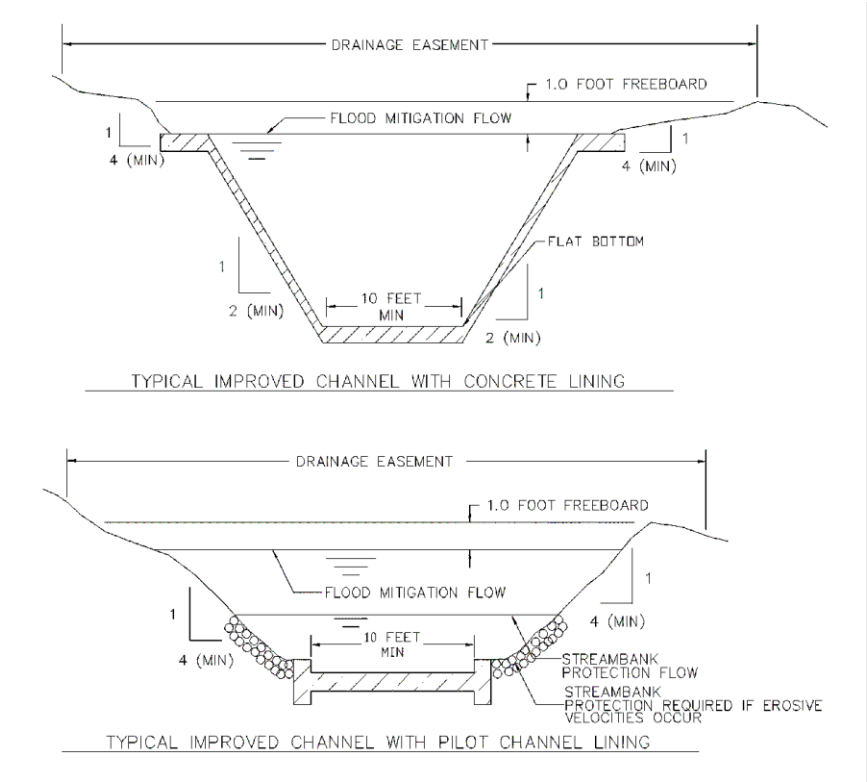


Figure 4.8~~4.8.4.8~~ Freeboard Requirements and Channel Section Illustrations

~~F.~~C. Channel Drop Structures

1. Sloping channel drops are permitted and are required to have a maximum slope of 4H:1V. Vertical channel drops are not permitted.
2. The flow velocities in the channel upstream and downstream of the drop structure need to satisfy the permissible velocities allowed for channels (Table 4.6-D~~Table 4.6-E~~). The velocities shall be checked for flows produced by the *"Streambank Protection"* and *"Flood Mitigation"* storm events.
3. An apron shall be constructed immediately upstream of the chute or stilling basin to protect against the increasing velocities and turbulence which result as the water approaches the drop structure. The apron shall extend at least five (5) feet upstream of the point where flow becomes supercritical. In no case shall the length of the upstream apron be less than ~~ten (~~10~~)~~ feet.
4. An apron shall be constructed immediately downstream of the chute or stilling basin to protect against erosion due to the occurrence of the hydraulic jump. The apron shall extend a minimum of ~~ten (~~10~~)~~ feet beyond the anticipated location of the jump.
5. The design of drop structures is based on the height of the drop, the normal depths upstream and downstream of the drop structure, and discharge.

6. When used, channel drop structures shall be located near bridges or culverts, as directed by the City's EngineerEngineer or designee.
7. The location of the hydraulic jump should be determined based on the upstream and downstream flow depths, and channel slopes.
8. The length of the hydraulic jump should be calculated to determine the length of the downstream apron required to prevent erosion.

4.7 Culverts

Culverts are cross drainage facilities that transport runoff under roadways or other improved areas.

4.7.1 Design Frequency

A. Culverts shall be designed for the *"Flood Mitigation"* flood mitigation storm. Consideration when designing culverts includes: roadway type, tailwater or depth of flow, structures, and property subject to flooding, emergency access, and road replacement costs.

B. The *"Flood Mitigation"* flood mitigation storm shall be routed through all culverts to enbe sure building structures (e.g., houses, commercial buildings) are not flooded andor increased damage does not occur to athe highway or adjacent property for this design event.

4.7.2 Design Criteria

A. Design Considerations

1. Roadway type;,
2. Tailwater or depth of flow;,
3. Structures, and property subject to flooding;,
4. Emergency access, and
5. Road replacement costs.

G.B. Velocity Limitations

1. The maximum velocity shall be consistent with channel stability requirements at the culvert outlet.
2. The maximum allowable velocity is 15 feet per secondfps, but outlet protection shall be provided where discharge velocities will cause erosion conditions.
3. To ensure self-cleaning during partial depth flow, a minimum velocity of 2.5 feet per secondfps is required for the *"Sstreambank Pprotection"* storm when the culvert is flowing partially full.

C. Headwater Limitations

1. The *allowable headwater* is the depth of water that can be ponded at the upstream end of the culvert during the *"Flood Mitigation"* storm event., The *allowable headwater*which will be limited by one or moreboth of the following constraints or conditions:
   a. The hHeadwater will be non-damagingmust not damageto upstream property.
   b. The cCulvert headwater plus 12 inches of freeboard shall not exceed (i) top of curb or

(ii) pavement for the low point of the road over the culvert, whichever is lower.

D. Tailwater Considerations

1. If the culvert outlet is operating with a free outfall, the critical depth and equivalent hydraulic grade line shall be determined.
2. For culverts that discharge to an open channel, the stage-discharge curve for the channel must be determined. *See* Section 2.1.4 of the *i*SWM™ Hydraulics Technical Manual on methods to determine a stage-discharge curve.
3. If an upstream culvert outlet is located near a downstream culvert inlet, the headwater elevation of the downstream culvert will establish the design tailwater depth for the upstream culvert.
4. If the culvert discharges to a lake, pond, or other major water body, the expected "*Flood Mitigation*" storm event of the water body will establish the culvert tailwater.

E. Other Criteria

1. Culvert skews shall not exceed 30 degrees, as measured from a line perpendicular to the roadway centerline, without approval.
2. Erosion, sediment control, and velocity dissipation shall be designed in accordance with Section 4.0 of the *i*SWM™ Hydraulics Technical Manual Document.
3. Where applicable, culverts must comply with ~~all sections of~~ DDC Section 7.4 regarding Environmentally Sensitive Areas.

4.7.3 Driveway Culverts

Driveway culverts are only permitted in non-curbed roadway sections. All driveway culvert construction shall be inspected by the City during construction. All driveway culverts shall meet the following requirements:

A. All new driveway culverts ~~will~~must be designed to convey flows from a~~the~~ "*Flood Mitigation*" storm. Replacement driveway culverts shall be designed to convey the maximum reasonable discharge based on the existing ditch dimensions adjacent to the culvert.

B. Culverts shall have a minimum pipe diameter of 18 inches.

C. Acceptable c~~C~~ulvert m~~M~~aterial shall be Reinforced Concrete Pipe (RCP) ~~(Class III minimum)~~ with a diameter of 18 to 42 inches. The RCP must be designated Class III at a minimum.

D. Box culverts shall have a minimum height of 24 inches. ~~–~~Culverts under City streets used for entrances to a subdivision shall be made of approved classes of reinforced concrete pipe or box.

E. The top of pipe elevation must be below the adjacent roadway edge of pavement elevation.

F. Pipe culverts shall utilize a safety end treatment conforming to the most current version of the TxDOT standard detail Safety End Treatment Plan – Parallel Drainage (SETP-PD) with the slope of the riprap being 6H:1V.

G. A driveway approach may utilize a low-water crossing in lieu of a driveway culvert, if all of the following conditions are met:

1. The lowest elevation of the proposed crossing can be no more than eight (8) inches below the road edge elevation.

2. The proposed low-water crossing cannot create a ponding effect on the upstream ditch (i.e., ditch flow line must be equal to or higher than the crossing).
3. Minimum cross slope for the crossing of 1.5%.
4. Low-water crossing shall be constructed of concrete adhering to the City of Denton Standard Details.
5. Toe walls on each side of the crossing shall be extended at least 15 inches below grade to prevent undercutting.

H. Culvert Slope requirements:

1. ~~Must~~ Culvert slope must provide positive drainage.
2. Culvert slope shall be set as shown on the approved subdivision construction plans.
3. Minimum slope shall be 0.3%.

I. Ditch Slope Requirements

1. The ditch shall be graded upstream and downstream as far as necessary to provide positive drainage with no areas of standing water.
2. Minimum earthen slope is 0.5%.
3. Minimum concrete slope ~~of~~is 0.3% for 2-ft. concrete pilot channels, if 0.5% earthen slope is unobtainable.
4. ~~Headwater Limitations~~
5. ~~The *allowable headwater* is the depth of water that can be ponded at the upstream end of the culvert during the flood mitigation storm event, which will be limited by one or more of the following constraints or conditions:~~
6. ~~Headwater will be non-damaging to upstream property.~~
7. ~~Culvert headwater plus 12 inches of freeboard shall not exceed top of curb or pavement for low point of road over culvert, whichever is lower.~~
8. ~~Tailwater Considerations~~
9. ~~If the culvert outlet is operating with a free outfall, the critical depth and equivalent hydraulic grade line shall be determined.~~
10. ~~For culverts that discharge to an open channel, the stage-discharge curve for the channel must be determined. See on methods to determine a stage-discharge curve.~~
11. ~~If an upstream culvert outlet is located near a downstream culvert inlet, the headwater elevation of the downstream culvert will establish the design tailwater depth for the upstream culvert.~~
12. ~~If the culvert discharges to a lake, pond, or other major water body, the expected flood mitigation storm event of the water body will establish the culvert tailwater.~~
13. ~~Other Criteria~~
14. ~~Culvert skews shall not exceed 30 degrees as measured from a line perpendicular to the roadway centerline without approval.~~

~~15. Reinforced concrete pipe shall be required for culverts.~~

3. ~~Erosion, sediment control, and velocity dissipation shall be designed in accordance with .~~

4.8 Bridges

4.8.1 Design Frequency

A. *"Flood Mitigation"* storm must be used for all bridges.

~~4.7.3~~4.8.2 Design Criteria

A. A freeboard of two (2)~~-~~ fee~~oo~~t shall be maintained between the computed design water surface and the low chord of all bridges.

B. Design guidance is provided in *Section 3.4 of the iSWM™ Hydraulics Technical Manual Document*.

4.8.3 Other Criteria

A. Where applicable, bridges must comply with ~~all sections of~~ DDC Section 7.4 regarding Environmentally Sensitive Areas.

4.9 Detention Facilities

~~4.7.4~~4.9.1 Design Requirements~~Frequency~~

A. Detention facilities shall be designed for the four storms (*"W~~w~~ater Q~~q~~uality"*, *"S~~s~~treambank P~~p~~rotection"*, *"C~~c~~onveyance"*, and *"Flood Mitigation"*~~flood mitigation storms~~) for the critical storm duration that results in the maximum (or near maximum) peak flow.

B. Dry detention basins ~~are~~must be sized to temporarily store the volume of runoff required to provide flood protection up to the *"Flood Mitigation"* storm.

C. Routing calculations must be used to demonstrate that the storage volume and outlet structure configuration comply with Section 4.5.5 of this Manual.

D. A calculation summary shall be provided on construction plans as shown in the computation sheet in Figure 4.9 or its equivalent. Stage-storage-discharge values shall be tabulated and flow calculations for discharge structures shall be shown on the construction plans. Detention design shall follow *i*SWM™ guidelines. It is the responsibility of the Engineer of Record to use appropriate methodologies presented in *i*SWM™ based on specific basin characteristics. Detailed calculations and a design narrative shall be provided for review in a supplemental report that is referenced on the construction plans. In general, the narrative shall provide basic design information, such as the hydrologic method applied, design assumptions, pre- and post-development site conditions, downstream constraints, environmental considerations, and design software version used, if applicable.

E. Storage and dam safety design may be subject to the requirements of the Texas Dam Safety Program based on the volume, dam height, and level of hazard. Earthen embankments six (6) feet in height or greater shall be designed per the TCEQ guidelines for dam safety (*S~~s~~ee* Texas Administrative C~~c~~ode, Title 30, Part 1, Chapter 299 Dams and Reservoirs for current dam safety

criteria).

~~A.~~F. ~~All private detention basins shall require an~~ An Operation and Maintenance Manual must be submitted with the civil engineering plans for all private detention basins. Private detention basins shall be inspected by Public Works Inspection to ensure ~~conformity to~~compliance with the design standards required by Section 7.5.3.F. of the DDC. I~~Current i~~nspection fees will apply.~~.~~

~~4.7.5~~4.9.2 Design Criteria for Above Grade Detention Facilities

A. Grading Standards for Above Grade Detention Facilities:

1. Vegetated channel slopes shall not exceed 4H:1V slope. Concrete-lined embankment slopes shall not exceed 2H:1V slope. ~~–~~Vertical walls may be allowed~~,~~ but must be structurally designed to account for inundation of the base and drawdown upon pond draining~~;~~ and must have a 6-ft. high security fence at the top.
2. The side slope for any excavated detention basin, which is not in rock, shall not exceed a 4H:1V slope.
3. Bottom slopes of detention facilities should not be less than 1%.
4. Armored slopes shall be no steeper than 2H:1V.
5. The embankment crown width shall be determined based on a geotechnical investigation of the detention facility site. The minimum width of the embankment crown shall be 12 feet.
6. Earthen embankments used to impound detention water must have a non-permeable core and shall be based on a geotechnical investigation of the site. The geotechnical investigation shall be performed by a Professional Engineer, licensed by the State of Texas, and shall include at a minimum the type of material on-site (or other material to be used in the embankment), moisture content, liquid limit, plasticity index, and required compaction.
7. A Concrete pilot channel with a minimum width of 10 feet, and a minimum slope of 0.5% shall be constructed at the bottom of the detention pond. Privately maintained ponds shall have a concrete pilot channel with a minimum width of six (6) feet.
8. Private Detention Basins shall be designed with~~a~~ 10-ft. wide unobstructed maintenance access around the entire perimeter of the pond.
9. Public Detention Basins shall be designed with ~~a~~ 20-ft. wide unobstructed maintenance access around the entire perimeter of the pond.
10. Where deemed necessary by the City's Engineer, security fencing with a minimum height of six (6) feet shall encompass the detention storage area if the velocity, depth, or slopes create a potentially dangerous condition. The fence shall be designed to allow access for maintenance and so as not to restrict stormwater flow into or out of the detention basin. A maintenance equipment access ramp shall be provided for all detention facilities. The slope of the ramp shall not exceed 6H:1V and the minimum width shall be 12 feet.

B. Emergency Spillway, Overflow Path, and Freeboard:

1. A freeboard of one (1) foot will be required between the *"Flood Mitigation"* storm water surface elevation and top of bank.
2. An emergency spillway shall be provided at the flood mitigation maximum storage elevation with sufficient capacity to convey ~~the~~ *"Flood Mitigation"* storm inflow rates with six (6) inches

of freeboard. This is the peak of the inflow hydrograph coming into the pond and ~~should~~must not account for attenuation effects of the pond. Spillway requirements must also meet all appropriate State and Federal criteria.

3. An emergency overflow path, ~~must be provided that is~~ free of structures or obstructions, must be provided to convey the spillway design discharge to a downstream ROW or drainageway with adequate capacity for the discharge. No impediments to flow are allowed within the emergency overflow path (E.g.,~~, such as~~ fences, trees, parking areas, or buildings~~, etc~~). If a fence around a detention facility is needed to restrict access, the bottom of the fence must be elevated to provide a minimum of one foot of freeboard above the emergency overflow WSEL where the fence crosses the spillway. Nevertheless, fences across spillways should be avoided whenever possible.~~;~~ E~~e~~ven if the fence is elevated to the freeboard elevation, there is still the potential for the fence to catch debris floating on the water surface.

4. ~~The~~An emergency spillway ~~shall~~must be constructed of concrete.

5. Design calculations shall be provided for all spillways and outlet structures.

C. Landscaping Requirements:

1. All detention basins shall be designed with plantings that minimize erosion based on expected inundation frequencies. Design guidance is provided in the *iSWM™ Landscape Technical Manual Document*.

D. Multiple Use Guidance

Limited recreational equipment (such as picnic tables or playground equipment) and trees may be permitted in private detention facilities with the following restrictions:

1. U~~Provide u~~ser access must be provided at a maximum 10% slope in at least two (2) locations, or one (1) location that comprises not less than 20% of the perimeter of the facility.

2. No recreational equipment is permitted in any portion of the facility that lies more than 18 inches below the flood mitigation water surface elevation level of the facility.

3. Recreational structures ~~such as~~including, but not limited to, picnic tables and~~,~~ playground equipment~~, etc.~~ must be rust-resistant~~,~~ and anchored to the ground.

4. Mulch, wood chips, gravel, or rubberized pellets ~~will~~are not ~~be~~ permitted within ~~the~~a detention facility due to the likelihood of their floating into the outlet structure.

~~5. If recreational equipment is installed in the detention pond, the area designated for recreational use must be delineated with a post & cable fence, (or other means as approved by the City's Engineer), with signs warning users of the danger of proceeding beyond the designated areaallowable limits. CNo chain link fences will beare not allowed in the detention ponds.~~

6. Trees, shrubs, and other woody vegetation will not be permitted in the embankment of any detention facility ~~, nor within~~or in the maintenance access area around such a~~the~~ facility.

7. A~~Isolated trees, a~~ maximum of one (1) isolated tree per 5,600 sq. ft.~~,~~ may be permitted in the recreational area of the pond~~ as described above~~. A trash rack ~~will be necessary~~ must be used to prevent clogging of the outlet structure. No bark mulch ~~will be permitted~~may be used around ~~the~~ trees.

E. Retaining Walls

1. Any freestanding retaining wall used to detain water must be designed by a structural engineer to withstand the expected hydraulic forces when the detention area is filled to capacity. These walls must be constructed using reinforced concrete.

2. Any inlet or outlet pipe connections to retaining walls must be designed with a reinforced concrete headwall. The height of this headwall shall match the height of the adjacent retaining wall. The most recent TxDOT details for concrete headwalls shall be used to determine other headwall dimensions and reinforced schedule.

4.9.3 Design Criteria for Underground Detention Facilities

Underground detention is highly discouraged because of the potential for deferred maintenance, the difficult and potentially hazardous nature of access for maintenance, and issues related to anaerobic conditions and pollutant mobility from ~~for~~ devices that retain water between events. In any instance where underground detention is contemplated, thorough consideration must be given to the concerns described above to ensure ongoing inspection, maintenance, and functionality. Care should be taken to address material selection for underground detention due to the potential for adverse soil conditions to inhibit the system from functioning properly. A geotechnical engineer ~~should~~shall be consulted to ensure soil and other conditions are appropriate for the selected detention material.

A. Underground detention facilities shall be designed with reinforced concrete and have a minimum pipe diameter of 30 inches to allow for safe access and maintenance of the facility.

B. If an underground vault has multiple chambers, access openings with a maximum spacing of 500 feet must be provided for each chamber. ~~with a maximum spacing of 500 feet.~~

C. Underground facilities must be located to enable safe access for maintenance and minimize disruption of aboveground uses during maintenance. A~~Do not locate a~~ccess openings shall not be placed in areas that are routinely used for parking.

D. Easements must be provided for all underground detention facilities. If underground detention facilities are bound by private property, the~~.~~ ~~Such~~ easements must include an additional four (4) feet from the perimeter of the~~underground detention~~ facilities~~/devices if bound by private property~~.

E. Underground detention and water quality facilities are prohibited underneath buildings, walls, or other structures.

F. ~~The~~Every Stormwater Facility Maintenance Agreement ~~for~~ involving underground detention and water quality facilities must include ~~quarterly~~ inspection and maintenance requirements to be performed quarterly and ~~as well as inspection and maintenance~~ following any rainfall event of 0.5 inches or more. The inspection and maintenance frequency may be reduced after five (5) years of operation, if the owner demonstrates that a lesser frequency is appropriate.

G. A surface emergency overflow path, ~~with sufficient capacity to convey *"Flood Mitigation"* storm inflow rates,~~ ~~that is~~ free of obstructions, must be provided for all underground detention facilities. The emergency overflow path must have sufficient capacity to convey ~~the~~ *"Flood Mitigation"* storm inflow rates to the underground detention facility. This is the peak of the inflow hydrograph coming into the underground detention facility, and must~~should~~ not account for any attenuation effects from the facility. ~~Note that,~~ T~~t~~he criteria for emergency overflow paths for surface detention facilities denoted in Section 4.9.2 above~~,~~ also apply to underground detention facilities.

H. Outlets from underground detention must consist of a pipe that can convey 120% of the 100-year

outflow, with a minimum diameter of 12 inches. The invert of the outlet pipe must be at the lowest point in the detention facility to ensure that it fully drains.

4.9.4 Design Criteria for Parking Lot Detention

Parking lot detention may be allowed if the following minimum criteria are met:

A. Use of parking lot surface area as detention is permitted, but only up to the lowest curb elevation of the parking lot.

B. The maximum ponding depth for the 100-year storm ~~is~~ must be no more than 12 inches at the deepest point.

C. The outlet ~~is~~must be ~~-~~designed to minimize modifications that affect detention functions. The applicant must evaluate potential future resurfacing activities for impacts to detention volumes and release rates.

D. Ponding water in frequently used portions of parking lots must be avoided. At least two signs are required for all parking lot detention areas. The signs must have a minimum area of 1.5 square feet and contain the following message:

WARNING

This area is a detention basin and is subject to periodic

flooding to a depth of (provide design depth).

Sign materials, geometry, and location must be submitted to Development Facilitation and approved by the City's Engineer.

4.9.5 Design Criteria for Pumped Detention

A. A detention facility ~~cannot~~may not rely on a pump or other mechanical equipment to drain water during ~~the~~ a design storm.

~~A. Dry detention basins are sized to temporarily store the volume of runoff required to provide flood protection up to the "*Flood Mitigation*" storm.~~

~~B. Routing calculations must be used to demonstrate that the storage volume and outlet structure configuration complies with Section 4.5.3 Section 3.2.2.2 of the Stormwater Design Criteria Manual. Outlet structures shall be designed per Section 2.2 of the Hydraulics Technical Manual. Refer to Section 2.2.3 of the Hydraulics Technical Manual for design of extended detention (for Water Quality) outlets.~~

~~C. Private Detention Basins shall be designed with a 10-foot wide unobstructed maintenance access around the entire perimeter of the pond.~~

~~D. Public Detention Basins shall be designed with a 20-foot wide unobstructed maintenance access around the entire perimeter of the pond.~~

~~E. No earthen (grassed) embankment slopes shall exceed 4:1. Concrete lined embankment slopes shall not exceed 2:1 slope. Vertical walls may be allowed but must be structurally designed to account for inundation of the base and drawdown upon pond draining and must have a six-foot security fence at the top.~~

~~F. The side slope for any excavated detention basin, which is not in rock shall not exceed a 4:1 slope.~~

G. ~~A freeboard of 1-foot will be required between the flood mitigation storm water surface elevation and top of bank.~~

H. ~~A calculation summary shall be provided on construction plans as found on computation sheet 10-1 or equivalent. Stage-storage-discharge values shall be tabulated and flow calculations for discharge structures shall be shown on the construction plans. Detention design shall follow *i*SWM™ guidelines. It is the responsibility of the Engineer of Record to use appropriate methodologies presented in *i*SWM™ based on specific basin characteristics. Detailed calculations and a design narrative shall be provided for review in a supplemental report that is referenced on the construction plans. In general, the narrative shall provide basic design information, such as hydrologic method applied, design assumptions, pre- and post-development site conditions, downstream constraints, environmental considerations and design software version used, if applicable.~~

I. ~~An emergency spillway shall be provided at the flood mitigation maximum storage elevation with sufficient capacity to convey the flood mitigation storm inflow rates with six inches of freeboard. Spillway requirements must also meet all appropriate state and Federal criteria.~~

J. ~~The emergency spillway shall be constructed of concrete, unless the City Engineer or designee approves alternative materials.~~

K. ~~All detention basins shall be designed with plantings that minimize erosion based on expected inundation frequencies. Design guidance is provided in the .~~

L. ~~Design calculations will be provided for all spillways and outlet structures.~~

M. ~~Storage and dam safety design may be subject to the requirements of the Texas Dam Safety Program based on the volume, dam height, and level of hazard. Earthen embankments 6 feet in height or greater shall be designed per Texas Commission on Environmental Quality guidelines for dam safety (see the for current dam safety criteria).~~

N. ~~Armored slopes shall be no steeper than 2:1.~~

O. ~~The embankment crown width shall be determined based on a geotechnical investigation of the detention facility site. Minimum width shall be 12 feet.~~

P. ~~Earthen embankments used to impound detention water must have a non-permeable core and shall be based on a geotechnical investigation of the site. The geotechnical investigation shall be performed by a licensed engineer and shall include at a minimum the type of material on-site (or other material to be used in the embankment), moisture content, liquid limit, plasticity index, and required compaction.~~

Q. ~~Where deemed necessary by the City Engineer or designee, security fencing with a minimum height of 6 feet shall encompass the detention storage area if the velocity, depth, or slopes create a potentially dangerous condition. The fence shall be designed to allow access for maintenance and so as not to restrict stormwater flow into or out of the detention basin. Unless approved by the City Engineer or designee, a maintenance equipment access ramp shall be provided for all detention facilities. The slope of the ramp shall not exceed 6:1 and the minimum width shall be 12 feet.~~

R. ~~Bottom slopes should not be less than one (1%) percent.~~

S. ~~Concrete pilot channel at least ten (10) feet wide, and a minimum slope of 0.5 percent shall be constructed in the bottom of the detention pond. Privately maintained ponds shall have a concrete pilot channel with a minimum width of six (6) feet.~~

~~T. Limited recreational equipment (such as picnic tables or playground equipment) and trees may be permitted in private detention facilities with the following restrictions:~~

~~1. Provide user access at a maximum 10% slope in at least two locations (or one location that comprises not less than 20% of the perimeter of the facility);~~

~~2. No recreational equipment is permitted in any portion of the facility that lies more than 18" below the flood mitigation level of the facility;~~

~~3. Recreational structures such as picnic tables, playground equipment, etc. must be rust resistant, and anchored to the ground;~~

~~4. Mulch, wood chips, gravel or rubberized pellets will not be permitted within the detention facility due to the likelihood of floating into the outlet structure;~~

~~5. If recreational equipment is installed in the detention pond, the area designated for recreational use must be delineated with a post & cable fence (or other means as approved by the City Engineer), with signs warning users of the danger of proceeding beyond the allowable limits. No chain link fence will be allowed in the detention pond;~~

~~6. Trees, shrubs and other woody vegetation will not be permitted in the embankment of any detention facility, nor within the maintenance access area around the facility;~~

~~7. Isolated trees, a maximum of one per 5,600 square feet, may be permitted in the recreational area of the pond as described above. A trash rack will be necessary to prevent clogging of the outlet structure. No bark mulch will be permitted around the trees.~~

~~U. All private detention basins shall require an Operation and Maintenance Manual submitted at time of building permit submittal or with the publicly reviewed engineering plans. Private detention basins shall be inspected by Public Works Inspection to ensure conformity to the design standards required by . Current inspection fees will apply.~~

~~V. Use of parking lot surface area as detention is permitted, but only up to the lowest curb elevation of the parking lot~~designed~~.~~

~~4.7.6~~4.9.6 Outlet Structures for Detention Facilities

A. Design Frequency

1. *"Water Quality"* storm
2. *"Streambank P~~p~~rotection"* s~~s~~torm
3. *"Conveyance"* s~~S~~torm
4. *"Flood M~~m~~itigation"* s~~s~~torm

B. Design Criteria

1. Outlet structures shall be designed ~~per~~in accordance with section 2.2 of the *iSWM™ Hydraulics Technical Manual*~~.~~; For water quality, r~~R~~efer to Section 2.2.3 for design of extended detention ~~(for Water Quality)~~ outlets.

~~1.~~2. ~~Estimate the~~The required storage volumes for *"W~~w~~ater Q~~q~~uality"*, ~~—~~*"~~s~~Streambank P~~p~~rotection"*, *"C~~c~~onveyance"* ~~storm~~, and *"Flood Mitigation"* ~~flood mitigation~~storm events must be estimated.

~~2.~~3. Outlet velocities shall be within the maximum allowable range based on channel material, as

shown in Table 4.6-D and Table 4.6-E.~~Tables 4.7-E and 4.7-F.~~

~~3.~~4. O~~Design necessary o~~utlet protection and energy dissipation facilities must be designed to avoid erosion problems downstream from outlet devices and emergency spillway(s).

~~4.~~5. ~~Perform~~ B~~b~~uoyancy calculations must be performed for the outlet structure and footing to ensure the outlet structure will not float. Flotation will occur when the weight of the structure is less than or equal to the buoyant force exerted by the water.

~~5.~~6. Any outflow structure that~~, which~~ conveys water through ~~the~~ an embankment in a conduit shall be reinforced concrete~~,~~ designed to support the external loads. The conduit shall be able to withstand the internal hydraulic pressure without leakage under full external load or settlement and must convey water at the design velocity without damage to the interior surface of the conduit.

~~6.~~7. The minimum pipe size and box size shall meet the requirements as shown below in Table 4.9~~10~~-A. T~~(t~~hese minimum sizes apply even when used in conjunction with weirs or other flow control devices~~,~~ and must be accessible for maintenance~~).~~:

Table 4.9-A: Outlet Pipe and Box Size

Discharge Pipe Length	Minimum Pipe Size ~~(inches)~~	Minimum Box Size
100 feet or less	18 inches	2~~-feet~~ x 2~~-feet~~
Greater than 100 feet	36 inches	3~~-feet~~ x 3~~-feet~~

~~7.~~8. The m~~M~~inimum opening of an inlet shall be six (6) inches in diameter or a 6~~6~~-in. by ~~" x~~ 6-in.~~"~~ square. Smaller inlet openings may be used with a junction box and properly sized outlet structure.

9. Inlet openings less than one (1) sq. ft. in area shall be designed with trash racks to protect from clogging. The face of the trash rack should extend a minimum of six (6) inches from the face of the inlet opening.

10. Any top orifice on an outlet riser must be designed with a grate to prevent fall injuries.

~~8.~~11. A concrete headwall and wingwalls shall be constructed at the outlet pipe opening. Orientation of the wingwalls will be governed by site specific conditions. Headwalls and wingwalls shall be designed to ~~Texas Department of Transportation (~~TxX~~X~~DOT~~)~~ standards.

~~9.~~12. Design guidance is in Section 2.2 of the *i*SWM™ Hydraulics Technical Manual.

COMPUTATION SHEET 10–1

DETENTION POND DESIGN

PRINCIPLE SPILLWAY :

Description : _____

Elevation : _____

EMERGENCY SPILLWAY :

Description : _____

Elevation : _____

STORAGE–OUTFLOW RELATIONSHIP			
POND ELEV	STORAGE		OUTFLOW (cfs)
	DEPTH (ft)	VOLUME (ac–ft)	
1	2	3	4

HYDROGRAPH DATA									
DESIGN FREQUENCY	PRESENT WATERSHED DEVELOPMENT		ULTIMATE WATERSHED DEVELOPMENT		PROPOSED POND OUTFLOW		POND ELEVATION (ft MSL)	POND STORAGE (ac–ft.)	POND TIME TO PEAK (min.)
	TIME TO PEAK (min)	PEAK FLOW (cfs)	TIME TO PEAK (min)	PEAK FLOW (cfs)	TIME TO PEAK (min)	PEAK FLOW (cfs)			
	5	6	7	8	9	10	11	12	13
5–YR									
10–YR									
25–YR									
50–YR									
100–YR									
–PMF*									

COMPUTATION SHEET 10–1

Figure 4.9~~4.9.4.9~~ Computation Sheet ~~(10-1)~~ for Detention Pond Design

~~4.8~~4.10 Energy Dissipation

All drainage system outlets, whether for closed conduits, culverts, bridges, open channels, or storage facilities, shall provide energy dissipation when necessary to protect the receiving drainage element from erosion.

4.10.1 Design Frequency

A. *"Flood Mitigation"* storm

~~4.8.1~~4.10.2 Design Criteria

~~W. *Energy dissipaters* are engineered devices such as rip-rap aprons or concrete baffles placed at the outlet of storm water conveyance systems for the purpose of reducing the velocity, energy and turbulence of the discharged flow.~~

A. Erosion problems at culvert, pipe and engineered channel outlets are common. Determination of the flow conditions, scour potential, and channel erosion resistance shall be standard procedure for all designs.

B. Energy dissipaters shall be employed whenever the velocity of flows leaving a stormwater management facility exceeds the erosion velocity of the downstream area channel system.

C. Energy dissipater designs will vary based on discharge specifics and tailwater conditions.

D. Outlet structures shall provide uniform redistribution or spreading of the flow without excessive separation and turbulence.

~~4.8.2 Recommended Energy Dissipator for outlet protection~~

~~A. Concrete or grouted rock rip-rap apron~~

~~B. Riprap outlet basins~~

~~C. Baffled outlets~~

~~D. Grade Control Structures~~

~~Design guidance is provided in .~~

4.10.3 Recommended Energy Dissipater for outlet protection

E. Concrete or grouted rock riprap apron

F. Riprap outlet basins

G. Baffled outlets

H. Grade Control Structures

Design guidance is provided in Section 4.0 of the *i*SWM™ Hydraulics Technical Manual.

~~4.9~~4.11 Floodplain

~~4.9.1~~4.11.1 Floodplain Development Criteria

A. ~~unless specifically permitted by the Ordinance. Such uses allowed by the Ordinance must be nonstructural and cannot restrict the flow of flood waters such as utility lines, docks, pipelines, etc. However Floodplain reclamation activities must comply with all ESA requirments.~~Floodplain alterations shall be allowed only if all the following criteria are met:

1. An approved Floodplain Development Permit must be issued by the City before any development is done within the floodplain.
2. Flood studies shall include flows generated for existing conditions and fully-developed conditions for the 10, 50, 100, and 500-year storm events.
3. Alterations shall not increase the 100-year fully-developed water surface elevation on other properties.
4. Alterations to the regulatory Floodway shall not increase the 100-year fully-developed water surface elevation at any point.
5. Alterations shall be in compliance with ~~the~~ Federal Emergency Management Agency (FEMA) guidelines.
6. Alterations of the floodplain shall meet the requirements of Section 4.5 of this Manual.
7. Alterations shall result in no loss of valley storage for a Major Creek, as defined by the DDC, and a 15% maximum loss of valley storage for any other tributary for any reach, except at bridge and culvert crossings where it can be proven that there are no detrimental effects upstream or downstream.
8. A~~Any a~~lteration of floodplain areas shall not cause any additional expense, including maintenance, ~~in~~related to any current or projected public improvements~~, including maintenance~~.
9. The floodplain shall be altered only to the extent permitted by equal conveyance on both sides of the natural channel, as defined by the USACE in a HEC-RAS analysis. The right of equal conveyance applies to all owners and uses, including greenbelt, park areas, and recreational areas. Owners may relinquish their right to equal conveyance by providing a written agreement to the City's Engineer.
10. A grading permit and/or construction plan approval shall be required to perform any grading activities on site.
11. The toe of any fill shall parallel the natural direction of the flow.
12. Floodplain alterations shall incorporate and consider other City planning documents and ordinances such as the Tree Preservation Ordinance (Section 7.7.4 - DDC), the Subdivision Ordinance (Subchapter 8 - DDC) , and the ~~Floodplain Ordinance~~ Flood Prevention and Protection Ordinance (Chapter 30 - City of Denton, Code of Ordinances).
13. Unless a pre-existing model is in place, USACE's HEC-HMS and HEC-RAS shall be used. A request to use another type of hydrologic or hydraulic model must be submitted ~~to the City's Engineer~~ for approval through a design deviation request. The Modified Puls method shall

be used for flood routing information to ensure that the cumulative effects of the reduction in floodplain storage of floodwater will not cause downstream or upstream increases in water surface elevations and erosive velocities. If the Modified Puls method is not feasible, a request to use another type of flood routing method must be submitted ~~to City's Engineer~~ for approval through a design deviation request.

B. The engineer of record is responsible for providing documentation of the relevant USACE approved permits prior to beginning modification ~~to~~of the floodplain and prior to causing any~~, or~~ impact~~s~~s to the WOTUS. ~~nited States~~. If applicable, the engineer of record is also responsible for~~, or for~~ providing a signed and sealed statement detailing why such permits are unnecessary.

C. Verification of Floodplain Alterations:

1. The owner and/or ~~/~~developer shall furnish, at their expense, to Development Services sufficient engineering information to confirm that the minimum FFEs proposed ~~are as required by~~ meet the requirements of the Flood Prevention O~~o~~rdinance.

2. Construction plans will not be released for construction within areas subject to a Conditional Letter of Map Revision (CLOMR) or amendment until such plans are accepted by ~~the~~ Development Services and FEMA.

3. Letters of Map Revision (LOMR) applications shall be submitted to Development Services (i) ~~prior to submittal to FEMA~~ no later than 60-days from the City's final acceptance of the construction and (ii) prior to submittal to FEMA.

4. All submittals to FEMA shall be submitted to Development Services prior to submittal to FEMA. A copy of all responses to FEMA comments shall be submitted to the City.

D. Development within the floodplain which does not result in any change to the topography, the amount or location of impervious area, or any change in the characteristics of the floodplain cross-section, such as underground utility construction, may not require a flood study, CLOMR, LOMR, or DSA unless requested by the City.

The following decision charts ~~is~~are~~chart is~~ intended to consolidate the floodplain development criteria in the City of Denton. ~~–~~They~~It~~ reference~~s~~ information found in the ~~Denton Development Code (~~DDC~~)~~ Subchapters 7.4 and 7.5, the Code of the City of Denton, Texas, Chapter 30~~ of the Denton Municipal Code~~, and this~~ Criteria~~ Manual. ~~It is~~They are not ~~to be considered~~ an exhaustive list of criteria ~~but~~ and ~~is~~ are only to be used as guidance ~~to the~~as to the information provided in the above-referenced documents. ~~-~~Criteria in those documents supersedes the~~is~~ decision charts.

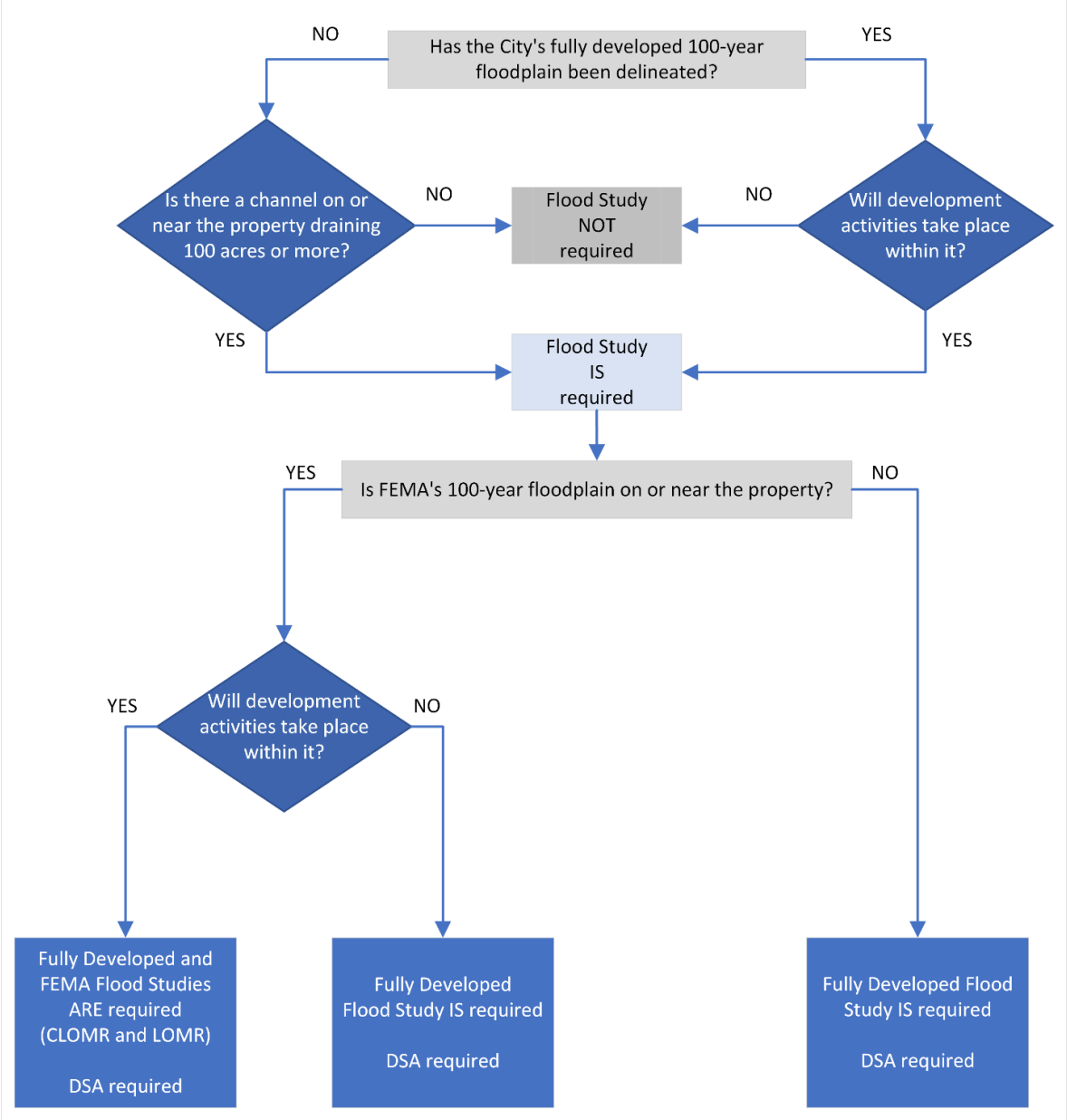


Figure 4.10~~4.10~~4.10 Flood Study Decision Chart

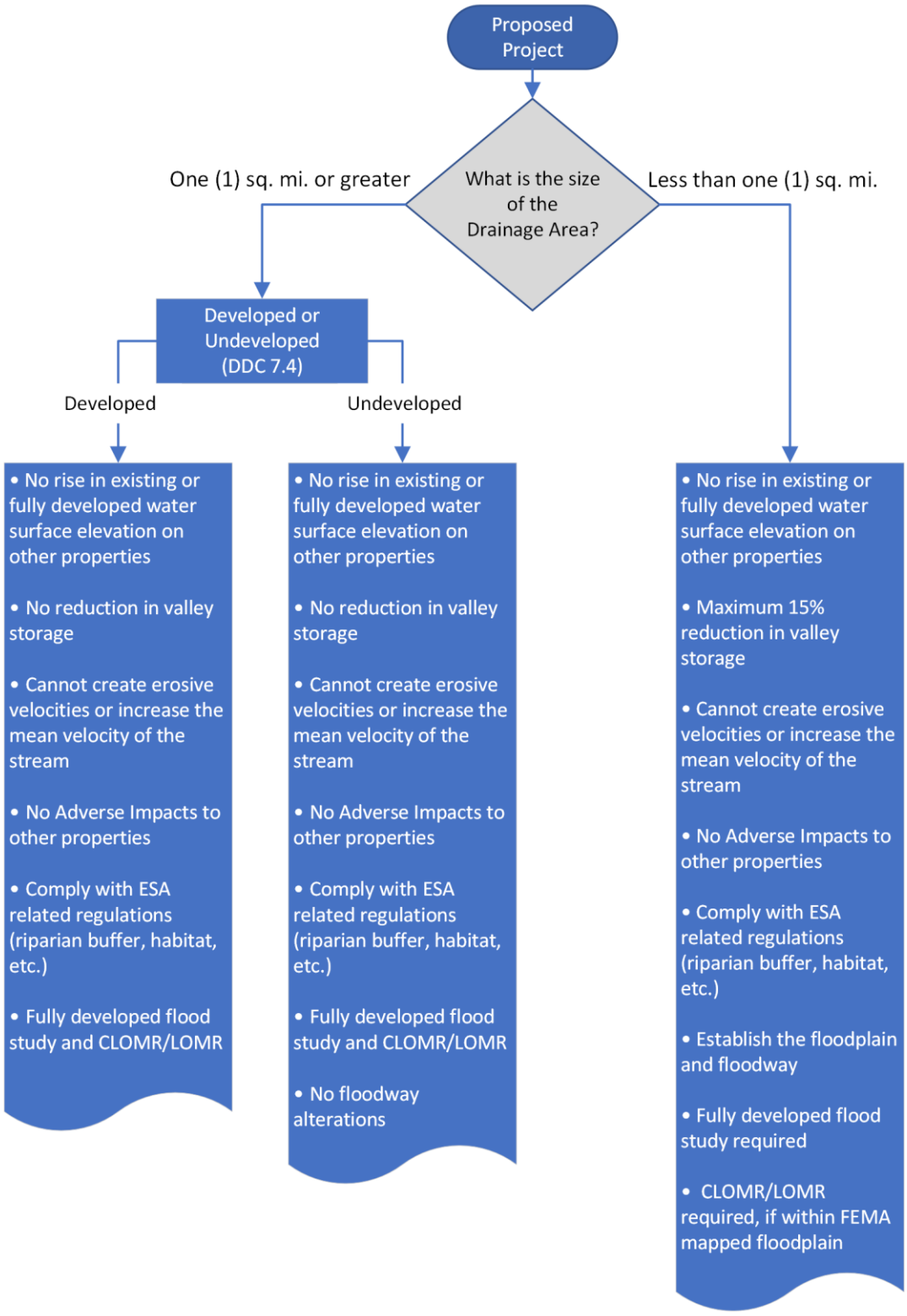


Figure 4.11~~4.114.11~~ Summarized Floodplain Development Procedure

~~4.9.2~~4.11.2 Procedures for Floodplain Alteration ~~of Drainage areas with one square mile or less~~

~~Fill and alteration of floodplains, containing drainage areas one (1) square mile or less, when it is not unreasonably damaging to the environment, is permitted where it will not create other flood problems.~~ Floodplain development is permitted when it complies with all requirements of the DDC, Flood Prevention Ordinance, and this Manual. The following are the engineering criteria for such requests.

Developments which impact designated ~~Federal Emergency Management Agency (~~FEMA~~)~~ flood plains in the City (Zones AE, A, and X shaded) ~~will be required to~~shall submit ~~the~~ minimum data ~~which shall be sent~~ required by FEMA, indicated on the City's CLOMR submittal checklist, and/or indicated in this M~~m~~anual to FEMA for conditional approval ~~of the proposed project~~. The Conditional Letter of Map Revision (CLOMR) shall be submitted to the City prior to approval of any Zoning Compliance Plan~~preliminary plat~~. Approval of ~~(~~CLOMR~~)~~ from FEMA will be required prior to acceptance of ~~a final plat~~~~the~~ Civil Engineering Plans.

A. A written description of the scope of the proposed project and the methodology used to analyze the project's effects.

B. Hydraulic backwater models for ~~of the~~~~the~~ -10, 50, 100, and 500-year floods for the following:
   1. Duplicate of the effective ~~Flood Insurance Study (~~FIS~~)~~ model. The model must include:~~;~~
      a. Existing conditions (effective FIS model including cross-sections through the project site. All cross-sections should reflect conditions prior to construction of the project); and
      b. Proposed conditions (existing conditions model reflecting the proposed project).~~; and~~

C. Floodway hydraulic backwater models of the following:
   1. Duplicate effective;
   2. Existing condition; and
   3. Proposed conditions.

D. ~~A~~In all the above hydraulic models, the following rules will apply:
   1. The hydraulic parameters, such as bridge loss coefficients, "*n*" values, etc., used in the effective FIS models will only be changed where obvious errors or changes have taken place and must be documented;~~.~~
   2. The computed water surface elevation profiles must converge with the existing profiles; and~~.~~
   3. ~~The li~~information should be shown on a map of suitable scale and topographic definition to provide reasonable accuracy.

~~D.~~E. A -copy of the ~~Flood Insurance Rate Map~~FIRM with the project area indicated.

~~E.~~F. Topographic mapping of the entire area covered by the proposed condition model, indicating the locations of all cross-sections used in the hydraulic model and delineating the proposed 100-year flood plain boundary.

~~F.~~G. Topographic mapping of the entire area covered by the proposed conditions model, indicating the locations of all cross-sections used in the hydraulic model and delineating:
   1. The proposed 100-year and 500-year floodplain boundaries; and
   2. The proposed floodway boundary.

~~G.~~H. ~~Certification that the project meets~~Projects must comply with the requirements of ~~the~~ Title ~~44 Code~~ 44 C.F.R. ~~of Federal Regulations~~ § 60.3~~-~~(d)~~-~~(2).

~~H.~~ Upon completion of the proposed project, "as-built" and final LOMR plans certified by a ~~registered~~ P~~p~~rofessional E~~e~~ngineer~~,~~ licensed by the State of Texas~~,~~ shall be submitted to the City for review and subsequent transmittal to FEMA. FEMA requires that individual legal notices be sent to all affected property owners when development~~s~~ (cut or fill) ~~occurs~~ occurs in the regulatory floodway and would ~~that would~~ cause any rise in the 100-year FIS water surface elevation. Public notice in the official community newspaper is required for proposed modifications to the regulatory floodway. ~~In all the above hydraulic models, the following rules will apply:~~

~~I. The hydraulic parameters, such as bridge loss coefficients, "n" values, etc., used in the effective FIS models will only be changed where obvious errors or changes have taken place and must be documented.~~

~~J. The computed water surface elevation profiles must converge with the existing profiles.~~

~~K.~~I. ~~The information should be shown on a map of suitable scale and topographic definition to provide reasonable accuracy.~~

~~L.~~J. All items should be labeled for easy cross-referencing to the hydraulic model and summary data.

~~M.~~K. FEMA may have questions regarding the project. The engineer of record must address all of FEMA's comments. It is not anticipated, but if revisions to the development are required by FEMA, the developer ~~will be~~is responsible ~~to do so~~for making the changes.

~~4.9.3~~4.11.3 Fully Developed Water Surface Elevation Calculations

A. The following hydraulic data should be submitted to the City, preferably using the ~~Corps~~ USACE HEC-RAS program to compute the channel's water surface elevation. The data should be submitted electronically as part of the CLOMR, LOMR, or flood study submittal.

1. Duplicate of the effective City fully developed backwater model or as developed by developer or property owner and approved by the City.
2. Modified existing condition backwater model – this model should include pre-development cross-sections through the project si~~d~~te obtained from field surveys or updated topographic information.
3. Proposed condition reflecting the development's impact on the flood plain area.
4. Water surface elevation and velocity summary tables tabulating the results of the above analysis.
5. Topographic map at a suitable scale with cross-sections that delineates the~~,~~ existing and proposed ~~one percent~~1% chance (100-year) fully developed flood plain ~~delineated,~~ and shows the area being developed. ~~shown.~~
6. Analysis of the existing and proposed valley storage conditions of the area.
7. Documentation from the ~~Corps of Engineers~~USACE determining if a 404 permit is required for the project.

~~4.9.4~~4.11.4 Floodplain Alteration Guidelines

A. Side Slopes

1. To ensure maximum accessibility to the floodplain for maintenance and other purposes, and to lessen the probability of slope erosion during periods of high water, maximum slopes of filled area shall usually not exceed 4H:1V~~ feet horizontal to 1 foot vertical~~. Grass cover is required for all cut and fill slopes unless other armoring is required. Concrete rip~~-~~rap or an approved equal erosion protection measure is required on slopes steeper than 4H:1V. Vertical walls, terracing and other slope treatments will be considered only as:

   a. Part of a landscaping plan submission, and

   b. If no unbalancing of stream flow results.

B. Vegetation/Landscaping

1. Engineering plan submission shall include plans for:

   a. Erosion control of cut and fill slopes~~;~~;

   b. Restoration of excavated areas; and~~; and~~

   c. Tree protection in and below fill areas.

2. Landscaping should incorporate natural materials (earth, stone, and wood) on cut or fill slopes wherever possible.

3. Applicant shall show in the plan the general nature and extent of existing vegetation on the tract, the location of trees in accordance with the requirements of the tree survey required by Section 7.7.4.E of the DDC~~)~~, the areas which will be preserved, altered, or removed as a result of the proposed alterations.

4. Locations and construction details should be provided, showing how trees will be preserved in areas which will be altered by filling or paving within the drip line of those trees.

5. Applicant shall also submit plans showing location, type, and size of new plant materials and other landscape features planned for altered flood plain areas.

~~4.10~~4.12 ~~Drainage and Floodplain~~ Easements ~~and Fences~~

~~4.10.1~~4.12.1 General

A. Drainage and floodplain easements shall be provided for all open natural streams or manmade drainage facilities. Easements shall encompass all areas lower than a ground elevation defined as being the highest of the following:

1. ~~Fifteen (~~15~~)~~ feet outside the calculated fully developed water surface elevation and associated flood boundary based on a design storm whose frequency is 100 years. All contributing watersheds are to be treated as fully developed for purposes of calculating the water surface elevation.

2. The top of the high bank plus a minimum of 20 feet, if higher than stated in A.1. ~~(1)~~ above.

3. Existing natural banks with a slope steeper than 4H:1V shall have the easement line no closer than the intersection of a 4H:1V line extending from the toe of the slope to the proposed grade at the top of the bank, plus an additional ~~fifteen (~~15~~)~~ feet.

4. Additional access area may be required according to the S~~s~~ection 4.12.2 below.

B. ~~No driveways, sidewalks, patios, etc. shall be placed in a drainage easement, except where the~~

~~easement is a public or private open space or park, Ppedestrian and vehicle access may be provided as determined by the City's Engineer Engineer or designee.~~

~~4.10.2~~4.12.2 Storm Drain Easements

A. Above Ground Systems

Where an access road is required adjacent to a channel, an additional easement area of a minimum width of ~~fifteen (~~15~~)~~ feet shall be provided. The maximum cross slope shall be 25~~ percent~~%. ~~-~~All access roads adjacent to improved channels shall be located within the drainage easement.

1. No structures, pavement, landscaping or other above-ground man-made improvements shall be placed in a drainage easement, except where the easement is a public or private open space or park. Any such improvement within a drainage easement must be approved through a design deviation request.

~~No driveways, sidewalks, patios, etc. shall be placed in a drainage easement except where the easement is a public or private open space or park, pedestrian and vehicle access may be provided as determined by the City Engineer or designee.~~

B. Closed Systems

1. Easements for closed drainage systems shall meet the following minimum standards as shown below in Table 4.12~~3~~-A~~, unless special circumstances warrant additional or reduced easements, as determined by~~ the City ~~'s EngineerEngineer or designee.:~~

Table 4.12-A: Easement Requirements for Closed Drainage Systems

Pipe or Box Size	Minimum Easement Width (feet)
36 inches and under	16
42 to 54 inches	20
60 to 66 inches	25
72 inches and above	30

2. Utilities such as water and sanitary sewer lines may share a portion of a drainage easement, containing an underground enclosed drainage system where an additional easement width for a minimum of ~~ten (~~10~~)~~ feet is added to create a public drainage and utility easement. ~~–~~No utilities shall be located in any lined channel, pipe, or box in such a way as to interfere with flow capacity or maintenance of or access to the channel, pipe or box.

3. A drainage easement shall be provided for the area within a required outfall channel or ditch to the point where the flowline "day lights" on natural grade or matches existing topography.

4. To provide for maintenance, a drainage easement shall be provided at least ~~twenty-five (~~25~~)~~ feet beyond any outfall headwall.

5. No structures, pavement, landscaping or other above-ground man-made improvements shall be placed in a drainage easement containing a closed drainage facility. ~~No driveways, sidewalks, patios, etc. shall be placed in a drainage easement except where storm sewer system is enclosed and is designed for~~ the ~~100-year storm, unless the~~is ~~easement serves a~~

~~positive emergency overflow route~~.

4.12.3 Channel Access

A. Access areas and ramps shall be provided for all publicly maintained channels to allow for maintenance of the channels. These access areas and ramps shall be contained within a drainage easement. Access areas shall have a width of at least 12 feet, ~~and~~ a minimum cross slope of 2%, and a maximum cross slope of 5%.

B. Access easements shall be provided from the public ROW to the access area, if the access area is not directly connected to the public ROW. Access easements shall remain free of obstacles that block the use of the easement, including ungated fencing across the easement.

C. A concrete drive approach serving the access easement must be available and free of obstructions. Any sidewalk crossing the access easement must be constructed using a residential street cross-section, or otherwise designed to accommodate vehicle loads so that equipment may use the access easement without damaging the sidewalk.

D. Access to all improved earthen channels shall be provided by one (1) of the following methods, depending on the size and depth of the channel~~as approved by the City's Engineer~~:

1. A clear access area must be provided on one side of the improved earthen channel along the full length of the channel. ~~By providing aA combination of the bottom access and clear access on one (1) side of the channel, if the depth of the channel will allow maintenance from the top of the channel~~; or~~.~~

2. If the channel is deeper than 4 feet or has a top width greater than 25 feet, an access area must be provided on both sides along the full length of the channel. These access areas shall have a width of at least 15 feet, a minimum cross slope of 2%, and a maximum cross slope of 5% ~~For channels exceeding a depth of four (4) feet or 4H:1V side slopes and where the method in D.1. would not sufficiently provide for maintenance of the channel access area – clear access in an easement shall be provided on both sides of the channel where none of the other methods would be sufficient to provide for maintenance of the channel access area~~.

E. All lined channels, and earthen channels with concrete pilot channels shall have a minimum bottom width of ten (10) feet and shall be provided with concrete access ramps ~~located as directed by the City's Engineer~~. Concrete access ramps shall have a minimum width of 12 feet, maximum slope of 6H:1V, and maximum cross slope of 5%. All access roads shall be located within a dedicated easement. Access road pavement cross-sections shall confo~~i~~rm to the standards of the concrete ~~alley~~ residential street cross-section detail located in the City of Denton Standard Details.

~~4.10.3~~4.12.4 Detention Facilities Easements

A. Detention facility easements must encompass the entirety of the detention facility plus any required maintenance access areas adjacent or leading to the facility.

B. All detention maintenance access easements must be connected~~t~~ to ~~the~~a public ROW, be a minimum of 10 feet wide, and be free of obstructions which could prevent personnel and equipment from accessing the detention facility.~~.~~

4.12.5 Post-Construction Water Quality Control Structure Easements

A. All post-construction structural stormwater control structures must be ~~encompassed~~located within an inspection access easement. The intent of this easement is to allow City staff to access and inspect the control structure to ensure it is being maintained in accordance with the SWFMA. This easement ~~must~~ must be connected to a~~the~~ public ROW, be a minimum of five (5) feet wide, and be free of obstructions which could prevent City staff from accessing the control structure.

~~4.10.4~~4.12.6 Fences

A. Fences in drainage easements are prohibited by the ~~Denton Development Code~~DDC, except as specifically provided for below.

1. Fences in drainage easements that contain an underground stormwater system may contain any type of non-masonry fence if the fence is constructed with knock-out panels to facilitate maintenance.
2. Fences in drainage easements that contain overland flow may cross the easement if the fence is constructed with wrought iron (pickets and rails), pipe, or pipe and cable. Fence height, minimum picket spacing, and maximum ground clearance spacing shall be governed by appropriate child safety ~~provisions~~measures.
3. No fences are allowed across inlet or outlet structures of drainage detention facilities. Fences are permitted around the detention facility ~~which~~ if they do not block or inhibit the flow conveyance of the detention facility.
4. No fencing is allowed across easements which share water or wastewater facilities with the drainage facility.

B. Fences in ~~any~~ the floodplain are prohibited.

~~4.11~~4.13 Water Quality

~~4.11.1~~4.13.1 Water Quality Protection Volume

~~All new detention ponds must include provisions for detention of the Water Quality Protection Volume (WQv). See the for information regarding the design of this WQv and appropriate discharge design.~~It is recommended that ~~A~~all developments with ~~greater than~~ one (1) acre or more of disturbed land~~land~~ include site development controls necessary to remove 80% of the total suspended solids (TSS) from the water quality protection volume (WQ_V). *See* the *i*SWM™ Water Quality Protection Technical Manual for information regarding the design of this WQ_V and appropriate discharge design. *See* the *i*SWM™ Site Development Controls Technical Manual for information regarding ~~the~~ structural stormwater controls and their ability to remove pollutants in stormwater runoff to protect water quality. Any combination of structural stormwater controls may be used to achieve the recommended~~required!~~ 80% TSS removal from all runoff from impervious surfaces on the site.

The percent TSS removal (%TSS) that is achieved on a site can be calculated using ~~the~~ equation 4.8 below. This equation is an area-weighted TSS reduction equation that~~which~~ accounts for the TSS reduction ~~that is contributed from~~attributable to each stormwater treatment best management practice (BMP) that is utilized on the site.

$$\%TSS = \frac{\Sigma_n^1 (TSS_1A_1 + TSS_2A_2 + \ldots + TSS_nA_n)}{\Sigma_n^1 (A_1 + A_2 + \ldots + A_n)} \quad \text{[Eqn. 4.8]}$$

W~~w~~here: ~~:~~

TSS_n = TSS removal percentage for each structural BMP located on-site (%);

A_n = the area draining to each BMP (acres).

When two or more BMPs are used in series (stormwater discharges from one BMP into another), a different calculation is necessary. This scenario is called a ***treatment train***. Stormwater discharging from the upper most BMP will be considerably "cleaner" than the influent, meaning TSS particle sizes will be much smaller. Pollutant removal rates for BMPs used in a treatment train are not additive. To calculate the total % TSS removal for a treatment train comprised of two or more structural BMPs, the following equation should be used.

$$TSS_{train} = A + B - \frac{A \times B}{100} \quad \text{[Eqn. 4.9]}$$

W~~w~~here: ~~:~~

TSS_{train} ~~–~~= total TSS removal for treatment train (%);

A ~~–~~= % TSS removal of the first (upstream) BMP

B ~~–~~= % TSS removal of the second (downstream) BMP

4.13.2 Water Quality Hotspots

Not all structural stormwater controls are appropriate for receiving runoff from hotspots. Hotspots are land uses or activities which produce higher concentrations of trace metals, hydrocarbons, or other priority pollutants. Examples of hotspots might include: gas stations, convenience stores, marinas, public works storage areas, garbage transfer facilities, material storage sites, vehicle service and maintenance areas, commercial nurseries, vehicle washing/steam cleaning sites, landfills, construction sites, industrial sites, industrial rooftops, ~~and~~ auto salvage or recycling facilities, and dog parks. Only appropriate structural stormwater controls identified in the *i*SWM™ Site Development Controls Technical Manual may be used ~~as being appropriate~~ for receiving hotspot runoff ~~may be used for this purpose~~.

Facilities that discharge stormwater associated with industrial activity permitted under TCEQ Multi-~~-~~Sector General Permit (TXR050000) may incorporate WQ_v requirements into point source discharge control requirements.

4.13.3 Required Stormwater Facility Maintenance Agreements

All private post-construction structural stormwater controls shall require a SWFMA ~~Stormwater Facility Maintenance Agreement~~ in accordance with Section 4.14 of this manual.

~~4.11.2~~4.13.4 Construction Erosion and Sediment Control Requirements

All land-~~-~~disturbing activities must include provisions for erosion and sediment control in accordance with Section 7.3 (Land-~~-~~Disturbing Activities) of the DDC, the *i*SWM™ Water Quality Technical Manual ~~Document~~, the *i*SWM™ Construction Controls Technical Manual, ~~Document~~ and the *i*SWM™ Site Development Technical Manual ~~*Document*~~.

A. Two-phased erosion control plans are required for non-linear projects with land-disturbing

activities totaling five (5) acres or greater. Plans must be shown on separate sheets, and must also depict both existing and proposed contours.

~~1. Phased erosion control plans are not required when land- disturbing activities total less than five (5) acres.~~

~~2. For land disturbing activities five (5) acres or greater, a two-phased erosion control plan is required for all non-linear projects.~~

1. Phase 1 – Initial Land Disturbance: this phase must ~~depic~~utilize~~ts~~ –sediment and erosion controls ~~required~~ prior to initial land disturbing activities and include~~, as well as~~ structural controls that address low point runoff.

2. Phase 2 – Construction and Individual Lot Phase with Behind Curb Controls: this phase ~~depicts~~must require sediment and erosion controls ~~required~~ during the installation of public/private infrastructure and~~; it must also~~ include any controls to remain in place from Phase 1.

   a. Behind the curb controls shall be installed upon the completion of street segments~~,~~ and must be included in Phase 2.

B. Drainage area maps (DAMs) and calculations are required for all three (3) phases of development, as detailed below and shown in Figure 4.12.

1. Calculations for each phase shall utilize a two (2)-~~-~~year, 24-hour storm for the design of any hydraulic component of the erosion control plan including sediment basins, swales, channels, berm height, weir length, or any other outlet or conveyance structure required by the plan.

2. The DAM requirements for each Phase of development are as follows:

   a. Phase 1: Existing Conditions DAM – existing contours and flow arrows reflecting pre-development conditions.

   b. Phase 2: Mass Graded DAM – interim contours and flow arrows reflecting mass graded conditions prior to the public/private infrastructure installation stage.

   b. Phase 3: Proposed Conditions DAM – proposed contours and flow arrows reflecting post-construction, stabilized conditions.

~~A. Phased erosion control plans are required. Plans must include existing and proposed contours.~~

~~1. Initial grading phase.~~

~~2. Individual lot phase with behind curb controls.~~

   ~~a. Behind the curb controls shall be installed upon completion of street segments.~~

   ~~b. Identify areas of permanent inactivity and provide timeline for vegetative stabilization.~~

~~B. Drainage area maps and calculations are required for three phases of development. Calculations shall utilize a 2 year 24-hour storm for the design of any hydraulic component of the erosion control plan including sediment basins, swales, channels, berm height, weir length or any other outlet or conveyance structure required by the plan.~~

~~1. Existing pre-development conditions.~~

~~2. Mass graded conditions prior to public/private infrastructure installation stage.~~

~~3. Proposed post construction conditions.~~

~~1. See map examples on next page~~

C. ~~A sedimentation basin is required where 10 acres or more drain to a common area during any phase of development.~~A sedimentation basin or similar impoundment is required where 10 or more acres drain to a common area during any phase of development.

1. Sediment basin(s) or impoundments must provide at least 3,600 cubic feet (cu. ft.) of storage per acre drained until final stabilization of the contributing drainage area. Sedimentation basins or impoundments must be ~~designed for and appropriate for~~capable of controllingling runoff at the site. Existing detention or retention ponds at the site may not be appropriate, as determined by City review staff.

   a. Outlet structures shall be designed to provide a minimum dewatering time of 36 hours and a maximum dewatering time of 72 hours.

   b. ~~Decentralized treatment such as sediment traps may be used instead of sediment basins where the calculations are provided demonstrating equivalent volume treatment.~~~~Unless infeasible, when~~When discharging from sedimentation basins and impoundments, the permittee shall utilize outlet structures that withdraw water from the surface. If this is infeasible, a reason must be provided to City review staff during planning.

~~C.~~ Vegetative stabilization is required for all permanent and temporary channels and basins. Plant selection guidance is provided in the *i*SWM™ Landscape Technical Manual ~~*Document*~~.

D.

~~D.~~ Erosion and sediment control ~~Best Management Practices (~~BMP~~s)~~ design criteria shall adhere to the most current version of the *i*SWM™ Construction Controls Technical Manual, ~~*Document*~~ unless one of the following exceptions applies:~~.~~

E.

~~1.~~ Linear projects may ~~instead~~ follow Tx~~x~~DOT standards; or~~.~~

1.

2. Proprietary erosion or sediment control devices may be utilized when:

~~1.~~

   a. Independent performance data is provided to prove a demonstrated capability of meeting a stormwater management efficiency equivalent to *i*SWM™ methods; and~~.~~

   b. Supplementary data for systems or devices, such as instruction manuals and specification sheets, ~~must be~~are provided and are demonstrated to be appropriate for use in North Central Texas site conditions~~.~~, as determined by City review staff.

3. Filter Tube Inlet Protection and Rock Sock Inlet Protection methods are prohibited.

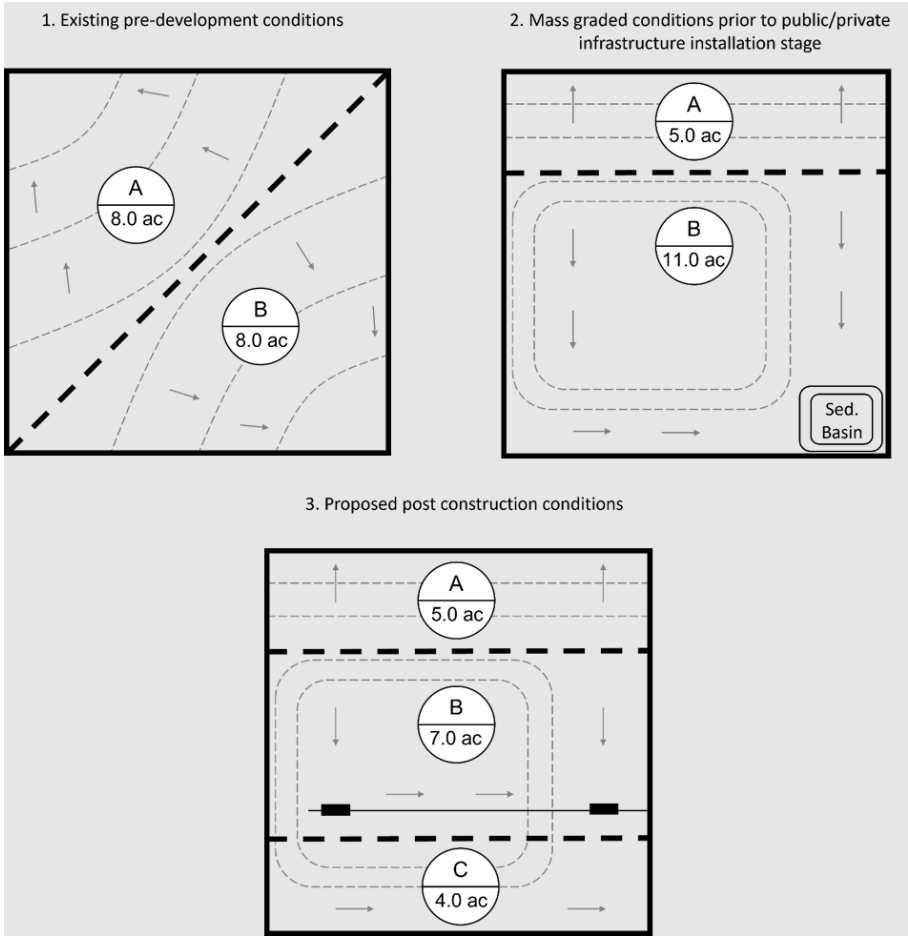


Figure 4.12 Drainage area map examples required for the three (3) development phases

~~4.12~~4.14 Stormwater Facility Maintenance Agreements

~~4.12.1~~4.14.1 Maintenance Agreements

All drainage improvements constructed within a development and any existing or natural drainage systems ~~to remain in use~~ shall require a maintenance agreement that identifies responsible parties for maintenance. The maintenance agreement shall be written such that it remains in force upon sale of transfer of the property.

As part of the Operations and Maintenance Plan submittal, A *Stormwater Facility Maintenance Agreement* must be prepared by the engineer of record for each stormwater control that will not be wholly maintained by the City~~, as part of the Operations and Maintenance Plan submittal~~. This agreement must outline ~~both~~ preventive maintenance tasks and ~~as well as~~ major repairs, identify the schedule for each task, assign clear roles to affected parties, and provide a maintenance checklist to guide future owners, including an annual self-inspection to be provided to the City. Multiple stormwater controls may be contained within a single Stormwater Facility Maintenance Agreement. When areas are identified for detention that also serve other purposes for the development (e.g. parking lots, loading docks) the requirement for a Stormwater Facilities Maintenance Agreement may be waived.

~~4.12.2~~4.14.2 Private Maintenance (SWFMA Required)

A. Private drainage facilities include those drainage improvements which are located on private property and which serve the needs of private development.

B. Private drainage facilities may also include detention or retention ponds, dams, and retaining walls intended to direct or contain runoff. Such facilities must be designed in accordance with sound engineering practices and reviewed and inspected by the City.

C. All~~n agreement~~ SWFMA exhibits shall be reviewed and approved by the City with the civil engineering plans. The agreement for perpetual maintenance of private drainage facilities shall be executed with the City ~~prior to approval of civil engineering plans~~during pre-construction. This agreement shall run with the land and can be tied to commercial property or to an owner's association, but not to individual residential lots.

D. The ~~Access shall be provided by the developer/owner~~SWFMA shall provide the City with access to all private drainage facilities.

~~4.12.3~~4.14.3 Maintenance Agreement~~s~~ Requirements

Details of the ~~agreemen~~SWFMA~~t~~ must be set forth in a series of exhibits:

A. Exhibit A Legal Description - This includes the Metes and Bounds, a Surveyor's Drawing of the area occupied by the facility, and a copy of the preliminary or ~~final~~ recorded plat containing the facility.

B. Exhibit B Design Plan and Specifications - These are summary documents intended for the use of future owners in conducting routine maintenance, inspections, and repairs. The documents include:

1. Design Data and Calculations - This can be in the form of a letter or statement from the engineer of record which summarizes critical design calculations related to the functionality of the facility, such as storage volume or TSS removal, and attests to the facility conforming to applicable *i*SWM standards; ~~.~~

2. Schematic Plan - This should be prepared by the engineer of record from construction drawings to show the general layout of the facility. Major features requiring regular or special maintenance should be shown and labeled in general terms understandable to a layman. A profile should be given showing critical elevations that control the function and capacity of the facility, and one or more cross-sections should be provided to indicate the general grading of the facility. A typical example of a schematic plan for a simple detention basin is shown in Figure 4.13 below; and~~.~~

3. Landscaping - Vegetation should be shown consistent with the accepted Landscape Plan, either on the Schematic Plan or as a separate drawing.

C. Exhibit C Operations and Maintenance Plan - Specific maintenance tasks should be defined for each element of the facility. Maintenance tasks specific to the facility should be described in simple terms consistent with ~~nomenclature~~terminology contained in the Schematic and Landscape plans. An inspection and maintenance frequency should be established for each task.

D. Exhibit D Maintenance Checklist - A checklist consistent with the Operations and Maintenance Plan shall be provided for the use of future owners in performing routine and special maintenance tasks. This list should describe work required and frequency in language that is easy to understand and specific for the facility to be maintained. This form will be completed by the Owner and submitted

to the City annually as part of a regular self-inspection program. *See* Appendix A for an example checklist for preparing a Stormwater Facility Maintenance Agreement for a simple detention basin. Additional facility maintenance guidance for several types of stormwater controls ~~for facility maintenance~~ is provided in the *iSWM Technical Manual*~~, for several types of stormwater controls~~. The engineer of record must certify that the construction has been completed in accordance with the general plans and Schematic Plan. After approval of construction by the City, the engineer of record is expected to provide guidance to the owner's representative in implementing the accepted maintenance program and to co-sign the first annual inspection after the construction.

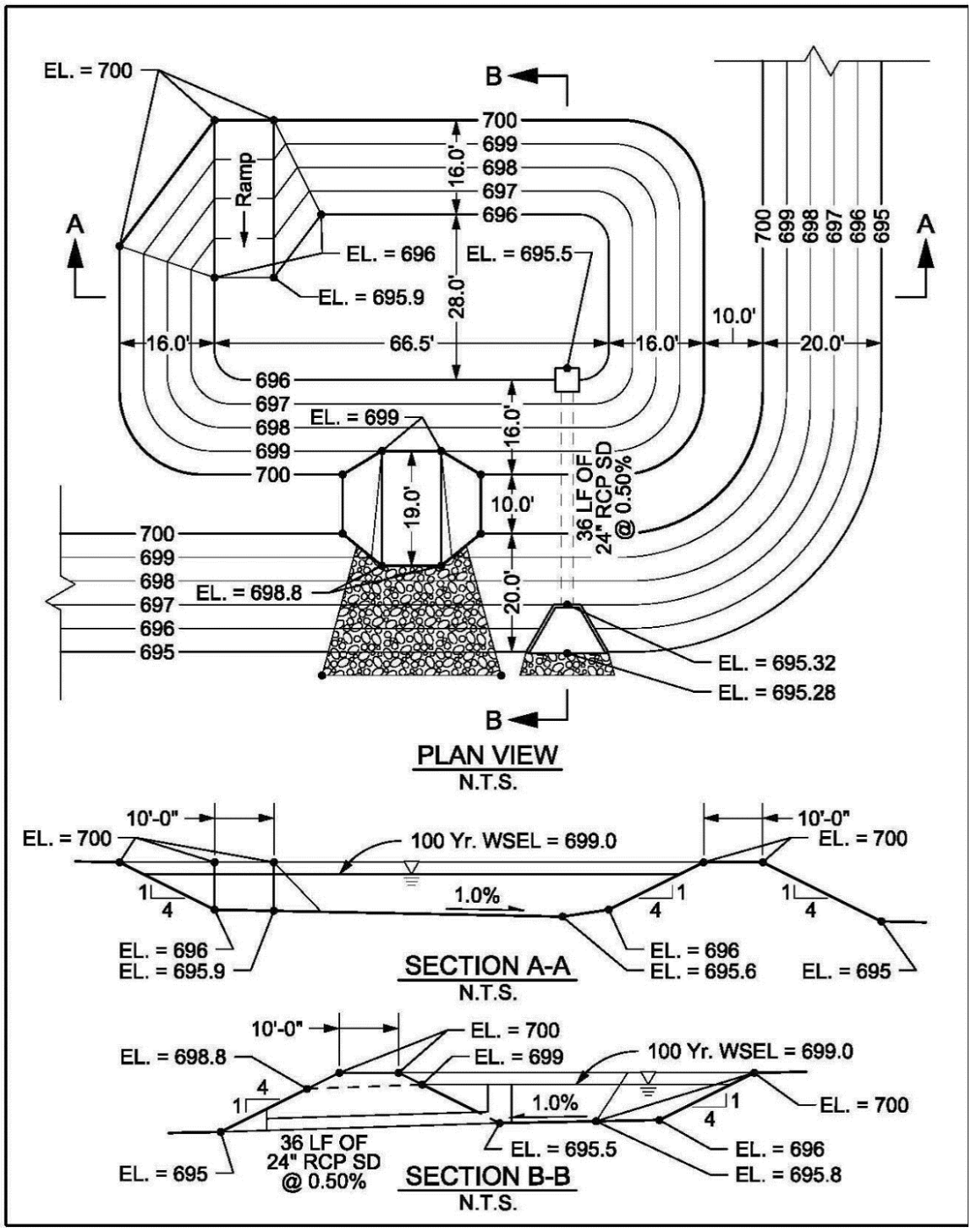


Figure 4.13 Simple Detention Basin Plan Schematic

Section 5: Transportation Design Criteria

5.1 Overview

The purpose of ~~this Manual~~Section 5 – Transportation Design Criteria is to provide ***minimum guidelines*** for the design and construction of transportation infrastructure within the City of Denton, Texas and its extraterritorial jurisdictions using the complete street and context-sensitive solution approach. The goal is to create safer, more livable places that are consistent with their social, environmental and economic values.

~~Complete streets are transportation facilities that are planned, designed, operated and maintained to provide safe mobility for all users (including bicyclists, pedestrians, transit vehicles, truckers and motorists) appropriate to the function and context of the facility. Context-sensitive solutions formulate a complete street design considering contextual applications. Contextual applications can be of geographical nature such as Urban Core, General Urban, Suburban, University Core and other typical service areas that require unique components to address the overall transportation facilities.~~

It is the responsibility of the design engineer to ensure the final design of transportation infrastructure are in conformance with the most recently adopted versions of the following documents:

A. City of Denton Mobility Plan,

B. City of Denton Code of Ordinances, Chapter 18 – Motor Vehicles and Traffic, and Chapter 25 – Streets, Sidewalks and Public Places,

C. The North Central Texas Council of Governments (NCTCOG) Public Works Construction Standards,

D. DDC Subchapter 7.8 – Access and Circulation,

E. DDC Subchapter 7.9 – Parking and Loading,

F. Americans with Disabilities Act (ADA) Standards for Accessible Design,

G. Public Right-of-Way Accessibility Guidelines (PROWAG),

H. The International Fire Code (IFC),

I. this Manual, and

~~E.~~ relevant TxDOT, USDOT, NCHRP, FHWA, and AASHTO publications.

~~F.~~J. ~~The criteria established in this Manual have been developed from a review of various TxDOT and American Association of State Highway and Transportation Officials (AASHTO) publications, the City of Denton Mobility Plan, the North Central Texas Council of Governments Public Works Construction Standards (NCTCOG), other City Transportation Manuals from various cities in the surrounding area, regulatory requirements and City of Denton offices which oversee the design, construction and maintenance of public transportation infrastructure.~~

~~This Manual is ***not*** intended to be a complete design criterial for all circumstances and conditions. Other design criteria may be warranted from applicable resources. The Federal Government, the State of Texas, NCTCOG, Denton County, Denton County Transit Authority (DCTA) and other related organizations and resources shall be consulted for additional criteria as may be deemed necessary.~~

~~This Manual is to be used by design engineers in the City of Denton Capital Project/Engineering Department, consulting engineers employed by the City and engineers of subdivisions and land development infrastructure projects proposed for construction and acceptance by the City within the City~~

~~and within its extraterritorial jurisdictions. The criteria established in this Design Manual provide basic guidance. However, ***full responsibility and liability for proper design remains with the design engineer***. ***Users of this Manual should be knowledgeable and experienced in the theory and application of transportation engineering.*** The City Engineer or his/her elected representative must approve any deviation from criteria established in this Manual.This Manual is ***not*** intended to be a complete design criterial for all circumstances and conditions. Other design criteria may be warranted from applicable resources. The Federal Government, the State of Texas, NCTCOG, Denton County, Denton County Transit Authority (DCTA) and other related organizations and resources shall be consulted for additional criteria as may be deemed necessary.~~

~~Along with this Design Manual, the Denton Development Code (DDC) shall be consulted for additional guidance. The criteria established in this Manual do not supersede the policies contained in the DDC. Any revision to the DDC supersedes the criteria in this Manual.~~

The criteria established in this Manual provide basic guidance for the design of transportation systems within the City of Denton. ~~This Manual is ***not*** intended to be a complete design criterial for all circumstances and conditions.~~ However, ***full responsibility and liability for proper design remains with the design engineer***. ***Users of this Manual should be knowledgeable and experienced in the theory and application of transportation engineering.***

Other design criteria may be warranted from applicable resources. The Federal Government, the State of Texas, NCTCOG, Denton County, Denton County Transit Authority (DCTA) and other related organizations and resources shall be consulted for additional criteria as may be deemed necessary. Along with this Design Manual, the ~~Denton Development Code (~~DDC~~)~~ shall be consulted for additional guidance. The criteria established in this Manual do not supersede the policies contained in the DDC. Any revision to the DDC supersedes the criteria in this Manual.

5.1.1 Organization

Section 5 - Transportation Design Criteria is organized as follows:

A. Overview

B. Mobility Framework

C. Roadway Design

D. Intersection Design

~~D.~~E. Auxiliary Roadway Design

F. Access Management

G. Bike and Pedestrian Facility Design

H. Transit Facility Design

~~E.~~I. Traffic Impact Analysis Guidelines

~~F.~~J. Pavement Design Standard

~~G.~~K. Complete and Context-Sensitive Streets

5.2 Mobility Framework

The City of Denton Mobility Plan should be reviewed relative to any proposed development.

It should be noted that the City of Denton Mobility Plan is a living document and is periodically updated to reflect the changes in the characteristics of anticipated traffic flow within the City.

5.2.1 Roadway Classification

The City of Denton Mobility Plan provides definitions for the street classifications. These street classifications apply to developments and/or street improvements within the City of Denton and are to be used for design purposes. These classifications were established in the Thoroughfare Plan based upon expected fully developed traffic volumes.

A. Freeway

Freeways are streets that are intended to move large volumes of traffic through and around the City and are typically maintained by the ~~Texas Department of Transportation~~TxDOT. These street types are to have limited access as defined in Section ~~2~~5.6 Access Management section of th~~e~~is M~~m~~anual.

Freeways in the region typically have high design speeds and have on- and off- ramps to control access. In urban areas, these freeways have adjacent frontage roads that provide access to adjacent business that may front onto the corridor.

B. Primary Arterial

Arterial streets are streets that serve major routes into and through the City of Denton. Arterial streets are shown on the City Mobility Plan. These street types are to have limited access as defined in Section ~~2~~5.6 Access Management section of th~~e~~is M~~m~~anual.

Primary arterials provide regional connectivity between different areas of Denton County and the DFW region. The design of arterial can vary depending on the surrounding land use and development. In urban areas, arterials may have wider sidewalks with smaller building setbacks, while suburban areas may have limited sidewalks with a larger buffer between the edge of the street and the building fronts.

C. Secondary Arterial

Secondary arterials provide shorter connections and carry less traffic. Secondary arterials are still significant to vehicular travel as they serve trips of moderate length and provide more land access.

D. Collectors

A collector street is a street that collects associated traffic from residential streets, rural streets, commercial streets, or industrial streets as designated on the City Mobility Plan.

Collectors in the City of Denton provide local land access and traffic circulation from residential neighborhoods to arterials. They typically experience lower traffic volumes and have lower design speeds.

E. Local Streets~~Roads or Residential Streets~~

~~A residential street is a public street associated with residential development within an urban environment. The residential street may require parking or prohibit parking, dependent on use. Alleys will be required for residential streets prohibiting on-street parking.~~

A local street is a public street that provides access to adjacent property and are usually contained

within the neighborhood. ~~is associated with residential development within the City.~~ These streets have low speeds and low volumes associated with them. Local streets may be further classified into the following two (2) types:

1. Residential – A residential street is a public street associated with residential development within an urban environment. The residential street may require parking or prohibit parking, dependent on use.

2. Rural – A rural street is a public street that connects rural communities.

Existing or new industrial developments on local streets shall consult with the City's Engineer.

5.2.2 Auxiliary Roadway Classifications

Roadways that cannot be classified as thoroughfare, are grouped together as auxiliary roadways and are classified here as follows:

A. Alleys

An alley (residential or commercial) is designed to provide access to the rear of or side of a lot including solid waste and fire access. Alleys will be required for residential streets prohibiting on-street parking. Alleys are required in non-residential zoning districts where necessary to provide for adequate access for service vehicles, off-street loading or unloading, access for emergency vehicles, fire access or similar reasons consistent with the intent of the DDC.

~~F.~~B. Drive~~sways~~

A drive is an unobstructed paved area providing vehicular access from a street to a developed property. Drives can be classified as follows:

1. Driveway - A d~~"D~~riveway~~"~~ is located entirely on private property. It is only for a single-family or a duplex property. It connects a drive approach to a garage, ~~"~~car~~"~~port, parking pad or the like.

2. Drive Aisle - A d~~"D~~rive a~~A~~isle~~"~~ is located entirely on private property. It is for every other condition other than for a single-family or a duplex property. It connects a drive approach to an area(s) that is to be accessed on the site such as, but not limited to: parking space(s); loading dock(s); loading area(s) (marked or implied - for passengers and/or goods); porte-cochere(s), and/or the like. It can also be a fire lane (in and of itself or in conjunction with other access use[s]). It can also be an access to an adjoining property (in and of itself or in conjunction with other access use[s]).

~~3.~~ Drive Approach -

~~4.~~ A d~~"D~~rive a~~A~~pproach~~"~~ connects a street (c~~C~~ity, public or private) or highway (TxDOT) with a drive aisle. Some features of the drive approach may extend into and be a part of the driveway or drive aisle. The drive approach is measured from the face of the roadway curb to the end of the curb return radius on the private property~~.~~.

~~5.~~

~~6. 2.1. Drive Approach Type ??~~

~~7.~~3. The following provides the types of drive approaches considered within the~~e~~is M~~m~~anual:

a. Single-family residential: ~~–~~ A drive approach to a single-family residential lot or one lot duplex.

b. Multi-family residential: A drive approach to a multi-family lot such as triplexes, fourplexes, and multi-complexes. The drive approach can be either the main entrance approach or the secondary entrance approach. Each type has specific design requirements.

c. Commercial: A drive approach to a commercial development. The drive approach can be either the main entrance approach or the secondary entrance approach. Each type has specific design requirements.

d. Industrial: A drive approach to an industrial development. The drive approach can be either the main entrance approach or the secondary entrance approach. Each type has specific design requirements.

e. Mixed-use approach: A drive approach that is a mixed-use development shall consider the more stringent criteria for the approach design.

~~8. Cul-de-sacs (& Dead-End Streets?)~~

~~9. A Cul-De-Sac is a dead-end street that has a fire-accessible turnaround at the end of the street. A half Cul-De-Sac is a street bend at 90 +/- 5 degrees for residential and collector streets.~~

~~10.~~ Flag Drives

~~11.~~4. A flag drive is a private road within a private access easement, which may serve up to three (3) residential dwelling units. Flag drives shall have direct access to a public street other than an alley. They shall not, however, provide direct access to an arterial or collector street.

~~G.~~C. Dead-End Streets & Cul-De-Sacs

A Cul-De-Sac is a dead-end street that has a fire-accessible turnaround at the end of the street. A half Cul-De-Sac is a street bend at 90±5 degrees for residential and collector streets. Dead-end streets have the same general geometric aspects of a cul-de-sac, but has an undefined and abrupt termination. Dead-end streets and cul-de-sac should be avoided if possible to enhance ~~the~~ street connectivity.

5.3 Roadway Design

5.3.1 Design Controls

Traffic volumes and speed are necessary for the design of roadways, and assist with the planning and design of ROW, number of lanes, ~~and~~ turn-lanes, need of intersections, and bicycle and pedestrian facilities. Guidance on these design controls will be discussed at the pre-design meeting.

5.3.2 Street Sections

~~Street Cross Sections~~

~~Street section standards are provided in this section of the manual. Refer to the City of Denton standard details for cross section details. Options~~ Street section standards are provided for arterial, ~~residential, c~~collector, and ~~arterial~~ local streets in Table 5.3-A below. Refer to the City of Denton Standard Details for cross-section details. Options for street sections are dependent upon treatment utilization within the street section. Besides defined lanes, other treatments that can be utilized within the street sections include on-

street parking, bike lanes, multi-use paths, and transit facilities. The intent is to provide options in order to develop a "complete -street" ~~and~~ with "context-sensitive" design~~.~~; *See* Section 5.11 of this Manual. ~~Table 5.2-A provides the street standards including options. Right-of-way~~ROW requirements may vary at intersections based upon turning movement requirements.

~~Minimum and maximum street grades are also shown on Table 5.2-A.~~ In general, street grades shall follow the natural contour of the property and be below the existing grade so that the parkway drains towards the street. Excessive cuts and fills solely for the purpose of balancing earthwork are not permitted.

Table 5.3-A: Geometric Roadway Standards

Roadway Classification	No. of Lanes [1]	Min. ROW (feet)	Min. B-B Width [2] (feet)	Min. Center Line Radius [3] (feet)	Min. Horizontal Curve Separation (feet)	Min Grade (%)	Max Grade [4] (%)
Freeway	As per TxXDOT standards~~[5]~~						
Primary Arterial	6	135	104	750	100	0.5	7
Primary Arterial – Modified	6	135	88	750	100	0.5	7
Secondary Arterial	4	110	80	575	100	0.5	7
Secondary Arterial – Modified	4	110	67	575	100	0.5	7
Collector – Commercial	2	65	39	575	100	0.5	7
Collector – Residential	2	65	39	400	100	0.5	7
Local – Residential	2	55	33	200	0	0.5	10
Local – Rural	2	65	25 ~~[6]~~[5]	200	0	0.5	10
Local – Alley ~~[7]~~[6]	1	20	15 ~~[6]~~[5]	100	0	0.5	8

Notes:
[1] Number of travel lanes dependent upon TIA and/or City's Engineer's ~~of Denton Engineer or designee~~ requirements.~~;~~
[2] *See* ~~Table 1.4.3.1~~ Table 5.4-D, Table 5.4-E, and Table 5.4-F for additional ~~right-of-way~~ROW requirements at intersections with turn lanes.~~;~~
[3] Minimum~~.~~ center line radius based on cross slope of ~~minus two percent (~~-2%~~)~~ (no super elevation).
[4] Maximum grade within 60 feet of an intersection measured from the intersection curb is 2% or less.
[5] ~~Specify Source ……..~~
~~[6]~~ Measurement is edge-of-pavement to edge-of-pavement.
[~~7~~6] If an a~~A~~lley is to be used for waste collection, then it must meet all alleyway access requirements shown in Section 3: Solid Waste Design Criteria of this Manual.~~I.~~

5.4 Intersection Design

~~General~~

~~Three~~Several components of ~~intersections~~intersection design are addressed in this section~~ of the manual: intersection geometry, visibility standards and turning movement standards~~. These standards are to work in concert with the Traffic Impact Analysis (TIA) requirements of this M~~m~~anual. Additionally, the Pedestrian and Bicycle Facility Design, Transit Facility Design, and the City of Denton Standard drawings for accessibility should be reviewed for additional design requirements.

~~5.3.3~~5.4.1 Geometry

A. Street intersections should be designed to be perpendicular~~.~~; *see* tolerances shown in Table 5.4-A below. All streets shall be aligned with any existing streets by continuation of the centerline thereof.

B. The staggering of street alignment resulting in "T" intersections shall leave a minimum distance of ~~one hundred fifty (~~150~~)~~ feet between the centerlines of residential streets, and ~~two hundred (~~200~~)~~ feet between the centerline of collector streets.

~~C. Table 5.5-A provides tolerances that are acceptable for types of intersections based upon street classification.~~ Table 5.~~5~~4-A and Figure 5.1 below ~~also~~ provide~~s~~ requirements for ~~required right-of-way~~ROW corner ~~clip~~clips ~~requirements~~ and curb return radius ~~requirements~~ at ~~for~~ intersections. These standards provide minimum vision clearance areas without consideration to stopping sight distance. Additional sight clearance evaluation should be performed as necessary, ~~according to~~as per ~~-~~Section 5.4~~5~~.3 below.~~.~~

~~D.~~C.

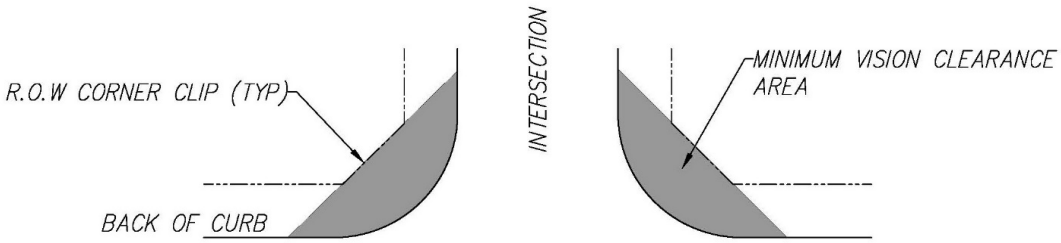


Figure 5.1~~5.16.1~~ Minimum Vision Clearance

Table 5.4-A: Intersection Geometry

~~Roadway~~ Intersection Classification	Intersection Angle (degrees)	R~~-~~O~~-~~W Corner Clip [1] (f~~ee~~t)	Curb Return Radius (f~~ee~~t)
Arterial ~~-~~/Arterial	90±~~+/-~~5	30	30
Collector ~~-~~/Arterial	90±~~+/-~~5	20	30
Collector ~~-~~/Collector	90±~~+/-~~5	15	30
Residential Street ~~-~~/Arterial	90±~~+/-~~5	15	30
Residential Street ~~-~~/Collector	90±~~+/-~~10	15	20
Residential Street ~~-~~/Residential Street	90±~~+/-~~10	10	20
Flag Drive ~~-~~/Collector	90±~~+/-~~10	5	20
Flag Drive ~~-~~/Residential Street	90±~~+/-~~15	5	10
Alley~~/~~ ~~-~~ Collector	90±~~+/-~~10	10	30
Alley~~/~~ ~~-~~ Residential Street	90±~~+/-~~10	15	30
Alley ~~-~~/Alley	90±~~+/-~~10	25	30

Notes:
[1] Shall apply to all corners of the intersection.
[2] Fences must provide a 5-f~~oo~~t. corner clip adjacent to driveways.
[3~~2~~] Curb Return Radius is for single lane design. Multi-lane and special considerations for truck~~-~~turning radius require~~s~~ turn radius analysis, as required by the City~~-~~'s Engineer~~Engineer or designee.~~.~~

5.4.2 Visibility Standards

Table ~~1.4.2.1~~5.4-B and Figure ~~1.4.2.1~~5.2 below shall be used to evaluate the required unobstructed view for motorists~~ for the~~ at intersections, ~~ design and~~ which are based upon the design speed ~~outside~~ approaching~~of~~ the intersection. Design speeds are based upon the ~~street~~ roadway classification~~City of Denton~~. The values shown in the table are minimum standards. Within the sight line area, no obstruction shall be allowed that will obstruct the view of motorists. A sight visibility easement shall be dedicated to protect and maintain sight visibility.

A. Table ~~1.4.2.1~~5.4-B below is based upon passenger car right turn and left turn from stop. Where truck traffic warrants additional sight distance, refer to AASHTO Geometric Design of Highways and Streets for single-unit truck and combination truck design requirements, Case B1 and Case B2.

B. Refer to AASHTO Geometric Design of Highways and Streets for multi-lane considerations and other design considerations that may apply for Cases "A" through "F".

C. Lines of sight distance at all intersections shall be clear at an elevation between two (2) feet and nine (9) feet above the nearest gutter elevation.

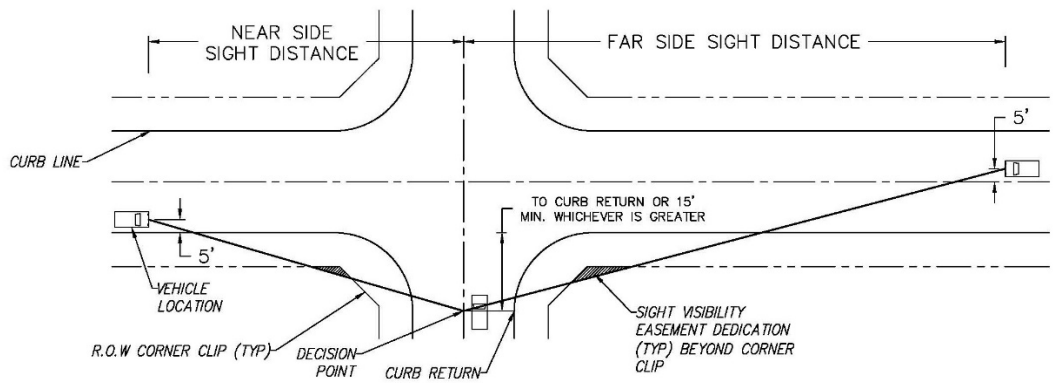


Figure 5.2~~5.25.2~~ Visibility Standards

Table 5.4-B: ~~Sight~~ Visibility Standards		
Design Speed (mph~~MPH~~)	**Intersection Sight Distance Near Side (feet)**	**Intersection Sight Distance Near Side (feet)**
30	290	335
35	335	390
40	385	445
45	430	500

Notes:
[1] ~~If corner clips table standards cannot be met, use this table and figure 1.4.2.1 which provide minimum creitera for visibility[3]~~
Driveways accessing roadways shall use above table ~~for all visibility~~to satisfy intersection visibility compliance.
~~This table applies only if corner clips are not able to be met.~~

~~5.3.4~~5.4.3 Vertical Curve Standards

Vertical curves are required when two (2) street grades intersect at a point of vertical intersection greater

than 1%. Minimum vertical lengths for both crests or sags shall be defined by the design speed for the street and the associated stopping sight distance, ~~and~~ as well as the minimum K value. Table 5.~~3-B~~4-C below shows the minimum K value for various design speeds.

Table 5.4-C: Minimum 'K' Values for Vertical Curves

Design Speed (~~mph~~MPH)	Stopping Sight Distance (feet)	Crest Vertical Curve (K ~~Min~~in)	SAG Vertical Curve (K Min)
30	200	19	37
35	250	29	49
40	305	44	64
45	360	61	79

Notes:
[1] S~~o~~Ource: AASHTO Geometric Design of Highways and Streets 'US Greenbook'.

Vertical curve lengths can be calculated as shown in Equation 5.1 below:

$$L = KA \qquad \text{[Eqn. 5.1]}$$

Where: L = Vertical Curve Length

A = Algebraic Difference in Grade

A. No vertical curve required for "A" equal to or less than 1.0%

B. Minimum spacing between successive vertical curves shall be 50 feet for residential, and 100 feet for collectors and arterials.

~~C. Unless otherwise approved by the City Engineer, r~~Resultant vertical curve grade shall be no less than 0.3% for concrete pavement, and no less than 0.5% for asphalt pavement.

~~D.~~C.

~~E.~~ For drainage purposes, 50-ft. vertical curves are required when "A" is greater than 1.0% and less than or equal to 1.2%. Otherwise minimum vertical curve length is 100 feet.

~~F. Stopping sight distances and K values are from AASHTO Geometric Design of Highways and Streets.~~

~~G.~~D.

~~5.3.5~~5.4.4 Turn Lane Requirements

Turning lane requirements shall be based upon the following requirements and/or the requirements of the ~~City of Denton~~ City-'s Engineer~~Engineer or designee~~, and the tables within this section.

A. Left-Turn Lane ~~Criteria~~Warrants

When designing an intersection that provides direct or indirect access to the proposed development, left-turn lanes should be provided at driveways and street intersections along major arterial and collector roads, wherever left turns are permitted. Table 5.4-D below provides criteria which warrant ~~Criteria for when~~ left-turn lanes ~~should be provided are set forth in Table 1.4.3.1~~. Figure 5.3 below provides guidance on left-turn lane requirements.

Conditions for requesting a left-turn lane include large truck volume, high crash history, limited sight distance, and significant delay for motorists to make the turn, as determined by the City's Engineer.~~The development of the criteria for the left-turn lane requirement is based on the following considerations.~~

~~Speed: Speeds are too high to safely make left turns to or from a particular roadway.~~

~~Safety: There is a trend or pattern of crashes involving left-turning vehicles or rear-end or sideswipe/weaving crashes as through vehicles interact with queued vehicles.~~

~~Delay: Drivers have to wait a long time to make a left turn.~~

~~Volume: There are a high number of left-turning vehicles.~~

Table 5.4-D: Left-Turn Warrants for Urban and Suburban Roadways

Left – Turn Lane Peak Hour Volume (vehicles per ~~/~~hour)	Three-Leg Intersection, Arterial/Collector Volume (vehicles per hour per lane~~/hr/ln~~) that Warrants a Left-Turn Lane	Four-Leg Intersection, Arterial/Collector Volume ~~(~~(vehicles per hour per lane~~veh/hr/ln~~) that Warrants a Left-Turn Lane
5	450	50
10	300	50
15	250	50
20	200	50
25	200	50
30	150	50
35	150	50
40	150	50
45	150	<50
50 or More	100	<50

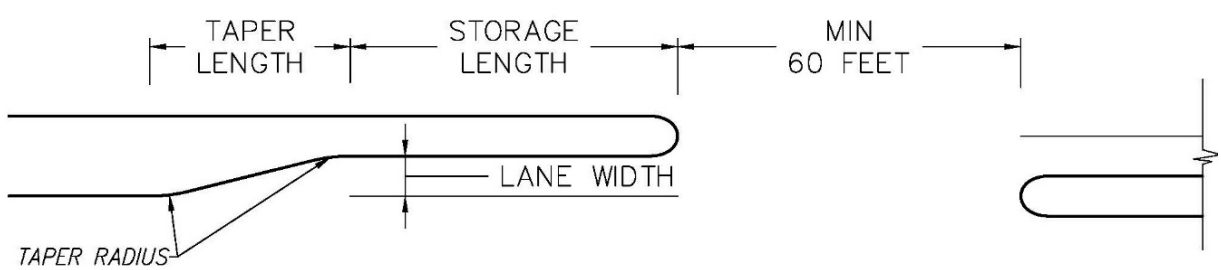


Figure 5.3~~6.35.3~~ Left-Turn Lane

B. Right-Turn Lane Warrants

When designing an intersection that provides direct or indirect access to the proposed development, right-turn lanes should be provided along major arterial and collector roads at driveways when the right turns are permitted and satisfy the following criteria. Table 5.4-E below provides criteria which warrant right-turn lanes. Figure 5.4 below provides guidance on right-turn lane requirements.

Table 5.4-E: Right-Turn Warrants for Urban and Suburban Roadways		
Roadway Classification	**Speed Limit (mph)**	**Volume (Vehicles per Hour/Hr)**
Arterial / Collector	45 or greater	50 or more
Arterial / Collector	Less than 45	60 or more

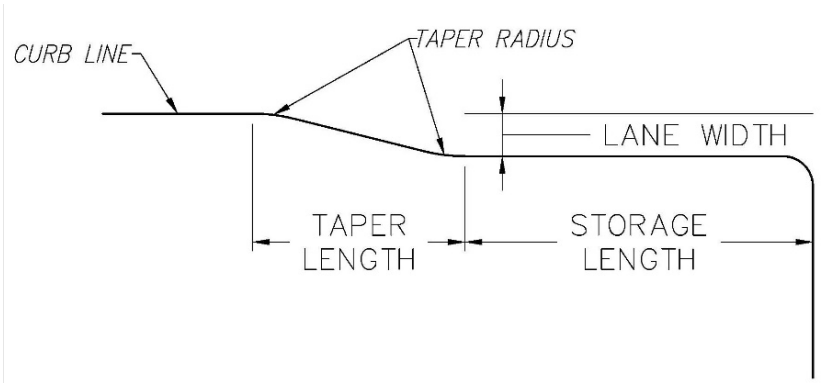


Figure 5.4~~6.45.4~~ Right-Turn Lane

Conditions for ~~providing~~ requesting an exclusive right-turn lane when right-turn traffic volume projections are less than indicated in Table 5.4-E, include the following, as determined by the City's Engineer:

1. Large volume of truck traffic,
2. High crash history,
3. Roadways with limited sight distance, or
4. Heavier than normal peak flow movements on the main roadway.

~~B.~~C. Turn Lane ~~Standards~~ Geometry

When a turn lane is required, Table ~~1.4.4.1~~5.4-F below ~~and Figures 1.4.4.1 and 1.4.4.2~~ shall be used as ~~a~~ the minimum criteria for the turn lane geometry. Additional consideration shall be given for unique traffic movements such as excessive tractor ~~-~~trailer utilization, extended length transport vehicle movement, etc. *See* Section ~~1.4.5~~5.4.5 below for additional geometry standards for Collectors and Arterials.

Table 5.4-F: Minimum Turn Lane Geometry					
Intersection Type	**Lane Width (feet)**	**Minimum Storage Length (feet)**	**Minimum Taper (feet)**		**Additional ROW Required (feet)**
			LEFT TURN	**RIGHT TURN**	
Residential Collector	11	100	100	100	15
Commercial/Industrial Collector	11	150	100	150	15
Secondary Arterial	11	150	100	200	15
Primary Arterial	11	200	100	200	15

Notes:
[1] Required turn lane storage may be greater depending upon the ~~Traffic Impact Analysis.~~TIA.
[2] The Pedestrian Path shall be taken into account for access across the median by utilizing a leave-out or ramp in accordance with accessibility standards described in this manual.
[3] Cross slope of median openings or turn bays shall not be more than 2% ~~percent~~ or less than 1% ~~percent~~.
[4] On TxDOT Roadways TxDOT standards shall supersede City of Denton Standards.
[5] Taper Radius shall be 200 feet minimum.
[6] Additional ROW required per turn lane bay, if ROW is not sufficient.

~~5.3.6~~5.4.5 Intersection Detail for Collectors and Arterials

Figure 5.5 below~~1.4.5.1~~ provides median location details and specific turn lane radius requirements. Also refer to median details shown in the City of Denton Standard Details.~~drawings~~

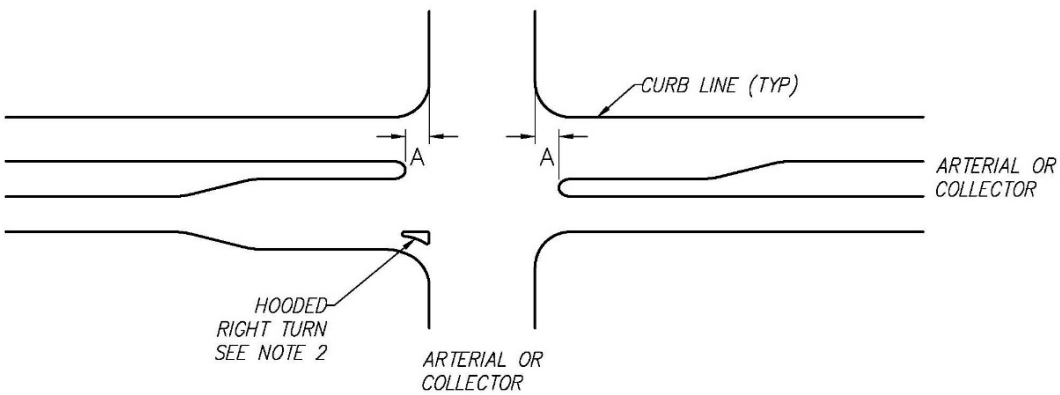


Figure 5.5~~6.55.5~~ Intersection Detail for Collectors and Arterials

Notes:
1. For collector and arterial streets, A = 15 feet minimum.
2. Depending upon traffic flow requirements, the right turn may require a hooded right turn.

~~5.3.7~~5.4.6 Intersection Spacing

Standards for intersection spacing are outlined below in Table 5.4-G. ~~Figure 1.4.5.1 provides median location details and specific turn lane radius requirements. Also refer to median details shown in the City of Denton Standard drawings~~

Table 5.4-G: Minimum Intersection Spacing [1]					
Roadway Classification	Alley	Flag Drive	Residential Street	Collector	Arterial
Alley	100 feet	N/A	100 feet	100 feet	N/A
Flag drive	N/A	N/A	75 feet	75 feet	N/A
Residential Street	100 feet	75 feet	*200 feet [2]	*200 feet [2]	400 feet
Collector	100 feet	75 feet	*200 feet [2]	*200 feet [2]	400 feet
Arterial	N/A	N/A	400 feet	400 feet	1200 feet

Notes:
[1][1] Spacing will be measured between face of the curbs.
[2] 100-foot, minimum to the first intersection for entrances to subdivisions off of an arterial, where lots back up to the arterial. This is measured between right-of-way lines.

5.3.85.4.7 Roundabouts

Roundabouts are circular intersections that create counter-clockwise traffic movements around a central island, with entering traffic yielding to circulating traffic.

Roundabout Design

The design of a roundabout is shall be in compliance with the Intersection Control Evaluation provided by the FHWA. Normally, each roundabout will be unique in some way, so as such a standard roundabout is not included in this Mmanual. Also, the various analysisanalyseis and design considerations involved in roundabout design are beyond the scope of this Mmanual.

A. The following resources shown in this section shouldshall be used when designing a roundabouroundabout:

12. National Cooperative Highway Research Program Report (NCHRP Report) 672 - Roundabouts: An Information Guide, , Second Edition (2010)https://nacto.org/docs/usdg/nchrprpt672.pdf

1.

2. - National Cooperative Highway Research Program Report (NCHRP Report) 745 - Left-Turn Accommodations at Unsignalized Intersections (2013)

3. - TxDOT Auxiliary Lane requirements for right turn lane. http://onlinemanuals.txdot.gov/txdotmanuals/acm/auxiliary_lanes.htm

4. - Federal Highway Administration Roundabouts, An Information Guide

13. https://www.fhwa.dot.gov/publications/research/safety/00067/00067.pdf

5. - Federal Highway Administration Roundabouts, Technical Summaryroundabout. In

H. https://safety.fhwa.dot.gov/intersection/innovative/roundabouts/fhwasa10006/fhwasa10006.pdf

I.B. tIn addition to the resources shownprovided above, the roundabout design shall include the following design review process with the City's Engineer Engineer and City Staff:

1. Have a Pre-Application Conference on the project, which will include a separate meeting with the City's Engineer ~~Engineer~~ for proposed roundabout design considerations.
2. Have a ~~Traffic Impact Analysis~~TIA review meeting with the City~~-~~'s Engineer~~Engineer or designee~~. ~~-~~*See* section on TIA requirements.
3. Develop Preliminary layout of roundabout considering TIA and Pre-Development meetings.
4. Preliminary Design review meeting with the City's Engineer ~~Engineer~~.
5. Develop roundabout design based up comments from the City's Engineer ~~Engineer~~.
6. Submit roundabout design through the Development Review Process (DR~~C~~P).

5.5 Auxiliary Roadway Design

5.5.1 Alleys

A. Alleys shall have at least two (2) direct access points to public streets and are subject to the block length criteria included in this Manual.

B. Alleys shall be a minimum of 15 feet wide, with edges sloping towards the centerline at 3% slope

C. Alleys that are intended to provide fire apparatus access must meet the design requirements of Section 5.6.3-Fire Apparatus Access Roads of this Manual.

D. Refer to City of Denton Standard Detail T103C for further details.

5.5.2 Drive~~eways~~

The design criteria for drives detailed in this section should be utilized in conjunction with the DDC. ~~The user should be aware of and utilize the City of Denton Development Code.~~ The following standards generally apply to all developments. ~~-~~However, there may be unique situations for which these standards may be impractical. In these situations, the City's Engineer ~~and~~ will work with the developer to develop a mutually agreeable solution. In the event that a mutually agreeable solution is not reached, the developer may apply to the Planning and Zoning Commission for consideration of the issue.

A. Drive Approach ~~Geometric~~ Standards

Table 5.5-A: Drive Approach Dimensions

Development Type [1] ~~Use~~	Drive Approach Widths		Radius
	MIN. WIDTH (FEET)	MAX. WIDTH [2] (FEET)	(FEET)
Residential – Single-~~-~~family or~~and~~ Duplex ~~Residential*~~	12	20	5 [3]
~~Multi-Family~~ Residential – Multifamily	24	38	10 to 20
Commercial or Industrial [4]	30	38	20 to 25
~~Industrial~~	~~30~~	~~38~~	~~20 to 25~~

Notes:

[1] Refer to Figures 5.6 through 5.10.
[2] Maximum drive approach width is a function of traffic volume.
[3] Add five (5) feet to maximum radius for significant truck traffic.
[4] For shared drive approaches, no lot shall contain less than nine (9) feet of the drive approach and driveway or drive aisle (as may apply). Drive approach shall be centered on lot line, such that maximum drive approach width equals 30 feet.
~~[4] Maximum drive approach width is a function of traffic volume. Refer to Figures 2.2.1.1 through 2.2.1.4.~~

~~6.~~

1. ~~For infill situations~~Residential

   a. O~~A o~~ne (1) single-~~-~~family or one (1) duplex residential ~~or a two-family residential~~ lot accessing a collector may be permitted to have one (1) full-~~-~~width or circular drive approach (Figure 5.6 below), ~~-~~when alleys are not practical. ~~(Figure 2.2.1.1)?~~

   b. T~~Adjacent t~~wo (2) adjacent single-~~-~~family ~~residential~~ or two (2) adjacent ~~two-family~~duplex residential lots accessing a collector may be permitted to have one (1) shared full-~~-~~width or circular drive approach, when alleys are not practical.

   c. T~~Contiguous t~~hree (3) or more contiguous single-~~-~~family ~~residential~~ or three (3) or more contiguous ~~three or more contiguous two-family~~duplex residential lots accessing a collector will be required to enter the collector by an alley, flag drive, or residential street.

   d. O~~For o~~ne (1) single-~~-~~family ~~residential~~ or one (1) ~~two-family~~duplex residential lot accessing an arterial, will be required to have an on-site facility, ~~will be required to~~ allowing entrance into the arterial in a forward manner.

   e. For homes with a 3-car garage or greater, where the garage door is street-facing and less than 40 feet from the back of curb, the maximum drive approach width shall be 30 feet.

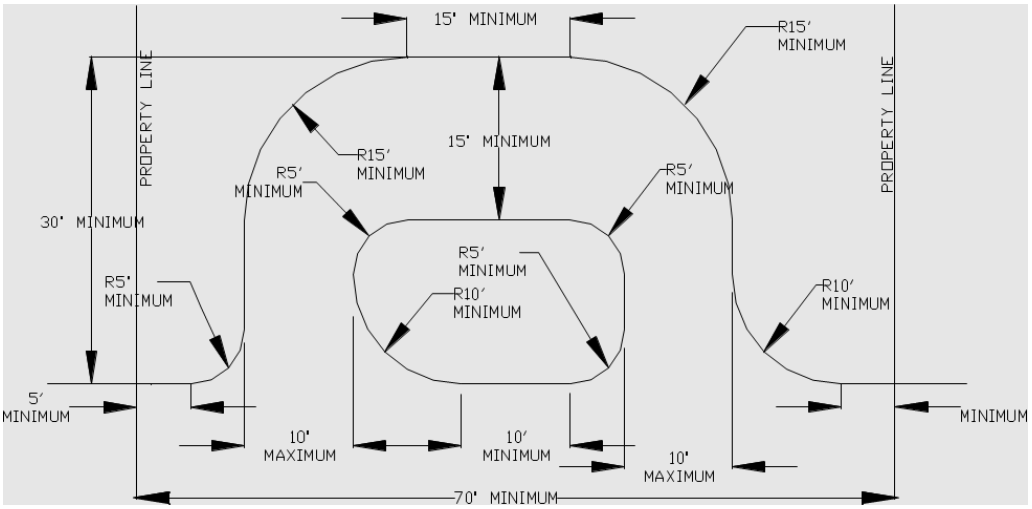


Figure 5.6~~6.65.6~~ Residential Circular Drives

~~7. For homes with a three-car garage or greater, where the garage door faces the street and the garage door is less than 40 feet from the back of curb, the maximum drive approach width is 30 feet.~~

2. Commercial ~~Drive Approach~~

a. All stop bar~~s~~ markings and stop signs when used shall be on private property, as well as upstream of any pedestrian facility crossing the drive approach and/or drive aisle.

b. All signs and markings should be consistent with TMUTCD.

c. ~~See Figure 2.2.1.3 for Multi-Lane Egress/Ingress.~~ Drive approaches with significant truck traffic may install surmountable curb with textured and colored pavement in the parkway, with a depth equal to or greater than the drive approach pavement requirement.

d. Ingress/Egress Lanes

i. Single Lane Egress/Ingress (Figure 5.7) - The outbound (towards the street) lane shall be a minimum of 12 feet wide; if the width of the driveway is greater than 30 feet, then the inbound (onto the site) lane shall be a minimum of 18 feet wide.

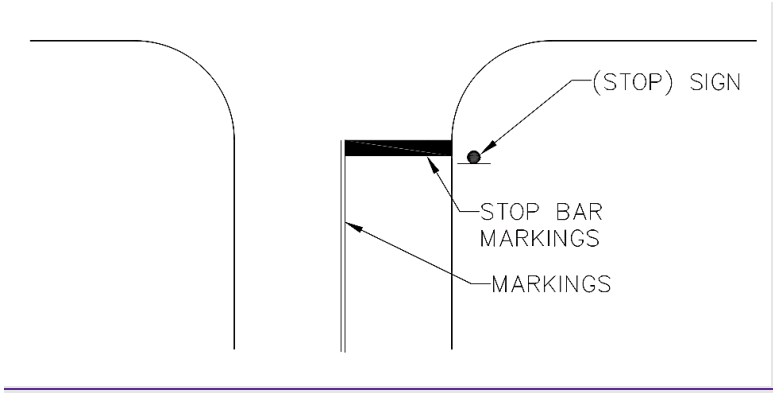


Figure 5.7~~6.75.7~~ Drive Approach: Single Lane Egress/~~/Single Lane~~ Ingress ~~Commercial Drive Approach~~

~~ix.~~ Dual Lane Egress, Single Lane Ingress (Figure 5.8)- -

~~x. The stop bar and stop sign when used shall be on private property as well as upstream of any pedestrian facility crossing the drive approach and/or the drive aisle.~~

ii. The outbound ~~(towards the street)~~ lanes shall be 10 feet wide; if the width of the driveway is greater than 30 feet, then outbound lanes shall remain 10 feet wide while the width of the inbound ~~(onto the site)~~ lane shall be increased.

~~xi. All signs and markings should be consistent with .~~

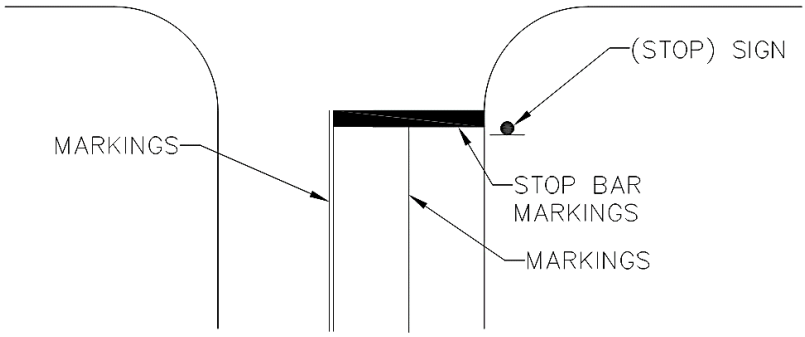


Figure 5.8~~6.85.85.~~ Drive Approach – Dual Lane Egress, Single Lane Ingress ~~Commercial Drive Approach~~

iii. Multiple Lane Egress/Ingress (Figure 5.9) - Only allowed when dual left-turn lanes into the site or opposing street/driveway has two (2) or more lanes, of which two (2) are designated as being through lanes.

~~xii.~~

~~i. The stop bar and stop sign when used shall be on private property as well as upstream of any pedestrian facility crossing the drive approach and/or the drive aisle.~~

a) ~~The two~~Each of the two (2) outbound and inbound ~~(towards the street)~~ lanes shall ~~each~~ be 10 to 12 feet wide ~~the two inbound (onto the site) shall each be 10-12 feet wide~~.

b) Median shall accommodate any pedestrian facility across the drive approach and/or drive aisle, as projected from both sides thereof.

~~a) Only allowed when dual left turn lanes into the site or opposing street/driveway has two or more lanes of which two are designated as being through lanes.~~

~~ii. All signs and markings should be consistent with .~~

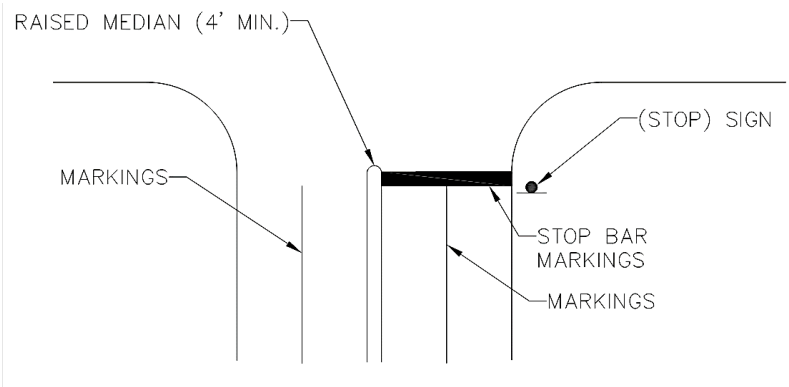


Figure 5.9~~6.95.9~~ Drive Approach – Multiple Lane Egress/~~Multiple Lane~~ Ingress ~~With Median Commercial Drive Approach~~

~~iii.~~ Right-in or Right-out Egress/Ingress -

~~iv. The stop bar and stop sign when used shall be on private property as well as upstream of any pedestrian facility crossing the drive approach and/or the drive aisle.~~

iv. The minimum width of the drive approach/drive aisle prior to the island, ~~as well as~~ each lane (inbound and outbound) at the island, and the applicable radii shall be determined by the engineer of record, ~~and~~ based ~~up~~on ~~the~~ expected vehicle type(s), ~~of vehicles expected to use it~~ as well as an auto-turn analysis provided to the City's Engineer for review and approval, as part of the Civil Engineering Plan submittal.

a) Median/island shall accommodate any pedestrian facility across the drive approach and/or drive aisle as projected from both sides thereof.

b) For "one way in" or "one way out" driveways, the geometry shall be as shown in F~~in the f~~igure 5.10 below ~~above~~ for the respective side.

c) ~~At the City's Engineer's discretion~~ Through a Design Deviation request, the minimum drive approach width may be reduced based upon acceptable turning radius for emergency vehicles, and determination that truck traffic requiring the larger width will not occur.

d) When the right in/right out drive approach is part of the fire apparatus access road, the minimum width of each drive shall be 24 feet.

~~v.~~

~~vi. All signs and markings should be consistent with .~~

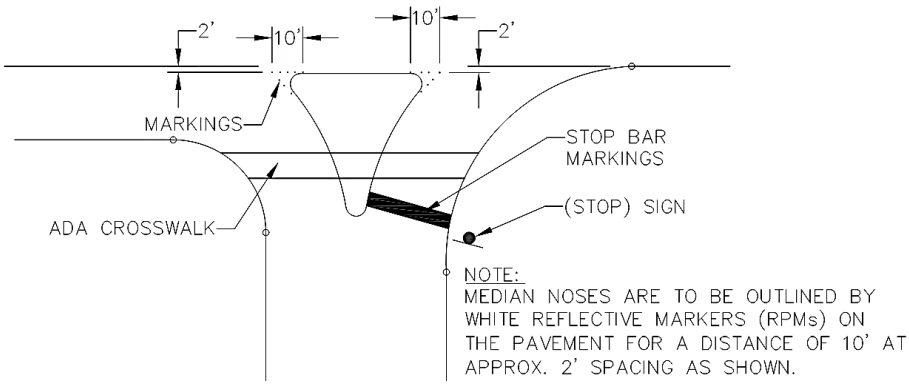


Figure 5.10~~6.105.105.~~ Drive Approach – Right in or ~~/~~Right out Egress/Ingress ~~Commercial Drive Approach~~

v. With the exception of multi-lane egress/ingress (shown in Figure 5.9), drive approaches with a median installed in lieu of the double-yellow marking, may exceed the maximum drive approach width by the width of the median only.

B. Drive Approach Spacing

1. Same side of the street

Drive a~~A~~pproach s~~S~~pacing~~-~~ shown in Table 5.5-B below applies to drive approaches on the ~~(~~same side of the street, and is measured between the nearest edges of each drive approach, along the back of curb, not including the radius.

Table 5.5-B: Minimum Drive Approach Spacing	
~~Street~~ Roadway Classification	Min. Spacing [1] ~~[1]~~ (feet)
Primary Arterial	200 [2]
Secondary Arterial	150 [2]
Collector	100 [3]
Residential Street [4]	10
Flag Drive	10
Alley	10

Notes:

[1] Maximum of two (2) drive approaches permitted.~~Driveway spacing is measured between the closest edges of each drive approach not including the radius.~~

[2] If permitted; ~~D~~drive approaches are not permitted on arterial streets, unless otherwise allowed according to Section 5.6 ~~2.6 Access Management~~of this Manual.

[3] I~~i~~f permitted; r~~R~~efer to Section 5.6 of this Manual~~2.6 Access Management~~ for permitted access.

[4] For a T-intersection on residential streets, the drive approach shall be offset farthest from the intersection.

2. Near Intersections

Drive Approach spacing shown in Table 5.5-C below applies to drive approaches near intersections, and is measured between the face of the curb of the intersecting street and the nearest edge (face of curb) of the drive approach not including the drive approach radius; *see* Figure 5.11 below.~~adjacent to street intersections~~

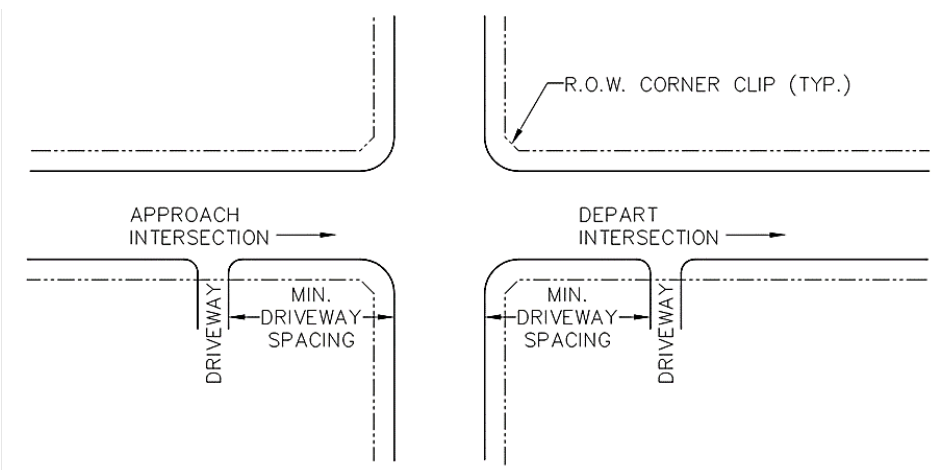


Figure 5.11~~6.115.11~~ Drive Approach Spacing at Intersections

Table 5.5-C: Minimum Drive Approach Spacing at Intersections		
~~Street Classification~~ Intersection Type	Approaching the Intersection	Departing the Intersection
Arterial - ~~/~~Arterial [1]	150 feet on both streets ~~if permitted~~	200 feet on both streets ~~if permitted~~

Collector - ~~/~~Arterial [1]	75 feet on collector, 150 feet on arterial ~~if permitted~~	100 feet on collector, 200 feet on arterial ~~if permitted~~
Collector - ~~/~~Collector	75 feet on both streets	100 feet on both streets
Residential ~~Street-~~ ~~/~~Arterial [1]	50 feet on residential, 150 feet on arterial ~~if permitted~~	50 feet on residential, 200 feet on arterial ~~if permitted~~
Residential ~~Street-~~ ~~/~~Collector	50 feet on residential, 75 on feet collector	50 feet on residential, 100 feet on collector
Residential ~~Street-~~ ~~/~~Residential ~~Street~~[2]	50 feet on both streets	50 feet on both streets
Flag Drive~~/~~ - Collector [1]	20 feet on flag drive, 75 feet on collector ~~if permitted~~	20 feet on flag drive, 100 feet on collector ~~if permitted~~
Flag Drive~~/~~ - Residential ~~Street~~ [1]	20 feet on flag drive, 50 feet on residential ~~if permitted~~	20 feet on flag drive, 50 feet on residential ~~if permitted~~
Alley - ~~/~~Collector [1]	20 feet on alley, 75 feet on collector ~~if permitted~~	20 feet on alley, 100 feet on collector ~~if permitted~~
Alley - ~~/~~Residential ~~Street~~ [1]	20 feet on alley, 50 feet on residential ~~if permitted~~	20 feet on alley, 50 feet on residential ~~if permitted~~
Alley - ~~/~~Alley	10 feet on both alleys	10 feet on both alleys

Notes:

[1] If permitted by the City's Engineer.

[2] ~~Drive Approach Spacing is measured between the face of the curb of the intersecting street and the nearest edge (face of curb) of the drive approach not including the drive approach radius. See figure 2.2.2.1.~~Driveways across T-intersections on residential streets are exempt.

~~Figure 5. Drive Approach Spacing at Intersections~~

3. Offset and relative~~Drive approach offset/relationship~~ to median openings (See Figures 5.12 and 5.13 below)

   a. For collector streets, drive approaches that do not align across the street from each other must be offset by a minimum of 75 feet between nearest tangent-edge to nearest tangent-edge.

   b. For Arterial Streets without medians, drive approaches must align across the street from each other, and ~~be positioned as is reasonable and practical given property line location and time of development of the site~~ must be approved by the City's Engineer. When this is not physically possible or practical as determined by the City's Engineer, drive approaches that do not align must be offset across the street from each other by a minimum of 150 feet between nearest tangent-edge to nearest tangent-edge.

   c. For Arterial Streets with medians, drive approaches must align with existing or proposed median openings. Where this is not possible or practical as determined by the City's Engineer, drive approaches must be placed as far away from the existing or proposed median opening as is reasonably possible.

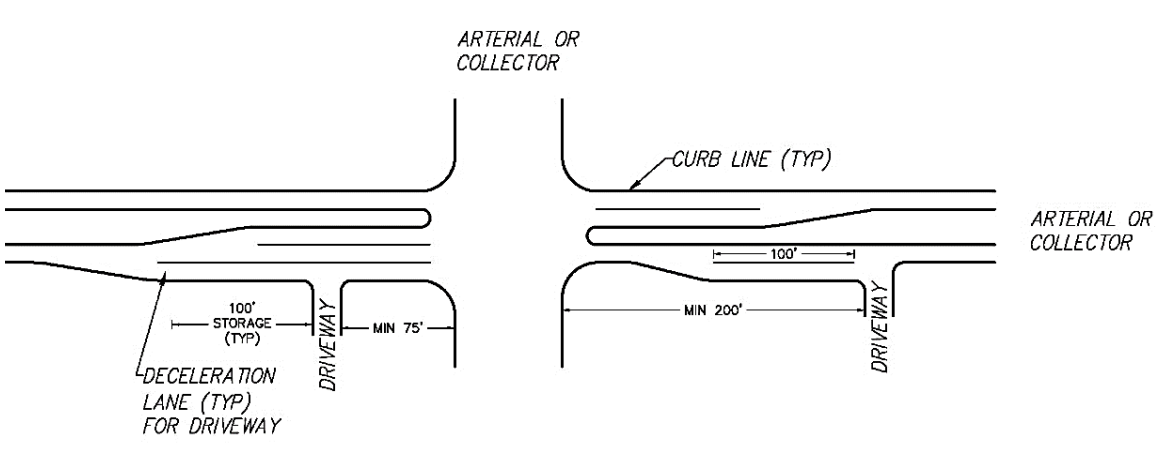


Figure 5.12~~6.12~~~~5.12~~ Drive Approach Near Turning Movements

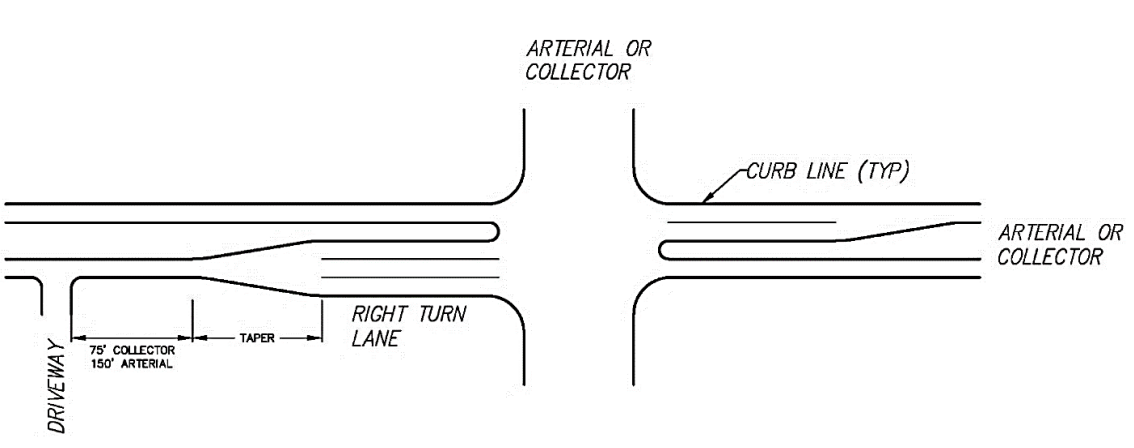


Figure 5.13~~6.13~~~~5.13~~ Drive Approach Near Turning Movements

C. Drive Approach Grades

1. Minimum Drive Approach Slope:

   The minimum drive approach slope shall be determined by:

   S = (6 + [0.02 x~~x~~ W x 12]) / (W x 12) [Eqn. 5.2]

   Where: W = the width of the parkway in feet as shown on the City of Denton Standard ~~drawings~~Details.

2. Maximum Drive Approach Slope: Unless otherwise approved by the City's Engineer through a ~~deviance~~ design deviation request~~approval process~~ (Section 8), the maximum drive approach slope shall be 12%.

3. Difference in Drive Approach Grade: Driveway profiles shall not have a grade difference greater than 5%, without constructing a vertical curve. A minimum K-value of 4 is recommended for driveways accommodating low ground clearance or long wheelbase vehicles.

4. Sidewalks in Drive Approach: Maximum sidewalk cross slope within the limits of the drive

approach shall be 2%.

5. Sidewalk Easement Requirement: Where the parkway width is insufficient to provide appropriate drive approach slope, a sidewalk easement will be required, equal to the balance of the sidewalk width needed outside the ~~right-of-way~~ROW plus two (~~-~~2) feet. The additional two (2) feet requirement is for sidewalk installation and maintenance. The balance of the sidewalk width needed is based upon using the minimum drive approach slope calculated in Section 5.5.2.C.1 above. ~~within Section 2.3.1.~~ *See* Figure ~~2.3.4.1.~~5.14 below as well as ~~Also refer to the~~ City Standard Details~~rawings~~.

6. Driveway/Drive Aisle Consideration: The drive approach slope from the bottom of the gutter to the nearest edge of the sidewalk (within the limits of the ROW) shall not exceed the driveway/drive aisle slope beginning at the furthermost edge of the sidewalk. Also, it shall not be less than the minimum slope, nor be greater than the maximum slope as noted herein. ~~See Figure 2.3.5.1~~

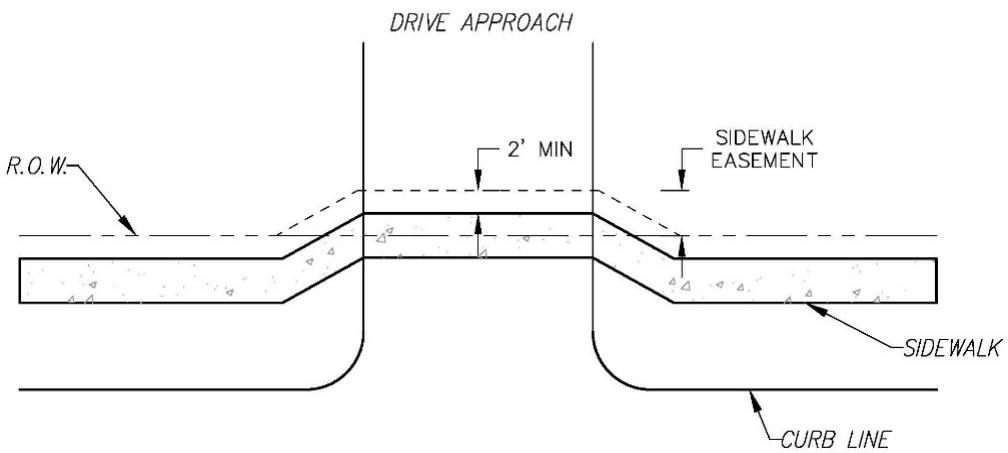


Figure 5.14~~6.14~~~~5.14~~ Sidewalk Easement to meet Drive Approach Slope

D. Driveway Throat Length Requirements

1. Minimum throat length requirements are shown in Table 5.5-D below. Note that throat length requirement applies to both edges of the drive approach.

2. All drive approaches that access an arterial shall be classified as a primary drive approach. If no drive approaches access an arterial, then the drive approach expected to receive the most traffic is considered to be the primary drive approach.

3. The throat length is measured between the first parking space or drive aisle and the ~~property~~ curb line, whichever is closer to the curb line.

4. Parking lots with 10 or less parking spaces may use a minimum throat length of 10 feet for drive approaches accessing a residential or collector street.

5. Queuing analysis required for gated entrances and drive-throughs.~~.~~

Table 5.5-D: Minimum Throat Length		
No. of Parking Spaces	**Min. Throat Length for Primary Drive Aisle (feet)**	**Min. Throat Length for Secondary Drive Aisle (feet)**
0 to 100	20	20
101 to 250	40	20
251 to 500	60	40
501 to 1000	80	60
1001 and above	Queuing Analysis Required	Queuing Analysis Required

E. Driveway Separation

~~Unless located on a TxDOT roadway, dr~~Driveways shall be separated in accordance with ~~Table 2.2.2.1~~Table 5.5-B to ensure that all driveways are separated by sufficient distance so as to avoid interfering with the safe movement of traffic. In interpreting and applying the separation requirements, the following shall apply:

1. The separation requirements shall be determined in reference to any proposed or existing driveways on or off the property. Where applied to a property, which is located adjacent to an undeveloped tract, the separation requirements shall account for the placement of future driveways on the adjacent undeveloped property.

2. The minimum separation specified may be reduced for currently developed property, if the amount of street frontage for the property is insufficient to allow for one (1) driveway access that would have the necessary separation from an existing driveway on adjacent property, and joint access with adjacent properties is not physically possible, as determined by the City's Engineer. If a reduction in the minimum separation specified is allowed, the separation shall be reduced only to the degree necessary to allow for the single driveway.

~~**B. The separation distances specified shall be measured from the nearest edge of each driveway at the right-of-way line.**~~

F. Corner Clearance Standards

Corner clearance standards shall be applied in accordance with AASHTO "Green book" to ensure that the traffic movements from driveways do not unduly conflict with the movement of traffic on intersecting public streets. In interpreting and applying the corner clearance standards, the following shall apply:

1. A reduced requirement may only be used if absolutely necessary to provide driveway access to property where no other means of access meeting the corner clearance requirement is reasonably possible, and joint access with adjacent properties is not physically possible as determined by the City's Engineer. If a reduction in the minimum corner clearance specified is allowed, the corner clearance shall be reduced only to the degree necessary to allow for the single driveway.

2. The specified distances shall be measured at the ~~right-of-way~~ROW line from the edge of the driveway nearest the intersecting street to the ~~right-of-way~~ROW line of the intersecting street. Where ~~right-of-way~~ROW corn~~m~~er clips exist or are proposed, the specified distance shall be measured from the edge of the driveway nearest the intersecting street and the end of the corner clip nearest to the subject driveway.

G. Modifications to Existing Drives~~Driveway Widths and Grades~~

~~Unless located on a TxDOT roadway, driveway widths and grades shall be in accordance with Table 2.2.1.1 Driveways connecting to TxDOT roadways shall meet TxDOT standards~~Existing non-compliant drives may be modified to comply with criteria set forth in this Manual, but may not be modified in a way that increases the non-compliance with this Manual.

H. TxDOT Drives

All drives connecting to TxDOT roadways shall meet all required TxDOT standards, in addition to meeting City of Denton standards when applicable.

5.5.3 Cul-de-sacs

A. Geometrical Standards

1. Maximum length of a Cul-de-sac shall be 600 feet measured from the centerline of the intersecting street to the Cul-de-sac radius point, and perpendicular to the intersecting street centerline.
2. Minimum length of a Cul-de-sac shall meet Fire Code requirements.
3. Residential Cul-de-sacs shall not have more than 29 residential lots.
4. The center radius of the Cul-de-sac shall be a minimum of 50 feet for residential developments, and 60 feet for commercial and industrial developments measured from the center point to the face of curb or edge of pavement where there is no curb.
5. The Cul-de-sac return radius shall be 30 feet.
6. Cul-de-sac minimum street grades shall be as shown below in~~on~~ Figure ~~1.3.3.1~~5.15 and Figure 5.16 below for downward gradient and ~~and as shown on Figure 1.3.3.2 for~~ upward gradient, respectively.~~.~~

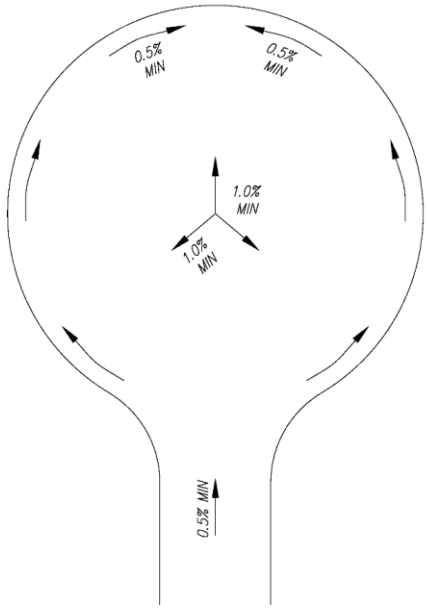


Figure 5.15~~6.15~~5.15 Cul-de-sac Minimum Slope - Downward Gradient

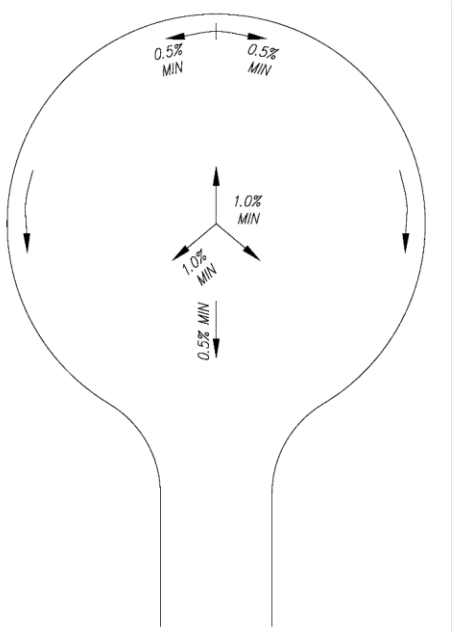


Figure 5.16~~6.16~~5.16 Cul-de-sac Minimum Slope - Upward Gradient

B. Offset Cul-de-sacs

1. Offset Cul-de-sacs shall have the same radius and return radius as the standard Cul-de-sac.
2. The length of the offset Cul-de-sac shall be measured from the centerline of the intersecting street to the Cul-de-sac radius point, perpendicular to the intersecting street centerline.

C. Temporary Turn-Around

1. A temporary turn-around shall be limited to approved phase developments where the street will be extended in the future.
2. A temporary turn-around shall meet the requirements of a standard Cul-de-sac for radius and return radius size.
3. The length of street associated with the turn-around shall not be any greater than 600 feet nor less than Fire Code requirements.
4. If the length of street will be greater than 600 feet, then the next block length of street and intersecting streets shall be constructed in order to provide looped traffic flow for emergency vehicles.
5. The turn-around section shall be constructed to the same structural section as the street section less curb and gutter requirements, unless drainage requirements warrant curb and gutter.

5.5.4 Supplementary Design Elements

A. Signage

Signage and pavement markings shall be as shown in the Texas Manual on Uniform Traffic Control Devices (T~~x~~MUTCD).

B. On-street Parking

Consistent with the requirements of Public Rights of Way Accessibility Guidelines (PROWAG), the following Americans with Disabilities Act (ADA) on-street parking requirements shall be followed:

1. General
   a. On-street parking is permitted for residential and residential collector streets.
   b. On-street parking for proposed commercial/industrial collectors or arterials is not allowed. Where on-street parking is designated, one (1) on-street parking space for each single-family unit on a block is required on the frontage street within that block.
   c. Areas in front of a driveway, ~~or~~ within five (~~-~~5) feet of a driveway, within 20 feet of a street intersection, or within 15 feet of a fire hydrant shall not be counted toward the required on-street parking.
2. Parallel Parking
   a. For parallel parking spaces where the adjacent sidewalk or available ~~right-of-way~~ROW is more than 14 feet wide, an access aisle must be provided at street level for the entire length of each accessible parallel parking space.
   b. The access aisle must be a minimum of five (5) feet wide ~~minimum~~ and connect to a pedestrian access route.
   c. The access aisle must not encroach on the vehicular travel lane and must comply with the technical requirements for surfaces.
   d. In alterations where the street or sidewalk adjacent to the parking spaces is not altered, an access aisle is not required, provided the parking spaces are located at the end of the block face.
   e. Where the adjacent sidewalk or available ~~right-of-way~~ROW is less than or equal to 14 feet wide, an access aisle is not required, but accessible parallel parking spaces must be

located at the end of the block face.

Figure 5.17 shows the acceptable parking configuration for on-street parallel parking.

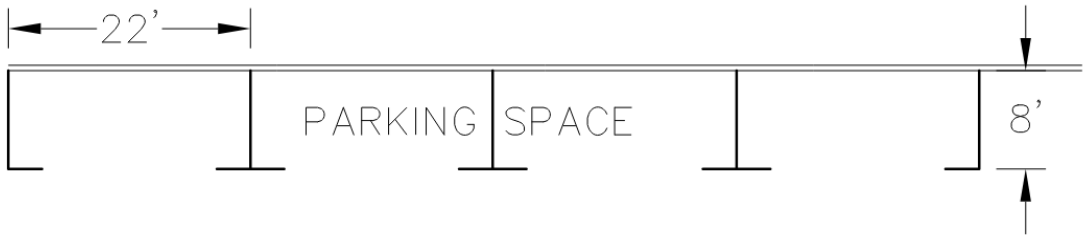


Figure 5.17~~6.175.17~~ Parallel Parking

3. Perpendicular and Angled Parking

   a. For perpendicular and angled parking spaces, an access aisle must be provided at street level for the entire length of each accessible perpendicular or angled parking space.

   b. The access aisle must be a minimum of eight (8) feet wide ~~minimum~~ to accommodate vans with lifts and connect to a pedestrian access route.

   c. Two (2) accessible parking spaces are permitted to share a common access aisle.

   d. The access aisle must be marked to discourage parking in the aisle and comply with the technical requirements for surfaces.

   Figures 5.18 through 5.21 show the acceptable parking configurations for on-street angled parking.

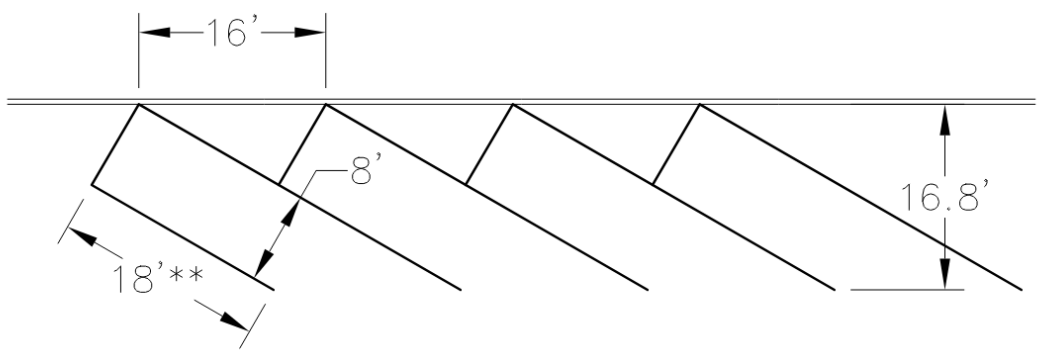


Figure 5.18~~6.185.18~~ Angled Parking – 30 degrees

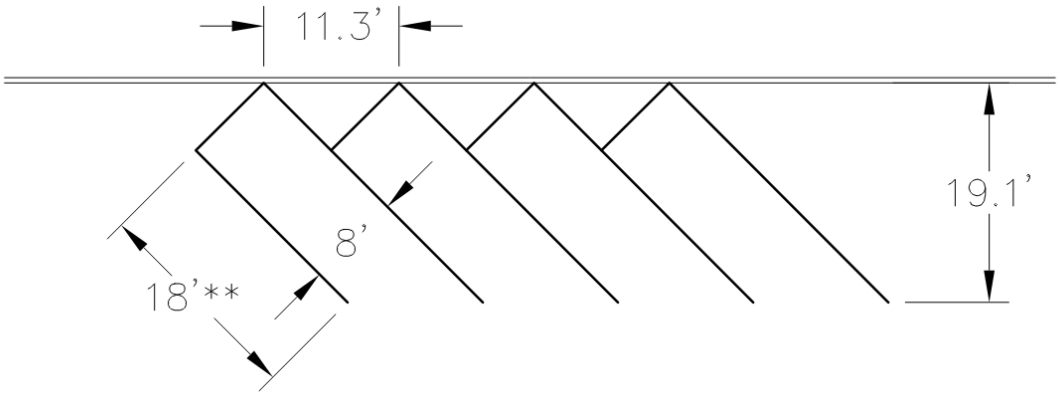


Figure 5.19~~6.19~~~~5.19~~ Angled Parking - 45 degrees

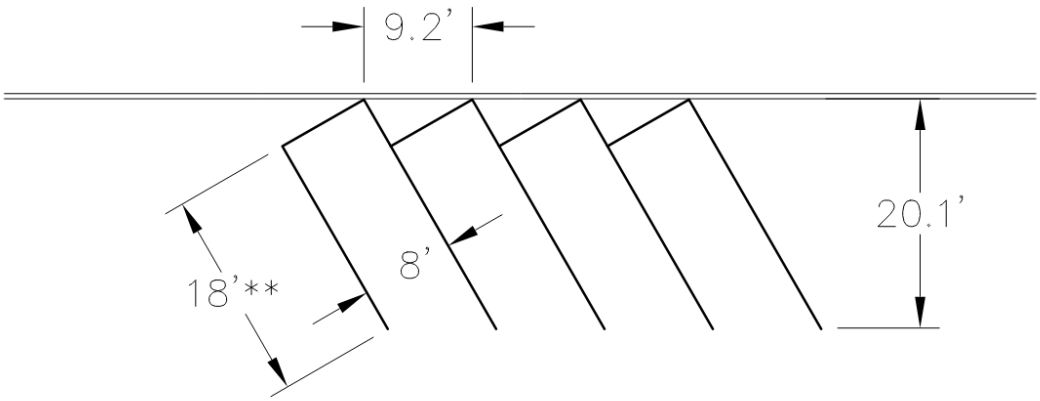


Figure 5.20~~6.20~~~~5.20~~ Angled Parking - 60 degrees

~~Figure 1.6.4 - 60 Degree Angle~~

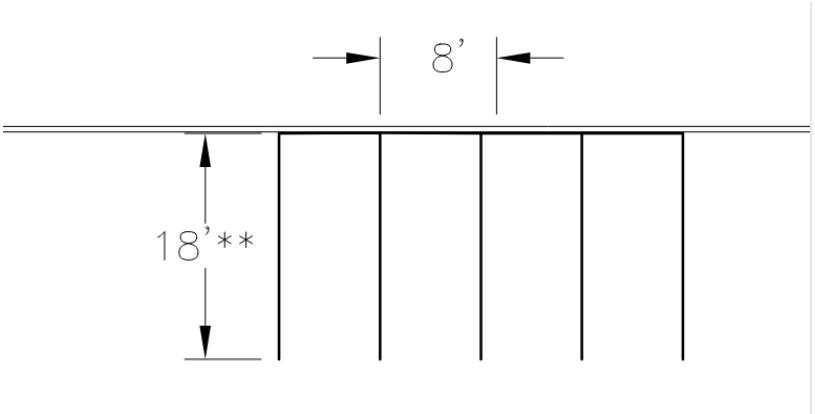


Figure 5.21~~6.215.21~~ Angled Parking - 90 degrees

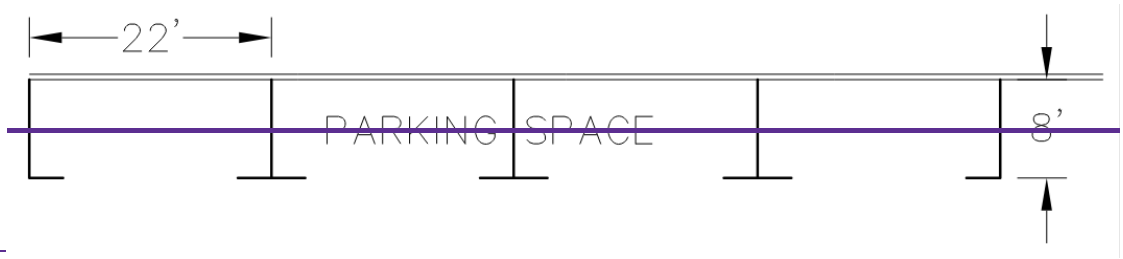
~~Figure 1.6.5 - 90 Degree Angle~~

4. Curb Ramps and Blended Transitions
   a. Curb ramps and blended transitions must connect the access aisle serving each accessible on-street parking space to the pedestrian access route.
   b. Curb ramps are not permitted within the access aisle.
   c. Parking spaces at the end of block face can be served by curb ramps or blended transitions at the pedestrian street crossing.
   d. Detectable warning surfaces are not required on curb ramps and blended transitions that connect the access aisle to the sidewalk, including where the sidewalk is at the same level as the parking spaces, unless the curb ramps and blended transitions also serve pedestrian street crossings.
5. Other~~ ?~~
   a. Wheel stops will be required to prevent vehicle overhang into adjacent property~~, right-of- way~~, ROW, structures, landscaping or sidewalk (applicable to '**' shown on above figures).~~**~~
   b. Parking spaces may be reduced to 16.5 ~~-~~feet in length if a two (2) feet overhang is provided.
   c. All standard parking space striping shall be white in color.
   ~~f.~~ On-street ~~M~~motorcycle parking space is half the size of a vehicle parking space.
   d.

~~C. Figures 1.6.1 through 1.6.5 show the acceptable parking configurations for on-street parking.~~

~~D.~~

~~E.~~



~~F.~~

~~G. Figure 1.6.1 - Parallel Parking~~

C. Median Openings

Median openings for collectors and arterials shall be as designated by the City's Engineer. Median opening allowance ~~first~~ shall primarily consider the safety and effective flow of traffic within the collector or arterial street, then secondarily consider the effective movement of traffic to and from the development. Whether a median opening is allowed will ~~be~~ solely be up to the City's Engineer.

When a development is allowed to have a median opening, it shall be provided in accordance with the following criteria:

1. The width of a median opening shall be 60 feet.
2. Median openings shall center on the intersecting drive.
3. Median openings shall be a minimum of 400 feet apart, measured from ~~the~~ nose- ~~of median~~ to- -nose of medians.
4. Whenever a median opening is constructed, the associated left-turn lane serving the development must be constructed at the same time. In the event that there is an existing intersecting street on the opposite side of the street, the new development constructing the median opening shall be required to install both left-turn lanes.
5. Patterned and colored median noses shall be constructed as shown on the City of Denton Standard Details~~Drawings~~.

D. Traffic Calming

~~Traffic calming devices are permitted only on residential and residential collector streets.~~ Traffic calming with respect to speed-control devices are not permitted on public ROW. Speed humps on private property are prohibited unless approved by City Fire Code official, and shall comply with IFC ~~503.4.1~~ standards.

~~Traffic calming devices are required at a minimum of two block intervals (generally 1200 foot maximum spacing), but no less than 200 feet apart on residential and residential collector streets.~~ Appropriate signage and pavement markings are to be provided along with all traffic calming devices. Additional ~~right-of-way~~ROW may need to be dedicated in order to accomplish adequate traffic calming.~~.~~

A separate permit is required for the installation of speed control devices located in a fire lane. These devices shall be constructed of durable rubberized material, molded plastic or of concrete.

~~1. Speed Control Devices: A separate permit is required for the installation of speed control devices located in a fire lane. These devices shall be constructed of durable rubberized material, molded plastic or of concrete.~~

~~2. Speed Hump Design: Speed humps are parabolic vertical traffic calming devices intended to slow traffic speeds on low volume, low speed roads. Speed humps are 3–4 inches high and 12–14 feet wide, with a ramp length of 3–6 feet, depending on target speed.~~

~~5.4~~5.6 Access Management

~~5.4.1~~5.6.1 Purpose and Goals

The purpose of the access management plan is to promote the health, safety, and general welfare of the present and future residents of the city through managing traffic flow and promoting traffic safety.

~~5.4.2~~5.6.2 Access Standards

A. Compliance

1. No person shall construct, reconstruct, replace, relocate, alter, enlarge, improve or perform any work on or make use of any driveway for any property within the City or its~~the~~ Extraterritorial Jurisdiction, except in accordance with the Access Management standards

provided in this Manual or the TxDOT Access Management Manual, when applicable.

2. All driveways shall be designed, installed, located, and constructed in accordance with the approved specifications, plans, conditions, and requirements of the permit issued for the property, and the requirements of this Manual.

3. No certificate of occupancy shall be issued for any building on any property for which a permit is required, until the construction, improvements, alterations or other work covered by the permit is completed in accordance with the permit issued, the requirements of this Manual, or the provisions of any other applicable ordinance.

~~8.~~4. Where no building permit was required in connection with the requested permit, no driveway on the property for which the permit was issued shall be used until and unless the work is completed in accordance with the permit, and this Manual.

B. Access to Freeways

Access to freeways shall only be provided at entrance ramps. Access to frontage roads may be provided in accordance with the standards for access to arterial streets set forth in this Manual, with the following exceptions:

1. No access is allowed in areas where TxDOT owns the Control of Access. Such Control of Access may be found on current TxDOT ~~right-of-way~~ROW maps.

2. No access is allowed within a paved gore area or 250 feet past painted gore of an exit ramp. Similarly, no access is allowed within a paved gore area or 200 feet upstream of the painted gore of an entrance ramp.

C. Access to Arterial Streets

Access to an arterial street shall not be permitted unless there is no other reasonable means of providing safe access to the property. Unless designated as a freeway, all TxDOT Highways shall be considered arterials. Additionally, the geometric, hydraulic, and pavement designs of all access driveways to TxDOT roadways must be reviewed by TxDOT to en~~as~~sure compliance with their standards.

1. No development shall be allowed access to an arterial street if property excluded from the development could have been used to provide reasonable access to a lesser classified street, or if the property has been previously subdivided in violation of state law or the ~~Denton Development Code~~DDC and if access could have been provided to a lesser street except for such unapproved subdivision of the property.

~~2.~~ Existing commercial or industrial lots created prior to adoption of ~~The Denton~~the DDC

~~3.~~2. ~~Development Code~~ by legal subdivision procedures with exclusive frontage on an arterial street may take access to the arterial in accordance with the access standards in this Manual.

~~4.~~3. Existing single~~-~~-family and ~~two-family~~duplex lots created prior to adoption of ~~The Denton Development Code~~ the DDC by legal subdivision procedures with exclusive frontage on an arterial street may be developed with a circular drive. Such ~~driveway~~ drives shall be designed and constructed in accordance with standards for circular drives provided in this Manual.

~~5.~~4. When ~~driveway~~ drives access to an arterial street is the only reasonable means of providing safe and adequate access to the property as determined by the City's Engineer ~~Engineer~~, the ~~driveway~~drive ~~way~~ design, number of ~~driveways~~drive~~eways~~, location and construction shall be in accordance with this Manual.

~~6.~~5. ~~Driveways~~Drive~~eways~~s on an arterial shall align with existing median openings, other driveways, and "T" intersections, or be offset in accordance with this Manual.

D. Access to Collector Streets

1. Access to collector streets for commercial, office, or industrial development is required and shall be designed and constructed in accordance with the standards provided in this Manual.
2. ~~No single- or two-family~~Single-family or duplex lots shall ~~be~~ not be designed such that there is no other means of access other than a collector street.
3. Existing single~~-~~-family and ~~two family~~duplex lots developed prior to approval of the ~~Denton Development Code~~DDC with exclusive frontage on a collector street and no alley may be developed with a circular drive. Such ~~driveways~~drive~~eways~~s shall be designed and constructed in accordance with the standards for circular drives provided in this Manual.
4. Drive~~way~~s on a collector street shall align with existing driveways and 'T' intersections on the opposite side of the street, or shall be offset in accordance with this Manual.

~~5.4.3~~5.6.3 Fire Apparatus Access Roads~~Lanes~~

A. Design

1. Prior to construction, the design of the fire lane shall be submitted to the ~~City~~~~'s Engineer and~~ Fire officials for review and approval.
2. Fire apparatus roads shall have an unobstructed width of not less than 24 feet and unobstructed vertical clearance of not less than 14 feet. These are minimums and may be increased where they are inadequate for fire or rescue operations.
3. Fire ~~L~~lanes shall be constructed to meet the City of Denton's Engineering Standards for a concrete pavement cross~~-~~-section of a residential street.
4. Fire lane grade shall be no greater than ~~5~~10% ~~with 1/2 inch per foot cross slope~~.

~~5. During construction, all fire lanes servicing the project, shall be installed and permanently marked as per current adopted code, prior to construction progressing past slab elevation. An inspection is required by the fire marshal's office for compliance to proceed with construction past this point.~~

~~6. Maintenance of fire lanes, including preventing the obstruction of by vehicles, equipment, etc., will be enforced during construction. It is the responsibility of the General Contractor or other person(s) in control to maintain fire department access roads.~~

~~7.~~5. Fire ~~L~~lanes shall be located so that access to all points of the building served is a maximum of 150~~'~~ feet, as measured by hose lay. This can be increased to 300~~250'~~ feet, for a building fully equipped with an approved automatic fire suppression system and with the fire code official's approval.~~.~~

B. Modification of Existing Fire Lanes

Modification of ~~any~~ existing ~~or previously approved~~ fire lanes ~~requires a permit from the City of Denton~~MUST be approved by the Fire Marshal's Office. ~~This includes demolition of a fire lane for construction, placement of speed control devices or termination of a fire lane.~~

C. Turning Radius

A 24-~~-foot~~. wide fire lane will require a minimum of a ~~30~~25-~~-foot~~. inside turning radius or as approved by a Fire Code Official.

D. Marking

1. Stri~~p~~ping

~~Marked~~Fire apparatus access roads shall be ~~M~~marked by painting ~~lines of red traffic paint 6-in. six inches (6") in width~~wide red traffic lines at the boundaries of the fire lane, as indicated on the plat. The words "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING" shall ~~appear in~~be four ~~inch (4")~~) inches high~~h (4")~~.

2. ~~Signs~~Signage~~s~~

Signs shall read "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING" and shall be 12-in. wide and 18-in. high. Signs shall be painted on a white background with letters and borders in red, using not less than 2-in. high lettering. Signs shall be permanently affixed to a stationary post, and the bottom of the sign shall be six (6) feet and six (6) inches or 6'-6" above finished grade. Signs shall not be spaced more than 50 feet apart. Signs may be installed on permanent buildings or walls, as approved by the Fire Marshal.

~~ShallS read "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING" and shall be 12" wide and 18" high. Signs shall be painted on a white background with letters and boarders in red, using not less than 2" lettering. Signs shall be permanently affixed to a stationary post and the bottom of the sign shall be sixfeet, six inches(6'6 (") above finished grade. Signs shall not be spaced more than fifty feet (50') apart. Signs may be installed on permanent buildings or walls as approved by the Fire Marshall.A separate permit is required for the installation of speed control devices located in a fire lane. These devices shall be constructed of durable rubberized material, molded plastic or of concrete.~~

~~6.2 Speed Hump Design~~

~~Speed humps are parabolic vertical traffic calming devices intended to slow traffic speeds on low volume, low speed roads. Speed humps are 3–4 inches high and 12–14 feet wide, with a ramp length of 3–6 feet, depending on target speed.~~

~~5.6~~5.7 Bike and Pedestrian Facility Design

The user should be aware of and utilize the ~~City of Denton Development~~DDC Section 7.8.11 Pedestrian and Bicycle Circulation, in conjunction with this ~~Manual.~~section for the design of bike and pedestrian facilities.

~~5.6.1~~5.7.1 Mobility Plan Component

The City of Denton Mobility Plan includes a pedestrian and bicycle component, which -should be reviewed, relative to any proposed transportation improvement.

It should be noted that the City of Denton Mobility Plan is a living document and is periodically updated to reflect the changes in the characteristics of anticipated traffic flow within the City.

~~5.6.2~~5.7.2 Accessibility Standards

The City of Denton considers sidewalks to be accessible routes according to Section 4.3 of Texas Accessibility Standards (TAS) and considers a public sidewalk a "facility". Sidewalks, landings, ramps, and flares shall comply with the most recently adopted ~~latest~~ TAS, ~~the latest Department of Justice~~ ADA, ~~Standards for Accessible Design, the Public Right-of-way Accessibility Guidelines (~~PROWAG~~)~~, and ~~the Federal Highway Administration.~~FHWA standards. Also, sidewalks, landings, ramps, and flares are subject to the requirements of the Texas Department of Licensing and Registration (TDLR) for inspection purposes ~~unless otherwise exempted by the City Engineer~~. Prior to construction of sidewalks ~~where the total cost of the public improvements will exceed $50,000.00~~, the Engineer of Record must show proof of ~~Texas Department of Licensing~~TDLR review and approval for accessibility~~.~~, if the total cost of the public improvements will exceed $50,000.00. Compliance with the regulations shall be the responsibility of the Engineer of Record for the project. Refer to the City of Denton Standard ~~drawings~~Details for additional requirements.

~~5.6.3~~5.7.3 Geometric Standards

Table 5.~~4~~7-A shows the standard ~~with~~width of sidewalks and bike lanes for the various ~~street~~ roadway classifications. Refer to the City of Denton Standard ~~Detail~~Details ~~drawings~~ for the locations of sidewalks and bike lanes within the street ~~right-of-way~~ROW. The Denton Mobility Plan should be reviewed for any planned bicycle and pedestrian facilities that may exceed those called for by the standard details. Any portion of the proposed facility extending past the ROW shall be contained within a pedestrian access easement. The recorded easement shall extend two (2) feet beyond the edge of the facility.

Table 5.7-A: Bike and Sidewalk Requirements

Roadway Classification	Min. Sidewalk Width [1]	Min. Bike Lane Width [1]
Freeway	N/A	
Arterials – Primary and Secondary	5	10
Collector – Commercial and Residential	5	10
Local – Residential	5	N/A
Local – Rural	N/A	N/A
Local – Alley	N/A	N/A

Notes:
[1] Refer to the City of Denton S~~s~~tandard D~~d~~etails street cross-sections for specific bike and pedestrian recommendations. A minimum 5 ~~-feet~~. wide sidewalk on one side of the street, and a 10~~-feet~~. wide bicycle/pedestrian facility o~~f~~n the other side of street will be required.~~.~~

A. O~~Sidewalks~~n Bridges

~~1. On Bridges~~

~~Sidewalk~~Sidewalks ~~widths~~ on bridges shall be a minimum width of six (6) feet or wider, as required by the street classification. ~~Unless otherwise approved by the City Engineer, a~~All street bridges shall have sidewalks on both sides of the bridge. Dependent upon vehicular and pedestrian traffic considerations, a parapet wall may be required to separate the sidewalk from the travel lane. Parapet walls shall be constructed to TxDOT standards. A pedestrian bridge rail shall be constructed on the outside of the bridge to protect sidewalk traffic. Both bridge rails and parapet walls shall meet accessibility standards.

B. On Drainage Crossings

Sidewalk ~~widths~~ at drainage crossings shall be a minimum width of six (6) feet or wider as required by the street classification. ~~Unless otherwise approved by the City Engineer,~~ S~~s~~idewalk railing shall be provided to protect the sidewalk traffic from the outside edge of the drainage crossing. Dependent upon vehicular and pedestrian traffic considerations, a parapet wall may be required to separate the sidewalk from the travel lane. Parapet walls shall be constructed to TxDOT standards. Railing and parapet walls shall meet accessibility standards.

C. Adjacent to Screen Walls

A minimum ~~of~~ additional sidewalk width of two (2) feet ~~additional width of sidewalk~~ shall be required beyond the standard width of sidewalk, for sidewalks adjacent to screen walls.

D. Adjacent to Retaining Walls

A minimum greenspace width of five (5) feet ~~width of green space~~ between the sidewalk and the edge of a retaining wall shall be required, for sidewalks adjacent to retaining walls.

~~5.6.4~~5.7.4 Intersection

A. Curb Ramps

The continuation of accessible routes through intersections shall use approved curb ramps that meet accessibility standards. Refer to the City of Denton Standard ~~drawings~~ Details for curb ramps at intersections. Crosswalks through the intersections shall meet accessibility standards.

B. Bike Lanes

Bike lanes at intersections shall consider other traffic movements and facilities such as turn lane movements, transit facilities, parking, and stop bar locations. The current Urban Intersection Design Guide by TxDOT can be used for bike lane design at intersections. ~~–~~The bike lane design at intersections requires the approval of the City~~-~~'s Engineer~~Engineer or designee~~.

~~5.6.5~~5.7.5 Signage and Pavement Markings

Signage and pavement markings shall be as shown on the TMUTCD Marking & Sign Drawings, and in accordance with the accessibility standards.

A. Crosswalks

Continental type-high visibility crosswalk markings are to be provided in all uncontrolled street crossings, school crossings, downtown areas, or as directed by the City'~~–~~s Engineer~~Engineer or designee~~.

B. Bike Lane

Traffic control devices such as vertical flex posts, green pavement markings, and wayfinding signage may be required to enhance the proposed bicycle facility, as directed by the City~~—~~'s Engineer~~Engineer or designee~~.

~~5.6.6~~5.7.6 Amenities

A. Bike Parking

1. Refer to Bicycle Parking Guideline ~~2nd~~ 2nd Edition by the Association of Pedestrian and Bicycle Professionals (APBP) for general guidelines and resources.

2. All bicycle parking facilities/devices shall be constructed to meet commercial grade structural standards.
3. Location Standard:
   a. Bicycle parking must be on the same lot as the principle use.
   b. Bicycle parking must be located in highly visible and well-lit areas.
   c. Bicycle parking must not interfere with accessible paths of travel or accessible parking as required by the accessibility standards.
   d. Bicycle parking must be located within 50 feet of a main building entrance. In multiple building locations, bicycle parking must be distributed in a manner that serves all entrances.
4. Layout and Design:
   a. Bicycle rack design:
      i. Support the bicycle in at least two (2) places.
      ii. Enable the frame and at least one (1) wheel to be secured.
      iii. Designed to accommodate "U" shape locking devices.
      iv. Installed to manufacturer's specifications.
      v. Each bike rack must be designed to accommodate at least two (2) bikes~~ parking~~.
   b. Bicycle Parking Space
      i. Concrete pad built to City of Denton sidewalk standards.
      ii. Must provide clearance of at least two (2) feet from closest wall.
      iii. Must provide clearance of at least three (3) feet between bike racks.
      iv. Must not interfere with pedestrian pathway.

B. Benches

All benches shall be constructed to meet commercial grade structural standards. Benches shall be secured to prevent displacement. Benches shall not project into any accessible route or alter an accessible route such that it will not meet the accessible route standards.

C. Lighting and Enclosures

Lighting standards and above-~~-~~ground enclosures shall not extend into any accessible route or alter an accessible route such that it will not meet the accessible route standards.~~ Sidewalk widths on bridges shall be a minimum of 6 feet or wider as required by the street classification. Unless otherwise approved by the City Engineer, all street bridges shall have sidewalks on both sides of the bridge. Dependent upon vehicular and pedestrian traffic considerations a parapet wall may be required to separate the sidewalk from the travel lane. Parapet walls shall be constructed to TxDOT standards. A pedestrian bridge rail shall be constructed on the outside of the bridge to protect sidewalk traffic. Both bridge rails and parapet wall shall meet accessibility standards.~~

~~5.7~~5.8 Transit Facility Design

~~5.7.1~~5.8.1 General

Bus stops shall meet at a minimum the design standards of the Denton County Transit Authority (DCTA),

and the accessibility standards of TAS, PROWAG, and ~~Department of Justice ADA Standards for Accessible Design.~~ADA. Figure 5.~~1~~22 show a general layout of a bus stop at an intersection. Bus stops shall be located on the departing side of a street intersection. The use of a pull-out lane may be considered where the specific site conditions warrant such an arrangement. The determination of the appropriateness of a pull-out lane shall rest with the City-'s Engineer~~Engineer or designee~~.

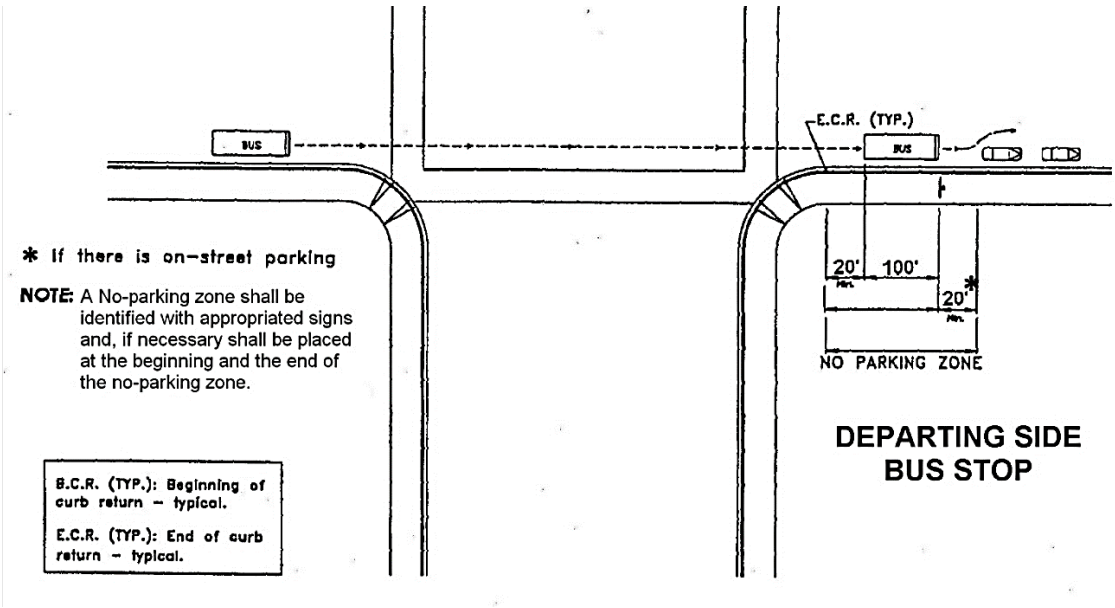


Figure 5.22~~6.22~~~~5.22~~ Standard Bus Stop Location at Unsignalized Intersection

Note: For signalized intersections an Approach Side Bus Stop is preferred

~~5.7.2~~5.8.2 Bus Stop Placement

Bus stop placement should consider the need for the bus stop, traffic operation concerns, and passenger accessibility. A bus stop should be placed within an area that allows bus stop amenities to be located in the public ~~right of way~~ROW and where the ingress and egress of the bus does not overly impede the flow of traffic. The warrant for a bus stop shall be as required by the City of Denton in conjunction with DCTA. Elements to consider for bus stop placement include the follow:

A. ADA and PROWAG compliance of all elements, including pedestrian routes, shelters, signing, etc~~...~~.

B. Within Public ~~Right of Way~~ROW, or a dedicated access easement.

C. Proximity to major trip generators such as malls, student housing areas, retail commercial zones, park and rides, destination areas, etc.

D. Pedestrian facilities such as sidewalks or multi-use paths, marked cross walks, space provisions for accessibility standards, and curb ramps should be available at the location for a proposed bus stop.~~.~~

E. Convenient passenger transfers to other routes.

F. Open and visible location for personal security and passenger visibility.

G. Acceptable street illumination or proposed street illumination with placement.

H. Ability to have restrictive parking in bus zone.

I. Adequate space for bus zone.

J. Gentle street grades at bus zone.

K. Return to traffic without overly hindering traffic flow.

L. No interference from driveways.

~~5.7.3~~5.8.3 Bus Stop Amenities

The following are bus stop amenities that shall be considered during the process of design:

A. Accessibility compliant loading area. All bus stops shall have accessibility compliant loading and offloading area. This area shall be integral to the sidewalk pathway, bench area, and shelter area, if provided. The loading area shall be constructed of reinforced concrete with the same thickness as the adjacent sidewalk.

B. Bench and trash receptacle may be warranted based upon Table 5.8-A. Bench and trash receptacle type and installation shall be as required by the City of Denton.

C. A shelter may be warranted based upon Table 5.8-A The shelter type and installation shall be as required by the City of Denton and DCTA. Shelters shall provide space to meet accessibility standards.

D. Illumination shall be provided if illumination is not provided at the street corner adjacent to the bus stop, or if in the opinion of the City's Engineer ~~Engineer~~ the existing illumination is inadequate.

E. Bus s~~S~~tops that accumulate 10 points or more may be considered for shelter placement. Bus s~~S~~tops that accumulate six (~~-~~6) points or greater may warrant a bench and trash receptacle.

Table 5.8-A: Bus Stop Amenities Warrant

Points	Condition
6 points	25 people per day boarding
4 points	Special needs, i.e., Senior Center, Medical Complex, libraries, high accessibility standard usage such as group residences~~.~~
4 points	High use location, i.e., Student housing area, schools, hospitals, mall~~.~~
2 points	Request for improvements by citizens, i.e., multiple requests over a one-year time~~.~~
6 points	15 people per day or greater boarding
4 points	Adjacent to an arterial roadway~~.~~

~~5.7.4~~5.8.4 Bus Stop ~~Amenities~~Signage and Markings

Bus stop signage and markings shall be according to the City of Denton and DCTA. Signage shall include a "No Parking Zone" sign and a DCTA bus stop sign.

~~5.8~~5.9 Traffic Impact Analysis Guidelines

~~5.8.1~~5.9.1 General

The purpose of the traffic impact analysis (TIA) is to assess the impacts of development on the existing roadway system within the study area of the development and to assess the traffic flow needs within the development. The thoroughfare component of the Mobility Plan and the City of Denton traffic model establishes the base conditions for assessing the impacts. The current traffic model and the assessment is based on a Level of Service D according to the current Highway Capacity Manual. The TIA shall be signed and sealed by a PE Licensed by the State of Texas, and shall be valid for a period of 3 years, unless there is a significant change in the plans or surrounding conditions, as determined by City's Engineer.

~~Definitions~~

~~Existing Traffic – Existing traffic conditions based on the City of Denton traffic model and/or known existing traffic conditions.. Existing traffic conditions do not include the traffic created or associated with the development.~~

~~Proposed Site Traffic Volumes – The number of vehicles per day and per hour projected to be generated by the development.~~

~~20-Year Horizon – The estimated traffic volume for the study area based on a 20-year growth period.~~

~~Projected Growth Rate – The estimated growth rate per year for the study area based upon the average growth in the previous 5 year period along arterials in the vicinity of the proposed project.~~

~~Study area – The boundaries of the assessment area as determined by the City of Denton Engineer or designee.~~

~~Traffic Queue – Vehicles within a storage queue awaiting traffic movement..~~

~~Trip Distribution – EstimatesEstimates of trip distribution by turning movements from the proposed development.~~

~~5.8.2~~5.9.2 Preliminary Trip Generation Assessment

All developments are required to prepare a Preliminary Trip Generation Assessment for their proposed projects. The need for a TIA shall be determined by the City's Engineer ~~of Denton Engineer or designee~~ based upon the information included in the Preliminary Trip Generation Assessment and the criteria in Section ~~9.4~~5.9.3 below.~~.~~

~~5.8.3~~5.9.3 When is a TIA required?

Based on the preliminary trip generation assessment for the proposed project, unless otherwise directed by the City ~~of Denton Enginee~~'s Engineer~~r~~, a TIA will be required for the following conditions:

A. Development will generate equal to or more than 100 Peak-Hour Trips (PHT).

B. Development will generate equal to or more than 1,000 vehicle trips per day (VPD).

C. Project area to be developed is equal to or more than 100 acres.

D. Changes or alterations to the City Thoroughfare plan based on the Mobility Plan will be requested.

E. Access is taken from a TxDOT roadway.

F. Zoning changes that will negatively increase estimated traffic volumes above the current zoning estimated traffic volumes.

G. Access is taken from an existing roadway with current traffic flow congestion based upon observed conditions.

H. Development plus recently approved or pending development projects which have not been constructed located adjacent to the site and/or in proximity to the site, meet the above vehicular trip criteria or acreage criteria as determined by the City's Engineer~~Engineer or designee~~.

I. If access is taken from a TxDOT roadway, check TxDOT TIA requirements.

~~5.8.4~~5.9.4 TIA Requirements

A. TIA Study Criteria

Table 5.9~~10~~-A shows the number of analysis periods and study area limits for the TIA. Prior to developing the TIA, a Preliminary Trip Generation Assessment shall be developed and reviewed with the City's Engineer~~ of Denton Engineer or designee~~, to verify the number of analysis periods and the study area requirements. ~~See Section 5.10.6 Submission and Review Procedures.~~

Table 5.9-A: Criteria for Study Requirements

Analysis Category	Site Trips Generated at Full Build-Out	TIA Analysis Periods [1]	Minimum Study Area [3]
I	>50 peak hour driveway trip	1. Existing year 2. Opening year [2]	1. All site access drives
II	100-500 total peak hour trips	1. Existing year 2. Opening year [2] 3. Five years after opening	1. All site access drives 2. All signalized intersections and/or major unsignalized intersections within ½ ~~0.5~~ mile to 1 mile of site boundary, depending on total peak hour trips
III	>500 total peak hour trips	1. Existing year 2. Opening year of each phase 3. Five years after initial opening 4. Twenty years after final opening with full build-out	1. All site access drives 2. All signalized intersections and/or major unsignalized intersections within 1 ½ ~~.5~~ miles of site boundary and/or major intersections along access routes to/from regional corridors

Notes:
[1] Analysis periods shall include build and no-build scenarios. Assume full occupancy when each phase opens.
[2] Assume full build-out.
[3] For certain projects, the City may require an enlarged study area. Land uses within the study area should include recently approved or pending development adjacent to the site and/or in proximity to the site.

B. Specific Requirements of the TIA Report

At a minimum the TIA report will include the following items:

1. Introduction that describes the project and traffic generating modes.
2. Traffic Analysis Map:
   a. Existing and Proposed Land use within Study Area.
   b. Study Area Boundary.
   c. Existing and Proposed Roadways.
   d. Designation of Traffic movement elements.

e. Thoroughfare Plan Elements within Study Area

3. Trip Generation Calculations as per the most recent ITE Trip Generation Manual:
   a. Daily and Peak Hourly Trip Generation for fully developed project conditions. Include both AM and PM Peak Hours. Provide Summary table and backup tables for calculation methods.
   b. Discount assumptions based upon City's Engineer's ~~of Denton Transportation Engineer~~ approval.
4. Trip Distribution and Assignment Tables and Figures:
   a. For Entrance/Exit from the development.
   b. For boundary streets within study area.
5. Existing and Projected Traffic Volumes for Study based upon Table ~~1.8.4.1 Criteria~~5.9-A ~~Criteria~~above:
   a. Average Daily.
   b. Peak Hourly AM and PM.
   c. Additional Traffic Volume Data Provided by the City's Engineer ~~Traffic Engineer~~.
6. Traffic Volume Analysis:
   a. Level of Service Evaluation for AM and PM Peak Hours.
   b. Turn Lane Evaluation for project site and study area. –The extent of evaluation to be determined by the City's Engineer ~~of Denton Engineer or designee~~.
   c. Signalization Evaluation for project site and study area. The extent of the evaluation to be determined by the City's Engineer ~~of Denton Engineer or designee~~.
   d. Identification of all thoroughfares, driveways, intersections, and individual movements that do not meet LOS~~-~~-D.
7. Recommendations:
   a. Proposed recommendations to mitigate impacts to transportation system within the study area.
8. Document Requirements: The following provides a general outline for the TIA report:
   a. Executive Summary
   b. Introduction
      i. Purpose
      ii. Methodology
   c. Existing and Proposed Land Use
   d. Site Traffic Generation
   e. Existing and Proposed Traffic Flow
      iii. Transportation System
      iv. Transportation Volumes
   f. Traffic Analysis
      v. Level of Service Evaluation

vi. Turning Movement Evaluation

vii. Signalization Evaluation

g. Active Transportation Impact Evaluation

viii. Bicycle Paths/Routes and Trail Connection Assessment

ix. Pedestrian Impact Analysis

h. Safety Assessment

i. Mitigation

j. Conclusions and Recommendations

9. Additional Requirements

Dependent upon the site characteristics, the City's Engineer ~~of Denton Engineer or designee~~ may require additional information to be included in the TIA.

~~5.8.5~~5.9.5 Submission and Review Procedures

A. A Preliminary Trip Generation Assessment of the proposed development shall be conducted to determine the TIA requirements such as limits of study area, need and type of turning movement evaluation, need for signalization evaluation, discount assumptions that can apply, and criteria to be used. Sufficient base information shall be submitted to the City's Engineer ~~of Denton Engineer or designee~~ in order to provide proper guidance on TIA requirements for the report. Subsequent to the submittal of the preliminary trip generation assessment, a meeting with the City's Engineer ~~of Denton Engineer or designee~~ should be scheduled to discuss the specific requirements for the TIA.

B. Upon completion of the TIA report, two (2) copies of the report shall be submitted to the City's Engineer ~~of Denton Engineer or designee~~ for review.

C. After a TIA is approved and if the development proposed land use and/ or proposed traffic generation characteristics change, the TIA shall be updated and re-submitted to the City for approval.

~~5.8.6~~5.9.6 Safety Assessment

Consistent with the recently adopted Mobility Plan, safety is the number one priority for the City of Denton and as such, all new developments will be required to conduct a safety assessment as part of their TIA. The safety assessment will include a review of safety for all road users (vehicles, pedestrians and bicycles) within the project site as well as along existing public ~~rights-of-ways~~ROWs in the vicinity of the project. The assessment will include a review of the following:~~.~~

A. Within the project site (Site Circulation).

B. All new intersections including project driveways.

C. All existing intersections included in the TIA.

~~5.8.7~~5.9.7 Bike/Ped TIA

All projects are expected to achieve the minimum acceptable LOS standard for onsite and off-site bicycle and pedestrian facilities. Pedestrian and bike facility demand shall be identified and related items for

discussion should include:

A. School routing plans per the TMUTCD between the project and all schools within ~~1.5~~½-mile~~s~~ of the project boundary.~~;~~

B. The demand for pedestrian and bike facilities to serve high pedestrian activity areas within the land use.~~;~~

C. The need for links of bicycle or pedestrian facilities to neighboring land uses or attractions (trails, etc.) within ~~0.25~~ ¼-mile~~s~~ (or greater if applicable to unique pedestrian-oriented destinations) of the project site.~~;~~

D. Existing and proposed sidewalk width, separation from traffic, and space available for trees, transit stops (if any), or other related elements (if any).

E. Geometric improvements and recommended traffic control devices to accommodate pedestrians and bicyclists.~~;~~

F. Existing and proposed pedestrian and bike facilities shall be evaluated for compliance with the following elements:

1. Directness. Walking distance to destinations like transit stops, schools, parks, and commercial or activity areas should be direct. Measurement of directness is the ratio of the a~~A~~ctual distance to a destination via a sidewalk or pathway divided by the m~~M~~inimum distance characterized by a grid street system.

2. Continuity. The sidewalk/ walkway system should be complete, without gaps. The pedestrian corridor should be integrated with the activities along the corridor and should provide continuous access to destinations.

3. Street Crossings. Safety and comfort is essential while crossing streets, intersections and mid-block crossings. Factors that affect the LOS include: number of lanes to cross, crossing delay for pedestrians, signal indication, cross-walks, lighting, raised medians, visibility, curb ramps, pedestrian buttons, convenience, comfort, and security.

4. Visual Interest and Amenity. Pedestrians enjoy visually appealing environments that are compatible with local architecture and include street lighting, fountains, and benches.

5. Security. Pedestrians should be visible to motorists, separated from motor vehicles and bicycles, and under adequate street lighting.

6. Surface Condition. Pedestrian facilities should be free from obstructions, cracks, and interruptions.

The pedestrian Level of Service for the facility/corridor linking these destinations to the project site will be based on the directness, continuity, types of street crossings, walkway surface condition, visual interest/amenity, and security of the selected route(s), as shown in Table 5.9-B below.

Table 5.9-B: Bike/Ped TIA Criteria~~xx~~

Quality Indicators	A	B	C	F
Security	Well used, good lighting levels and unobstructed lines of sight	Unobstructed lines of sight, good lighting levels	Sidewalk configuration and parked cars present sight problems, moderate lighting	Major pedestrian visibility problems, streetscape is pedestrian intolerant
Directness (Sidewalk Distance/ Minimum Distance)	< 1.4	1.4 - 1.8	1.8 - 2.2	> 2.2
Continuity	Quality, continuous pedestrian networks that are physically separated from street and built to current standards	Continuous sidewalk network on both sides of the street. May not be built to current standards	Sidewalk network where there may not be sidewalks on both side of the street or there are minor interruptions in connectivity	Breakdown in pedestrian network to where each pedestrian chooses a different route
Street Crossings (Signalized Intersections)	3 or fewer lanes to cross, clear indications (striping, etc.), well-marked crosswalks, good lighting, standard curb ramps, automatic pedestrian signal, pedestrian amenities, unobstructed views	4 or 5 lanes to cross, clear indications, well-marked crosswalks, pedestrian refuge area, standard curb ramps, pedestrian amenities, standard curb ramps, unobstructed views	6 or more lanes to cross, clear indications, well-marked crosswalks, pedestrian refuge area, standard curb ramps, pedestrian amenities, unobstructed view	Missing 5 elements of A, 4 elements of B, and 2 elements of C
Street Crossings (Unsignalized Intersections)	Well-marked cross walks, good lighting levels, standard curb ramps, street character suggests pedestrian crossing, unobstructed views	Missing 1 element of A	Missing 2 elements of A	Missing 3 or more elements of A
Visual Appeal and Pedestrian Amenities	Visually appealing and compatible with local architecture and artist themes, wide sidewalks, window shopping, pedestrian lighting, trees and street furniture	Wide sidewalks, visual clarity, some street furniture and landscaping	Functionally operational with less importance placed on visual appeal	Design ignores pedestrian with negative metal image, intimidating
Surface Condition	Smooth asphalt or concrete with few breaks or cracks	Relatively smooth asphalt or concrete with frequent breaks or cracks	Rougher, broken surface such as older concrete or cobblestone	Difficult, unpaved terrain such as hiking trails

~~The table~~Table 5.9-C below can be used to i~~I~~dentify the pedestrian destinations within ~~0.25~~ ¼ mile~~s~~ (~~1.5~~

~~miles~~½ mile for schools) of the project boundary.

Table 5.9-C: Bike/Ped Destination Identification

ORIGIN (project land use)	DESTINATION: RECREATION	RESIDENTIAL	INSTITUTION	OFFICE/ BUSINESS	COMMERCIAL	INDUSTRIAL	OTHER (SPECIFY)
RECREATION							
RESIDENTIAL							
INSTITUTION (SCHOOL, CHURCH, CIVIC)							
OFFICE/BUSINESS							
COMMERCIAL							
INDUSTRIAL							
OTHER (SPECIFY)							

~~5.9~~5.10 Pavement Design Standard

~~5.9.1~~5.10.1 Streets

The minimum pavement section requirements for each classification of roadway are contained within the City of Denton Standard Detail Drawings for pavement cross-sections.

A. A geotechnical report shall be prepared that documents the existing soil characteristics of the proposed roadway subgrade for any proposed street improvements. Soil testing shall be performed whenever the soil characteristics change or every 500 feet, whichever is less. The report shall include recommendations for the type and treatment level of subgrade stabilization based upon ultimate traffic conditions.

B. Flex-base may be used as an option for subgrade treatment. Depth of flex-base required shall be based upon the geotechnical report for the street improvements based upon ultimate traffic conditions.

C. Alternative pavement sections may be proposed only if supported by a geotechnical report that provides sufficient evidence to demonstrate that the alternate section shall meet the ultimate traffic loading requirements.

~~5.9.2~~5.10.2 Drive Approach

Refer to the City of Denton Standard Details for drive approach section requirements.

~~5.10~~5.11 Complete and Context-Sensitive Streets

Complete streets are transportation facilities that are planned, designed, operated and maintained to provide safe mobility for all users (including bicyclists, pedestrians, transit vehicles, truckers and motorists) appropriate to the function and context of the facility. Context-sensitive solutions formulate a complete street design considering contextual applications. Contextual applications can be of geographical nature such as Urban Core, General Urban, Suburban, University Core and other typical service areas that require unique components to address the overall transportation facilities.

Within the geometric standards are options that relate to developing a complete street that accounts for all transportation facilities within the context of the associate area. Connectivity and context-sensitive solutions are essential to meeting the goals of the standards. Refer to the City of Denton standard details for cross-~~-~~section details, and the p~~P~~edestrian and b~~B~~icycle components of the 2022 Mobility Plan for planned facilities, or as required by the City of Denton during development review.

BIKE LANES – Bike lanes shall be six (6) feet wide unless otherwise approved by the City-'s Engineer~~Engineer or designee~~. Buffered or s~~S~~eparated b~~B~~ike l~~L~~anes are generally preferred to increase level of comfort in the bicycle facility.

OFF-STREET MULTI-USE PATH – Some development areas will warrant the use of off-street multi-use paths for pedestrian and bicycle traffic connectivity to other facilities as identified by the City of Denton. Multi-use paths shall be 10 feet wide, unless otherwise approved by the ~~City of Denton~~ City–'s Engineer~~Engineer or designee~~.

TRANSIT – Bus stop locations may be required by the City of Denton for connectivity of the transit system. *See* Section 5.8 of this M~~m~~anual for details.

MEDIAN VS. CONTINOUS LEFT TURN LANE – Selection of a median or continuous left turn lane shall be based upon the TIA, connectivity, adjacent uses, and other factors required by the City-'s Engineer~~Engineer or designee~~. Medians shall be 24 feet back of curb to back of curb, unless otherwise approved by the City 's Engineer~~Engineer or designee~~. Continuous left turn lanes shall be 11 feet wide.

MODIFICATIONS TO STANDARDS – Modifications to the standards may have to be considered in some instances based upon context-sensitive use. An example of context-sensitive use which may require the standards to be modified is a roadway corridor restriction that creates limitations that cannot be altered. An example of a roadway corridor restrictions would be existing infrastructure and/or buildings that must remain. –Another example is infill development. Modifications to the standards based upon context-sensitive use shall be at the sole discretion of the City-'s Engineer~~Engineer or designee~~.

~~**The complete street design is based upon using the above options in conjunction with the other geometric features of the street in order to accommodate adjacent uses and promote connectivity. During the Pre-Application Conference and/or the TIA review meeting options for Collectors and Arterials for development shall be designated.**~~

~~5.11 Non-conformities & Variance~~

~~5.11.1 Purpose and Goals~~

~~The purpose of this section is to establish guidelines regulating the location of telecommunication towers and antennas with the objective of minimizing their number, to protect and promote public safety, and to mitigate any adverse visual impacts on the community, while promoting the provision of telecommunications service to the public.~~

~~E. The goals of these regulations are to:~~

~~4. Compliance with Telecommunications~~

~~8.2.1 Variance Procedure~~

~~**E. If an access-related variance is not associated with the subdivision of property, the variance will be submitted to the City Engineer or designee for consideration and approval.**~~

~~**E. Driveway-related variances are considered Hardship Variances. The proposed Hardship Variance is appropriate based on a finding that unreasonable hardships or difficulties may result from strict compliance with the subdivision regulations or the purposes of the regulations may be served to a greater extent by an alternative proposal. A variance may be approved so that substantial justice may be done, and the public interest secured; provided that the variance shall not have the effect of nullifying the intent and purpose of these regulations; and further provided the Planning and Zoning Commission shall not approve variances unless it shall make findings based upon the evidence presented to it in each specific case that:**~~

~~0. The granting of the variance will not be detrimental to the public safety, health, or welfare or injurious to other property;~~

~~0. The conditions upon which the request for a variance is based are unique to the property for which the variance is sought and are not applicable generally to other property;~~

~~0. Because of the particular physical surroundings, shape or topographical conditions of the specific property involved, a particular hardship to the owner would result, as distinguished from a mere inconvenience, if the strict letter of the subdivision regulations is carried out;~~

~~0. The variance will not in any manner vary the provisions of The Denton Plan, the Development Code, and the Denton Mobility Plan, except that those documents may be amended in the manner prescribed by law; and~~

~~0. The special or peculiar conditions upon which the request is based did not result from or were not created by the act or commission of the owner or any prior owner, subsequent to the date of creation of the requirement from which a variance is sought.~~

~~**E. The Traffic Safety Commission decision on a hardship variance may be appealed to the Planning & Zoning Commission by a written request by the applicant.**~~

~~**E. The Planning and Zoning Commission decision on a Hardship Variance may be appealed to the City Council by a written request by the applicant.**~~

~~**E. If the variance involves a driveway on a TxDOT operated and maintained roadway, City Staff may choose to meet with TxDOT prior to consideration of any variance to receive technical**~~

~~**input, which may have a bearing on the staff recommendation.**~~

~~**C. Suspension and Revocation of a Variance**~~

~~When the City determines there is a failure to comply with any term, condition, or requirement made a condition of the approval of a variance, the City Council may direct the Building Official, City Engineer or Director, as appropriate, to suspend the variance compliance with the terms, conditions, or requirements wider which the variance was approved.~~

~~1. Notice of suspension or revocation of a variance shall be sent by certified mail, return receipt requested.~~

~~1. The body granting the variance shall hold a public hearing no later than 45 days after notification. If the body granting the variance determines there is a failure to comply with any term, condition, or requirement made a condition of the variance, the body may revoke the variance or special exception or take such action, as it considers necessary to ensure compliance.~~

~~1. A decision to revoke a variance is effective immediately. Notice of the decision by the body shall be sent by certified mail.~~

~~1.~~

~~5.11 SECTION 6 – PUBLIC ACCESS DESIGN ON PRIVATE PROPERTY~~

~~5.11.1~~

~~5.11.1 6.1 Fire Lane Design~~

~~**C. General Notes:**~~

- ~~Prior to construction, the design of the fire lane shall be submitted to the City for review and approval.~~
- ~~Fire apparatus roads shall have an unobstructed width of not less than 24 feet and unobstructed vertical clearance of not less than 14 feet. These are minimums and may be increased where they are inadequate for fire or rescue operations.~~
- ~~Fire Lanes shall be constructed to meet the City of Denton's Engineering Standards for a concrete pavement cross section of a residential street.~~
- ~~Fire lane grade shall be no greater than 5% with 1/2 inch per foot cross slope.~~
- ~~During construction, all fire lanes servicing the project, shall be installed and permanently marked as per current adopted code, prior to construction progressing past slab elevation. An inspection is required by the fire marshal's office for compliance to proceed with construction past this point.~~
- ~~Maintenance of fire lanes, including preventing the obstruction of by vehicles, equipment, etc., will be enforced during construction. It is the responsibility of the General Contractor or other person(s) in control to maintain fire department access roads.~~
- ~~Fire Lanes shall be located so that access to all points of the building served is a maximum of 150', as measured by hose lay. This can be increased to 250' for building fully equipped with an approved automatic fire suppression system.~~

~~**C. Modification of existing fire lanes**~~

~~Modification of any existing or previously approved fire lane requires a permit from the City of Denton Fire Marshal's Office. This includes demolition of a fire lane for construction, placement of speed control devices or termination of a fire lane.~~

~~D. Turning Radius~~

~~A 24 foot wide fire lane will require a minimum of a 30 foot inside turning radius.~~

~~Marking~~

~~1. Stripping~~

~~Marked by painting lines of red traffic paint six inches (6") in width at the boundaries of the fire lane as indicated on the plat. The words "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING" shall appear in four inch (4")~~

~~1. Signs~~

~~Shall read "NO PARKING FIRE LANE" or "FIRE LANE NO PARKING" and shall be 12" wide and 18" high. Signs shall be painted on a white background with letters and boarders in red, using not less than 2" lettering. Signs shall be permanently affixed to a stationary post and the bottom of the sign shall be six feet, six inches (6'6") above finished grade. Signs shall not be spaced more than fifty feet (50') apart. Signs may be installed on permanent buildings or walls as approved by the Fire Marshall.~~

~~E. Speed Control Devices~~

~~A separate permit is required for the installation of speed control devices located in a fire lane. These devices shall be constructed of durable rubberized material, molded plastic or of concrete.~~

~~5.11.1 6.2 Speed Hump Design~~

~~Speed humps are parabolic vertical traffic calming devices intended to slow traffic speeds on low volume, low speed roads. Speed humps are 3–4 inches high and 12–14 feet wide, with a ramp length of 3–6 feet, depending on target speed.~~

Section 6: Water and Wastewater Design Criteria

6.1 Overview

The purpose of ~~this Manual~~Section 6 - Water and Wastewater Design Criteria is to provide minimum, non-exhaustive guidelines for the design and construction of water distribution and wastewater collection systems within the City of Denton, Texas and its extra-territorial jurisdictions. ~~The criteria established in this Manual have been developed from a review of various applicable publications, regulatory requirements, and City of Denton offices which oversee the design, construction and maintenance of the water distribution and wastewater collection systems.~~

Section 6: Water and Wastewater Design Criteria is organized as follows:

A. Overview

B. Water Design Guidelines

C. Wastewater Design Guidelines

D. Construction Plans

It is the responsibility of the design engineer to ensure the final design of water distribution and wastewater collection systems are in conformance with the most recently adopted versions of the following documents:

A. Texas Administrative Code (TAC) Title 30, Part 1, TCEQ – Ch. 290;

B. Texas Administrative Code (TAC) Title 30, Part 1, TCEQ – Ch. 217;

C. Texas Administrative Code (TAC) Title 16, Part 2, PUCT – Ch. 24;

D. City of Denton Code of Ordinances and the ~~Denton Development Code (DDC)~~DDC;

E. The City of Denton's Standard Details and Standard Specifications for Construction;

F. City of Denton Water Distribution System Master Plan;

G. City of Denton Wastewater Master Plan;

~~F.~~H. American Water Works Association (AWWA) Standards;

~~G.~~I. The International Building Code (IBC);

~~H.~~J. The International Plumbing Code (IPC);

~~I.~~K. The International Fire Code (IFC); ~~-~~and

~~J.~~L. This Manual.

~~These guidelines are to be used by design engineers in the City of Denton Capital Projects Engineering Division, consulting engineers employed by the City, and engineers of subdivision and land development infrastructure projects proposed for construction and acceptance by the City within its Certificate of Convenience and Necessity (CCN) area.~~ The criteria established in Section 6 of this Manual ~~this Design~~

~~Manual~~ provide basic guidance for the design of water and wastewater systems. However, ***full responsibility and liability for proper design remains with the design engineer.*** Users of this Manual should be knowledgeable and experienced in the theory and application of water and wastewater engineering. If criteria established in Section 6 overlap with state statutes, rules, or regulations, ~~In case of conflict with TCEQ updates,~~ the more stringent requirement shall apply. The criteria established in this Section do not supersede the criteria contained in the DDC. In the case of conflict between this Section, City of Denton Standard Details, or other cited City regulations and standards, the more stringent requirement shall apply. ~~Variances sought for deviations from criteria in this Manual will require additional time to evaluate, and receive approval from the City Engineer, in consultation with the Director of Water Utilitie~~

The Director of Water Utilities reserves the right to require ~~extended~~ additional review of vertical water utility infrastructure, and large horizontal infrastructure including, but not limited to, water treatment plants, elevated storage tanks, booster pump stations, water transmission mains ~~(~~over 16 inches in diameter, ~~)~~ wastewater reclamation plants, peak flow detention facilities, sewer lift stations, and sewer interceptors ~~(~~over 12 inches in diameter~~)~~. The Director of Water Utilities reserves the right to deny proposals at his or her discretion.~~Organization~~

~~Section 6 - Water and Wastewater Design Criteria is organized as follows:~~

~~**Section 6:**~~

~~**6.3.0** Along with this Manual, the Denton Development Code (DDC)should be consulted for additional criteria. The criteria established in this Manual do not supersede the criteria contained in the DDC. In the case of conflict among this Manual, , City of Denton Standard Details, or other cited regulations and standards, the more stringent requirement shall apply.~~

~~6.4~~6.2 Water Design Guidelines

~~6.4.1 General~~

~~It is the responsibility of the design engineer to ensure the final design of a water main is in conformance with the most recent versions of the following documents:~~

- ~~**F. Texas Administrative Code (TAC) Title 30, Part 1, Texas Commission on Environmental Quality (TCEQ) – Rules, Ch. 290, "Public Drinking Water"**~~
- ~~**F. Public Utilities Commission (PUC) Chapter 24**~~
- ~~**F. City of Denton Code of Ordinances and Denton Development Code (DDC)**~~
- ~~**F. This Manual**~~
- ~~**F. The City of Denton's Standard Details and Standard Specifications for Construction**~~
- ~~**F. City of Denton Water Utilities Master Plans**~~

~~The 2021 International Fire Code American Water Works Association (AWWA) Standards.~~

~~6.4.11~~6.2.1 Water Main Separation from Wastewater Mains

Water mains shall be separated from wastewater mains as set forth in ~~Texas Administrative Code (TAC) Title 30, Part 1, Texas Commission on Environmental Quality (~~TCEQ~~)~~ Rule~~s~~ - 30 TAC § 290.44(~~.~~e)~~.~~ - -Location of waterlines, ~~or~~ as ~~mostly recently~~ amended.

~~6.4.12~~6.2.2 Size of Water Distribution Mains

A. General

Water mains shall be sized to meet the calculated water demand, fire flow protection requirements, and to conform to the City of Denton's Water Distribution System Master Plan (~~Master~~ Water Master Plan or WMP). All residential, commercial, industrial, and any other development connecting to the City's water distribution system shall use the following guidelines:

1. The design engineer shall obtain the record drawing water maps from the Capital Improvement Projects & Engineering Division and use the following criteria, based on the City's ~~Master Water Plan~~WMP, for sizing the water lines.
   a. Average daily demand in gallons per capita per day = 16~~7~~0 GPCD
   b. Maximum daily demand / Average daily demand = 2.0
   c. Peak hour demand / Maximum daily demand = 1.5
   d. For Single-Family Residential – Use 3.2 people/unit
   e. For Multi-Family Residential – Use 2.5 people/unit
   ~~e.~~f. Refer to ~~TCEQ~~30 TAC § 290.45 (d)(1) Table A - Non-community water systems
2. Water systems shall be provided with ~~a~~ sufficient number of connections to the City's existing water system, and shall be of sufficient size to furnish adequate water supply ~~to furnish~~for fire protection to all lots and conform to the City ~~Master Water Plan~~WMP. Every new water system shall include two (2) or more connections to the existing City water system~~,~~ when feasible, to ensure an adequate and reliable water supply in the event of a water main break or routine system maintenance. The City may require two (2) or more meter connections, particularly for larger developments. Good engineering judgement is required to ensure reliability is considered in the design of all proposed water systems.
3. ~~The City's standardized water service line sizes are:~~

~~0. Table 6.2-A: Standardized Service Lines~~	
~~0. Service Size~~	~~0. Meter Size~~
~~0. 1 in.~~	~~0. 5/8 in. x 3/4 in., full 3/4 in., and 1 in.~~
~~0. 2 in.~~	~~0. 1-1/2 in. and 2 in.~~
~~0. 4 in.~~	~~0. 3 in. and 4 in.~~
~~0. 6 in.~~	~~0. 6 in.~~
~~0. 8 in.~~	~~0. 8 in.~~

~~0. Notes:~~

~~0. [1] Non-standard sized water services are not allowed. Refer to~~

~~the water service connection drawings on the City Standard Details.~~

~~27.~~2. Sites that require an irrigation meter shall have two separate service line connections onto the main; one for the domestic meter, the other for the irrigation meter.

~~28.~~3. Water pipe shall be a minimum of eight (8) inches in diameter. The standard pipe sizes that shall be used for water main lines are 8-in.~~"~~, 12-in.~~"~~, 16-in.~~"~~, 20-in.~~"~~, 24-in.~~"~~, 30-in.~~"~~, 36-in.,~~"~~ and 42-in~~"~~. pipes.~~-~~ Pipe sizes of 6~~",~~-in., 10~~",~~-in., 14~~",~~-in., 18~~",~~-in., 21~~",~~-in., and 33~~"~~-in. are considered non-standard by the City and shall not be used for water main lines. A ~~Six (6)~~6-in. pipe may be used for fire hydrant connections.

4. Every development shall provide adequate water capacity for fire protection purposes. Fire flow capacity requirements are in addition to daily demand requirements. The procedure for determining fire flow requirements for buildings or portions of buildings shall be in accordance with the version of the ~~International Fire Code~~IFC adopted ~~in~~ by the City. For any platted lot where the end use is not defined, the standards in Table 6.2-A shall apply.

5. The cost for modeling a project's impact with the City's distribution system model will be the responsibility of the developer, paid to the City.

B. Distribution System Operational Limits

The City observes the following operational limits for the distribution system under normal usage:

1. Velocity for proposed mains (greater than 16 inches): 3 to 5 fps
2. Maximum velocity for proposed mains (less than or equal to 16 inches): 5 fps
3. Maximum head loss (less than or equal to 12 inches): 5 feet per 1,000 feet
4. Maximum head loss (greater than or equal to 16 inches): 3 feet per 1,000 feet
5. Hazen-Williams Roughness Coefficient (C): 130

Proposed impacts to the City's system determined to, or likely to, cause (through hydraulic modeling or other analysis) these limits to be exceeded, are prohibited without additional improvements to the public system so the system operated within these parameters.

Table 6.2-A: Water Capacity for Fire Flow

Area	GPM
One (1) and two (2) family dwellings - less than 3,600 ~~SF~~sq. ft.	1,000
Buildings other than one (1) and two (2) family dwellings - less than 3,600 ~~SF~~sq. ft.	1,500
Medium-intensity commercial and light industrial	3,000
High-intensity commercial and industrial	4,000

Notes:
[1] All fire flows to be calculated with ~~twenty (20)~~20 ~~pounds~~ psi residual pressures.
[2] In addition to the fire flow requirements specified above, all developments shall provide adequate water capacity to satisfy the greater of: ~~-~~(a~~1~~) Peak Hour demand for the Peak Day, or (b~~2~~) Average Hour demand plus fire flow for the Peak Day.
~~[3] Mains are to be sized to ensure less than 1 foot of head loss per 1,000 feet of water main at Hazen Williams coefficients of C = 100, except for fire flow demands within the subdivision internal distribution system.~~
[34] Special exceptions to the above standards may be made by the ~~Director of Water Utilities~~City's Engineer ~~-~~for unique situations.

~~B.~~C. Public Fire Hydrants

Fire flow requirements shall be in accordance with the IFC ~~-~~as adopted by~~–~~ the City of Denton or Denton County, as appropriate ~~and Appendix B of the 2021 International Fire Code~~.

~~C.~~D. Private Fire Mains

In addition to the requirements of ~~3.3.1~~Section 6.2.2.B of this Manual, private fire protection water mains shall be installed in accordance with NFPA 24 and 2021 ~~International Fire Code~~IFC requirements. Private fire protection mains and associated hydrants shall be permitted by the Fire Marshal~~l~~'s Office ~~having~~ with jurisdiction over the area.

~~D.~~E. Fire Flow Tests

Fire flow tests are normally requested by the design engineer, the Mechanical, Electrical and Plumbing (MEP) engineer, and other engineers to determine available water system capacity at or near the point of interest. If a fire flow test on the existing water system is necessary, contact the Water Metering Department at (940) 349-8456 directly.

~~6.4.13~~6.2.3 Depth of Cover for Water Mains

~~Under Unpaved areas~~

The following ~~guidelines~~ table shall govern depth of cover for water main installations:

~~Table 6.2-B: Minimum Depth of Cover under Unpaved areas~~	
~~Pipe Size~~	~~Minimum Depth of cover from Surface to Top of Pipe~~
~~12 in. and smaller~~	~~5 feet~~
~~16 in. and larger~~	~~6 feet~~

~~**Under proposed or Existing pavement**~~

~~Table 6.2-C: Minimum Depth of Cover under Proposed or Existing Pavement~~	
~~Pipe Size~~	~~Minimum Depth of cover from Surface to Top of Pipe~~
~~12 in. and smaller~~	~~42 inches~~
~~16 in.~~	~~5 feet~~
~~20 in. and larger~~	~~6 feet~~

Table 6.2-B: Minimum Depth of Cover for Water Mains

Pipe Size	From Surface to Top of Pipe	
	UNDER UNPAVED AREAS	UNDER PROPOSED OR EXISTING PAVEMENT
12-in. and smaller	5 feet	42 inches
16-in.	-	5 feet
16-in. and larger	6 feet	-

Table 6.2-B: Minimum Depth of Cover for Water Mains		
20-in. and larger	-	6 feet

Notes:

[1] Additional depth of cover shall be required for low-lying areas where future drainage improvements are anticipated.~~.~~

~~Additional depth of cover shall be required for low-lying areas where future drainage improvements are anticipated.~~

~~6.4.15~~6.2.4 Pipe and Fittings

A. Specifying the appropriate pipe material is the responsibility of the design engineer, based on the analysis of specific site and loading conditions, and pressure requirements. The minimum requirements in this s~~S~~ection are based on pipe size only, and in no way relieve the design engineer of the responsibility of specifying the pipe material applicable to the specific project. Pipe gasket material shall be that recommended by the manufacturer for the specified pipe. Special attention shall be given by the design engineer for unique pipe fitting and pipe assembly situations.

B. See Table 6.2-C~~E~~ below for the City's minimum pipe materials, fittings, polywrap, thrust restraint, and embedment requirements, as a function of pipe size.

C. All fittings for pipe sizes less than 30 inches in diameter, including vertical and horizontal bends, shall have concrete thrust blocking. *See* City of Denton Standard Details~~-~~.

D. ~~For all water line sizes~~All vertical and horizontal fittings and valves shall require restrained joints in addition to concrete thrust blocking. The joint restraints shall be designed as though there is no concrete thrust blocking, and the concrete thrust blocking shall be designed as though there are no joint restraints. Flanged tees should be used to secure all branch valves to fittings. Table 6.2-C below includes the minimum lengths of pipe to be restrained for 8-inch and 12-inch PVC water mains. ~~For all water line sizes, all fittings, including vertical and horizontal bends, shall have restrained joints, designed independently of concrete thrust blocking.~~ For water lines greater than 12 inches in diameter, additional restrained joints may need to be installed beyond the fitting (i.e., may need to be installed on several pipe joints on each side of the fitting), depending on the required restrained length calculated. ~~-~~Restrained length calculations shall be included in the lay schedule in the material submittal package and shall use approved methods of joint restraint. *See* City Standard Details, specific product listings and Table 6.2-C below~~E~~.

Table 6.2-C: Restraint Lengths for Fittings and Bends					
Pipe Size (inches)	Plugs, Tees, and Valves [1]	Bends [1]			
		90°	45°	22.5°	11.25°
8	88 ft	33 ft	14 ft	7 ft	4 ft
12	126 ft	45 ft	19 ft	9 ft	5 ft

Table 6.2-D: Minimum Requirements for Pipe and Fittings

Pipe Size and Material	Ductile Iron Fittings	Polywrap (Pipe & Fittings)	Thrust Restraint	Embedment
8-IN. –TO 12-IN.				
PVC (AWWA C900, DR – 14)	Mechanical joint; Compact or Full-Body	8-mil V-Bio Enhanced Polywrap (fitting only)	Wedge-action mechanical joint restraint glands, at fittings.	See drawings U201, U202, U203A, U203C in City Standard Details
16-IN. –TO 20-IN.				
Ductile Iron, AWWA C151, Special Thickness Class 52, push-on-joints (where unrestrained; e.g.: American Flex-Ring joint)	Mechanical joint; Full-Body	8-mil V-Bio Enhanced Polywrap (inner layer), plus 4-mil cross-linked (outer layer)	Wedge-action mechanical joint restraint glands, at fittings. Boltless Restrained connections (Example: American Flex-Ring joint), at several pipe joints either side of each fitting, depending on the required restrained length calculated.	See drawings U201, U202, U203A, U203C in City Standard Details
Reinforced Concrete Steel Cylinder, AWWA C303 Bar Wrapped	N/A	Bonded joint and Cathodic Protection (CP) System required	Full Circle Welded Joints required for thrust restraint	Contact Water Utilities Dept.
24-IN.				
Ductile Iron, AWWA C151, Special Thickness Class 52, push-on joints (where unrestrained; e.g.: American Flex-Ring joint)	Mechanical joint; Full-Body	8-mil V-Bio Enhanced Polywrap (inner layer), plus 4-mil cross-linked (outer layer)	Wedge-action mechanical joint restraint glands, at fittings. Boltless Restrained connections (Example: American Flex-Ring joint), at several pipe joints either side of each fitting, depending on the required restrained length calculated.	Crushed Stone
Reinforced Concrete Steel Cylinder, AWWA C303 Bar Wrapped	N/A	Bonded joint and Cathodic Protection (CP) System required	Full Circle Welded Joints required for thrust restraint.	Contact Water Utilities Dept.
30-IN. AND LARGER				
Ductile Iron, Pressure Class 350; push-on joints (where unrestrained; e.g.: American Flex-Ring joint)	Mechanical joint; Full-Body	8-mil V-Bio Enhanced Polywrap (inner layer), plus 4-mil cross-linked (outer layer)	Wedge-action mechanical joint restraint glands, at fittings. Boltless Restrained connections (Example: American Flex-Ring joint), at several pipe joints either side of each fitting, depending on the required restrained length calculated.	Crushed Stone
Reinforced Concrete Steel Cylinder, AWWA C303 Bar Wrapped	N/A	Bonded joint and Cathodic Protection (CP) System required	Full Circle Welded Joints required for thrust restraint.	Contact Water Utilities Dept.

Notes:
[1] Length to be restrained on each side of the bend or fitting.
Assumptions: 1.5 safety factor, SP soil type, Type 4 trench.

6.4.166.2.5 Meters and Meters Cans/Vaults

The City allows the following water meters, depending on the volume and nature of the customer flow demands:

Table 6.2-E: Allowable Water Meters

Service Size	Meter Size	Type	ManufacturerAWWA Standard
1-in.	⅝5/8-in." x ¾3/4¾-in."	Positive Displacement	AWWA C700Neptune/Badger
1-in.	¾-in.3/4" x ¾3/4¾-in."	Positive Displacement	AWWA C700Neptune/Badger
1-in.	1-in."	Positive Displacement	AWWA C700Neptune/Badger
2-in.	1-1/2½-in."	Positive Displacement	AWWA C700Neptune/Badger
2-in.	2-in."	Positive Displacement	AWWA C700Neptune/Badger
4-in.	3-in." Tru/Flo	Compound	See City Standard Specification 33 14 18Neptune/Badger
4-in.	4-in." Tru/Flo	Compound	See City Standard Specification 33 14 18Neptune Badger
6-in.	6"-in. Tru/Flo	Compound	See City Standard Specification 33 14 18Neptune/Badger
6-in.	6-in." Protectus III Fire Service (Shall be used for combination of domestic and fire service)	Compound	See City Standard Specification 33 14 18Neptune/Badger
8-in.	8-in." Protectus III Fire Service (Shall be used for combination of domestic and fire service)	Compound	See City Standard Specification 33 14 18Neptune/Badger

Notes:
[1] Turbine meters shall be allowed for irrigation meters; not for domestic meters.
[2] Venturi meters shall be allowed when recommended by City Water Utilities based on Single-Family Equivalent calculations.
[3] Fire hydrant meters shall only be used for non-potable purposes.
[34] Vaults are required for all meters greater than two (2) inches.
[45] *See* Section 6.2.5.D 6.2.6.D for Furnishing and Installing meters.
[6] Non-standard sized water services are not allowed. Refer to the water service connection drawings on the City Standard Details.
[7] Sites that require an irrigation meter shall have two (2) separate service line connections onto the main; one (1) for the domestic meter, and the other for the irrigation meter.

A. Number of Meters

One (1) meter is required for each residential, commercial, or industrial service connection, in accordance with the Code of the City of Denton, Texas, Chapter 26, Article I, Sec. 26-9 Code of Ordinances, Section 26-9. An apartment building, condominium, manufactured housing community, or mobile home park may be considered a single commercial facility for the purpose of this section. The City's standard policy is that only one (1) meter for domestic use will be furnished to each lot. Exceptions to that policy are:

1. Commercial, industrial, or institutional sites shall have a separate irrigation meter from the domestic meter.

2. Multi-family developments with greater than 200 units shall be required to have two (2) domestic meters for redundancy and reliability of water service, where each meter is located on a different water main or separated by an inline valve.

3. Multi-building sites where the configuration or size of the site makes a single meter location impractical or infeasible.

4. Institutional Group I-2 Facilities as per IBC Sec. 308.3 and IPC Sec. 609; and

~~3.~~5. Submetering by the property owner to tenants of multi-family developments with a minimum of five (5) units per building (or by condominium associations to member) shall be done at the owner's expense, with privately purchased and maintained meters, and in accordance with the Public Utilities Commission 16TAC Chapter 24 Subchapter I.

B. Sizing

In commercial and industrial projects, the design engineer shall consult with the owner or the MEP engineer to identify proposed sizes and locations for domestic water meters, fire sprinkler connections, and irrigation meters.

During Building Permit review, the City evaluates adequacy of meter size using Table E201.1, "Minimum Size of Water Meters, Mains and Distribution Piping Based on Water Supply Fixture Unit Values (w.s.f.u.)" of the version of the International Plumbing Code (IPC) as adopted by the City (copy included herein as Table 6.2-F~~Table 6.2-G~~). The City's Building Permit Plans Review uses the version of the International Residential Code as adopted by the City, Table P2903.6, "Water-Supply Fixture-Unit Values for Various Plumbing Fixture and Fixture Groups" (see Table 6.2-G~~Table 6.2-H~~) to estimate ~~water supply fixture units (~~w.s.f.u.~~).~~ To facilitate review of the proposed meter size, the design engineer shall submit a tabulation of ~~water supply fixture units (~~w.s.f.u.~~)~~; a sample tabulation is provided herein in Table 6.2-I~~Table 6.2-I~~.

Contact the Water Utilities Dep~~t.~~artment regarding criteria for sizing fire-rated master meters.

~~When sizing water meters, the design engineer should be aware that, per City Code, water and wastewater Impact Fees are based on water meter size, with the following exceptions:~~

~~For multifamily developments of 8 or more units, Impact Fees are based on bedroom count.~~

~~For fire-rated master meters, Impact Fees are based on the equivalent meter size the City would require for domestic demands (except for multifamily developments of 8 or more units, in which case Impact Fees are based on bedroom counts).~~

~~For institutional developments like hospitals, dormitories, nursing homes or assisted living facilities the Denton Water Utilities will need to be consulted as to the appropriate methodology for sizing the meter.~~

For commercial or industrial sites that utilize large amounts of water in their production process, the developer shall provide estimated peak daily demand. Meter to be sized to 1.~~25x~~ 25 times (1.25x) the peak daily demand.

~~Refer to Table 6.2-J, "Land Use and Service Unit/SFE Equivalencies." Impact Fees are based on Single Family Equivalents (SFE's). For example, Impact Fees for a 1-1/2-inch meter would be twice those for a 1-inch meter.~~

Table 6.2-F: Minimum Size of Water Meters, Mains, and Distribution Piping based on water-supply fixture-unit (w.s.f.u) values

Meter and Service Pipe (inches)	Distribution Pipe (inches)	Maximum Development Length (feet)									
PRESSURE RANGE 30 TO 39 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1a]	2.5	2	1.5	1.5	1	1	0.5	0.5	0	0
3/4	3/4	9.5	7.5	6	5.5	4	3.5	3	2.5	2	1.5
3/4	1	32	25	20	16.5	11	9	7.8	6.5	5.5	4.5
1	1	32	32	27	21	13.5	10	8	7	5.5	5
3/4	1-1/4	32	32	32	32	30	24	20	17	13	10.5
1	1-1/4	80	80	70	61	45	34	27	22	16	12
1-1/2	1-1/4	80	80	80	75	54	40	31	25	17.5	13
1	1-1/2	87	87	87	87	84	73	64	56	45	36
1-1/2	1-1/2	151	151	151	151	117	92	79	69	54	43
2	1-1/2	151	151	151	151	128	99	83	72	56	45
1	2	87	87	87	87	87	87	87	87	87	86
1-1/2	2	275	275	275	275	258	223	196	174	144	122
2	2	365	365	365	365	318	266	229	201	160	134
2	2-1/2	533	533	533	533	533	495	448	409	353	311
PRESSURE RANGE 40 TO 49 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1a]	3	2.5	2	1.5	1.5	1	1	0.5	0.5	0.5
3/4	3/4	9.5	9.5	8.5	7	5.5	4.5	3.5	3	2.5	2
3/4	1	32	32	32	26	18	13.5	10.5	9	7.5	6
1	1	32	32	32	32	21	15	11.5	9.5	7.5	6.5
3/4	1-1/4	32	32	32	32	32	32	32	27	21	16.5
1	1-1/4	80	80	80	80	65	52	42	35	26	20
1-1/2	1-1/4	80	80	80	80	75	59	48	39	28	21
1	1-1/2	87	87	87	87	87	87	87	78	65	55
1-1/2	1-1/2	151	151	151	151	151	130	109	93	75	63
2	1-1/2	151	151	151	151	151	139	115	98	77	64
1	2	87	87	87	87	87	87	87	87	87	87
1-1/2	2	275	275	275	275	275	275	264	238	198	169
2	2	365	365	365	365	365	349	304	270	220	185
2	2-1/2	533	533	533	533	533	533	533	528	456	403
PRESSURE RANGE 50 TO 60 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1a]	3	3	2.5	2	1.5	1	1	1	0.5	0.5
3/4	3/4	9.5	9.5	9.5	8.5	6.5	5	4.5	4	3	2.5
3/4	1	32	32	32	32	25	18.5	14.5	12	9.5	8
1	1	32	32	32	32	30	22	16.5	13	10	8
3/4	1-1/4	32	32	32	32	32	32	32	32	29	24
1	1-1/4	80	80	80	80	80	68	57	48	35	28
1-1/2	1-1/4	80	80	80	80	80	75	63	53	39	29
1	1-1/2	87	87	87	87	87	87	87	87	82	70
1-1/2	1-1/2	151	151	151	151	151	151	139	120	94	79
2	1-1/2	151	151	151	151	151	151	146	126	97	81

Table 6.2-F: Minimum Size of Water Meters, Mains, and Distribution Piping based on water-supply fixture-unit (w.s.f.u) values

1	2	87	87	87	87	87	87	87	87	87	87
Meter and Service Pipe (inches)	**Distribution Pipe (inches)**	**Maximum Development Length (feet)**									
1-1/2	2	275	275	275	275	275	275	275	275	247	213
2	2	365	365	365	365	365	365	365	329	272	232
2	2-1/2	533	533	533	533	533	533	533	533	533	486
PRESSURE RANGE OVER 60 PSI		**40**	**60**	**80**	**100**	**150**	**200**	**250**	**300**	**400**	**500**
3/4	1/2[1]~~a~~	3	3	3	2.5	2	1.5	1.5	1	1	0.5
3/4	3/4	9.5	9.5	9.5	9.5	7.5	6	5	4.5	3.5	3
3/4	1	32	32	32	32	32	24	19.5	15.5	11.5	9.5
1	1	32	32	32	32	32	28	28	17	12	9.5
3/4	1-1/4	32	32	32	32	32	32	32	32	32	30
1	1-1/4	80	80	80	80	80	80	69	60	46	36
1-1/2	1-1/4	80	80	80	80	80	80	76	65	50	38
1	1-1/2	87	87	87	87	87	87	87	87	87	84
1-1/2	1-1/2	151	151	151	151	151	151	151	144	114	94
2	1-1/2	151	151	151	151	151	151	151	151	118	97
1	2	87	87	87	87	87	87	87	87	87	87
1-1/2	2	275	275	275	275	275	275	275	275	275	252
2	2	365	368	368	368	368	368	368	368	318	273
2	2-1/2	533	533	533	533	533	533	533	533	533	533

Notes:

[1] Minimum size of building supply is ¾-in.~~ch~~ pipe.

[2] User shall follow the most recently adopted code; above table was the most recent version at the time of publication of this Manual.

Source: 2021 International Plumbing Code – Table E201~~104~~.1

Table 6.2-G: Water-supply fixture-unit (w.s.f.u) values for Various Plumbing fixtures and Fixture Groups

Type of Fixtures or Group of Fixtures	Load in ~~Water-supply fixture-unit~~w.s.f.u. values ~~(w.s.f.u)~~		
	HOT	COLD	COMBINED
Bathtub (with/without overhead shower head)	1.0	1.0	1.4
Clothes washer	1.0	1.0	1.4
Dishwasher	1.4	—	1.4
Full-bath group with bathtub (with/without shower head) or shower stall	1.5	2.7	3.6
Half-bath group (water closet and lavatory)	0.5	2.5	2.6
Hose bibb (sillcock)[1]	—	2.5	2.5
Kitchen group (dishwasher and sink with/without garbage grinder)	1.9	1.0	2.5
Kitchen sink	1.0	1.0	1.4
Laundry group (clothes washer standpipe and laundry tub)	1.8	1.8	2.5
Laundry tub	1.0	1.0	1.4
Lavatory	0.5	0.5	0.7
Shower stall	1.0	1.0	1.4
Water closet (tank type)	—	2.2	2.2

Notes:

[1] The fixture unit value 2.5 assumes a flow demand of 2.5 ~~gpm~~GPM, such as for an individual lawn sprinkler device. If a hose bibb/sill cock will be required to furnish a greater flow, the equivalent fixture-unit value may be obtained from this table or Table P2903.6(1).

[2] Supply loads in the building water-distribution system shall be determined by total load on the pipe being sized, in terms of ~~water-supply fixture units (~~w.s.f.u.~~)~~, as shown in Table P2903.6, and gallons per minute (~~gpm~~GPM) flow rates [*see* Table P2903.6(1)]. For fixtures not listed, choose a w.s.f.u. value of a fixture with similar flow characteristics.

[3] For SI units: 1 GPM~~gallon per minute~~ = 3.785 Liters per minute (L/m).

[4] User shall follow the most recently adopted code. The above table was the most recent version at the time of publication of this Manual.

Source: 2021 International Residential Code – Table P2903.6

Table 6.2-H: ~~Water~~Load Values assigned to Fixtures [1]

Fixture	Occupancy	Type of Supply Control	Load in w.s.f.u values		
			COLD	HOT	COMBINED
Bathroom group	Private	Flush tank	2.7	1.5	3.6
Bathroom group	Private	Flushometer-valve	6.0	3.0	8.0
Bathtub	Private	Faucet	1.0	1.0	1.4
Bathtub	Public	Faucet	3.0	3.0	4.0
Bidet	Private	Faucet	1.5	1.5	2.0
Combination fixture	Private	Faucet	2.25	2.25	3.0
Dishwashing machine	Private	Automatic	—	1.4	1.4
Drinking fountain	Offices, etc.	⅜-in. valve	0.25	—	0.25
Kitchen sink	Private	Faucet	1.0	1.0	1.4
Kitchen sink	Hotel, restaurant	Faucet	3.0	3.0	4.0
Laundry trays (1 to 3)	Private	Faucet	1.0	1.0	1.4
Lavatory	Private	Faucet	0.5	0.5	0.7
Lavatory	Public	Faucet	1.5	1.5	2.0
Service sink	Offices, etc.	Faucet	2.25	2.25	3.0
Shower head	Public	Mixing valve	3.0	3.0	4.0
Shower head	Private	Mixing valve	1.0	1.0	1.4
Urinal	Public	1-in. flushometer-valve	10.0	—	10.0
Urinal	Public	¾-in. flushometer-valve	5.0	—	5.0
Urinal	Public	Flush tank	3.0	—	3.0
Washing machine (8-lb.)	Private	Automatic	1.0	1.0	1.4
Washing machine (8-lb.)	Public	Automatic	2.25	2.25	3.0
Washing machine (15-lb.)	Public	Automatic	3.0	3.0	4.0
Water closet	Private	Flushometer valve	6.0	—	6.0
Water closet	Private	Flush tank	2.2	—	2.2
Water closet	Public	Flushometer valve	10.0	—	10.0
Water closet	Public	Flush tank	5.0	—	5.0
Water closet	Public or private	Flushometer tank	2.0	—	2.0

Notes:

[1] For fixtures not listed, loads should be assumed by comparing the fixture to one listed using water in similar quantities and at similar rates. The assigned loads for fixtures with both hot and cold water supplies are given for separate hot and cold water loads and for total load. The separate hot and cold water loads are three-fourths of the total load for the fixture in each case.

[3] For SI units: 1 inch = 25.4 mm, 1 pound = 0.454 kg.

[4] User shall follow the most recently adopted code. The above table was the most recent version at the time of publication of this Manual.

Source: 2021 International Plumbing Code – Table E103.3(2)

Table 6.2-I: Sample w.s.f.u Tabulation

Fixture	Quantity	Load Values, in Total w.s.f.u (each)	Total Fixture Units
Water Closet (Public; Flush Valve)	9	10.0	90
Water Closet (Public; Flush Tank)	3	5.0	15
Urinal (Public; ~~3/4~~¾-in.~~ch~~ Flush Valve)	5	5.0	25
Lavatory (Public)	10	2.0	20
Kitchen Sink (Hotel, Restaurant)	2	4.0	8
Service Sink	1	3.0	3
Shower Head (Private)	1	1.4	1.4
		Total	**162.4**

Table 6.2-J: Land Use and Service Units/SFE Equivalencies

Meter Type	Meter Size	Typical Land Use	Single-Family Equivalents (SFEs)
Positive Displacement	⅝-in. x ¾-in.~~5/8" X 3/4"~~	Residential ~~-~~ Single~~-~~-Family (Building less than 1,300 sq. ft. per ~~/~~lot size less than 6,000 sq. ft.)	0.5
Positive Displacement	⅝-in.~~5/8"~~ x~~X~~ ~~3/4~~¾-in.~~"~~	Residential ~~-~~ Single~~-~~-Family	1.0
Positive Displacement	~~3/4~~¾-in.~~"~~ x~~X~~ ~~3/4~~¾~~"~~-in.	Residential / Commercial	1.5
Positive Displacement	1-in.~~"~~	Residential / Commercial	2.5
Positive Displacement	1½-in.~~-1/2"~~	Commercial	5.0
Positive Displacement	2-in.~~"~~	Commercial	8.0
Compound	3-in.~~"~~	Commercial / Industrial	22.5
Compound	4-in.~~"~~	Commercial / Industrial	50.0

Notes:

[1] The total service units for multi~~-~~family apartment projects with eight (8) or more units shall be determined by multiplying the total number of bedrooms in the multi~~-~~family apartment project by 0.26 Single~~-~~Family Equivalents (SFEs).

Source: City of Denton Approved Meter Manufacturer's Specifications;
City of Denton Code of Ordinances Section 26-218 - Water and Wastewater Facilities - Exhibit F

C. Location

Water meters and meter cans and vaults shall be placed within a City ~~Right-of-Way~~ROW, Public Utility Easement or Public Water Easement. Placement shall also satisfy the following requirements:

1. Located as close as possible to the public water main;~~.~~
2. Easily accessible to City of Denton employees;~~.~~ and
3. Located in an unpaved area that does not conflict with vehicular or pedestrian traffic.

D. Furnishing and Installing

All meters two (2) ~~-~~inches and smaller, shall be furnished and installed by City Water Utilities for

fees per the current Fee Schedule. All meter assemblies three (3) -inches and larger and their associated vaults, shall be furnished and installed by Contractor at their expense and inspected by Public Works Inspection ~~or~~ and City Water Utilities.

E. Details

Details of the meter can assemblies for meter sizes two (2)- inches and smaller are shown in the City Standard Details.

Details of the meter vault assemblies for meter sizes three (3) -inches and larger are shown in the City Standard Details.

F. Backflow Prevention

Backflow Prevention Assemblies ~~(Double Check Valve Assembly unless other assembly is specified elsewhere)~~ are required in accordance with the International Plumbing Code, 2021 ~~International Fire Code~~IFC, and 30 TAC § 290.44~~, City of Denton Ordinances~~. Backflow Prevention Assemblies must be utilized: ~~Chapter 28 Article XI. – Irrigation Systems, and:~~

1. At each dedicated fire line connection.~~ If the building is located within 50 feet of the right-of-way or easement, the backflow preventer may be placed within the building.~~ A flanged fire line valve shall be required to connect to the tee located on the main line and a fire line valve shall be required outside the downstream side of the vault or ROW line whichever applies;~~.~~
2. After each meter of any site served by redundant domestic meters;~~.~~
3. At facilities supporting Recreational Vehicle (RV) connections for the purpose of flushing waste tanks;
4. At all services outside City limits~~.~~, in accordance with ~~TCEQ~~ 30 TAC §290.47(f)); and

~~3.~~5. At all properties that have an auxiliary water source. These properties must protect connections to the public water system using a reduced pressure backflow assembly (RPBA).

Backflow prevention devices shall be placed ~~in vaults~~ at the ~~right-of-way~~ROW or an easement line adjacent to the connection to the public water system~~meter, except as afforded by 3.6.6(A) or as required by TCEQ to not be vaulted~~.

~~6.4.17~~6.2.6 Water Main Horizontal and Vertical Alignment

The following guidelines should be followed by the design engineer in placement of water lines:

A. In existing streets, water lines shall be placed in the pavement four (4) feet from back of curb ~~2 feet inside of the curb and gutter line intersection~~. For new residential development, water lines shall be placed on the north and east sides of the streets, where possible, four (4) feet~~2 feet inside of the~~from back of curb ~~and gutter line intersection~~. *See* the City Standard Details.

B. All water lines shall be laid as straight as possible. Avoid excessive number of high points and low points between cross street connections, as they trap air pockets. *See* Section 6.2.16.B ~~6.2.17.A.4B~~ of this Manual for placement of air release valves.

C. Minimum radius of curv~~e~~ature and maximum deflection angle of pipe joints ~~will be~~are restricted to the manufacturer's recommendation, after which, ~~the use of~~ horizontal or vertical bends ~~will be~~are required. Deflection of pipe shall only be permitted through joint deflection; no bending of pipe is allowed.

D. Vertical bends shall be no greater than 45 degrees.

E. Except for transverse pipe crossings, no other utility shall be installed over, under or within five (5) ~~ft.~~feet horizontally of a water line.

F. ~~Provide~~ There shall be at least two (2) feet of vertical separation between a water line and any utility or storm drain crossing it.

G. Water lines shall not ~~B~~be located ~~no~~ closer than 10 feet to any building or structure.

~~6.4.18~~6.2.7 Highway Crossings

Crossings of State or County-~~-~~controlled roads shall require the review and approval of the appropriate regulatory agency. Crossings shall meet the requirements ~~made~~ provided by the controlling agency and by the City of Denton Standards. In the event of different requirement levels for the same item, the more stringent standard shall apply.

~~6.4.19~~6.2.8 Railroad Crossings

The design engineer shall, prior to the design of any railroad crossing, contact the appropriate railroad company and regulatory agency ~~and~~ to determine if there are any special requirements. In the event the City of Denton Design Criteria are more stringent than those of the Railroad Company or regulatory agency, the City's standards shall apply.

~~6.4.20~~6.2.9 Creek Crossings

Where a water main is ~~are~~ laid under any flowing stream or semi-permanent body of water, such as a marsh or pond, or an identified ~~environmentally sensitive area (~~ESA (~~,~~ *see* DDC 7.4), the water main shall be installed in a separate watertight encasement pipe, with valves on each side of the crossing to allow for the isolation and testing of that portion of the water main to determine if there are any leaks, ~~and as well as~~ and to facilitate future repairs.

A primary consideration in the design of creek crossings is the prevention of soil erosion in the areas of trench backfill. The design engineer shall determine the need and limits of any special embedment, and determine and specify the limits for specialized backfills.

~~6.4.21~~6.2.10 Tunneling, Boring, Jacking and Casing

Tunneling, boring, jacking and c~~C~~asing are methods used for water line placement under restrictive conditions when open-cut construction is not allowed. Only straight pipe alignments for both horizontal and vertical alignment are allowed.

Design engineers should consider the location, size, and depth of boring and receiving pits when choosing the beginning and ending stations for boring. A typical bore pit is between 35 and 40 feet in length to accommodate the boring machine and one (1) joint of pipe. Width of the bore pit can vary depending on the depth and size of pipe, with the narrowest width being approximately 15 feet. ~~—~~Additional size and spacing requirements may be required as outlined in DDC 7.4 when working adjacent to confirmed ESAs. The preferred location for the bore pit is the lower elevation end of the bore; allowing any groundwater and/or boring slurry to drain from the tunnel into the bore pit. The water can then be removed by pumping.

Steel casing pipe, where required for open-cut or other than open-~~-~~cut installation, shall conform to the City Standard Specification 33 05 07 Steel Casing Pipe, and have an inside diameter (ID) large enough to accommodate a carrier pipe of at least two (2) standard sizes above the pipe being installed. Consult with

Water Utilities Department for ~~P~~project specific design, sealed and signed by a Professional Engineer, licensed by the State of Texas.

Carrier pipes may be PVC with external harness restrained joints (requires larger casing than for pipe alone) or ductile iron with restrained joints. All carrier pipes shall be installed in accordance with the pipe manufacturer's recommendations, properly restrained and supported with approved spacers and casing end seals. Pipe joint restraint shall be achieved using only City approved pipe manufacturer externally restrained joint systems. Refer to Standard Detail U208A and the current City approved Materials Submittal List.

~~6.4.22~~6.2.11 Elevated Crossings

Elevated crossings are not permitted for water mains except for special cases approved by the ~~Director of Water Utilities~~City's Engineer. Design requirements for approved elevated crossings shall be tailored to the specific project characteristics.

~~6.4.23~~6.2.12 Underground Utility Crossing

Where water mains are laid under or over another buried utility line or underground facility (i.e., storm drain, culvert boxes, franchise utilities, etc.), special requirements may be necessary for the protection of the water main. Table 6.2-~~K~~K provides requirements for different crossing situations. This table is not a replacement for separation requirements for sewer and water lines as governed by 30 TAC § 217.53 and ~~30 TAC~~ § 290.44, respectively.

Table 6.2-K: Utility Crossing Requirements

Water Utility	Crossing	Utility Line Size (in.)	Separation (feet~~ft~~)	Special Requirement
New/existing Water	Under	~~less than~~< 24	≥~~>=~~ 2	None
New/existing Sewer	Under	~~less than~~< 24	≥ 2~~>= 2~~	None
New/existing Water	Under	24 to 42	≥ 2~~>= 2~~	None
New/existing Sewer	Under	24 to 42	≥ 2~~>= 2~~	None
New Water	Under	~~Greater than~~> 42	≥ 2~~>= 2~~	Encased in 150±~~+-~~psi pressure class pipe
Existing Water	Under	> 42~~Greater than 42~~	≥ 2~~>= 2~~	Encased in split steel casing
New Sewer	Under	> 42~~Greater than 42~~	≥ 2~~>= 2~~	Encased in 150±~~+-~~psi pressure class pipe
Existing Sewer	Under	> 42~~Greater than 42~~	≥ 2~~>= 2~~	Encased in split steel casing
New Water	Under	≥ 10~~10 feet or greater~~	≥ 2~~>=2~~	Cased in steel pipe
Existing Water	Under	≥ 10~~10 feet or greater~~	≥ 2~~>=2~~	Cased in split steel pipe
New Sewer	Under	≥ 10~~10 feet or greater~~	≥ 2~~>=2~~	Cased in steel pipe
Existing Sewer	Under	≥ 10~~10 feet or greater~~	≥ 2~~>=2~~	Cased in split steel pipe
New/existing Water	Over	< 24~~less than 24~~	≥ 2~~>= 2~~	None
New/existing Sewer	Over	< 24~~less than 24~~	≥ 2~~>= 2~~	None
New/existing Water	Over	≥ 24~~24 or greater~~	≥ 2~~>= 2~~	None
New/existing Sewer	Over	≥ 24~~24 or greater~~	≥ 2~~>= 2~~	None

A. To minimize crossing impacts, crossings must be perpendicular, if possible.

B. Utility crossings with less than two (2) feet of separation require a ~~variance~~ design deviation request

(which will include special requirements) after providing a thorough analysis detailing physical and economic factors involved.

C. Pursuant to the Code of the City of Denton, Texas, Chapter 25, Article II, Sec. 25-80 - ~~City Ordinance Chapter 25 Section 25-80~~ Facility Size and Locations, all ~~right-of-way~~ROW user facilities are required to maintain a minimum separation of ~~twenty-four (~~24~~)~~ inches from all C~~c~~ity utility system facilities. If a ~~right-of-way~~ROW user may encounter a hardship due to this requirement, the ~~right-of-way~~ROW user may request a ~~variance~~design deviation ~~to~~ as detailed in Section 8 of this Manual~~the minimum separation requirement in writing and in advance with the permit application. Any exception granted will be subject to the City Engineer's approval or denial with the permit application, and only applicable to a single issued permit~~.

D. Split~~-~~-steel casing shall follow sizing requirements of pressure~~-~~-rated casing.

E. See City Standard Specification Section 33 05 07 Steel Casing Pipe.

F. Casing spacers shall be placed not more than five (5) feet apart.

G. Encasement shall be extended a minimum of three (3) feet beyond the edge of the utility or facility to be crossed. Water mains that cross utility lines in private easements must adhere to the requirements of the easement owner, as well as those listed above.

~~6.4.24~~6.2.13 Fence or Wall Crossings

A. Water mains should be routed to avoid entering private property. In circumstances where it ~~—~~is impractical to avoid doing so, provisions are required to allow City staff to inspect, maintain, and repair its infrastructure. Water mains crossing fences will require a ~~variance~~design deviation request as per Section 8 of this Manual, to be reviewed by the City's Engineer ~~Engineer in consultation with the Director of Water Utilities~~, after thorough consideration of the physical and economic factors involved. ~~Variances~~Design deviations may require additional provisions beyond this Manual.

B. Water mains crossing under privacy fencing (wood, chain-link, or plastic) shall not require any special protection.

C. Water mains crossing under other types of fencing will require the fence to be constructed of easily removable panels or have gates that can be removed from the easement.

D. Water mains may not cross under retaining walls.

E. There must be at least two (2) feet of vertical separation between a water line and any utility or storm drain crossing it.

~~6.4.25~~6.2.14 Existing Water Main Replacement

A. Whenever an existing main is to be replaced by a new main, use the following guidelines for alignment and design:

1. The new line should be located as near as possible to the existing line; while allowing the existing line to remain in service, until the new line is ready to be put into service.
2. If the existing line is in or next to a roadway, the new line should be placed under existing pavement, not behind the curb in the parkway area.
3. The new line should be designed to utilize the existing metering locations where possible.

B. The size of the new line should match the size of the existing line. If the existing line is a non-standard size (i.e., 6-in. or 10-in.) then the new line should be sized for the next larger standard size. The design engineer shall perform field investigations to determine pavement condition over the existing main. The pavement may have been patched due to breaks in the existing main over the years. Based on field investigations, the design engineer shall include additional quantities for pavement replacement, if necessary.

6.4.266.2.15 Methods of Connection

A. Pressure Zones

The City of Denton's Water Distribution System is divided into several water pressure zones to ensure even water-pressure gradients. Prior to the design of connection points between a proposed main and any existing main, the design engineer shall investigate and determine if the proposed water main crosses the boundary between different pressure zones.

Even though physical connections of water pipes exist between pressure zones, they are designed with valves which are closed at the boundary points so that each pressure zone is isolated. Proposed mains that approach pressure zone boundaries shall be designed to loop within their designated pressure zones and with no or minimum lengths of dead-end mains.

Connections between pressure zones must be approved by the City of DentonDirector of Water Utilities, and may require pressure-reducing valve stations. The design engineer can determine the pressure zone boundaries by consulting the record drawing water maps which show the designated closed valves between pressure zones and by contacting Water Utilities. *See* Figure xx 6.1 below for a Pressure Zone Map.

Note that the developer will be responsible for all surface rehabilitation associated with connecting to the City's Water Utilities. Surface rehabilitation must match existing site conditions or better.

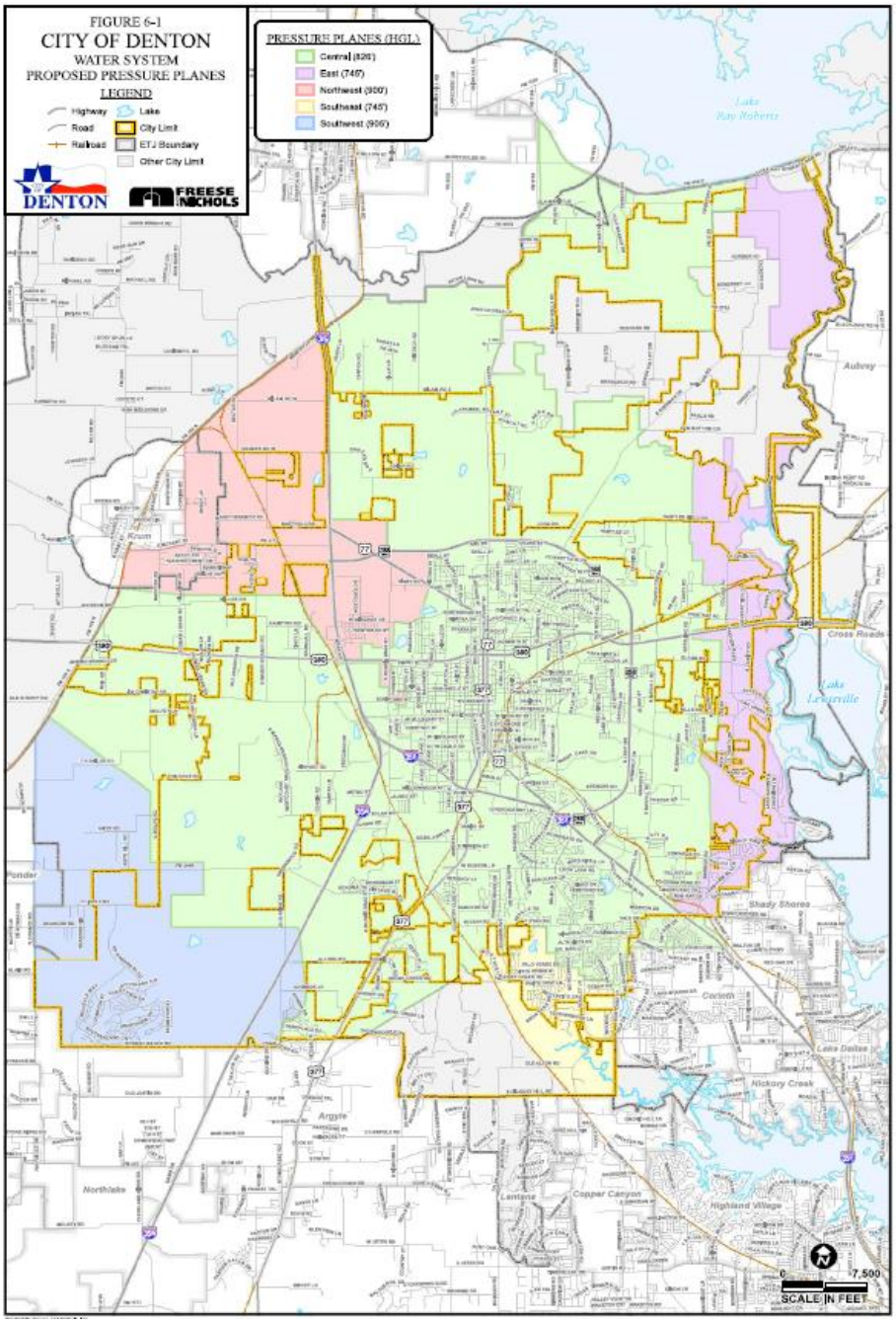


Figure 6.1~~7.16.1~~ 2018 Water Master Plan Pressure Zone Map

B. Tapping Sleeve and Valve

Tapping sleeves with tapping valves shall be used whenever possible for connections to existing mains to avoid interruption of water services. *See* Figure 3.1 in Drawing PIAZ13 of the City Standard Details.

1. As per AWWA C223, s~~S~~ize-~~-~~on-~~-~~size taps are allowed up to 12-~~ feet~~ inches (e.g.: 12-in.~~ feet x~~x ~~12 feet)~~ 12-~~ feet~~in.)

2. Taps on 16~~"~~-in. and larger pipes must be approved in writing in advance by the ~~Director of~~

~~Water Utilities~~City's Engineer~~, and at least one standard pipe size smaller than the pipe being tapped~~. *See* Figure 3.2 in Drawing PIAZ13 of the City Standard Details. (e.g.: 16-in. ~~"~~ x ~~X~~ 12~~"~~-in., 16-in. ~~" X~~x ~~-~~8-in.~~"~~, and 16-in. ~~"~~ x ~~X~~ 6~~"~~-in. taps ~~are~~ may be allowed).

3. Connections to fire hydrant leads are not allowed.

~~3.~~4. All water service lines, two (2) inches and smaller, require taps as per City Standard Details.

C. Cut-in Connection

~~On occasions when connecting to an existing main, it may be desirable to have an additional valve on the existing main. In this situation, the design engineer should consider using a cut-in connection with a tee and valve being cut into the existing main.~~Cut-in connections are only allowed to existing mains larger than 12 inches, where a size-on-size connection is needed. *See* Figure 3.4 in Drawing PIAZ14 of the City Standard Details.

D. Main Extensions

A new valve shall be installed at the point of connection for water main extensions. This will facilitate the testing and chlorination of the new main prior to its placement into service. *See* Figure 3.5 in Drawing PIAZ14 the City Standard Details.

~~6.4.27~~6.2.16 Valves

A. Isolation Valves

1. Location

Isolation valves shall be provided to allow for the proper operation and maintenance of the water distribution system, and to ensure water quality can be maintained ~~to~~ for each individual water customer connected to the system.

The location of valves needs to properly address the ability of the Department of Water Utilities to remove a water line from service to perform necessary repairs, while critically minimizing the interruption of service ~~to~~ for fire protection and to ~~the least number of~~ customers ~~and to fire protection~~. Isolation of any given section of water line should generally be able to be accomplished by closure of the least number of valves, as would generally be expected under good engineering design practices and utility engineering standards. The Department of Water Utilities reserves the right to require changes to proposed designs to satisfy these objectives.

The design engineer shall place valves on proposed water mains so they may be easily located in the future by operations and maintenance crews.

The following guidelines should be used by the design engineer in placement of isolation valves on proposed water mains:

a. Two (2) valves are to be installed at every main branch tee location, one (1) flanged to the branch of the tee and the other a mechanical joint connection on one (1) ~~-~~of the two (2) runs of the tee. *See* Figure 3.6 in Drawing PIAZ15 of the City Standard Details. Three (3) valves are to be installed at every cross location, each a mechanical joint connection.

b. Valves for line sizes 12 ~~-~~inches in diameter or less should not be spaced any farther apart than 1,000 feet. For city blocks that are longer than 1,000 feet between street intersections, placement of a valve will be required between street intersections.

c. Valves should be generally located so that no more than four (4) valves are required to isolate a section of main. *See* Figure 3.7 in Drawing PIAZ15 of the City Standard Details. For mains larger than 12 ~~-~~inches in diameter, valve spacing and placement shall be subject to alternate criteria approved by the ~~Director of Water Utilities~~City's Engineer.

d. All fire hydrant leads ~~are to~~must be designed with a valve that is flanged to the main line. *See* Drawing W401A and W401B of the City of Denton Standard Details

~~3.~~2. Specifications

Refer to Table 6.2-~~L~~L and Standard Specifications 33 14 20 Resilient Seated (Wedge) Gate Valves and 33 14 21 AWWA Rubber-Seated Butterfly Valves.

Table 6.2-L: Isolation Valve Requirements

Size	4 in. ~~-to~~ 12 in.	16 in. ~~-to~~ 20 in.	24 in.	30 in.	36 in. or larger
Type	Gate Valve (AWWA C509 resilient-seat)	Gate Valve (AWWA C515 resilient-seat)	Gate Valve (AWWA C515 resilient-seat)	Gate Valve (AWWA C515 resilient-seat)	Gate Valve (AWWA C515 resilient-seat) or butterfly, to be determined by City on a case-by-case basis
Orientation	Vertical	Vertical	Vertical	Vertical or horizontal; to be determined by City on a case-by-case basis	Vertical or horizontal; to be determined by City on a case-by-case basis
Gear Operator Required	No	No	Yes	Yes	Yes
Vault Required	No	No	Yes	Yes	Yes
Bypass Required	No	No	No	Yes	Yes

~~4.~~3. Details

Refer to Drawings W104, W105, W106A, W106B, and W601 of the City Standard Details.

B. Air Release Valves and Air/~~-~~Vacuum-Air Release Valves

For water mains less than 16 ~~-~~inches in diameter in certain situations where the topography, remoteness, or some other hydraulic factor necessitates it, air release valves are required at local high points to facilitate automatic release of accumulated air.

For water mains 16 ~~-~~inches and larger ~~mains~~, the City requires air~~-~~/~~-~~vacuum~~-~~-air release valves at local high points to facilitate automatic release of accumulated air and to facilitate automatic prevention of vacuum conditions within the line. *See* Drawings W801 and W802 of the City Standard Details.

Manholes shall not be placed in sidewalks, pedestrian ramps, driveway approaches, or in the bottom or on the slopes of a drainage channel or drainage structure. Manholes shall be kept a minimum of 40 feet from any railroad track.

~~6.4.28~~6.2.17 Dead-End Mains

A. Dead-end main situations should be avoided whenever possible.

B. In lieu of dead-end mains, the design should loop through public ~~right-of-way~~ROW or a dedicated public utility easement (with adequate assurance of access and fencing prohibited) to another nearby water main using the same size pipe.

C. If a dead-end main situation is unavoidable, it shall be designed so that it may be periodically flushed of stagnant water by locating a fire hydrant or other flushing device near the main's end and past the last service connection. *See* City of Denton Standard Detail W603.

~~6.4.29~~6.2.18 Fire Hydrant Locations and Coverage

A. The design engineer should locate fire hydrants as close as possible to street intersections, but outside of the curb radius. This positioning of fire hydrants provides coverage along several streets. When spacing requirements necessitate the installation of fire hydrants between street intersections, they should be placed at the projection of lot lines between property owners. For main replacement projects in established neighborhoods, fire hydrants should be designed as close as possible to the old fire hydrant location, provided coverage is adequate. Neighborhood residents are familiar with the fire hydrant being at that location and normally expect a replacement fire hydrant to be placed at the same location. Fire hydrants are not to be installed closer than nine (9) feet to any wastewater main, manhole, or appurtenance.

B. Fire hydrant spacing shall comply with the 2021 IFC Appendix C Fire Hydrant Locations and Distribution, and be easily accessible by City staff and First Responders. *See* City Standard Details W401A and 401B, and Standard Specifications 33 14 40 Fire Hydrants. Fire hydrants shall be placed at a maximum of 500 feet apart in single-family residential areas, and a maximum of 300 feet apart in all other areas, unless a closer spacing is required by the IFC.

~~6.4.30~~6.2.19 Requirements for Abandoning Water Mains

The design engineer should note the limits and appropriate conditions for the abandoning of existing water mains which are to be replaced by the construction of any proposed water mains.

The design engineer should also make allowances in the design to provide for the existing and proposed mains to be in service simultaneously, until all customer services are transferred from the old main to the new main with minimum interruption of service. If the construction of a proposed main necessitates the abandoning of the existing main prior to the new main's placement into service, then provisions for a temporary water main with services must be addressed by the design.

Typically, abandoned lines may be left in place with only the ends being plugged with grout or concrete. However, the City may require special abandonment actions including, but not limited to, filling the abandoned water main with grout, removal and proper disposal of all above ground appurtenances, and removal and proper disposal of the abandoned pipe.

A. Replacement Mains

On occasions when connecting to an existing main, it may be desirable to have an additional valve on the existing main. In this situation, the design engineer should consider using a cut-in connection with a tee and valve being cut into the existing main. *See* Figure 3.4 in Drawing PIAZ14 of the City Standard Details.

B. Extension Mains

A new valve shall be installed at the point of connection for water main extensions. This will facilitate the testing and chlorination of the new main prior to its placement into service. *See* Figure 3.5 in Drawing PIAZ14 the City Standard Details.

C. Fire Hydrants

A new valve shall be installed at the point of connection for water main extensions. This will facilitate the testing and chlorination of the new main prior to its placement into service. *See* Figure 3.5 in Drawing PIAZ14 the City Standard Details.

~~6.4.31~~6.2.20 Flushing and Disinfection

Prior to making permanent connections to the distribution system, water distribution mains, valves, and appurtenances shall be adequately flushed and disinfected in accordance with the most current revision to AWWA C651, and bacteriological testing shall be completed to meet the standards established by the Water Utilities Department and ~~Chapter 290 of the Texas Administrative Code (~~30 TAC Chapter § 290~~)~~. Additionally, heavily chlorinated water shall be flushed from all segments of the newly constructed mains before final connections are made.

Before commencement of construction of water distribution infrastructure, the c~~C~~ontractor or engineer shall submit a flushing and disinfection plan for review by the Department of Water Utilities. At a minimum the plan shall describe:

A. Flushing procedures;

B. Hydraulic calculations to demonstrate adequate flushing velocities, or demonstrate conformance with the conditions outlined in AWWA C651 Table 3;~~.~~

C. The method of chlorination;

D. Bacteriological sampling plan;

E. Dechlorinating procedures (Ref~~.~~er to AWWA C655); and

F. Disposal of chlorinated water and methods used to ensure discharges to surface waters or storm sewer systems do not exceed 0.1 mg/L total chlorine.

~~6.15~~6.3 Wastewater Design Guidelines

~~6.15.1 General~~

~~It is the responsibility of the design engineer to ensure the final design of a sewer main is in conformance with the following:~~

~~Texas Administrative Code (TAC) Title 30, Part 1, Texas Commission on Environmental Quality (TCEQ) – Rules, Ch. 217,~~

~~City of Denton Code of Ordinances and Denton Development Code (DDC)~~

~~This Manual~~

~~The City of Denton's Standard Details and Standard Specifications~~

~~Current City of Denton Wastewater Master Plan~~

~~American Water Works Association (AWWA) Standards~~

~~6.15.10~~6.3.1 Estimated Wastewater Flows

For sewers in new developments, sewer lines and lift stations shall be designed to accommodate the projected buildout flows from all residential, commercial, industrial, or institutional sources upstream of the proposed sewer improvement. Figure: 30 TAC §217.32(a)(3) Table B.1. - Design Organic Loadings and Flows for a New Wastewater Treatment Facility (*see* excerpted information in Table ~~4.2-1~~6.3-A) shall be used as a guide to generate wastewater flows. However, minimum flow capacity for sizing of sewers for peak flow condition shall not be less than the results of the following calculation procedures:

A. Delineate the wastewater drainage area that will drain into the sewer main or lift station. Include all upstream offsite areas.

B. For the development site, use the following design parameters:
   1. Table 6.3-A ~~Table 3.6-A~~ to generate the wastewater loading by type of use.
   2. 3.2 capita per lot for single-~~-~~family.
   3. 2.5 capita per unit for multifamily.
   4. Apply a 4.0 multiplier to the average daily flow to determine the peak flow.

C. For undeveloped upstream areas, use the following design parameters:
   1. 4 lots per acre.
   2. 3.2 capita per lot.
   3. Average daily flow of ~~100~~ 90 ~~gal/capita/day.~~GPCD
   4. Apply a 4.0 multiplier to the average daily flow to determine the peak flow.

D. For developed residential upstream areas, use the following design parameters:
   1. Count number of single-~~-~~family lots.
   2. Obtain number of multifamily units (available through DCAD)

3. 3.2 capita per lot for single-family.
4. 2.5 capita per unit for multifamily.
5. Average daily flow of 100 ~~gal/capita/day.~~GPCD
6. Apply a 4.0 multiplier to the average daily flow to determine the peak flow

E. For developed non-residential upstream areas, use the following design parameters:

1. Average daily flow of 1,500 GPD~~gpd/~~ per acre.
2. Apply a 4.0 multiplier to the average daily flow to determine the peak flow

For replacement of existing sewers and construction of parallel sewers for additional capacity, wastewater flow data will be provided by the City from data generated by City sewer-shed computer models. The cost for modeling a project's impact with the City's collection system model will be the responsibility of the developer, paid to the City.

Proposed impacts to the City's system determined to, or likely to, cause (through hydraulic modeling or other analysis) these limits to be exceeded, are prohibited without additional improvements to the public system so the system can be operated within these parameters.

Table 6.3-A: Design Flows for a New Wastewater Treatment Facility

Source	Remarks	Daily Wastewater Flow (Gal. per person)[1]
Municipality	Residential	75 - 100
Subdivision	Residential	75 - 100
Trailer Park [2]~~2~~ (Transient)	2½ Persons per Trailer	50 - 60
Mobile Home Park [2]~~2~~	3 Persons per Trailer	50 - 75
School	Cafeteria & Showers Cafeteria/ No Showers	20 15
Recreational Parks	Overnight User Day User	30 5
Office Building or Factory	FA ~~f~~acility must be designed for the largest shift	20
Hotel/Motel	Per Bed	50 - 75
Restaurant	Per Meal	7 - 10
Restaurant with bar or cocktail lounge	Per Meal	9 - 12
Hospital	Per Bed	200
Nursing Home	Per Bed	75 - 100
Alternative Collection Systems, e.g., septic tanks	Per Capita	75

Notes:

[1] City of Denton requires usage of the highest number of the TCEQ ranges.

[2] At the time of updating this Manual, the TCEQ is evaluating criteria for tiny homes, and should be consulted as appropriate.

Source: TCEQ Rules - 30 TAC §217.32(a)(3), Table B.1

~~6.15.11~~6.3.2 Separation ~~Distances~~ between Water and Wastewater Collection Facilities ~~Collection System Pipes orand Manholes and Public Water Supply~~

Pipes

Wastewater mains and manholes shall be separated from water mains as set forth in Texas Administrative Code (TAC) Title 30, Part 1, Texas Commission on Environmental Quality (TCEQ) Rules - 30 TAC §217.53(.d) - Separation Distances, and 30 TAC §290.44 - Water Distribution.

6.15.126.3.3 Size and Slope of Sewers

After the design engineer has determined the wastewater flows per Section 6.3.1, of this Manual, the sewer size can be determined using the following criteria. However, no sewer, other than service laterals and force mains, shall be less than eight (8) inches in diameter.

The size and grade of the proposed sewer shall be evaluated by using Manning's Equation.formula

$$V = 1.49/n\ (R)^{0.67}\ (S)^{0.50} \qquad \text{[Eqn. 6.1]}$$

Where: V = velocity (in fpsfeet per second)

n = Manning's coefficient of roughness; minimum 0.013

R = hydraulic radius (feet)

S = slope of energy grade line (feet per foot)

Proposed sewers shall be designed with slopes sufficient for velocity of three (-3.0) feet per second (fps) velocity, with a minimum required velocity required of two (2.0) (fps). The minimum acceptable Manning's "*n*" factor for design shall be 0.013, which takes into consideration the slime, grit and grease layers that will affect hydraulics or hinder flow as the pipe matures. The sewer pipe grades shown in Table 6.3-B are based on an "*n*" value of 0.013 and are the minimum acceptable slope for sewer lines.

Table 6.3-B: Minimum and Maximum Pipe Slopes

Size Size of Pipe - ID (in Inches):D.	Minimum Slope in Percent(%)	Maximum Slope in (Percent%)	Capacity Flowing Full at Min. Slope (MGD)
8	0.335	8.40	0.45
10	0.25	6.23	0.71
12	0.20	4.88	1.03
15	0.15	3.62	1.62
18	0.115	2.83	2.25
21	0.095	2.30	3.07
24	0.08	1.93	4.14
27	0.07	1.65	4.91
30	0.06	1.43	6.23
33	0.055	1.26	7.66
36	0.045	1.12	9.17

The capacity of the sewer pipe flowing full shall be computed by the following equation:

$$C = 0.299/n\ (D)^{2.67}\ (S)^{0.50} \qquad \text{[Eqn. 6.2]}$$

Where: C = capacity (million gallons per day-MGD)

n = Manning's coefficient of roughness; minimum 0.013

D = inside diameter -(feet)

S = slope of the energy grade line (feet per foot)

Sewer mains shall be designed to convey peak flow at no more than 80% o~~i~~f full pipe capacity at system buildout.

~~B.~~A. High Velocity Protection

Where velocities greater than 10 fps will occur when a pipe flows full, based on Manning's Equation and an "n" value of 0.013, restrained joint pipe or external restraint systems must be utilized.

~~6.15.13~~6.3.4 Sewer Main Depth

Minimum depth for the design of sewer mains shall be determined by providing a ~~two~~2 ~~percent~~% grade for the lateral from the center of the house or building to the center of the proposed main and including an additional two (2) fee~~oo~~t drop. Therefore, for a house 100 feet from the proposed sewer main, the designed depth of the main shall be at least four (4)~~.0~~ feet below the FFE~~finished floor elevation~~ of the house since:

$$\textbf{2 feet + (2\% of 100 feet) = 4.0 feet} \qquad \text{[Eqn. 6.3]}$$

The lateral also must have at least two (2) feet of cover at its shallowest point. The design engineer is responsible for ensuring sufficient depth and grade is maintained to serve all building sites in the sewer shed.

The maximum depth of sewer mains is ~~required to be no more than~~ 30 feet.

~~6.15.14~~6.3.5 Recommended Cover

Recommended cover for all sewer mains is four (4) feet to six (6) feet. Minimum cover shall be three (3) feet and six (6) inches or 3-½ ~~3.5~~ feet. Any main approved to have less than minimum cover shall be encased in Class "B~~G~~" embedment per City Standard Specifications. *See* Drawing U204 of the City Standard Details.

When establishing depth for proposed wastewater mains, design engineers shall consider the impact of proposed water and drainage improvements especially on service laterals that cross those improvements to connect to the wastewater main.

~~6.15.15~~6.3.6 Sewer Alignment

Design engineers shall be guided by the following in the alignment of wastewater lines:

A. For new construction in areas not served, sewer mains shall be laid straight between manholes. No horizontal or vertical bends are allowed between manholes;~~.~~

B. Avoid shifting mains from one side of the ROW to the other side of the ROW between street intersections;~~.~~

C. Where the bypass of existing flows is feasible, it is recommended that replacement mains be constructed horizontally in the same trench; and~~.~~

D. Except for pipe crossings, no franchise utility shall be installed within five (5) feet of a sewer main.

~~6.15.16~~6.3.7 Sewer Laterals

A. Water Utilities Field Operations or Engineering and Planning staff reserves the right to permit utility-supervised connections to the collection system by non-City staff. Note that the developer will be responsible for all surface rehabilitation associated with connecting to the City's Water Utilities. Surface rehabilitation must match existing site conditions or better

~~E.~~B. Laterals may not serve more than one (1) lot.

~~F.~~C. Minimum lateral sizes from the sewer main to the public cleanout are:

1. 4-in.~~ch~~ minimum for single-family
2. 6-in.~~ch~~ minimum for residential duplex, triplex, and quadplex
3. 6-in.~~ch~~ minimum for local retail, light commercial, apartment, manufacturing and industrial

~~G.~~D. Single-way clean-outs shall be provided on laterals at the public easement or ~~Right-of-Way~~ROW line. Double-way cleanouts are not allowed. See Drawings S403 and S404 of the City Standard Details.

~~H.~~E. Manholes shall be provided for lateral connections when the lateral pipe diameter is equal to the main sewer pipe diameter or if the lateral is eight (8)~~-inch~~ inches in diameter or larger.

~~I.~~F. Laterals shall be constructed to the property line and shall be located at a point five (5) feet downstream from the center of the lot on unimproved property. For improved property, design engineers should use technical judgement in lateral placement.

~~J.~~G. Preferred grade for lateral construction within the ROW/PUE is 2%. Laterals within ROW/PUE shall not be designed with less than 1% grade.

~~6.15.17~~6.3.8 Gravity and Force Main Sewer Pipe Material

Gravity and Force Main sewer pipe shall meet the following criteria unless special circumstances require an alternative and is approved by the ~~Director of Wastewater Utilities~~City's Engineer. Slope of grade across cover shall be a maximum of 4H:1V.

Table 6.3-C: Minimum and Maximum Pipe Slopes

~~Pipe Size~~Diameter	Application	Pipe Material
8-in. to 12-in.	Gravity	PVC – ASTM D3034, SDR 26; HDPE – ASTM D3350, DR-17
15-in.	Gravity	PVC – ASTM D3034, SDR 26
18-in. to 24-in.	Gravity	PVC – ASTM F 679, PS115; Fiberglass Reinforced Plastic – ASTM D3262
6-in. to 60-in.	Force Main	HDPE – ASTM D3350, DR-13.5; DIP – AWWA C150/C151, CL52 or PC 350, epoxy interior lining

A. For gravity sewer pipe sizes over 24~~-inch~~ inches in diameter, design calculations and pipe selection shall be submitted by the development design engineer for review~~;~~. ~~a~~Approvals will be provided on a project specific basis.

B. Force main sewer pipe shall be designed to meet the working and surge pressure requirements of the specific application. Design calculations and pipe selection shall be submitted by the development design engineer for review.

C. Different pipe materials shall not be mixed between manholes. If it is anticipated that a mixing of materials will occur, the design engineer shall design a manhole at the point of transition of pipe materials. For previously placed stub-out of a material other than PVC pipe, design engineer shall add a note to the plans calling for removal of the stub-out or change the material of the proposed pipe for that section of pipe between manholes.

6.15.186.3.9 Sewer Pipe Embedment

The types of embedment and backfill for sewer mains are shown in Drawings U201, U202, U203A and U203C of the City Standard Details. Embedment requirements shall be based on sewer mains under proposed pavement, unpaved areas and existing pavement.

6.15.196.3.10 Manholes

Manholes constructed on existing or proposed sewer lines shall be sized as follows:

Table 6.3-D: Manhole Sizing

Pipe Diameter	Manhole Diameter
8-in. to 12-in.	4.0 feet. (For depths greater than 12 feet., use 5.0 feet.)
15-in. to 27-in.	5.0 feet.
30-in. to 36-in.	6.0 feet.

Notes:

[1] Special manholes shall be designed for mains larger than 36-in. diameter pipe.

The types of manholes allowed by the City are shown in Drawings S101, S102, S103 and S107B of the City Standard Details. Additionally, connections to manholes must comply with City Standard Specifications.

Generally, manholes shall be stationed on the main run, and where known, the stations of the side mains should also be indicated. When connecting a proposed main to an existing main at a manhole, the connection shall have the top inside elevation of the outfall main level with the top inside elevation of the proposed main. Connections to brick manholes are prohibited.

At the discretion of Field Operations or Planning and Engineering Division staffWater Utilities, manholes with known deficiencies will be required to be replaced.

A. Manhole Locations

Manholes shall be provided at the following locations to facilitate maintenance, cleaning, and inspection:

1. At the location of lateral connections that are 8-in. in diameter or larger;.

2. At 500 feet intervals on sewer mains 15-in. diameter or smaller; at 800 feet internals on mains 18-in. diameter through 30-in. diameter; at 1,000 feet intervals on mains 36-in. diameter through 48-in. diameter; and at 2,000 feet intervals for 54-in. diameter and larger;.

3. At all locations where pipe diameter or pipe material changes;.

4. At all locations where the horizontal or vertical alignment of the sewer main changes;~~.~~
5. At the ends of all mains with service connections. Two ~~ends of a~~ main upstream ends may not be combined in one manhole;~~.~~
6. If the main line is less than 150 feet ~~0 ft.~~ long and does not contain any service connections, or additional extensions are not expected or possible, then a Sanitary Sewer Mainline Cleanout may be used. *See* Drawing S402 of the City Standard Details;~~.~~
7. At the end of any pipe segment at least 150 feet ~~ft~~ long;~~.~~
8. At the end of every end-of-line (EOL);
~~8.~~9. Sewer service laterals are to be connected to the sewer main line and not into a manhole unless it is a size-on-size connection;~~.~~
~~9.~~10. Manholes shall not be placed in sidewalks, pedestrian ramps, driveway approaches, or in the bottom or on the slopes of a drainage channel or drainage structure;~~.~~
11. ~~Manholes shall be kept~~At a minimum of 4~~3~~0 feet from any railroad track; and~~.~~
~~10.~~12. Separation of utilities around manholes shall be a minimum distance of five (5) feet , to allow for maintenance and repair.

~~6.15.20~~6.3.11 Highway Crossings

Crossings of State or County-controlled roads shall require the review and approval of the appropriate regulatory agency. Crossings shall meet the requirements made by the controlling agency and by City of Denton Standards. In the event of different requirement levels for the same item, the more stringent standard shall apply.

~~6.15.21~~6.3.12 Railroad Crossings

The design engineer shall, prior to the design of any railroad crossing, contact the appropriate railroad company and regulatory agency and determine if there are any special requirements. In the event City of Denton Design Criteria are more stringent than those of the Railroad Company or regulatory agency, the City's standards shall apply.

~~6.15.22~~6.3.13 Tunneling, Borings, Jacking, and Casing

A. Tunneling, boring, jacking and casing are methods used for sewer line placement under restrictive conditions when open cut construction is not allowed. Only straight pipe alignments for both horizontal and vertical alignments are allowed.

B. Design engineers should consider the location, size and depth of boring and receiving pits when choosing the beginning and ending stations for boring. A typical bore pit is between 35 and 40 ~~ft.~~feet in length to accommodate the boring machine and one joint of pipe. Width of the bore pit can vary depending on the depth and size of pipe, with the narrowest width being approximately 15 feet. The preferred location for the bore pit is the lower elevation end of the bore; allowing any groundwater and/or boring slurry to drain from the tunnel into the bore pit. The water can then be removed by pumping.

C. Steel casing pipe, where required for open-cut or other than open-cut installation, shall conform to City Standard Specification 33 05 07 Steel Casing Pipe, and have an ~~inside diameter (~~ID~~)~~ large

enough to accommodate a carrier pipe of at least two (2) standard sizes above the pipe being installed.

D. Force mains through casings shall follow the same requirements as are laid out for water mains in Section 6.2.10 of this Manual.

6.3.14 Underground Utility Crossings

The requirements of Section 6.2.12 of this Manual shall govern the crossing of underground utility lines by wastewater mains.

6.3.15 Fence or Wall Crossings

The requirements of Section 6.2.13 of this Manual shall govern the crossing of fences or walls by wastewater mains.

6.3.16 Creek Crossings

When a sewer main crosses a creek or channel, the design engineer must evaluate the condition of the creek bed and ensure erosion control is provided. Backfill material and minimum construction criteria are shown in the City Standard Details S701 and S702. These criteria include creek bed soil and condition, as well as presence of exposed rock. When working in these areas, minimize storage of soil, materials, and equipment near floodways and waterways.

6.3.17 Siphons

For creek or channel crossings where a Low-Water Channel Crossing is not feasible, design of an inverted siphon crossing is permissible when approved by the City's Engineer, through a design deviation request. Inverted siphons shall not have less than two (2) barrels, with a minimum pipe size of eight (8) inches, and shall be provided with necessary appurtenances for convenient flushing and maintenance. Access structures are required at each end of the siphon, with adequate clearance for maintenance and cleaning purposes. Bank and channel stabilization may be required to protect the crossing lines and casing of the carrier pipe may be required to meet environmental or other restrictions.

6.3.18 Abandonment of Sewer Mains

A. The design engineer should note the limits and appropriate conditions for the abandoning of existing wastewater mains which are to be replaced by the construction of any proposed wastewater mains.

B. The design engineer should also make allowances in the design to provide for the existing and proposed mains to be in service simultaneously until all customer services are transferred from the old main to the new main with minimum interruption of service. If the construction of a proposed main necessitates the abandoning of the existing main prior to the new main's placement into service, then provisions for a temporary wastewater main with services must be addressed by the design.

C. Typically, abandoned lines may be left in place with only the ends being plugged with grout or concrete. However, the City may require special abandonment actions including, but not limited to, filling the abandoned wastewater main with grout, removal and proper disposal of all above ground appurtenances, and removal and proper disposal of the abandoned pipe. In situations where a

manhole is being left in service even though one (1) or more lines into the manhole are being abandoned, the abandoned line shall be cut and plugged outside of the manhole. However, if the City determines that the pavement is in good condition the City may allow the abandoned line to be plugged from inside of the manhole.

~~6.15.28~~6.3.19 Abandonment of Manholes

If a manhole as well as the sewer main is to be abandoned, the method described in ***Abandonment of Sewer Mains***, above, along with the minimum guidelines shown in Drawing S105 of the City Standard Details, shall be used.

~~6.15.29~~6.3.20 Lift Stations

The need to construct a lift station should be determined only after a thorough analysis of the physical and economic factors involved. A Preliminary Engineering Report is required, which lists all factors and adheres to current state regulations. The City reserves the right to review each proposal and determine whether there is enough merit to justify a lift station. Any lift station located in the City of Denton CCN must adhere to these requirements.

A. Preliminary Design Submittal

A preliminary design submittal is required for each lift station proposed. The submittal shall include a written report and a map prepared by a Professional Engineer, licensed by the State of Texas.

1. The plans submitted shall contain the following information, as a minimum:
   a. Be to scale, with the scale indicated;~~.~~
   b. A north arrow;~~.~~
   c. A location map;~~.~~
   d. Delineation of the boundary of the proposed development;~~.~~
   e. Delineation of the boundary of the sewer-shed in which the development lies;~~.~~
   f. The area in acres of the development;~~.~~
   g. The area in acres of the sewer-shed contributing to the l~~L~~ift s~~S~~tation;~~.~~
   h. The proposed land use or uses for the development;~~.~~
   i. The proposed land use or uses for the sewer basin;~~.~~
   j. The proposed lift station site, along with the GPS coordinates;~~.~~
   k. The proposed force main routing and size;~~.~~
   l. Delineation of the ~~one-hundred~~100-year flood plain and ~~Environmentally Sensitive Areas (~~ESAs~~);~~.
   m. Location and size of the existing collection system at the tie-in point;~~.~~
   n. Contour lines (2-f~~oo~~t. intervals);~~.~~
   o. Show how storm drainage is taken off site;~~.~~ and
   p. Property lines.~~.~~
2. The written report shall include the following information:

a. A general narrative about the proposed development and the circumstances that warrant a lift station;~~.~~

b. Influent hydraulic calculations showing:

i. Area in acres of the sewer basin and the development;~~.~~

ii. The area of each proposed land use for the development and for the projected land use(s) for the basin;~~.~~

iii. The design flow for the basin and the development;~~.~~

iv. The ~~maximum~~ peak flow for the basin and the development;~~.~~

v. Elevation of the proposed lift station site;~~.~~ and

vi. The elevation of the proposed discharge point of the force main.

c. Preliminary wet well volume calculations;~~.~~

d. Preliminary force main size;~~.~~

e. Cost estimates for proposed lift station(s) and force main(s), and cost estimates for a gravity line in lieu of the lift station if possible;~~.~~

f. Ground water levels in proposed site areas; and

~~f.~~g. ~~Provide a~~ A copy of the summary transmittal letter to TCEQ showing agency approval of proposed plans.

B. Site Layout

1. Station Siting:

The following are the minimum criteria for station sites:

a. The station shall be protected from the 100-year flood and shall be accessible during a ~~25~~100-year flood;~~.~~

b. The station should be located as remotely as possible from populated areas. The entire station site shall be completely enclosed with an ~~eight (~~8~~)~~ ~~-~~ f~~eet~~t. high, opaque concrete or masonry wall, with an opaque sliding gate with a minimum width of ~~sixteen (~~16~~)~~ feet~~.~~ on track flush with the ground. All shall be of an architectural style and colors blending with the development architecture, as approved by the city;~~.~~

c. The station shall have a minimum 16-f~~eet~~t. wide drive approach and be accessible by City of Denton service trucks, without requiring vehicles to turn after entering the drive approach to the station;~~.~~

d. The station will include an approved odor~~-~~-control system;~~.~~

e. The station site and its access shall be dedicated as a separate lot to the City, as City property;~~.~~

~~e.~~f. The station site cannot be located within the boundaries of any private entity intended to regulate property including, but not limited to HOAs, COAs, and POAs;

~~f.~~g. The station site shall be located so it may serve as much ~~of~~ as the entire sewer basin as possible. This may require the station to be located off-site of the development. When it is required that the station serve a larger area than the proposed development, the developer may enter into a pro-rata contract with the City to be reimbursed the cost of excess capacity as other developments tie to the system; and~~.~~

~~g.~~ On-site generator must have an unobstructed 36-in.~~ch~~ buffer on all sides and be

accessible by City service vehicles.

h.

2. Wet Well/ Dry Well Arrangement

a. Orientation shall consider the routing of incoming sewers and force main;~~.~~

b. Orientation shall allow a 2~~two~~-ton vehicle to directly access the wet well or the dry well, forwards and backwards;~~.~~

c. Wet wells and dry wells shall be separated by at least a water and gas tight wall with separate entrances;~~.~~

d. Wet wells shall have sloped bottoms to avoid excess sludge deposits;~~.~~

e. The wet well shall have a lockable aluminum door with an aluminum frame and safety grating. The minimum opening size shall be 4-ft. x 6-ft. with two (2) doors large enough to adequately maintain the wet well. Door and frame shall be Bilco Type K, KD or an approved equal;~~.~~

f. The dry well or valve vault shall have a lockable aluminum door with an aluminum frame and safety grating. The minimum opening size shall be 2-ft. x 3-ft. or large enough to adequately maintain the dry well or meter vault. Door and frame shall be Bilco Type K, KD or an approved equal;~~.~~

g. The wet wells, dry wells, manholes, valve vaults and meter vaults, including decks, shall all be cast-~~-~~in-place concrete only. No other materials are acceptable. *See* City Standard Specification 33 05 64 Concrete Wet wells, Valve Vaults, and Appurtenances for Lift Stations;~~.~~

h. The coating for the wet well exterior and interior walls shall be coated as specified in Table 6.3-E and 6.3-F below, respectively;~~.~~

i. The wet well shall be hydrostatically tested to the top of the wet well for 48 ~~-~~hours prior to placing the lift station into service. Only losses due to evaporation will be acceptable; and~~.~~

j. Provisions shall be made to remove water from the dry well, valve vault or meter vault without allowing gas or water from the wet well into these structures.

3. Exterior Walls (below grade, to be backfilled)

Table 6.3-E: Exterior Wall Coating

Surface Preparation	Coating System
Clean and Dry	Tnemec Series 46H-413 Polyamide Epoxy – Coal Tar 8 – 10 mils in two coats for a total of 13.0 to 20.0 dry mils

4. Interior Walls (Thick Film System)

Table 6.3-F: Interior Wall Coating

Surface Preparation	Coating System

Table 6.3-F: Interior Wall Coating

	PRIMER	FINISH
Brush-off Blast Cleaning	Tnemec Series 218 Mortarclad ¼-in.~~0.25 in.~~	Tnemec Series 436 Perma-Shield 100 – 125 dry mils

Notes:

[1] In addition to this coating system, the lining products listed in Drawing S101 of the City of Denton Standard Details and Standard Specification 33 01 40 Liners for Sanitary Sewer Structures are acceptable.

5. Site Access

   a. Access will be provided by an all-weather surface of flex-base or better from a public street to the station site.

   b. Access shall be functional during a ~~25~~100-year flood. The road surface shall be above the water level caused by a ~~25~~100-year return period storm.

   c. Every station more than 100 feet from a public street requires a turn-around adjacent to the lift station, sized large enough to accommodate a City service truck with generator.

   d. The equipment rack shall not obstruct vehicle access to the wet well or the dry well; the location must be approved during the review process. It shall be placed at an easily accessible elevation and include a canopy.

   e. Site inside the fence shall be an all-weather surface, such as ¾-in. crushed rock or flex-base.

6. Passive Ventilation

   a. Passive ventilation shall be screened to prevent insect access to the wet well. Minimum diameter of air vents shall be four (4) inches~~-inch diameter~~. Vent outlet shall be at least one (1) foot above the 100-year flood elevation. The passive ventilation system must be sized to vent at a rate equal to a maximum pumping rate not to exceed 600 fpm through a vent pipe.

C. Hydraulic Design

~~I~~For influent fl~~F~~low, ~~T~~the preliminary design report shall include the design flow and the ~~maximum~~ peak flow for the development and the sewer basin. The design flow shall be calculated in accordance with TCEQ rules. Refer to Section 6.3.~~2~~1 Estimated Wastewater Flows herein for ~~maximum~~ peak flow calculations.

1. Pump Capacity

   a. ~~Definition~~ Firm pumping capacity is the pumping capacity of the station with the largest pump out of service.

      ~~Firm pumping capacity is the pumping capacity of the station with the largest pump out of service.~~

   ~~c.~~b. The firm pumping capacity shall be greater than the ~~maximum~~ peak flow for the entire sewer basin. If the sewer basin is significantly larger than the proposed development and it is not feasible to design for this flow, the firm pumping capacity may be designed to handle a portion of the basin with approval from the ~~Director of Water Utilities~~City's Engineer.

~~d.~~c. The pump curves shall be selected so the pumps will run near the best efficiency point during normal operating conditions. The selected curves shall also be such that the pumps do not approach shut-off head when they are running simultaneously.

~~e.~~d. System head curves, pump curves and head calculations shall be submitted. Calculations and pump curves at both minimum (all pumps off) and maximum (last normal operating pump on) static heads, for a C value of both 100 and 140, must be provided for each pump and for the combination of pumps with modified pump curves.

2. Wet Well Volume

a. Wet well volume for a submersible pump station is the volume contained above the top of the motor, or as specified by the pump manufacturer, to the bottom of the influent pipe. TCEQ Rule §217.60(b)(4) (d) A gravity pipe discharging to a wet well must be located so that the invert elevation is above the liquid level of a pump's "ON~~on~~" setting.

b. Wet well volume for all other non-submersible pump stations is the volume contained in an area from a minimum of two (2) feet above or distance at which vortexing does not occur above the top of the intake of the pump.

c. High level alarm elevation shall be a minimum of 48 inches below the top of the wet well or 48 inches below the flow line elevation of the lowest influent pipe, whichever elevation is lower. Wet well volume shall be calculated by the following method:

$$T = V/(D - Q) + V/Q \qquad \textbf{[Eqn. 6.4]}$$

Where:

T = Total time between successive pump starts in minutes (operating cycle)

D = Rated pump capacity (in GPM)

V = Storage volume between lead pump on and pump off elevations (in gallons)

Q = Inflow to wet well (in GPM)

Note: The operation cycle 'T' shall not be less than 10 minutes for Average Flow and not more than 60 minutes for Minimum Flow conditions.

d. Per TCEQ Rules, 30 TAC § 217.63:

(g) Systems for preventing the discharge of wastewater must operate for a duration at least equal to the longest power outage on record for the past 60 months, or at least 20 minutes, whichever is longer. The design must be based on peak flows, inflow, and infiltration. If the longest power outage on record for the past 60 consecutive months is greater than 48 hours and generators will be used to provide backup power, then the owner must have a contract in place that guarantees fuel supply during an emergency. The owner must also have sufficient storage capacity at the wastewater treatment facility for the fuel required for the duration of the emergency.

(h) For calculation purposes, the owner must assume that the lift station wet well is full to the pump activation level when the power outage period begins.

3. Force Main Capacity

a. Force main capacity shall be sized to meet the capacity of the entire sewer basin. The force main may be designed to handle a portion of the basin with approval from the ~~Director of Water Utilities~~City's Engineer.

b. The minimum force main size shall be four (4) inches in diameter, except for Grinder Pump lift stations.

c. The minimum recommended velocity is three (3) ~~feet per second (3~~fps~~ fps)~~, and the velocity shall not be less than two (~~2 feet per second (~~2) fps~~)~~ when only the smallest pump is in operation.

~~e.~~d. The maximum velocity through a force main shall not be more than six (6) fps, and will require confirmation per 30 TAC 217.67 that the pipeline will not fail.

D. Pumps

~~Acceptable pumps~~ Pump specifications are listed in the City of Denton Specification 33 25 02 Sewage Pumps. Substitutions or deviations from the list of acceptable pumps requires the approval of the ~~Director of Water Utilities~~City's Engineer. The number of pumps must comply with 30 TAC § 217.61(e). If pumps are to have a variable capacity, Variable Frequency Drives (VFDs) are to be specified. Stations requiring three pumps must be equipped with VFDs on at least two of the pumps.

E. Mechanical

1. Force Mains

~~a. Force main pipe material shall be in accordance with Table 4.9-1. Force mains smaller than 6-inches may be approved with proper design justification, by the Director of Water Utilities.~~

~~b. All fittings shall be ductile iron meeting AWWA C-110 or C-153. Interior of the pipe and fittings shall be lined with American Polybond Plus, which consists of a primer layer of 5 mils thick fusion bonded epoxy and 55 mils thick of modified DuPont Fusabond Polyethylene, or approved equal. Exterior of pipe shall be coated in Protecto 401 Ceramic Epoxy lining, or approved equal.~~

a. Force mains shall be laid to City of Denton Standard Specifications.

b. Plans shall include plan and profile for the force main, including valves every 2,000 feet per 30 TAC § 217.67.

i. Valves ~~will~~ must be resilient wedge gate valves and conform to the Section 33 14 20 Resilient Seated (Wedge) Gate Valves of the City of Denton Standard Specifications;

ii. Valves ~~will~~ must be in a manhole and conform to Section ~~4.11~~6.3.10 of this criteria manual, and Section 33 05 61 Cast-In-Place Concrete Manholes of the City Standard Specifications; and

iii. The force main shall have an isolation valve immediately downstream of the flow meter vault.

~~2. All force main contractors shall~~

~~3. Furnish and install tracer wire in accordance with City of Denton Standard Specification 33 05 97 Utility Markers/Locators, and~~

~~4. Furnish and install non-metallic pipe detection tape per TCEQ requirements. The tape shall~~

~~5. Be laid in the same trench as a force main pipe,~~

~~6. Be located above and parallel to the force main, and~~

~~7. Bear the label "PRESSURIZED WASTEWATER" continuously repeated in at least 1.5 inch tall~~

~~letters.~~

~~8.~~2. Lift Station Interior Piping

a. Piping inside the lift station shall be ductile iron meeting AWWA C-150 and C-151. All fittings shall be ductile iron meeting AWWA C-110 or C-150. Interior of the pipe and fittings shall be lined with American Polybond Plus, which consists of a primer layer of 5 mils thick fusion bonded epoxy and 55 mils thick of modified DuPont Fusabond Polyethylene, or approved equal.

b. All nut and bolt assemblies inside the wet well shall be ASTM 316 stainless steel~~, unless otherwise allowed~~.

~~9.~~3. Isolation Valves

a. Each pump shall have one (1) isolation valve downstream of the pump, in a separate vault.

b. Isolation valves shall be resilient seat gate valves or plug valves meeting the City of Denton Standard Construction Specifications.

~~0. Isolation valves shall be located in the building for self-priming stations, and in a separate vault for submersible stations, and not inside the wet well.~~

~~11.~~4. Check Valves

a. Check valves shall be controlled closing swing check valves with a lever arm or a ball check. There must be at least 15 feet of vertical head downstream in order to use a ball check valve.

b. A check valve shall be located upstream of the isolation valve, in a separate vault.

~~c. If the station is submersible, then a check valve shall be located with the isolation valve in a separate vault. For self-priming stations, a check valve shall be located in the building. Under no circumstance shall the check valve be allowed in the wet well.~~

~~d.~~c. All nuts and bolts shall be stainless steel.

~~12.~~5. Air Release / Vacuum Valves

a. Air release valves of a type suitable for wastewater service shall be installed along the force main where the force main would be prone to trapped air.

b. The type of valve shall be air release or a combination of air release and vacuum breaker (see Drawing S803 on Sheet 6 of the City Standard Details). The design engineer shall determine the type and location, subject to approval of the ~~Director of Wastewater Utilities~~City's Engineer.

c. Calculations for valve type and valve sizing shall be provided to the City.

d. Locations of the air release/vacuum valves shall be shown on the plan and profile sheets for the force main.

e. Isolation valves for ~~3 inches and smaller~~ air release valves that are three (3) inches or smaller shall be all bronze or brass. Isolation valves four (4) inches ~~and~~ or larger shall meet City of Denton Standard Construction Specification for resilient seat gate valve. The first fitting placed into the force main shall be a brass corporate valve (male corporate fitting).

f. Air release valves shall be fitted with blow off valves, quick disconnect coupling and

hose to permit back flushing after installation without dismantling the valve.

g. Air release valves must be located in a vault as shown in Standard Details.

~~13.~~6. Generators

a. On-site generators shall be installed to serve as the source of back-up power for lift stations.

b. Generators shall be mounted on a concrete foundation designed to handle the weight of the generator.

F. Electrical, Instrumentation, and Supervisory Control and Data Acquisition (SCADA) Requirements

The City of Denton Water Reclamation D~~d~~epartment performs the build and install of SCADA and telemetry packages. Developers should request the packet and the ~~COD~~ City of Denton will provide a bill of materials for this service.

~~6.15.30~~6.3.21 Low-Pressure or Alternative Collection Systems

Low pressure collection systems may be allowed with specific approval by the ~~Director of Water Utilities~~City's Engineer.

~~6.15.31~~6.3.22 On-Site Sewage Facilities

A. General

Planning, design and operation of on-site sewage facilities within the City of Denton must comply with the current ~~Texas Administrative Code (TAC) Title 30, Part 1 TCEQ Rules,~~30 TAC Ch. 285 for On-Site Sewage Facilities, as amended~~ by the City of Denton~~. The property owner proposing to use an on-site sewage facility shall comply with the criteria listed in this Section, and Section~~s~~ 7.6.16 of the City of Denton ~~Denton Development Code~~DDC, as amended.

B. Permits Required

Any owner of a residential, commercial, or institutional building who utilizes an on-site sewage facility is required to secure a permit from the City of Denton to construct, alter, repair, or extend an on-site sewage facility regardless of the size of the lot or tract of land. Contact the Environmental Services Division at the Pecan Creek Water Reclamation Plant for details on permit fees and maintenance requirements.

C. Site Evaluations

A P~~p~~rofessional E~~e~~ngineer or a professional sanitarian, licensed by the State of Texas, must perform site evaluations.

D. Planning Requirements

A P~~p~~rofessional E~~e~~ngineer or a professional sanitarian, licensed by the State of Texas, must prepare on-site sewage facility plans.

E. On-Site Sewage Facility Land Use Requirements

Lots or tracts of land where an on-site sewage facility is proposed must have the following minimum area size.

1. A minimum of one (1) acre when a public water system serves the tract or lot; and~~.~~

2. A minimum of two (2) acres when a private water well is located on the tract or lot.

~~6.15.32~~6.3.23 Grease Traps / Grit Traps

A. General

Planning, design, and operation of grease traps within the City of Denton must comply with the most current City of Denton Plumbing Code, Chapter 28; Article VII; Section 26-56 as amended. The property owner proposing to use and operate a grease trap shall comply with the criteria listed in this Section and abide by required responsibilities outlined in City of Denton Code of Ordinances Chapter 26; Article XII – Liquid Waste.

B. Device Required

Any user of the publicly owned treatment works (POTW), as defined by Section 26-153, and meeting the definition of "food service facilities" or "facilities which perform washing, cleaning, or servicing of automobiles, trucks, buses or similar equipment," shall be required to install a grease trap or grit trap in accordance with locally adopted plumbing codes as amended. Food service establishments shall not share grease interceptors unless specifically authorized by the ~~Director of Water Utilities~~City's Engineer.

C. Sample Port Required

Any pretreatment device must have a sample port allowing for the instantaneous grab sampling of the effluent of the device. The sample port must be solely representative of the process wastewater and sanitary tie-ins must be done down-stream of the sampling port. The proposed sampling port must allow for a wide-mouthed 250-~~-~~mL amber glass bottle to be submerged / partially submerged into the effluent.

D. Review Required

Plumbing plans for new facilities must be prepared by a ~~licensed~~ plumber or a ~~licensed~~ P~~p~~rofessional E~~e~~ngineer, licensed by the State of Texas, and submitted as a part of the development process. These plans must show the fixtures draining into the pretreatment device. Plans must also include the flow-through rating of the pretreatment device as well as the grease or solids retention capacity. Plans must also show the location of the down-stream sampling port.

E. Sizing Requirements

1. Definitions

   a. Heavy Food Preparation: A~~shall mean a~~ny area in which foods are prepared utilizing a grill, griddle, deep-fat fryer, commercial type ovens, and/or any similar food preparation equipment; or any area subject to flooding type of wet cleaning procedures due to the cutting or processing of meat, poultry, fish or pork; or any facility subject to rinsing preparation equipment that is exposed to dairy products. Heavy food preparation includes but is not limited to,~~:~~ cafeterias, coffee shops, fast food restaurants, full service restaurants; pizza preparation, donut preparation, and meat and fish markets, etc.

   b. Light Food Preparation: ~~shall mean a~~Any area in which foods are prepared exclusive of the use of fryers, grills or similar equipment. Light food preparation is usually limited to the preparation of hot dogs, sandwiches, salads or other similar foods and fountain-type cold drinks. Light food preparation includes, but is not limited to, sandwich shops, limited-~~-~~menu concession stands, etc.

   c. No Food Preparation: ~~shall mean a~~Any area in which foods are provided pre-wrapped,

from an approved source, with microwave oven type heating being the maximum handling involved. No food preparation is limited to pre-packaged sandwiches or similar foods, candies and containerized beverages.

Grease Trap Design Criteria

4.2. Sizing Requirements

Table 6.3-G: Grease Trap Design Criteria[1]

Classification	Seating Capacity[2] > 50	Seating Capacity[2] < 50
Heavy Food Preparation	750-gallon. gravity grease interceptor	250-gallon. grease interceptor
Light Food Preparation	250-gallon. gravity grease interceptor	20 GPMgpm flow-through rating or 40-poundlb. retention capacity
No Food Preparation	No interceptor required	

Notes:

[1] Or the minimum size established by the currently adopted International Plumbing Code; whichever is more stringent.

[2] Seating Capacity is measured using locally adopted Maximum Floor Area Allowances per Occupant, found in the currently adopted version of the International Building Code.

Inspections Required

New installations or existing pretreatment devices must be inspected by the City of Denton Pretreatment Program prior to the issuance of a Certificate of Occupancy for new businesses.

6.3.24 Inspections Required

New installations or existing pretreatment devices must be inspected by the City of Denton Pretreatment Program prior to the issuance of a Certificate of Occupancy for new businesses.

6.176.4 Construction Plans

6.17.16.4.1 General

Before any public works construction relative to a development may begin, City staff will verify the construction plans have been approved. Construction may not begin until the construction plans have been approved, all materials used for public improvements have been submitted and approved, all fees (including review and inspection fees) have been paid, all necessary agreements and bonds have been provided, and a Pre-Construction Conference has been held by the City.

6.17.26.4.2 Responsibility

The sealing engineer is responsible for the accuracy, completeness, and conformance of the submitted plans to City standards. The purpose of the City review is to ensure conformance to City policies and standards. The City review is limited to facts as presented on the plans submitted. The City has no project engineering design or quality control review responsibility. The engineer of record certifying the plans is responsible for the accuracy and completeness of the plan documents. The City reserves the right to require plan

corrections to fit actual field conditions or meet City standards requirements, which are found to be contrary to or omitted from the plans.

~~6.17.3~~6.4.3 Format

Construction plans shall be digitally drawn on 24-in. ~~by~~ x 36-in. size sheets~~;~~ with borders of 22-in. x 34-in., so half-size reproduced plans will be to half-scale fitting 11-in. x 17-in. sheets. Each sheet shall be legible when reduced to half-size. Digital copies of the plans shall also be provided.

~~6.17.4~~6.4.4 Plan Requirements

Construction Plans must contain, as a minimum, information listed in the following sections before they can be approved:

A. General

North arrow, scale, date, and mean sea level elevations of all improvements, based on North America Vertical Datum 1988 (NAVD 88). Only NAVD 88 shall be used for plan elevations; no assumed or NGVD 29 elevations. Plans shall be drawn with a horizontal scale of one (1) inch equals ~~forty (~~40~~)~~ feet as a minimum, and appropriate corresponding vertical scale. The plans shall provide a reference to the elevation benchmark or monument used in the development of the plans. Show all crossings of existing and proposed underground utilities. Plans shall account for future changes in topography. The construction plans shall be signed and sealed by a ~~p~~Professional ~~e~~Engineer, licensed by the State of Texas, prior to bidding the project for construction.

B. Water Systems

Plan sheets must show the horizontal alignment of the proposed water system within street ~~rights-of-way~~ROWs and easements, with horizontal control points for location of the ~~rights-of-way~~ROWs and easements and for location of the water system within the ~~rights-of-way~~ROWs and easements. Sizing of pipe, valves, fittings and appurtenances must be shown on the plan view. All valves, fittings, fire hydrants, and other appurtenances must be stationed and given GPS coordinates (with an accuracy of ± six (6) inches) based on the City of Denton's grid coordinate system. Profile views of water mains 12 inches or larger must be provided showing proposed grade, pipe material, casing pipe size and thickness (if any), and the location, elevation and size of any underground conduit or facility to be crossed. Deflections (if any) must be shown on the plan and profile views, as applicable, with stationing and the degree of deflection. Approved ~~variances~~design deviations (if any) from City Standard Details must be provided. Show all service lines up to and including the meter can/vault. Service lines do not need to be stationed or have GPS coordinates. Adequate detail of other planned and existing improvements shall be shown to indicate planned crossings of utilities, storm drains, and stormwater facilities and potential conflict points.

C. Sanitary Sewer Systems

Plan sheets must show the horizontal alignment of the proposed sanitary sewer system within street ~~rights-of-way~~ROWs and easements, with horizontal control points for location of the ~~rights-of-way~~ROWs and easements and for location of the sanitary sewer system within the ~~rights-of-way~~ROWs and easements. Sizing of pipe, manholes, fittings and appurtenances must be shown on the plan view. Manhole rim elevations, and pipe "IN~~in~~" and "~~o~~OUT~~ut~~" elevations must be shown. All manholes, fittings, and other appurtenances must be stationed and given GPS coordinates (with an accuracy of ± six (6) inches). based on the City of Denton's grid coordinate system. Every sanitary sewer line shall be profiled. Profile views shall show proposed grade, pipe material, casing pipe size

and thickness (if any), manhole information, and the location, elevation and size of any underground conduit or facility to be crossed. Approved ~~variances~~design deviations (if any) from City Standard Details must be provided. The plan view shall include arrows indicating direction of flow in pipe. Show all service lines to and including the public cleanout. Service lines do not need to be stationed or have GPS coordinates. Adequate detail of other planned and existing improvements shall be shown to indicate planned crossings of utilities, storm drains, and stormwater facilities and potential conflict points.

D. Grading

For situations involving proposed grading over existing water or sanitary sewer systems, provide a grading plan and profile showing the existing and proposed topography in ~~two~~2-~~foo~~t. contours. The grading plan shall consist of contours and spot elevations with water directional arrows to define the flow patterns.

Section 7: Streetlight Design Criteria

7.1 Overview

The ~~City of Denton has developed this~~ purpose of Section 7 – Streetlight Design Criteria ~~manual~~is to assist developers and engineers in creating an aesthetic, consistent, and safe lighting plan for our streets, sidewalks, and neighborhoods. This ~~manual~~ section outlines the process for design, review, and approval of new lighting projects, as well as ~~the~~ criteria for modernizing existing lighting infrastructure. Streetlights are usually owned by Denton Municipal Electric (DME) which is a part of the City of Denton (t~~T~~he City), however they may be installed, operated, and maintained by DME, other electric utilities, or private owners depending on the location. This ~~criteria manual~~section of the DCM has been created to help navigate the process for selecting, permitting, placing, and maintaining streetlighting throughout the city. This manual does not apply to security, area, pathway, private, or other lighting not associated with a public road.

This manual cannot cover all the situations that might be encountered, required, or requested in the construction and installation of streetlighting. Any apparent discrepancy, omission, error, or requirement necessitating further explanation or interpretation should be referred to DME Engineering (940-349-7117 or 940-349-7173) for further clarification.

The ~~purpose~~ goal of ~~this manual~~the criteria laid out in this Section 7 ~~-~~is to implement the following guiding principles into the application of street designs in the City of Denton:

A. Enhance safety of the community for pedestrians and drivers alike

B. Conserve energy by prioritizing efficient lighting design

C. Minimize impact to the environment including light pollution

D. Minimize impact to neighborhoods and residences by reducing light trespass

E. Provide for a uniform and aesthetic look throughout the city

F. Be fiscally responsible through effective application of design principles

7.1.1 Applicability

The existing streetlight installations throughout the City of Denton have been accepted as is at the time of approval of this manual. Retro-active replacements and upgrades solely for the purpose of bringing existing lighting up to the standards of this manual are not required. This manual is intended to apply to all new projects in the City beginning July 1, 2024. (This means the project has been approved/permitted by Development Services on or after July 1, 2024).

7.1.2 Organization

Section 7 – Streetlight Design Criteria is organized as follows:

A. Overview

B. Requirements

C. Developer & DME Responsibilities

7.2 Requirements

7.2.1 General

The City adheres to the guidance of ANSI RP-8 Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting for all highways and streets *except for local residential streets with speed limits of 30 mph or less*. ANSI RP-8 acknowledges that vehicle headlights may provide adequate illumination for slower speeds when the driver has sufficient time for reaction and stopping. As per ANSI RP-8, Section 11.6.3.1 – 'When Residential Street Lighting May Not be Needed', for local residential streets (e.g., within a residential development) with speed limits of 30 mph or less, street lighting shall be placed no more than 250 feet apart. A photometric (lighting) study will be required for all new installations except for local residential streets with speed limits of 30 mph or less.

These standards shall apply to all new streetlight installations, upgrades, replacements, and conversions from the date of the adoption of these standards onward.

Easement, right-of-way, and permitting regulations that are not listed in this manual still apply to streetlights. The developer is responsible for knowing and adhering to any laws and regulations governing development and construction relating to the work being done.

Developers are responsible for the design, materials, and installation costs of all streetlighting on public streets within and adjacent to their project. *See* the Developer and DME Responsibilities S~~s~~ection of this manual for more specific descriptions of responsibilities. DME will only energize new streetlights after the installation has been approved by DME. For most lighting installations, following energization, DME will accept ownership and maintenance of streetlights unless the lighting is located on a private drive (i.e. the City has not taken ownership of the street / streetlights) or the lighting is non-standard and will not be owned or maintained by DME.

Streetlights are not normally metered. The City (or customer in certain cases) is charged a monthly usage and maintenance fee per light according to the Denton Municipal Utility Rates Manual. This does not apply to private drives and other private properties where the developer or customer chooses to install lighting other than the standard city approved options. In such cases, DME will provide a metered service point only and the customer will be responsible for all installation, maintenance, and fees associated with the lighting installation in accordance with applicable city codes, ordinances, and utility service standards for the life of the installation.

City streets and street projects will not be considered complete until adequate streetlighting has been installed, approved, and energized. For example, for the streets in a new development to be accepted by and turned over to t~~T~~he City, street lighting must be complete.

7.2.2 Roadway Lighting Requirements

A. Roadway Designations

To determine the proper lighting for a roadway, it is important to determine what type of vehicle and pedestrian traffic the roadway is meant to accommodate. Roadways may be classed into several different categories based on these two variables. The lighting requirements are then applied to provide adequate lighting to mitigate the risks of collision by a vehicle with another object, vehicle, or pedestrian.

Roadways may be classified as *highways and freeways, arterials, collectors,* and *local roads*. In this section of the DCM, local roads may also refer to auxiliary roadways such as *alleys, drives, dead-ends,* and *cul-de-sacs*. Local roads may be residential streets (providing direct access to homes) or

other local roads providing access to businesses and connecting larger roads together. Local roads generally have speed limits of 30 mph or less, while highways, arterials, and collectors will have higher speed limits. *Local roads* are further broken down into *residential* and *non-residential streets* in portions of this section to allow flexibility in managing light levels in residential neighborhoods. Specific road classification and design information may be found in Section 5 – Transportation Design Criteria of this DCM.

B. Lighting Evaluations and Design

For streetlighting of highways and streets, *except local residential streets with speed limits of 30 mph or less*, lighting shall be designed per ANSI RP-8. A photometric (lighting) study will be required for these new installations. ANSI RP-8 requires that a pedestrian activity classification be made to determine the required lighting levels. *See* ANSI RP-8 for further guidance on pedestrian activity classification and streetlighting design requirements. Additional information may also be found in the TxDOT Highway Illumination Manual, and AASHTO GL-7, "Roadway Lighting Design Guide". All designs adhering to ANSI RP-8 standards shall be verified and documented using appropriate lighting design software. A licensed Professional Engineer in the state of Texas shall stamp all lighting designs before each submittal.

For all local *residential* streets with speed limits of 30 mph or less, street lighting shall be installed at intersections, cul-de-sacs, and no more than 250 feet apart for the remainder of the street. Lighting may be installed along one side of the street, both sides in parallel, both sides alternating, or in the median. Separation distances should be measured along the centerline of the street. Additional lighting may need to be considered if there are obstacles or road geometries that cutoff some of the light. *See* the Sample Local Residential Streetlighting Layout shown below in Figure ~~5~~7.1.

When designing or adding streetlights to existing roadways and/or neighborhoods, consideration should be given to the style and placement of any existing fixtures. New streetlighting shall be chosen from the available styles that most closely matches the style of the existing lighting in the area. Historic poles are only approved for specific applications and areas designated as historic districts or within the Downtown Implementation Plan area.

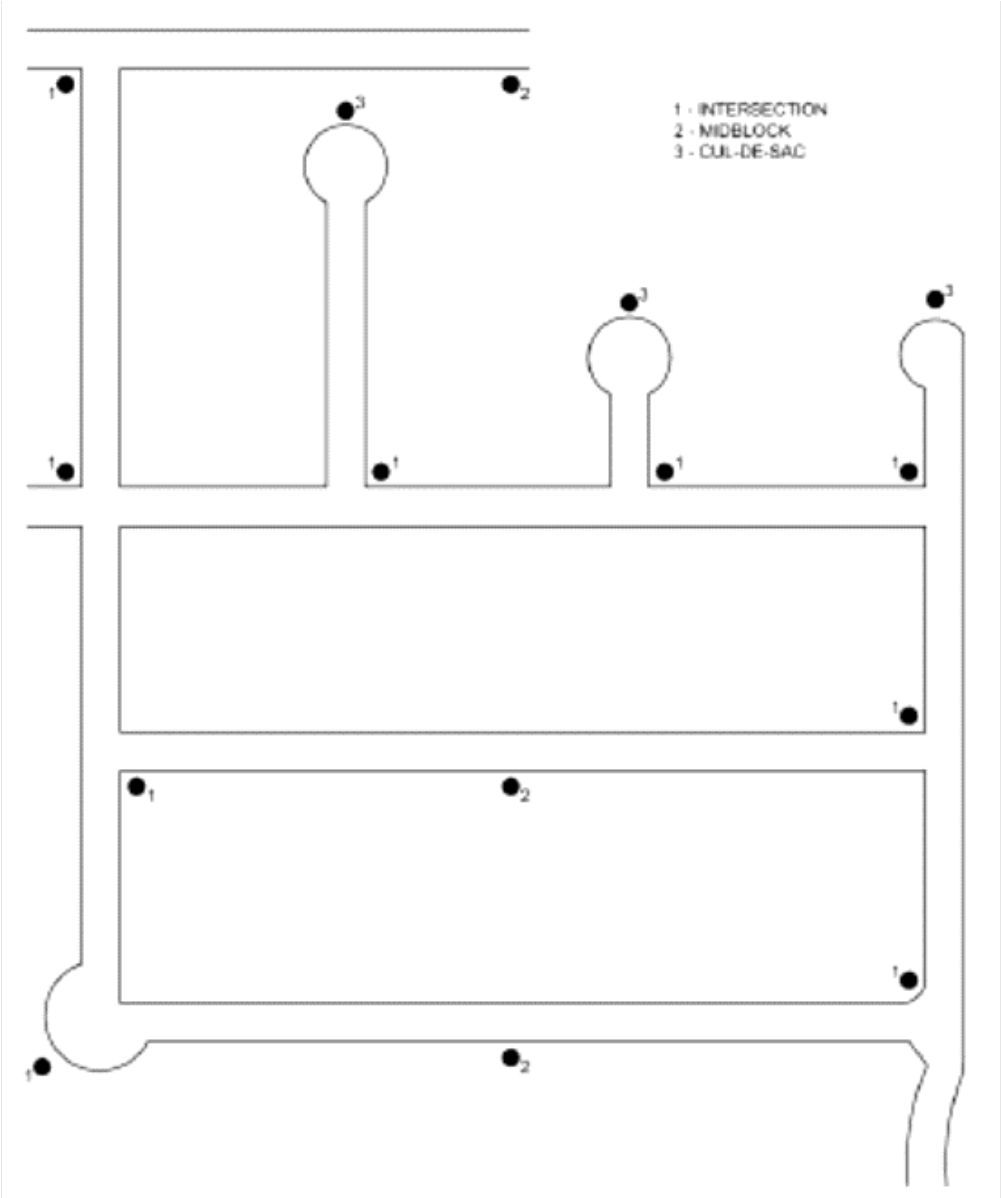


Figure 7.1~~7.1~~ Sample Local Residential Street Lighting Layout

(Lights are shown at intersections, cul-de-sacs, and mid-block when spacing between lights exceeds 250 feet)

~~E.~~C. Intersection and Crosswalks

Intersections have a much higher number of potential conflict points as vehicles and pedestrians are permitted to cross through normal lanes of traffic. Therefore, additional care is needed when planning intersection lighting. ANSI RP-8 should be used to design lighting at intersections for larger, busier streets as stated previously. *See* Figure 7.2 shown below.

Because of the additional safety concerns for vehicles, cyclists, and pedestrians at crosswalks and intersections, the following examples (taken from ANSI RP-8) are provided to assist streetlight design for local streets. While not strictly required, they should be considered as good lighting practice for these types of locations.

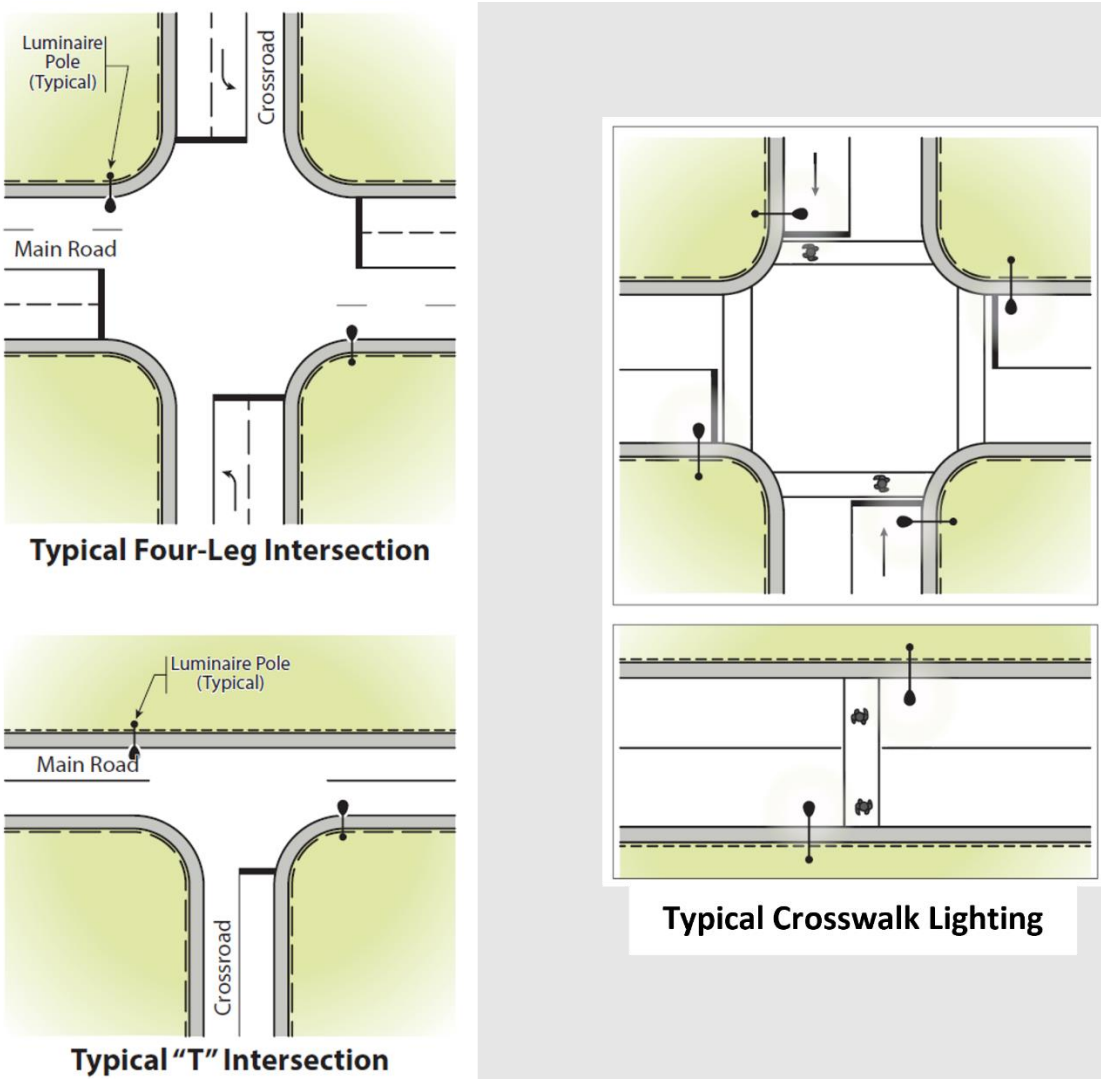


Figure 7.2~~7.2~~ Typical Lighting Schematic for Intersections

D. Roundabouts and Traffic Circles

Like intersections, roundabouts and traffic circles have a higher number of potential conflict points than normal streets. ANSI RP-8 should be used to design lighting at traffic circles and roundabouts of larger streets. For local streets, an example of round-about lighting design considerations is shown below. Some locations may not require as much lighting as shown depending on the size of the traffic circle. *See* Figure 7.3 shown below.

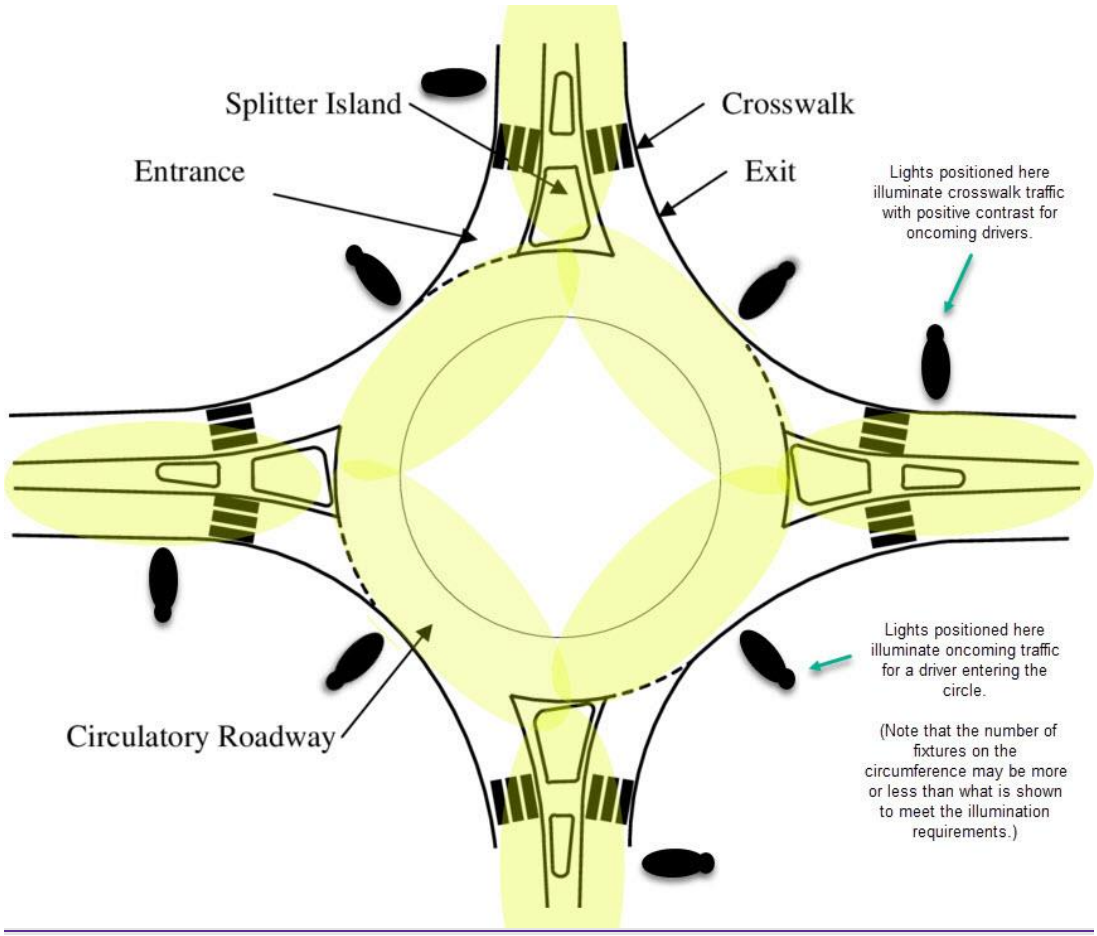


Figure 7.3 Roundabout Lighting Placement Schematic

E. Railroad Crossings

Railroad crossings are slightly different than normal intersections and require lighting adjustments accordingly. It is of course, vitally important that drivers are able to see a train that is crossing, and conversely, that the train engineer has a clear picture of any obstructions while approaching an intersection. Street lighting at railroad crossings should therefore illuminate the intersection while not causing glare for the drivers or train engineer. The following figure illustrates the recommended lighting placement for a railroad crossing. *See* Figure 7.4 shown below.

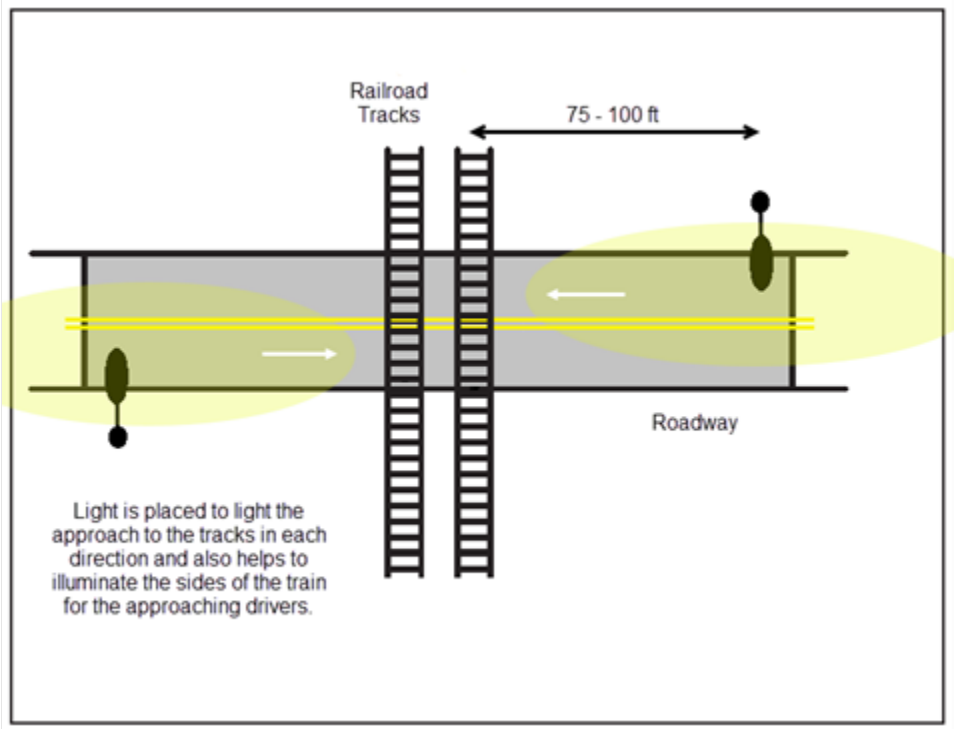


Figure 7.4 Railroad Crossing Schematic

7.2.3 Installation Requirements

A. Placement

1. Highways and Streets (except for local residential streets with speed limits of 30 mph or less)

   Installation should follow TxDOT recommendations in the TxDOT Highway Illumination Manual. Where TxDOT requirements do not apply, the streetlight system shall be installed in the right-of-way or within public utility easements and poles should be placed approximately 2.5 feet back from curbs and 10 feet back from edge of paving for uncurbed roads or, where there is sidewalk abutting the curb, approximately 1 foot behind the sidewalk. Deviations of more than 1 foot in either direction from these requirements must be approved by DME Engineering.

2. Local Residential Streets (speed limits of 30 mph or less)

   The streetlight system shall be installed in the right-of-way or within public utility easements. Poles should be placed approximately 2 feet back from the curb of 10 feet from un-curbed pavement. If a sidewalk abuts the curb, then the pole should be placed approximately 1 foot behind the sidewalk. In a residential neighborhood, streetlights should be placed within 5 feet of common property lines (e.g. between neighbors).

B. Vertical and Horizontal Clearance

New streetlights should not interfere with existing structures or rights-of-way, including sidewalks, nor should the placement preclude the ability to perform maintenance on the pole in a safe manner. *See* National Electric Safety Code (NESC) section 234 for specific clearances required for overhead

electric installations. The exception to this requirement is when streetlight arms are mounted directly to wooden distribution poles.

Proposed trees should be located at least 25 feet from any streetlight location. When installing new lights in a location with existing trees, consideration should be given to the age and maturity of the tree and whether it will interfere with the light when it is fully grown. DME will be responsible for tree trimming around streetlights to preserve the integrity of streetlighting as needed.

Median-mounted poles should be installed at least 20 feet back from an intersection to minimize the number of vehicle-streetlight collisions due to vehicles and trucks turning too sharply at the intersection.

In areas predominantly served by overhead electric powerlines, streetlights are usually installed by attaching streetlight arms to existing wood distribution poles. Care should be given when planning for lighting in these areas as overhead lines pose a conflict when placing new lighting poles. Clearances must be maintained for safety. Redesign/relocation of existing overhead power lines just to accommodate lighting is costly and time consuming. Utilizing existing wood pole locations and installations on the opposite side of the street are two ideas for additional placement options in these areas.

C. Approved Fixtures and Materials

The approved streetlight components for each class of roadway are listed below in Tables 7.2-A and 7.2-B.

Table 7.2-A: Approved Luminaires and Hardware by Location					
	ROADWAY CLASSIFICATION				
	HIGHWAYS AND FREEWAYS (UNLESS OTHERWISE SPECIFIED BY TXDOT)	ARTERIALS AND LARGE COLLECTORS	COLLECTORS AND LOCAL STREETS	EXISTING RESIDENTIAL LOCAL STREETS (ALSO USED IN HISTORIC DISTRICTS)	NEW RESIDENTIAL LOCAL STREETS (≤< 30 MPH)
Make	Signify Lumec RFL	Signify Lumec RFM	Signify Lumec RFM	Hadco	Gardco
Model	RFL-241W112LED-4K-G2-R2M-UNV-DMG-ML-RCD7-API-GY3	RFM-160W48LED-4K-G2-R2M-UNV-DMG-ML-RCD7-API-GY3	RFM-85W24LED-3K-G2-R2M-UNV-DMG-ML-RCD7-API-GY3	C-1891P RL34AANN2ASNR7 WA3 NNNNSP1	OPF-S-P05-730-T2M-AR1-UNV-SP2-TR7
Wattage	241W LED	160W LED	85W LED	69W LED	66W LED
Lumens	30,188	19,489	8,753	7,734	11,253
Color Temperature	4000k	4000K	3000K	3000K	3000K
Light Distribution Type	Type II	Type II	Type II	N/A	Light II
Voltage	120 – 277V or 347 – 480V	120 – 277V or 347 – 480V	120 – 277V or 347 – 480V	120 - 277V	120 – 277V
B-U-G Rating	B4-U0-G4	B3-U0-G3	B3-U0-G3	B2-U5-G4	B2-U0-G2
Pole Type	Steel, white concrete, or wood	Steel, white concrete, or wood	Steel, white concrete, or wood	Residential - Concrete aggregate Historic – Cast Aluminum	Steel, square, gray
Globe Type	N/A	N/A	N/A	Hadco, RL34 Acrylic Victorian	N/A
Arm Type	8-ft. metal (specs depend on pole type)	8-ft. metal (specs depend on pole type)	8-ft. metal (specs depend on pole type)	N/A	Std-mount, no arm

Table 7.2-B: Approved Pole Types by Location

Part Information	Part Description	Highway and Freeway [1]	Arterial and Large Collector	Collector and Local Street	Existing Res. Local Street	Historic District [2]	New Res. Local Street [3]
POLE TYPE – WOOD DISTRIBUTION							
N/A	Wood pole. Various heights, but standard id 35 feet. DME warehouse item. Direct buried. Overhead electric service.	Yes	Yes	Yes	Yes	No	No
Arm - Shakespeare #OPAR-8-H	8-ft. curved aluminum arm. DME warehouse item.	-	-	-	-	-	-
POLE TYPE – WHITE CONCRETE							
Lonestar #351101	35-ft. Concrete pole, white color. Single or double arm available. DME warehouse item. Direct buried. Underground electric service.	Yes	Yes	Yes	Yes	No	No
Arm - Curlee #2009032TG-Flat Base	8-ft. flat aluminum arm. DME warehouse item.	-	-	-	-	-	-
POLE TYPE – CONCRETE AGGREGATE							
Lonestar #20004-SJB (Waterford Series)	20-ft. Concrete aggregate pole. Post-top luminaire configuration. Direct buried. Underground electric service.	No	No	No	Yes	No	No
POLE TYPE – ANTIQUE ALUMINUM							
Acuity #PX-CP18-12-F4-AB3/133T3-ANBK	12-ft. antique, decorative aluminum pole. Post-top luminaire configuration. Requires concrete foundation. Underground service.	No	No	Yes[2]	Yes[2]	Yes[2]	No
POLE TYPE - STEEL							
(Single Arm) KW Industries RTSU35-8-11-Gray-18S-N	35-ft. round steel pole, gray color. Single or double arm available. Used for TxDOT designed streetlighting.	Yes[4]	Yes[4]	No	No	No	No
(Double Arm) KW Industries RTSU35-8-11-Gray-28S-N	Part numbers may vary slightly depending on application. Not stocked by DME – custom order item. Breakaway bases with concrete foundations may be required for certain installations and bridges. Direct burial available also. Underground electric service						
Arm(s) – N/A	Arms are included with pole when ordering.	-	-	-	-	-	-
Breakaway base – N/A	Breakaway base included with pole when ordering.	-	-	-	-	-	-

Part Information	Part Description	Highway and Freeway [1]	Arterial and Large Collector	Collector and Local Street	Existing Res. Local Street	Historic District [2]	New Res. Local Street [3]
POLE TYPE – STEEL RESIDENTIAL							
KW Ind., Part# SSP20-4-11-DGY GARDCO-DM10-BC	20-ft., dark gray, 4-in. square steel pole. Drilled for single-luminaire with std mounting pattern. Includes 3-in. by5-in. handhole and 8-in. bolt circle base pattern. Requires concrete foundation. Underground service.	No	No	No	No	No	Yes

Notes:
[1] Unless, otherwise specified by TxDOT~~7F~~.
[2] Historic streetlighting is only available for use in designated historic districts.
[3] Speed limits of ~~Less than~~ 30 mph or less.
[4] Steel streetlight poles are only used for highways and roadways where TxDOT or City-approved plans require placement of break-away bases or non-standard mounting heights.

D. Historic Lighting

Historic lighting is a modern light fixture with a decorative pole and fixture that give the lighting the look of early 20th century lighting. Historic lighting has been approved for use only in the *designated historic* districts of Denton. All requests for historic lighting within these districts must be submitted to DME Engineering for design and approval. Historic lighting is not approved for installations outside of the historic districts. The requesting organization, developer, or agency shall be responsible for all costs related to the design and installation of historic streetlights.

E. Control System

All new streetlighting in the DME service area shall have a control node installed which, at a minimum, will turn the light on and off according to ambient light conditions (photocell control) and shall be compatible with the CityTouch lighting control system. *See* Table 7.2-C shown below. Where street lighting is installed by the developer, DME shall provide and install control nodes at the developer's expense. DME will commission the control nodes into the CityTouch program.

Where streetlighting is served by other electric utilities than DME~~ in the City~~, DME does not require or install control nodes.

Table 7.2-C: CityTouch-compatible control node models

Model Number	Voltage (V)	Use	Function
LLC7290	120 – 277	Cobra head lights	Photocell controller
LLC7294	347 – 480	High-voltage cobra head lights	Photocell controller
LLC7291	120 - 277	Post-top lights	Astro-clock (GPS location-based timers)

F. Dimming and Light Trespass

The City adheres to ANSI RP-8 lighting levels for all streets *except* local residential streets with speed limits of 30 mph or less. Lighting that has been designed to ANSI RP-8 cannot be dimmed without diminishing the lighting level which, by definition, no longer meets the RP-8 standard. Thus, all streetlighting that is not in residential neighborhoods with speed limits of 30 mph or less will be maintained at full brightness.

On local residential streets with speed limits of 30 mph or less, the streetlights may be dimmed by resident request at specific locations due to light pollution concerns by residents. DME will dim residential streetlights down as low as 60%.

The City also reserves the right to install house side shields (available only on cobrahead lights) and make other reasonable modifications to the luminaires to minimize impacts to the residents at the DME's discretion.

G. Migratory Birds and Other Flying Species

DME will dim residential streetlights down as low as 50% during select animal migration or activity periods as specified by the City Environmental Services & Sustainability Department.

~~In coordination with the City's Environmental Services & Sustainability Department, DME will~~

~~coordinate dimming streetlights in residential areas to 50% brightness~~

H. International Dark Sky Association

DME installs and maintains two types of streetlight luminaires (light fixtures), post-top and cobrahead. The cobrahead light fixtures are endorsed by the International Dark Sky Associate (IDA) which makes recommendations on lighting with minimal up-light. The existing post-top lighting fixtures are not IDA endorsed, however an acceptable IDA approved alternate is being considered for all residential ~~developments~~ streets with speeds less than 30 mph.

7.2.4 Construction Requirements

Streetlight construction (e.g. conduit, wiring, etc.) shall follow the DME Standard Construction Drawings, stated below:

A. DSL-ARM

B. DSL-STD

C. DSL-12A

D. DSL-20C

E. DSL-35

Conduit runs should not exceed 700 feet between pulling locations. When bends total 180 degrees conduit runs should be limited to 500 feet or less. No run of conduit should have more than 360 degrees of total bend between pulling points.

The total length of a single lighting circuit at 120V should be less than 1,000 feet, the total length of a single lighting circuit at 240V should be less than 2,000 feet, and the total length of a circuit at 480V should be less than 4,000 feet unless circuit design and loading has been validated by engineering.

Additional design information may be found in the *TxDOT Highway Illumination Manual*.

7.3 Developer and DME Responsibilities

7.3.1 Highways and Streets (except local residential streets with speed ≤ 30 mph)

Developer is responsible for streetlighting design that meets the requirements of ANSI RP-8 for the appropriate roadway characteristics. A photometric (lighting) study shall be required. The final design ~~should~~must be approved and stamped by a Texas licensed professional engineer. Final design must also be approved by DME Engineering.

Lighting levels, placement, and compliance with ANSI RP-8 must be verified and documented with lighting design software. At a minimum, documentation shall be provided to DME Engineering showing:

A. Street geometry (width, number of lanes, median size)

B. Street classifications (arterial, collector, etc.)

C. Pedestrian activity classification

D. Criteria levels applied (illuminance vs. luminance method, and levels)

E. Lighting placements (median, side, parallel, staggered)

F. Maximum separation distance*

As an alternative to displaying the maximum separation distance as stated in 7.3.1.F above, a layout drawing of the project may be provided with calculation grid values and/or light level isolines indicating that the installation meets the applicable requirements.

For TxDOT projects, the design contractor will provide specific lighting requirements, if any. The design package should dictate where lighting should be placed and what types of poles and fixtures should be used.

For City initiated projects, the City's Engineer or their contractor will design the street lighting and submit to DME Engineering for approval. Once approved, the city's contractor will perform all civil work, and pull wiring and install streetlights and poles. DME will provide service points as needed. DME will also install and commission control nodes for interconnection with CityTouch.

A monthly maintenance, repair, and usage fee will be charged to t~~T~~he City thereafter for all streetlights on public streets per current DME rates.

7.3.2 Local Residential Streets (with speed limits ≤ 30mph)

The Developer (or DME if DME is responsible for the given project) is responsible for the design and layout of streetlights at all intersections, cul-de-sacs, and no more than 250 feet between. DME Engineering shall approve the final design. Once the project is approved and permitted, the Developer is responsible for providing all civil work including grading, trenching, installation of conduit and pull-boxes, etc.

DME is responsible for installation of wire, streetlights and poles, and service points. DME will charge an initial installation cost ~~fee~~ to the developer based on the number of lights.

A monthly maintenance, repair, and usage fee will be charged to The City thereafter for all streetlights on public streets per current DME rates.

For City initiated projects, the City's Engineer or their contractor will design the street lighting and submit to DME for approval. Once approved, the city's contractor will perform all civil work, and pull wiring and install streetlights and poles. DME will provide service points as needed. DME will also install and commission control nodes for interconnection with CityTouch.

For private streets and drives (where the City of Denton does not take ownership of the roadway or streetlights), one of the following will occur:

A. If non-standard lights are installed, DME will provide a metered service point. Developer is responsible for installation of entire streetlighting system. Designated customer (individual, HOA, etc.) will be responsible for monthly power costs and all maintenance. **OR**

B. If standard DME lighting is installed, Developer is responsible for all civil work (grading, trenching, installation of conduit, etc.) and installation of poles and streetlights. DME will pull wires and connect the lights at the Developer's expense. Designated customer (individual, HOA, etc.) will be responsible the monthly streetlight power and maintenance rates. **OR**

C. Exceptions to this rule must be agreed upon by all parties in a formal agreement.

7.3.3 Streetlighting in Non-DME-Served Areas

Standard streetlights have been approved by t~~T~~he City as listed in the General Requirements section of this manual. Electric utilities other than DME may or may not be able to provide the same luminaires. Non-standard lights will not be maintained by DME or t~~T~~he City. DME will provide, install, maintain, and repair standard t~~T~~he City streetlights at the D~~d~~eveloper's expense. The electric service provider will charge the City ~~of Denton~~ according to the rates agreed upon between t~~T~~he City and the electric service provider.

For streets in non-DME service territories, Developer should coordinate with the electric utility, DME, and the City at the earliest stage of development to determine and agree upon the following:

A. Developer, City/DME, and Customer responsibilities

B. Service points and project design

C. Mode of disconnect for safe maintenance (e.g. in-line fuses, etc.)

D. Mode of billing (metered usage, monthly rate, etc.)

E. Designated customer/developer responsible for fees

F. Other concerns as applicable

7.3.4 Customer/Citizen Requests for addition/removal of Streetlighting

When additional/modified/decreased lighting is requested by a customer, DME will perform an analysis of the lighting to determine if the modifications would provide added safety, visibility, and aesthetic value to a location. Light intrusion, cost, and feasibility will also be considered. At DME's discretion, lighting may be added or modified to bring the streetlighting closer in line with this manual or meet other specific concerns.

In coordination with the City's Environmental Services & Sustainability Department, DME may dim streetlights in residential areas to no lower than ~~will coordinate dimming streetlights in residential areas to~~ 50% brightness

Section 8: Design Deviations

8.1 Overview

8.1.1 General

All developments within the City ~~of Denton~~ and its extraterrestrial jurisdictions shall conform to the design criteria established in this DCM. In the event that a development cannot comply with the design criteria established ~~cannot be achieved~~, a design deviation process is used to evaluate, document, and approve proposed alternative methods. ~~of compliance.~~

Any deviation from the required design criteria for design of ~~public~~ facilities outlined in this DCM must be submitted as a design deviation request to the City's Engineer and Department Reviewer, prior to incorporating it into the final design of a project.

8.2 Design Deviation Procedure

8.2.1 Request for Design Deviation Submittal and Processing

A. All design deviation requests must be submitted as a formal request to ~~the development's assigned~~ Development Project Facilitat~~or~~ion ~~Engineering Department~~ using the 'Request for Design Deviation Form' included in Appendix ~~XX~~B, along with supporting documentation.

~~1.~~ The 'Request for Design Deviation Form' shall be filled out completely with exception of the portions noted as "For Use by City".

~~2.~~1.

2. Supporting documentation shall include:

   a. ~~-~~All pertinent information on the facilities involved or to be involved.~~:~~ The ~~request shall specifically state the~~ specific portion of this DCM, policies, or design standard(s) for which a design deviation is sought.~~, and include a~~

   b. Description(s) of ~~justification for the design deviation requested. The supporting documentation must illustrate~~ all ~~alternatives attempts~~other design alternatives which the applicant has evaluated in attempts to comply with~~at~~ the design criteria ~~compliance~~ prior to the request for design deviation; and~~.~~

   c. A statement that ~~, and~~ provides justification for the requested design deviation ~~being a more appropriate solution than the alternatives considered.~~ and how it is the necessary and optimal solution when compared with reasonable alternatives for the scenario presented.~~meets the Criteria for Granting of Design Deviation.~~

3. Design deviation requests that do not contain the required Request for Design Deviation Form and supporting documentation are incomplete and will not be reviewed.~~without proper justification and relevant supporting documents will not be reviewed.~~

B. The request and supporting documentation shall be submitted concurrently with Civil Engineering Plans, ~~the~~ Zoning Compliance Plans, Planned Development, or Specific Use Permit submittal. ~~the design submittal.as early as practicable in the public facility design process, but no later than (insert timing of your choice, or end sentence after "design process"). shall be signed by City Engineer or their designee. must be reviewed by Engineering Staff and require the signed approval~~

~~of the City Engineer, prior to implementation.~~

~~8.1.2~~8.2.2 Criteria for Granting of Design Deviation

A. The ~~City Engineer's evaluation~~ review of ~~An Engineer who wishes to request~~ a design deviation request by the City's Engineer and Department Reviewer ~~for the design of public facilities may do so as long as~~shall ~~may~~ assess whether the request:

1. Clearly demonstrates an exceptional hardship which prevents the design criteria from being met. This hardship cannot be solely self-imposed and should be based upon physical characteristics of the property, environmental conditions, or existing conditions created by surrounding development,
2. Is not detrimental to the public welfare,
3. Does not adversely impact the operations of the system or the public facility in question,
4. Is supported by a signed and sealed engineering analysis performed by a Licensed Professional Engineer in the State of Texas, if requested by the Engineering Department~~;~~, and,
5. Shall not be solely to mitigate a financial hardship. ~~solely reducing costs of construction.financial interests.~~

B. The ~~City Engineer's~~ decision of the City's Engineer and Department Reviewer is guided by the criteria for approval, but is ultimately discretionary based on their ~~professional~~engineering judgment and professional experience.

C. All approved design deviation requests shall be signed by the City's Engineer and Department Reviewer, before implementation.

~~B.~~D. The ~~City Engineer's~~ decision of the City's Engineer and Department Reviewer to grant a design deviation ~~A grantGranting ofthe use of an alternative material, design, or method of construction~~ shall not relieve the applicant's Engineer of the professional obligation and responsibility to ensure any approved alternatives to~~of~~ the use of the material, design, or method of construction are fit for the intended purposes of the facilities at issue. ~~same.~~

~~C.~~ If a design deviation request is denied by the City-'s Engineer and Department Reviewer~~Manager or designee~~, the applicant may consider reviewing alternatives and resubmitting the application with more information as is deemed necessary, for re-evaluation by the City-'s Engineer and Department Reviewer~~Manager or designee~~. ~~An applicant may appeal City Engineer's decision pursuant to the process laid out in Section 2.8.3 of the Denton Development Code."And" indicates that all connected items, conditions, provisions, or events apply; and~~

~~D.~~E. ~~"Or" indicates that one or more of the connected items, conditions, provisions, or events apply.~~

~~8.2~~8.3 Revocation of an Approved Design Deviation

~~8.2.1~~8.3.1 Applicability and Procedure

A. An approved design deviation request may be revoked by the City's Engineer and Department Reviewer ~~Engineer~~, if:

1. The supporting documentation that the City's Engineer and Department Reviewer ~~Engineer~~ used to review and approve the design deviation request is materially altered or updated.

Any individual or entity that receives an approved design deviation request must provide the City's Engineer and Department Reviewer with any ~~material~~ change in plans or conditions to the project that affect the requested deviation as soon as practicable after any such change occurs. Failure to provide these updates may result in design deviation revocation by the City. ~~There are changes to the design which affect the conditions in which the design deviation was reviewed and approved;~~

1. The applicant is shown to have provided inaccurate or incomplete information during review of the design deviation request.
2. The City determines there is a failure to comply with any term, condition, or requirement ~~made a condition of the approval~~ applicable to a design deviation;

B. A decision to revoke a design deviation is effective immediately. Notice of the decision shall be communicated ~~with~~ to the applicant.

Appendix A: Example Stormwater Facility Checklists

INSPECTION CHECKLIST FOR SIMPLE DETENTION BASIN

Facility Name: _____ **Facility Agreement Number:** _____

Basin/Pond Number: _____ **Inspected By:** _____ **Date:** _____

Type of Inspection: Annual _____, Quarterly _____, Monthly _____, Routine _____, or Storm Event _____, (# days since event _____)

Basin Conditions:

1.	Is there standing water or wet spots?	Yes	No	Comments
2.	Does sides or bottom show signs of erosion, settling, cracking, etc?	Yes	No	Comments
3.	Does dam or emergency spillway show signs of erosion, settling, cracking, or other problems	Yes	No	Comments
4.	Is there evidence of animal burrowing in dam?	Yes	No	Comments
5.	Is there evidence of changes in shape or volume of basin?	Yes	No	Comments
6.	Do vegetated areas need mowing?	Yes	No	Comments
7.	Are there trees or woody growth in dam?	Yes	No	Comments
8.	Are there areas that need to be re-vegetated?	Yes	No	Comments
9.	Is there any accumulation of silt, trash, debris or litter in the basin?	Yes	No	Comments
10.	Are there any other basin maintenance activities needed?	Yes	No	Comments

Structural Components:

1.	Are pipes, channels, trash racks, etc. free of obstructions?	Yes	No	Comments
2.	Are pipes, spillway or trash racks in need of repair?	Yes	No	Comments
3.	Is the low flow or trickle channel in need of repair?	Yes	No	Comments
4.	Is the outfall channel in need of repair?	Yes	No	Comments
5.	Are there any other structural maintenance activities needed?	Yes	No	Comments

Plan for correcting deficiencies:

_____

_____

_____

_____

Signature:

_____

Owner's Representative

Date:

_____

ENGINEER'S CHECKLIST FOR STORMWATER FACILITY MAINTENANCE AGREEMENT

Please attach additional sheets as necessary for comments and descriptions. Fit all sheets to 8½" x 11".

ORGANIZATION INFORMATION	
1. Company (Applicant)	**Address:**
2. Contact's Information: Contact Name Mailing Address Telephone Number(s) Email	**3. Execution Information:** Signatory's Name Mailing Address Telephone Number(s) Email

4. Property Location:

(Note: If the property has not been addressed, please enter the legal description)

5. Associated Plat Numbers:

(Note: if request is related to multiple plat applications, please list each individually)

6. Associated Building Permit Numbers:

(Note: if request is related to multiple permits, please list each individually)

AGREEMENT & ATTACHMENT INSTRUCTIONS

If the property owner is a **corporation**, the agreement must be signed by ~~the President or a Vice-President of the company~~a person who is duly authorized to bind the corporation including, but not limited to a President or Vice President. If a **partnership**, the agreement must be signed by the managing partner. If the applicant is a **sole proprietor**, he/she signs the agreement on behalf of him or herself. Additionally, for corporations and partnerships, a copy of the *Articles of Incorporation*, showing signature authority for whoever signs the agreement must also be submitted (Note: Applicants may also submit a board resolution or power of attorney authorizing an agent or assign to sign on behalf of the property owner. The agreement must be completely filled out and three copies submitted to the Planning and Development Department. Signatures on all three agreement drafts must be original and notarized. Lastly, please submit a copy of the deed for the noted property.

NOTE: Agreement and all attachments should be submitted on 8 ½" x 11".

	Yes	No	N/A	Comments/Descriptions
1. Legal Agreement – Standard agreement form provided by the City.	___	___	___	_____
2. Exhibit "A" - Legal Description (Attached)				
A. Metes and Bounds.	___	___	___	_____
B. Surveyor's Drawing, with seal affixed and marked as "Drainage Easement".	___	___	___	_____
C. Preliminary Plat.	___	___	___	_____
3. Exhibit "B" - Design Plan and Specifications (Attached)				
A. Design Calculations – in accordance with iSWM.	___	___	___	_____
B. Schematic Plan (See Example Detention Plan Schematic)- prepared in accordance with approved construction plans:	___	___	___	_____
• Plan View showing critical structural elements .	___	___	___	_____
• Critical structural elements are clearly labeled in layman terms.	___	___	___	_____
• Profile including a longitudinal section showing all critical structural elements with elevations.	___	___	___	_____
• Cross-sections as needed to show size and general grading. **NOTE: All Schematics should be submitted on 8 ½" x 11".**	___	___	___	_____
C. Landscaping shown per approved Landscape Plans.	___	___	___	_____
4. Exhibit "C" - Operations and Maintenance Plan (Attached)				
A. Routine Maintenance Specifications:				
1. Mowing as needed to control weeds and woody plants.		___	___	_____
2. Trash removal from critical structural elements.	___	___	___	_____
3. Additional maintenance.	___	___	___	_____
B. Non-routine Maintenance Activities:				
1. Bank repair and stabilization.	___	___	___	_____
2. Re-vegetation - required when 30% or more of area is unprotected.	___	___	___	_____

	Yes	No	N/A	Comments/Descriptions Page 3 of 3
3. Sediment removal from the detention/retention facility when:				
• Detention basin – when water depth is reduced 25%				
or more, or basin does not drain within 72 hours.				
• Retention pond – when water depth is 4' or less.				
• Sediment traps/forebay – when depth is reduced by 50% or more.				
4. Structural repair/replacement for all damaged or deteriorated				
structures, trickle channel, trash rack, etc.				
5. Mechanical equipment repairs.				
6. Other maintenance Activities.				

5. Exhibit "D" - Maintenance Checklist *

A. Covers ordinary needs, in layman terms.				
B. Structural components labeled consistent with Schematic Plan.				

*See attached Inspection Checklist for Detention Basin

NOTE: All Exhibits should be submitted on 8 ½" x 11".

(seal)	I certify that this Stormwater Facility Maintenance Agreement, checklist, required attachments, and additional comments, was prepared under my responsible supervision and that the information presented on this checklist and attachments is correct to the best of my knowledge. I also understand that an acceptance of this plan by the City does not waive any City standards or requirements unless a specific waiver request has been submitted and approved. Signed _____ Date _____ Print Name: _____

[*page left blank intentionally*]

Appendix B: Design Deviation Request Form

Development Services
401 N. Elm Street, Denton, TX 76201 (940) 349-8541

City of Denton Design Deviation Request Form

Submitted by:_____Phone:_____Email:_____
Company:_____Date:_____

Project Information
City of Denton Project Number:_____Project:_____
Type of Development:_____
Location:_____ (include map)

Design Deviation Request (Each deviation from criteria requires a separate submittal and will be evaluated independently.)
Specify section of the DCM/DDC/design standard(s) for which a deviation is sought:

Please explain how the project is unable to meet the design criteria.
(This hardship cannot be solely self-imposed and should be based upon physical characteristics of the property, environmental condition, or existing conditions created by surrounding development.)

What other design alternatives have been evaluated to comply with the design criteria, prior to the request for design deviation:

Detailed explanation of requested design deviation:

The deviation request will be evaluated based on the criteria set forth in DCM 8.2.2.

☐ By submitting the design deviation request, the applicant hereby acknowledges and understands the design deviation procedure. (Please check.)

1 of 2

CITY OF DENTON

Development Services

401 N. Elm Street, Denton, TX 76201 (940) 349-8541

Supporting Documentation

List and provide attachments supporting the design deviation as stated in the DCM Section 8.2.1.

(drawings, calculations, topographic information, photographs, maps, or other pertinent information)

FOR USE BY THE CITY OF DENTON

Justification of Decision:

Deviation Decision: ☐ Accepted ☐ Denied

Reviewing Department: ☐ Solid Waste ☐ Stormwater ☐ Transportation

☐ Water/Wastewater ☐ Street Light

Department Reviewer:_____ City's Engineer:_____

Date:_____ Date:_____

Signature:_____ Signature:_____

(The deviation request decision must be signed by both the Department Reviewer and the City's Engineer.)

2 of 2

Note: Request the fillable Deviation Request form from your Facilitator.

[page left blank intentionally]

Appendix C: Poles and Luminaires - Standard Lighting Fixtures

Figure C.1: Residential Lighting – 20-ft. concrete aggregate pole woth post-top luminaire

Figure C.2: General Street Lighting – Wood (distribution) pole with single-mast arm and cobra head luminaire

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Figure C.3: General Street Lighting – 35-ft. white concrete pole with single or double-mast arms and cobra head luminaire

Figure C.4: Historic District Lighting – 12-ft. concrete aggregate pole woth post-top luminaire

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, TEXAS REPEALING THE SOLID WASTE AND RECYCLING CRITERIA MANUAL, STORMWATER CRITERIA MANUAL, TRANSPORTATION CRITERIA MANUAL, WATER AND WASTEWATER CRITERIA MANUAL, AND STREETLIGHT CRITERIA MANUAL; COMBINING SUCH DOCUMENTS INTO THE DENTON DESIGN CRITERIA MANUAL; APPROVING THE DENTON DESIGN CRITERIA MANUAL; PROVDING FOR A DESIGN DEVIATION PROCEDURE; AND PROVIDING FOR SEVERABILITY, A SAVINGS CLAUSE AND AN EFFECTIVE DATE.

WHEREAS, pursuant to Ordinance No. DCA18-0009q, the City Council of the City of Denton, a Texas home-rule municipal corporation (the "City") adopted the newly revised Denton Development Code, superseding and expressly repealing Chapters 31, 34 and 35 of the 1991 Code of the City of Denton, Texas, as amended, and leaving all other Chapters intact and superseding and expressly repealing the 2002 Denton Development Code, as amended; and

WHEREAS, the Denton Development Code established a process whereby the policies, regulations, and procedures relating to zoning and development within the City and its regulatory extraterritorial jurisdiction are legislatively established by the Council after public hearing in accordance with State law; and

WHEREAS, the creation of specific design standards and methodologies (the "Development Criteria Manual") are delegated to City staff possessing the necessary and appropriate licensure and expertise who may also consult with their peers in both the public and private sectors, consistent with the policy direction of Council through Section 2.11 of the Denton Development Code; and

WHEREAS, the Development Criteria Manual process was intended to benefit the public and the development community by empowering City staff to more quickly implement new and improved materials and methods as they are developed, in accordance with generally accepted design standards of the industry, as appropriate to achieving an equal or greater public benefit for costs expended, for issues not involving policymaking decisions; and

WHEREAS, the latest versions of the Solid Waste and Recycling Criteria Manual, the Stormwater Criteria Manual, the Transportation Criteria Manual and the Water and Wastewater Criteria Manual were last prepared and approved by City Council Ordinances 22-1715, 22-1716, 22-1717, 22-1718 in December 2022; and

WHEREAS, the Solid Waste and Recycling Criteria Manual, the Stormwater Criteria Manual, the Transportation Criteria Manual, the Water and Wastewater Criteria Manual, and the Streetlight Criteria Manual will be combined into the Denton Design Criteria Manual; and

WHEREAS, the Denton Design Criteria Manual will be adopted by ordinance; and

WHEREAS, after providing notice and conducting a public hearing as required by state law, the City Council finds that these changes to the Denton Design Criteria Manual are consistent with the Comprehensive Plan and are in the public interest; NOW THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The findings and recitations contained in the preamble of this ordinance are incorporated herein by reference.

SECTION 2. The Denton Design Criteria Manual is hereby approved and shall read as contained in Exhibit "A." Any previous criteria manuals including those passed by City Council Ordinances 22-1715, 22-1716, 22-1717, 22-1718 are hereby repealed and are no longer of any force and effect upon the effective date of this ordinance.

SECTION 3. It is hereby officially found and determined that the meeting at which this ordinance was passed was open to the public as required by law, and that public notice of the time, place, and purpose of the meeting was given as required by State law.

SECTION 4. If any section, subsection, paragraph, sentence, clause, phrase, or word in this ordinance, or the application thereof to any person or under any circumstances is held invalid by any court of competent jurisdiction, such holding shall not affect the validity of the remaining portions of this ordinance, and the City Council of the City of Denton, Texas hereby declares it would have enacted such renaming provisions despite any such invalidity.

SECTION 5. City Council hereby authorizes the "Design Deviation Procedure" and authorizes the City's Engineer and Department Reviewer to review submitted design deviations from the required design criteria for design of facilities outlined in the Denton Design Criteria Manual.

SECTION 6. City Council hereby authorizes the "Revocation of an Approved Deviation" by the City's Engineer and Department Reviewer for failure to provide acurate and complete information regarding the request, comply with conditions or terms of an approved design deviation, or report material changes related to the approved design deveation request.

SECTION 7. Save and except as amended hereby, all the provisions, sections, subsections, paragraphs, sentences, clauses, and phrases of the code of ordinances shall remain in full force and effect.

SECTION 8. This ordinance shall become effective July 1, 2024.

The motion to approve this ordinance was made by _____ and seconded by _____, the ordinance was passed and approved by the following vote [___ - ___]:

	Aye	Nay	Abstain	Absent
Gerard Hudspeth, Mayor:	_____	_____	_____	_____

Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this, the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Marcella Lunn

Public Hearing
City of Denton
Design Criteria Manual

Brett Bourgeois, PE

City Engineer

Engineering Services

ID 23-1856

June 4, 2024

Background

- Review meetings and revisions made from May through September
- Draft Updates Completed in October
- Public Outreach and public feedback from September through June
- June 4, 2024 – Work Session presenting overview of process and proposed changes

Public Outreach Plan

Date	Public Outreach
September 14, 2023	Developer Town Hall
November 3, 2023	Criteria Manual Updates Published Online
November 9, 2023	Texas Society of Professional Engineers
January 10, 2024	Planning and Zoning Commission Work Session
January 22, 2024	Public Utilities Board Work Session
May 17, 2024	Advertise in Denton Record Chronicle
June 4, 2024	City Council Work Session
June 4, 2024	Public Hearing
July 1, 2024	Effective Date

Questions?

Brett Bourgeois, PE

City Engineer

Engineering Services

File #: DCA23-0002g, **Version:** 1

AGENDA CAPTION

Hold a public hearing and consider adoption of an ordinance of the City of Denton, Texas amending the Denton Development Code, regarding short-term rental use regulations and definitions, specifically amendments to Section Table 5.2-A- Table of Allowed Uses, Section 5.3.1 Use-Specific Standards - Generally, Section 5.3.5: Commercial Use-Specific Standards, Table 7.9-I Parking, and Section 9.2: Definitions; providing for a penalty in the maximum amount of $2,000.00 for violations thereof; providing a severability clause and an effective date. The Planning and Zoning Commission voted [5-0] to recommend approval of the request. Motion for approval was made by Commissioner Villareal and seconded by Commissioner Pruett. (DCA23-0002g, Short-Term Rentals, Angie Manglaris)

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Department of Development Services

ACM: Cassey Ogden

DATE: June 4, 2024

SUBJECT

Hold a public hearing and consider adoption of an ordinance of the City of Denton, Texas amending the Denton Development Code, regarding short-term rental use regulations and definitions, specifically amendments to Section Table 5.2-A- Table of Allowed Uses, Section 5.3.1 Use-Specific Standards – Generally, Section 5.3.5: Commercial Use-Specific Standards, Table 7.9-I Parking, and Section 9.2: Definitions; providing for a penalty in the maximum amount of $2,000.00 for violations thereof; providing a severability clause and an effective date. The Planning and Zoning Commission voted [5-0] to recommend approval of the request. Motion for approval was made by Commissioner Villareal and seconded by Commissioner Pruett. (DCA23-0002g, Short-Term Rentals, Angie Manglaris)

https://dentontx.new.swagit.com/videos/306595?ts=3778

BACKGROUND

The Short-Term Rental Code Amendment process has been ongoing since the beginning of 2023, including extensive public engagement and numerous public meetings. A detailed project history and explanation of the proposed Code amendments are included in this report below.

Project History:
At the beginning of 2023, City staff began reviewing the standards set forth in the Denton Development Code (DDC) regarding Short-Term Rental uses in response to the 5th Circuit Court's decision in the case of *Hignell-Stark v. City of New Orleans*. In this case, the 5th Circuit held that the City of New Orleans' regulation requiring Short-Term Rental applicants to demonstrate that the Short-Term Rental dwelling unit was their primary residence was unconstitutional under the dormant federal Commerce Clause. In reviewing this court decision, staff determined that a DDC requirement that a Short-Term Rental be the applicant's primary residence could be legally challenged and initiated the Code amendment process to remove this requirement from the DDC; this change was adopted by City Council on July 25, 2023.

During that same time, staff reviewed the City's requirements against other recent legislation as well as how other cities regulate the land use. In addition to the change noted above as a result of the 5th Circuit's decision, staff identified several areas where there was a need for clarification and consolidation of existing language in the DDC relating to Short-Term Rentals including addressing the Use-Specific Standards due to the potential for application or enforcement challenges. While many of these changes began with the intent to clean up and clarify items within the Code, throughout the process additional legislative issues came to light through court cases involving the cities of Arlington, Fort Worth, and Dallas that helped

inform staff's recommended changes. The history of the process as well as a summary of the proposed changes are provided below.

Development Code Review Committee

On March 13, 2023, staff presented to the Development Code Review Committee (DCRC) their findings regarding the City's current regulations related to the Short-Term Rental land use, discussed reasons why the Code amendments are needed, shared how other cities regulate Short-Term Rental uses, and recommended proposed Code amendments. Throughout the Spring of 2023, the DCRC discussed the proposed Code amendments related to Short-Term Rental uses at a series of meetings, which are all noted in the Prior Action/Review table below. In review of the DDC's regulations surrounding Short-Term Rentals, the following areas were identified as requirements which could be refined for clarity in Code language and improved administration of City procedures:

- Removing the requirement that the Short-Term Rental must be the applicant's primary residence (this amendment was adopted by City Council July 25, 2023),
- Providing clarification as to what classifies as a Short-Term Rental (dwelling units, bedrooms, permanent structures),
- Refinement of the definition for Local Emergency Contact,
- Refining notification requirements for Short-Term Rentals to neighboring properties,
- Revision of advertisement requirements for Short-Term Rentals,
- Additional regulations added to clarify enforcement and revocation processes of Short-Term Rental permits, and
- Consideration of maximum densities for STRs.

After completing their review and providing staff direction on proposed Code amendments, the DCRC and staff determined it necessary to prepare a Public Engagement Plan in order to receive input from the community related to many aspects of the proposed Short-Term Rental regulations before initiating the formal public hearing process associated with DDC amendments. As part of the Public Engagement Plan, staff held two Town Hall Meetings (one in person and one virtually) in August 2023 and conducted an online survey regarding Short-Term Rentals.

The online survey was published on Discuss Denton on Friday, August 18, 2023, and closed on Monday, September 11, 2023, and a total of 224 individuals participated. The survey consisted of 20 questions, which ranged from general questions related to Short-Term Rentals, to specific questions related to possible DDC amendments. The survey gathered information from a variety of individuals, and when asked to describe themselves the most common responses were as follows (note this response allowed for multiple answers):

- 164 respondents indicated they own and reside at a residential property in Denton,
- 80 indicated they own a Short-Term Rental in Denton,
- 35 stated they owned a business in Denton,
- 34 stated they managed a Short-Term Rental in Denton, and
- 16 stated they reside outside of Denton but visit often.

The full survey results report is provided in Exhibit 4, and a summary presentation of the results is provided in Exhibit 5.

During the DCRC meeting on September 25, 2023, staff provided an overview of the Short-Term Rental Survey Results. Staff sought direction from the DCRC on how to proceed with maximum densities/distance separations for Short-Term Rentals given the survey results indicated a desire in respondents to maintain the integrity of single-family areas while allowing higher densities of Short-Term Rentals within certain areas of the City. Discussion centered around exploring different density thresholds for Short-Term Rentals,

considering allowing higher density concentration in certain areas of the City (near universities and downtown), and considering imposing a maximum number of allowable Short-Term Rentals within the City. The DCRC directed staff to bring examples of the discussed policies and procedures along with estimates on how they would be applied, if adopted.

On October 23, 2023, November 13, 2023, and December 11, 2023, the DCRC revisited the density limitation and distance separation discussions considering the survey responses and explored various options for implementation. Over the course of these discussions, staff presented the potential implementation of a maximum number of Short-Term Rental permits issued per year in residential zoning districts. Conversations related to a maximum number of Short-Term Rental permits issued in residential zoning districts focused on the appropriate number of allowable units, separation distances between registered units, and a maximum allowable number of units that may be registered within multifamily buildings.

The DCRC directed staff to move forward with a maximum number of Short-Term Rental permits which may be issued per year in residential zoning districts and agreed upon a cap of 1,000 permits. It was also agreed that there should be a limitation on the number of units allowed to be registered as Short-Term Rentals within multifamily buildings, and the Committee agreed to a cap of 10% of all units within an individual multifamily development. In addition, a minimum distance separation of 100 feet between registered Short-Term Rentals in residential zoning districts, measured property line to property line, was agreed upon to further address the density concerns in single-family residential areas.

On January 8, 2024, after consensus was reached on proposed amendments, and due to the continually evolving litigation surrounding Short-Term Rentals, staff presented research on the City of Arlington's Short-Term Rental regulations, including a summary of their adopted regulations and a comparison of Arlington's regulations versus the proposed amendments being considered for Denton. Following discussion, the DCRC directed staff to bring the proposed amendments before the Planning and Zoning Commission and City Council for public hearing and consideration.

Planning and Zoning Commission

The Planning and Zoning Commission considered the Short-Term Rental Code amendments at their February 28, 2024 meeting and voted [5-0] to continue the public hearing to the March 20, 2024 meeting in order to allow staff time to update the proposed amendments based upon discussion held during work session. During work session, the Commission noted areas in the proposed amendments which could be further refined to clarify the intent of the regulations and to eliminate conflicting text. The recommended changes included: update the regulations to use consistent language when referring to registered /permitted short-term rentals, update the regulations to be consistent in describing the length of time a short-term rental registration is valid for, and update the regulations to include additional standards regarding change in ownership for a registered short-term rental.

Below are the updates staff made to the draft regulations following the February 28, 2024 meeting:

- Updated Section 5.3.5.T.2 to remove references to the issuance of a short-term rental permit and instead utilize the term "registration certificate". Registration certificate is consistent with the remainder of the sort-term rental regulations, which require each short-term rental to be registered to operate.
- Updated Section 5.3.5.T.6a to reflect all short-term rental registrations shall expire at the end of the calendar year.
- Updated Section 5.3.5.T.3e to require all registration materials be updated within 30 days if there is a change in Local Emergency Contact, property ownership, or property management company for a registered short-term rental.

Following a continuance of the public hearing from the February 28, 2024 meeting, the Short-Term Rental Code amendments were unanimously recommended for approval by the Planning and Zoning Commission [7-0] on March 20, 2024. However, due to continually evolving litigation surrounding Short-Term Rentals, staff determined it was necessary to conduct a broader public notification process for the Short-Term Rental Code amendments including a reconsideration of the proposed code amendments by the Planning and Zoning Commission on May 29, 2024, by providing a mailed notice to property owners instead of following the standard legal notice published in the newspaper as allowed by state law. A total of 29,371 notices were mailed to property owners.

Prior to the May 29, 2024 public hearing, Staff hosted a town hall meeting at the Development Service Center on May 23, 2024 to address questions from the public regarding the proposed amendments. Approximately 20 people attended the town hall meeting, and staff addressed many questions regarding how the proposed amendments were crafted, concerns the amendments are intended to address, and what the next steps in the code amendment process would be.

The Planning and Zoning Commission held the Public Hearing on May 29, 2024. Ten (10) members of the public spoke during the public hearing. Comments ranged from a desire to see no Short-Term Rentals allowed in residential areas, to the regulations were a good start but wanting tighter regulatory controls in residential neighborhoods, to concerns regarding the minimum 100-foot distance separation and the 1,000-unit cap being too restrictive for operators. Following the public hearing, the Short-Term Rental Code amendments were unanimously recommended for approval [5-0] by the Commission.

Proposed Amendments:
To address the concerns identified in the project history above, the DCRC recommended the below Code amendments related to Short-Term Rental uses be presented to the Planning and Zoning Commission and City Council. A summary of the proposed modifications is included below; a redline draft of the relevant DDC Sections with further discussion can be found in Exhibit 3:

- Amend Table 5.2.A Table of Allowed Uses to allow Short-Term Rentals as a permitted use in any Zoning District that allows residential uses by right or by Specific Use Permit; new districts being added include Mixed-Use Downtown (MD), Mixed-Use Regional (MR), Suburban Corridor (SC), Highway Corridor (HC) and General Office (GO).
- Amend Section 5.3 Use-Specific Standards by amending Subsection 5.3.1.D Maximum Persons Occupying a Dwelling Unit to include Short-Term Rentals as an exempt land use from this regulation. This amendment is consistent with recent court rulings as in the case of Zaatari v. City of Austin, 615 S.W.3d 172, 199 [Tex. App. 2019]).
- Amend 5.3.5 Commercial Use Specific Standards, Subsection T. Short-Term Rentals as follows:
  1. *Registration Requirements* – amendments to this Section include: clarification that a single bedroom or a unit may be listed as a Short-Term Rental, requirements to provide management company information (when applicable), clarifies Local Emergency Contact is a defined term in the DDC, and adds additional detail regarding registration submittal requirements.
  2. *Registration Certificates* – this section is a proposed addition to the Short-Term Rental Use Specific Standards to address the results of the short-term rental preference survey, reflecting a desire in residents to maintain the integrity of single-family areas while allowing higher densities of short-term rentals within certain areas of the City. The proposed amendments are differentiated between properties that are within residential versus non-residential zoning districts, which are less likely to be disrupted by the presence of Short-Term Rentals due to current density, and therefore, provide adequate opportunities for this use to operate outside the City's residential neighborhoods. These differences are outlined below:

     Registration Certificates in Residential Zoning Districts (Rural Residential -Residential 7):
     - One thousand (1,000)- Registration Certificate Limit. The Department of Development Services shall issue a maximum of one thousand (1,000) short-term rental (STR)

registration certificates per calendar year in Residential Zoning Districts (Rural Residential -Residential 7). *Note for clarification: registration certificates are per STR unit, and the registration certificate cap applies to all residential use types (single-family, duplex, three-and four-plexes, multi-family, etc.) within the Rural Residential-Residential 7 zoning districts.*

- The Department of Development Services shall process applications in order of receipt and shall issue new registration certificates in the order that complete applications are received.
- If the number of registration certificates reaches the one thousand (1,000)- registration certificates limit, then the Department of Development Services shall stop processing applications and add applicants to a waiting list.
- A maximum of two (2) STR registration certificates may be issued per parcel.
- A short-term rental unit cannot be within 100 feet of an existing short-term rental unit, measured at the property boundary. This does not apply to units on the same parcel.

Registration Certificates in Non-Residential Zoning Districts:

- Registered Short-Term Rentals (STR) in Non-Residential Zoning Districts do not count toward the 1,000- registration certificates cap, regardless of what type of residential dwelling the STR is located within.
- For multifamily developments, no more than 10% of the units within a given development may be registered as a Short-Term Rentals.
- At least two (2) Short-Term Rentals shall be registration certificates per multifamily development.
- Short-Term Rentals within Non-Residential Zoning Districts are not subject to the 100-foot separation rule.

3. *Operation* – amendments to this section include: clarification of parking requirements for Short-Term Rentals, specification that Short-Term Rentals may not be advertised as party venues, refinement of language to provide reference to enforcement regulations within the DDC, clarification that a Short-Term Rental may only be operated in a permanent structure, and consolidates existing language.
4. *Writing Briefing and Safety Features* – amendments to this section are to clarify an owner's or management's responsibilities to provide safety information to guests in writing.
5. *Notification of Approval of Short-Term Rental Registration* – amendments to this section are to clarify when notification of an approved Short-Term Rental shall occur and what information shall be included within the notification.
6. *Registration Term, Fees, and Revocation* – amendments to this section are to revise and clarify the circumstances under which the Director may revoke a Short-Term Rental permit and specify the appeals procedure for such revocation.
7. *Right to Inspect Premises* – amendments to this section are to specify the circumstances under which a inspection of a Short-Term Rental may occur.

- *Table 7.9-I: Minimum Required Off-Street Parking* – amendments to this section are to specify the maximum number of vehicles allowed on premise for a Short-Term Rental shall be based upon the number of spaces available on-site.

- *Section 9.2 Definitions* – amendments to this section are to revise definitions for Short-Term Rental and Local Emergency Contact:
  - Short-Term Rental – this definition is amended to clarify the duration of stay for a Short-Term Rental shall be not less than 24 hours and not greater than 29 consecutive days, as well as allow for a bedroom to be a Short-Term Rental.
  - Local Emergency Contact – this definition is amended to clarify and consolidate the requirements for Local Emergency Contact.

An analysis of this request based upon the DDC's criteria for approval for code amendments is provided in Exhibit 2.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

Date	Council, Board, Commission	Request	Action
April 23, 2019	City Council	Consider 2019 DDC Update	Approved with an effective date of October 1, 2019
March 13, 2023, March 27, 2023, April 10, 2023, and April 24, 2023	Development Code Review Committee	Consider amendments related to Short-Term Rental uses	Continued discussion at next meeting
June 12, 2023	Development Code Review Committee	Consider amendments related to Short-Term Rental uses	DCRC instructed staff to prepare a Public Engagement Plan in order to receive input from the community
July 19, 2023	Planning and Zoning Commission	Consider amendments related to Short-Term Rental uses removing the primary residency requirement	Recommended approval
July 25, 2023	City Council	Consider amendments related to Short-Term Rental uses removing the primary residency requirement	Approved
September 25, 2023	Development Code Review Committee	Review proposed amendments and results of Public Engagement Survey	Continued discussion to next meeting
October 23, 2023 November 13, 2023, and December 11, 2023	Development Code Review Committee	Consider amendments related to Short-Term Rental Uses	Continued discussion to next meeting
January 8, 2024	Development Code Review Committee	Consider amendments related to Short-Term Rental Uses	DCRC directed staff to proceed with amendments as presented
February 28, 2024	Planning and Zoning Commission	Consider amendments related to Short-Term Rental Uses	Continued public hearing to March 20, 2024
March 20, 2024	Planning and Zoning Commission	Consider amendments related to Short-Term Rental Uses	Recommended approval [7-0]
May 29, 2024	Planning and Zoning Commission	Consider amendments related to Short-Term Rental Uses	Recommended approval [5-0]

PLANNING AND ZONING COMMISSION

As stated earlier in the report, on May 29, 2024, the Planning and Zoning Commission reconsidered the proposed amendments, held a public hearing, and voted [5-0] to recommend approval of the proposed amendments to the DDC as presented. Motion for approval was made by Commissioner Villarreal and seconded by Commissioner Pruett.

OPTIONS

1. Approval
2. Approval with conditions
3. Denial
4. Postpone Item

RECOMMENDATION

Staff recommends **approval** of the amendments related to Short-Term Rentals as the proposed amendments meet the established criteria for approval for Code Text Amendments as outlined in Section 2.7.4D of the DDC.

See Exhibit 2 for Staff Analysis.

EXHIBITS

Exhibit 1 - Agenda Information Sheet
Exhibit 2 - Staff Analysis
Exhibit 3 - Redline Markups
Exhibit 4 - Short-Term Rental Preference Survey Results
Exhibit 5 - Survey Summary Presentation
Exhibit 6 - Public Comment
Exhibit 7 - Draft Ordinance
Exhibit 8 - Presentation

Respectfully submitted:
Tina Firgens, AICP
Deputy Director of Development Services/
Planning Director

Prepared by:
Angie Manglaris, AICP
Development Review Manager

Staff Analysis
DCA23-0002g/ Short-Term Rental Code Amendments

REQUEST:
This is a city-initiated Code amendment to the Denton Development Code (DDC) related to Short-Term Rental uses, specifically amendments to Table 5.2-A: Table of Allowed Uses, Section 5.3.1 Use-Specific Standards - Generally, Section 5.3.5: Commercial Use-Specific Standards, Table 7.9-I: Minimum Required Off-Street Parking, and Section 9.2: Definitions related to the regulation of Short-Term Rentals.

CONSIDERATIONS:
Section 2.7.4D of the DDC states that an application for a DDC text amendment may be approved upon consideration of the following criteria as to whether and to what extent the proposed amendment:

1. *Is consistent with the Comprehensive Plan, other adopted plans, and other city policies;*

   The proposed Code amendments related to Short-Term Rental (STR) uses are consistent with the following Comprehensive Plan policies and actions related to ensuring the continued viability of Denton's established neighborhoods:

- **Action Item 7.8.2** Prevent impacts and encroachments of incompatible uses, development scales, and intensities through adherence to the established land use standards and urban design principles.
- **Action Item 7.7:** Establish tools and strategies to enhance the quality and character of housing and neighborhoods.
- **GOAL HN-2:** Ensure the continued viability of Denton's established neighborhoods through thoughtful conservation.

The proposed Code amendments are consistent with the Denton Development Code's purpose statements that promote the health, safety, and general welfare of it's inhabitants and implementing the City's Comprehensive Plan:

- **Subsection 1.2.1.** Promote the health, safety, and general welfare of the City's inhabitants.
- **Subsection 1.2.2** Implement the City's comprehensive plan - the City's guide in managing growth, promoting reinvestment, and improving the quality of life of the citizens of Denton.
- **Subsection 1.2.7** Encourage the appropriate use of land, buildings, and structures.

As shown in Exhibit 4, the results of the public engagement survey showed that there are concerns related to the impacts of STRs on established residential neighborhoods. These amendments are intended to limit those impacts and strengthen the City's ability to enforce STR regulations as nuisance issues arise.

2. *Does not conflict with other provisions of this DDC or other provisions in the Municipal Code of Ordinances;*

   The proposed Code amendments do not conflict with any provisions of the DDC or Municipal Code of Ordinances. The proposed Code amendments introduce new permitting regulations (i.e. 1,000-registration certificate limitation in residential zoning

districts) for Short-Term Rentals to the DDC, as well as provide clarification, reduce duplication, and remove potential conflicts with other provisions of the DDC relating to the regulation of Short-Term Rentals.

3. *Is necessary to address a demonstrated community need;*

This proposed city-initiated Code amendment to the Denton Development Code is needed for the following reasons:

- Ensure compliance with recently established legal precedent related to municipal regulation of Short-Term Rentals, including cases from New Orleans, Louisiana and Arlington, Texas.
- Address resident concerns surrounding Short-Term Rental uses and protect the character of established residential neighborhoods.
- Strengthen enforcement of the Short-term Rental regulations to ensure compliance with the DDC and assist with the collection of Hotel Occupancy Taxes for all operating properties.
- Provide additional language within the Short-Term Rental regulations to address notification and Local Emergency Contact requirements of Short-Term Rental operators.
- Strengthen enforcement regulations regarding when the Director may revoke a Short-Term Rental permit and establish procedures to appeal the determination.

4. *Is necessary to respond to a substantial change in conditions and/or policy; and*

- The City desires to amend the DDC to ensure consistency with existing city policies and recent court rulings regarding this land use. In addition, the City desires to amend the DDC to address resident concerns surrounding Short-Term Rental uses and protect the character of established residential neighborhoods.

5. *Is consistent with the general purpose and intent of this DDC.*

The proposed Code amendments are consistent with the general purpose and intent of the DDC as described above with Consideration 1.

Draft Short-Term Rental Code Amendment~~s~~

Amend Table 5.2-A: Table of Allowed Uses as follows:

Table 5.2-A: Table of Allowed Uses

P = permitted S = specific use permit required Blank cell = use prohibited + = use-specific standards apply

	Residential							Mixed-Use			Corridor		Other Nonresidential				Use-Specific Standards
	RR	R1	R2	R3	R4	R6	R7	MN	MD	MR	SC	HC	GO	LI	HI	PF	
Commercial Uses																	
LODGING FACILITIES																	
Short-Term Rental	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+				5.3.5T

Amend Section 5.3.5T as follows:

T. **Short-Term Rental**

1. **Registration Requirements**
No person or entity shall advertise, offer to rent, or rent, lease, sublease, license, or sublicense a ~~residential property~~ dwelling unit or bedroom within the city as a short-term rental for which a registration has not been properly made and filed with the Development Services Department. Registration shall be made upon forms furnished by the city for such purpose and shall specifically require the following minimum information:

a. Name, address, phone number and e-mail address of the property owner and the management company (if applicable) of the short-term rental property;

b. Verification that the proposed short-term rental ~~property~~ dwelling unit or bedroom is managed by the property owner or by a management company;

c. Name, address, phone number and e-mail address of the designated Local Emergency Contact ~~local emergency contact~~;

~~d. The maximum number of occupants permitted for the dwelling unit or sleeping room in accordance with Subsection 5.3.1D: Maximum Persons Occupying a Dwelling;~~

d. If the applicant does not own the property where the short-term rental is located, the registrant must provide written authorization, signed by the property owner before a notary public, authorizing the registrant to operate a short-term rental on the premises.

Commented [MA1]: The purpose of the Code amendment is to allow Short-Term Rentals in Zoning Districts that allow residential uses by right or by Specific Use Permit.

Commented [MA2]: The purpose of the Code amendment is to clarify that an entire unit or a single bedroom can be a Short-Term Rental.

Commented [MA3]: The purpose of the Code amendment is to obtain information of the management company managing the Short-Term Rental, if applicable.

Commented [MA4]: The purpose of the Code amendment is to capitalize Local Emergency Contact to let the reader know that a definition is provided in Section 9.2 Definitions of the DDC.

Commented [MA5]: The purpose of the Code amendment is to clarify that written authorization is required by the property owner.

e. A submission of a sketch floor plan of the dwelling dimensional room layout; and

f. A site plan/survey of the property indicating maximum number of vehicles that can be legally parked on the property, without encroaching onto streets, sidewalks or alleys, other public rights-of-way or public property. The site plan/survey is required to ensure compliance with Section 5.3.5T.2.c.

2. Registration Certificates

a. **Residential Zoning Districts**

i. One thousand (1,000)- Registration Certificate Limit. The Department of Development Services shall issue a maximum of one thousand (1,000) short-term rental registration certificates per calendar year in Residential Zoning Districts (RR-R7). Registration certificates are per short-term rental unit, and the registration certificate cap applies to all residential use types (including multi-family) in residential districts.

ii. The Department of Development Services shall process applications in the order of receipt and shall issue new registration certificates in the order that complete applications are received.

iii. If the number of registration certificates reaches the one thousand (1,000)- registration certificate limit, then the Department of Development Services shall stop processing applications and add applicants to a waiting list.

iv. A maximum of two (2) short-term rental registration certificates may be issued per parcel.

v. A short-term rental unit cannot be within 100 feet of an existing short-term rental unit, measured at the property boundary. This does not apply to units on the same parcel.

vi. All short-term rental registration certificates expire on December 31 of each calendar year.

vii. Renewal season takes place from November 1 through December 31 of each year. Only renewal applications are accepted during this time.

b. **Non-residential Zoning Districts**

i. Registered short-term rentals in non-residential zoning districts do not count toward the one thousand (1,000)- registration certificate cap.

ii. In multifamily developments, no more than 10% of the units within a given development may be registered as a short-term rental.

iii. At least two (2) short-term rental units shall be allowed per multifamily development.

iv. Short-term rentals within non-residential zoning districts are not subject to the 100-foot separation rule.

Commented [MA6]: The purpose of the Code amendment is to provide reason for the site plan/survey requirement.

Commented [MA7]: "Registration Certificate" is consistent with the language our Zoning Compliance Officers use and with the language withing this ordinance.

Commented [MA8]: The purpose of this Code amendment is to establish a 1,000-permit cap and a distance separation requirement for Short-Term Rentals in residential zoning districts.

Commented [MA9]: The purpose of this Code amendment is to clarify that Short-Term Rentals in non-residential Zoning districts do not count towards the 1,000-registration certificate cap, nor are they subject to the distance separation requirement.

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~~2.~~3. **Operation**

a. **External Signage**

There shall be no external on-site or off-site advertising signs or displays indicating the property is a short-term rental.

b. **Limit on Occupants Allowed**

No more than two adult guests per bedroom, plus no more than two additional adults shall be allowed when renting a property as a short-term rental, except that there shall be a maximum occupancy of 10 persons, adults and children.

c. **Limits on Number of Vehicles**

~~There shall be a maximum of one vehicle per bedroom, or the maximum number of vehicles that can be accommodated within the garage and driveway, without extending over the public rights of way (alleys and sidewalks), whichever is less.~~The maximum number of vehicles allowed at a short-term rental shall be limited to the number of available off-street parking spaces.

d. **Advertisements and Contracts**

Any advertisement of the property as a short-term rental and all rental contracts must contain language that specifies: the allowed maximum number of occupants; ~~and~~ maximum number of vehicles; and states that the short-term rental may not be used for the sole or primary purpose of having a party venue.

e. ~~Other~~ **Restrictions and Enforcement**

~~It is unlawful:~~ The following actions are violations of this DDC and are enforceable as established in Section 1.6 Enforcement Actions.

i. To advertise, offer, operate or allow to be operated as a short-term rental without first registering, in accordance with this DDC, the property in which the rental is to occur;

~~ii. To advertise or offer a short-term rental without first registering, in accordance with this DDC, the property in which the rental is to occur; documented advertisement of the subject property as a short-term rental, online or offline, shall be considered evidence of a violation of this DDC;~~

~~iii.~~ii. To operate a short-term rental that does not comply with all applicable city and state laws and codes;

~~iv.~~iii. To operate a short-term rental without paying the required hotel occupancy taxes;

~~v.~~iv. To offer or allow the use of a short-term rental for the sole or primary purpose of having a party venue (e.g. wedding reception, concert, bachelor or bachelorette party, or any similar activity that would assemble large numbers of attendees);

~~vi. To fail to include a written prohibition against the use of a short-term rental for having a party in every advertisement, listing, or other publication offering the premises for rent; and~~

v. ~~Permit~~ To permit the use of short-term rental for the purpose of: housing sex offenders; operating a structured sober, recovery or other purpose

Commented [MA10]: The purpose of this Code Amendment is to clarify parking requirements for Short-Term Rentals

Commented [MA11]: The purpose of the Code amendment is to clarify that Short-Term Rentals shall not be used for the sole or primary purpose of having a party venue.

Commented [MA12]: The purpose of the Code amendment is to provide the Enforcement Actions Section of the DDC.

Commented [MA13]: The purpose of the Code amendment is to consolidate two provisions (i and ii) into one.

Commented [MA14]: The purpose of the Code amendment is to delete a provision already addressed in the previous Advertisements and Contracts Section above.

living home or similar enterprise; selling illegal drugs; selling alcohol or another activity that requires a permit or license under the Alcoholic Beverage Code; or operating as a sexually oriented business.;

vi. To fail to update all required registration materials within 30 days if there is a change in Local Emergency Contact, property ownership, or property management company for a registered short-term rental.

vii. To operate a short-term rental in a vehicle. Refer to Chapter 17, Section 17-2 of the City's Municipal Code of Ordinances for the definition of vehicle and Section 17-101.A (12) prohibiting the use a vehicle for living or sleeping quarters;

viii. To operate a short-term rental within a non-permanent structure;

ix. To not have a Local Emergency Contact available to respond to complaints; and

vii.x. To not correct any violation(s) found during inspection.

3.4. **Brochure Written Briefing and Safety Features**

a. **Informational Brochure Written Briefing**

Each registrant operating a short-term rental shall provide to guests, in writing, a brochure or e-brochure that includes:

i. The registrant's 24-hour contact information of the designated Local Emergency Contact;

ii. A local responsible party's 24-hour contract information if the owner is not within the city limits when guests are renting the premises;

iii.ii. Pertinent neighborhood information including, but not limited to, parking restrictions, restrictions on noise and amplified sound, and trash collection schedules; and

iv.iii. Information to assist guests in the case of emergencies posing threats to personal safety or damage to property, including emergency and non-emergency telephone numbers for police, fire, and emergency medical services providers and instructions for obtaining severe weather, natural or manmade disaster alerts and updates.

b. **Safety Features**

Each short-term rental registrant shall provide, in the premises, working smoke detectors in accordance with adopted codes, at least one working carbon monoxide detector and alarm, and one working fire extinguisher. The premises shall, otherwise comply with all applicable City regulations, including but not limited to Building and Fire Codes.

4.5. **Notification of Approval of Short-Term Rental Registration**

Within 10 days of the approval of a short-term rental registration, the city shall send notice to all property owners within 100 feet of the subject property, and shall include the contact information of the designated Local Emergency Contact 24-hour complaint line, and pertinent information about standards regulating short-term rentals.

Commented [MA15]: The purpose of the Code amendment is to clarify that a RV or a travel trailer cannot be used as a Short-Term Rental.

Commented [MA16]: The purpose of the Code amendment is to clarify that a non-permanent structure cannot be used as a Short-Term Rental.

Commented [MA17]: The purpose of the Code amendment is to consolidate two provisions (i and ii) into one and to clarify the contact information of the designated Local Emergency Contact shall be provided in the Informational Brochure.

~~5.~~6. **Registration Term, Fees, and ~~Renewal~~ Revocation**

a. All short-term rental registrations approved under this DDC ~~shall be valid for a period of one year from the date of its issuance~~shall expire on December 31 of each calendar year.

b. The fee for registration of a short-term rental is identified in the City's adopted Fee Schedule ~~Administrative Criteria Manual~~.

~~The Director may revoke a short-term rental registration Upon receipt of an application for renewal of the registration, the Director may deny the renewal if there is reasonable cause to believe that:~~

~~i. The registrant has plead no contest to or been convicted of a violation of any ordinance of the city, or any state, or federal law on the premises or has permitted such a violation on the premises by any other person; or~~

~~ii. There are grounds for suspension, revocation, or other registration sanction as provided in this DDC or other applicable city codes.~~

Commented [MA18]: The December 31 expiration date is consistent with the registration certificate expiration noted in Section 2 of this Subsection.

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c. In lieu of the revocation standards in Subsection 1.6.5B.4, the Director may revoke a short-term rental registration if the registrant has:

1. Received three notices for violations of the Property Maintenance Code or citations for violations of the Denton Development Code, any other ordinance of the city, or any state or federal law on the premises within the preceding 12-month time period. Examples of such violations include, but are not limited to, noise violations, trash and debris violations, violations for parking vehicles in a manner that impedes the sidewalk or is on an unimproved surface; or

2. Knowingly permitted three notices for violations of the Property Maintenance Code or citations for violations of the Denton Development Code, any other ordinance of the city, or any state or federal law on the premises by any other person within the preceding 12-month time period; or

3. Knowingly made a false statement on the registration application.

d. Notice of the revocation shall be given to the registrant in writing, served by certified United States mail to the registrant's mailing address on record. The revocation shall become effective fourteen (14) days from the date of mailing.

e. ~~The Director's decision is final~~ The Director's decision is final unless the owner files a written appeal pursuant to the procedures established in Subsection 2.8.3: Appeal of Administrative Decision.

f. In the event registrant's short-term rental registration is revoked by the Director and the registrant fails to successfully appeal the Director's decision, no second or additional registration shall be issued for a short-term rental on the premises for 12 months of the date such registration was revoked.

~~6.~~7. **Right to Inspect Premises**

The City of Denton reserves the right, with reasonable notice to the owner, to inspect the ~~residential premises~~ dwelling unit or bedroom to determine compliance with this DDC as well as other applicable city codes.

a. If only a portion of the premises (bedroom) is offered for rent, then that portion, plus shared amenities and points of access, may be inspected.

b. If, upon completion of an inspection, the premises are found to be in violation of one or more provisions of applicable city codes and ordinances, the city shall provide written notice of such violation and shall set a re-inspection date for a violation to be corrected prior to renewal of registration ~~its occupancy~~.

c. Inspections shall be required within six (6) months for all new registrations, when a registration is transferred to another owner, or when additions or modifications are performed to the property which requires a City building permit. Inspections may be required for renewals or upon a violation of any ordinance of the city, state, or federal law.

Commented [MA19]: The purpose of this language is to specify the revocation standards for STRs varies from the procedures outlined in 1.6.5B.4

Commented [MA20]: The purpose of the Code amendment is to clarify that the Director may revoke a Short-Term Rental registration at any time for reasonable cause. In addition, to clarify how and when a revocation can occur.

Commented [MA21]: The purpose of this Code Amendment is to refer to the Subsection in the DDC which outlines the appeals process.

Commented [MA22]: The purpose of the Code amendment is to clarify how and when inspections of Short-Term Rentals can occur.

d. Inspections shall occur between the hours of 8:00 a.m. and 5:00 p.m.; provided, however, that in cases of emergency where extreme hazards are known to exist which may involve imminent injury to persons, loss of life, or severe property damage, the building official or designee may enter the short-term rental at any time and upon presentation of identification without the owner's permission.

Amend Section 5.3.1D Maximum Persons Occupying a Dwelling as follows:

No single dwelling unit shall have more than four unrelated persons residing therein, nor shall any "family" have, additionally, more than four unrelated persons residing with such family. Hotels, motels, bed and breakfast establishments, boarding houses, chapter house, ~~and~~ dormitories, Community Homes, Group Homes, Elderly Housing, and Short-Term Rentals are exempt from this requirement. Additionally, any organization or institutional group that receives federal or state funding for the care of individuals is exempt from this requirement.

Commented [MA23]: The purpose of the Code amendment is to also exempt Short-Term Rentals from the general requirement of Section 5.3.1D.

Amend Table 7.9-I: Minimum Required Off-Street Parking as follows:

Table 7.9-I: Minimum Required Off-Street Parking

Short-Term Rental: ~~1 space per guestroom~~ The maximum number of vehicles allowed at a short-term rental shall be limited to the number of available off-street parking spaces.

Amend Section 9.2 Definitions as follows:

Short-Term Rental
The rental of an entire dwelling unit or bedroom for monetary consideration for a period of time not less than 24 hours and not more than 29 consecutive days ~~less than 30 consecutive days~~, not including a bed and breakfast, boarding or rooming house, hotel, or motel. This definition does not include offering the use of one's property where no fee is charged or collected.

Commented [MA24]: The purpose of the Code amendment is to clarify how long a Short-Term Rental can occur.

Local Emergency Contact
~~An individual other than the applicant, who resides within 20 miles of the subject property, and who is designated by the owner/applicant to act as the owner's authorized agent if the owner has traveled outside of the immediate area or is otherwise unavailable. The local emergency contact should reachable~~ The property owner, registrant, or individual designated by the property owner who is available on a 24-hour basis, have access to the Short-Term Rental Property, and be authorized ~~by the owner to act in the owner's absence~~ to address any complaints, disturbances, and emergencies.

Commented [MA25]: The purpose of the Code amendment is to simplify the definition of Local Emergency Contact.

Short-Term Rental Survey

SURVEY RESPONSE REPORT

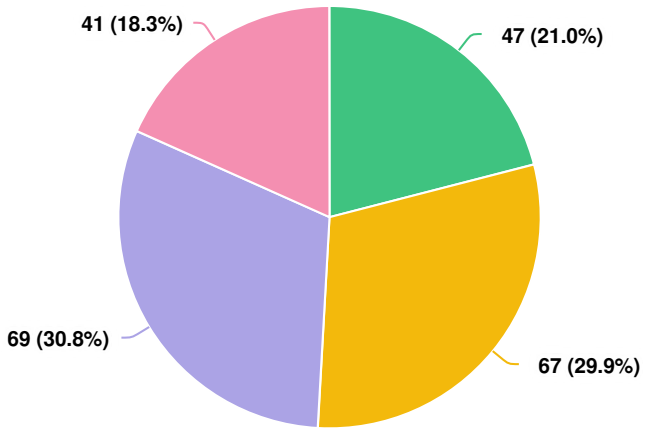
18 August 2023 - 11 September 2023

PROJECT NAME:
Short-Term Rental

BANG THE TABLE engagementHQ

SURVEY QUESTIONS

Q1 When traveling, how often do you use short-term rentals?

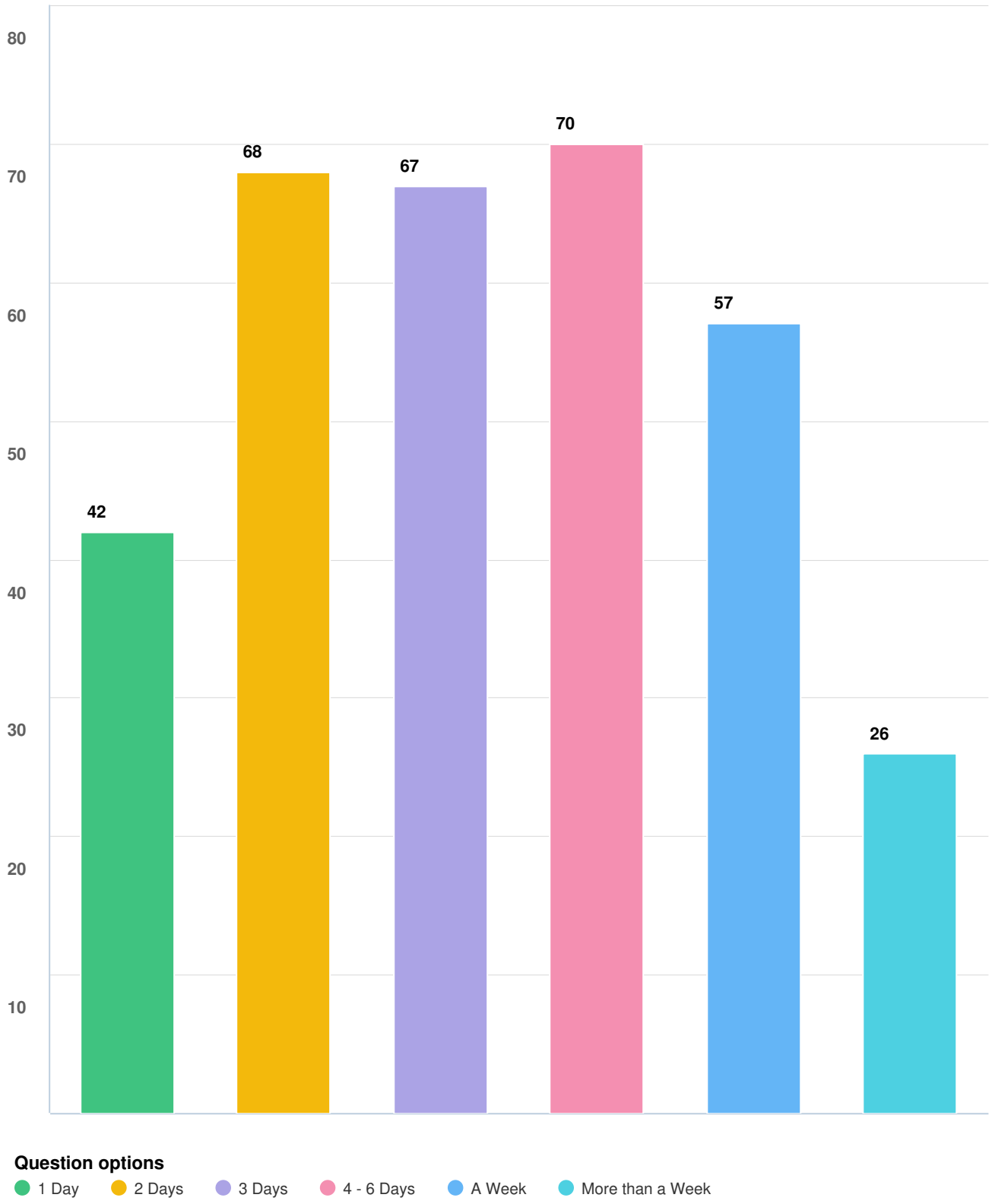


Question options

- Always/Often
- Sometimes
- Rarely
- Never

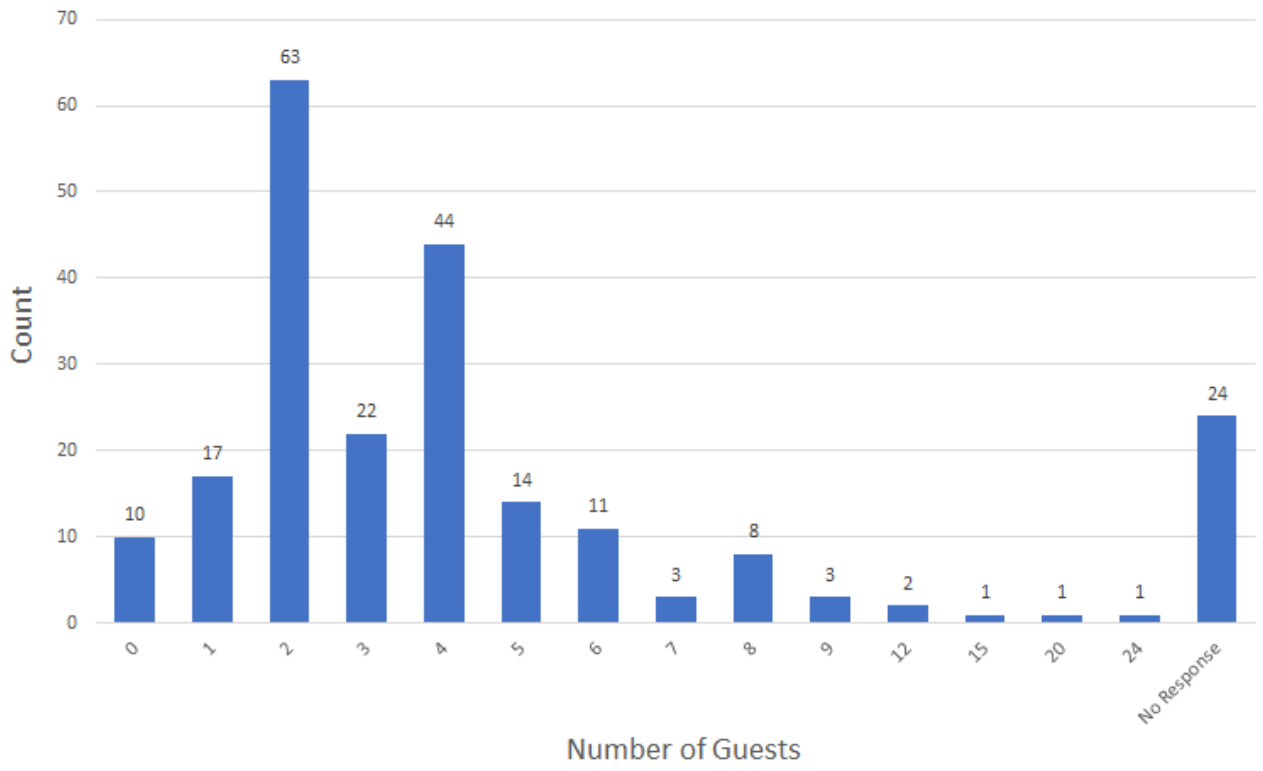
Optional question (224 response(s), 0 skipped)
Question type: Radio Button Question

Q2 How long have you stayed at a short-term rental?Click all that apply.



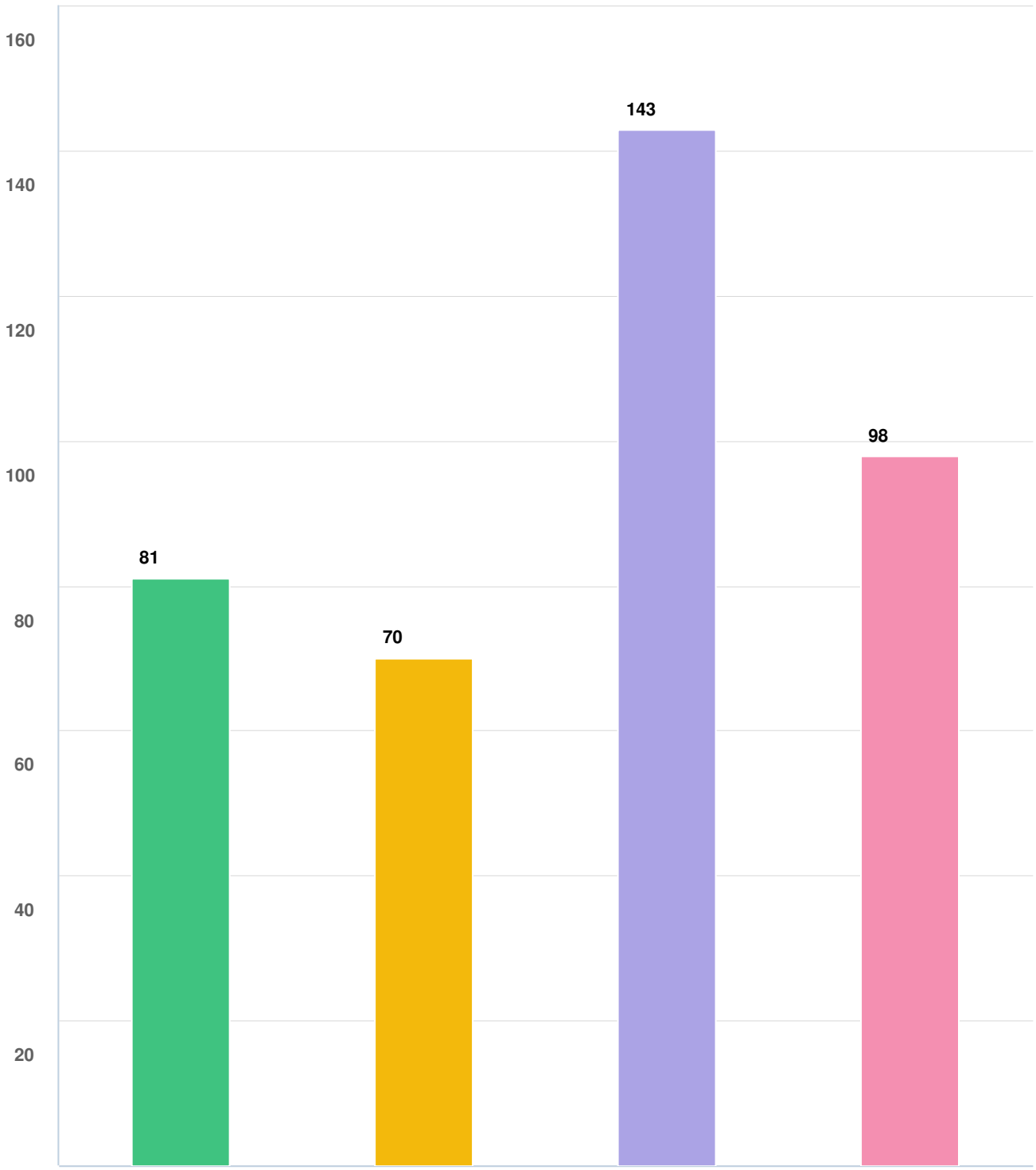
Optional question (193 response(s), 31 skipped)
Question type: Checkbox Question

Q3 How many guests (including yourself) do you normally stay with in a short-term rental?



Optional question (200 response(s), 24 skipped)
Question type: Number Question

Q4 Where were the short-term rentals you have stayed at located? Click all that apply.

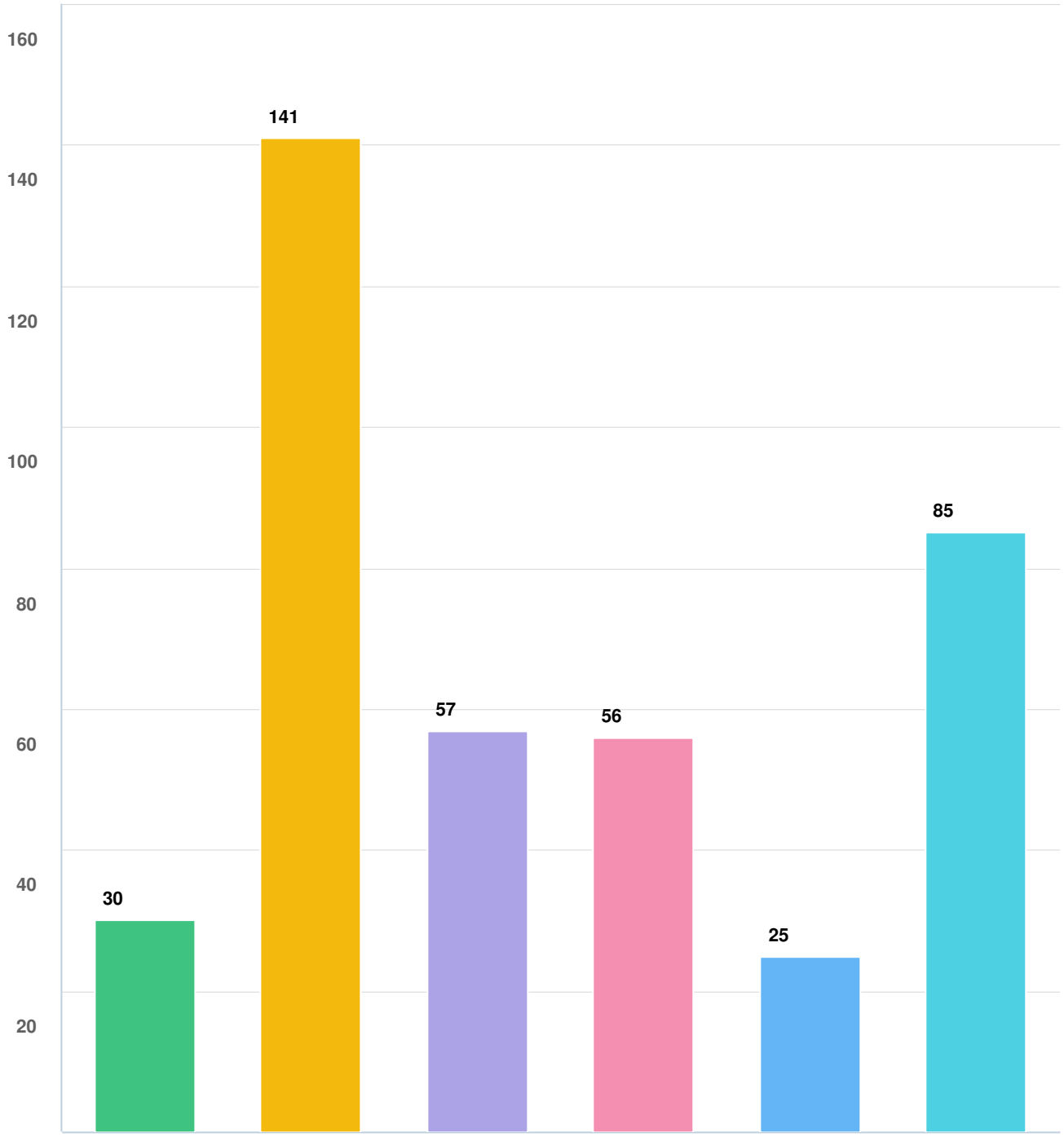


Question options

- Downtown Area
- Near Shopping and Restaurants
- Near a Beach, Mountain, or Lake
- Residential Neighborhood

Optional question (190 response(s), 34 skipped)
Question type: Checkbox Question

Q5 **What type of dwelling places are the short-term rentals you have stayed at been?Check all that apply.**

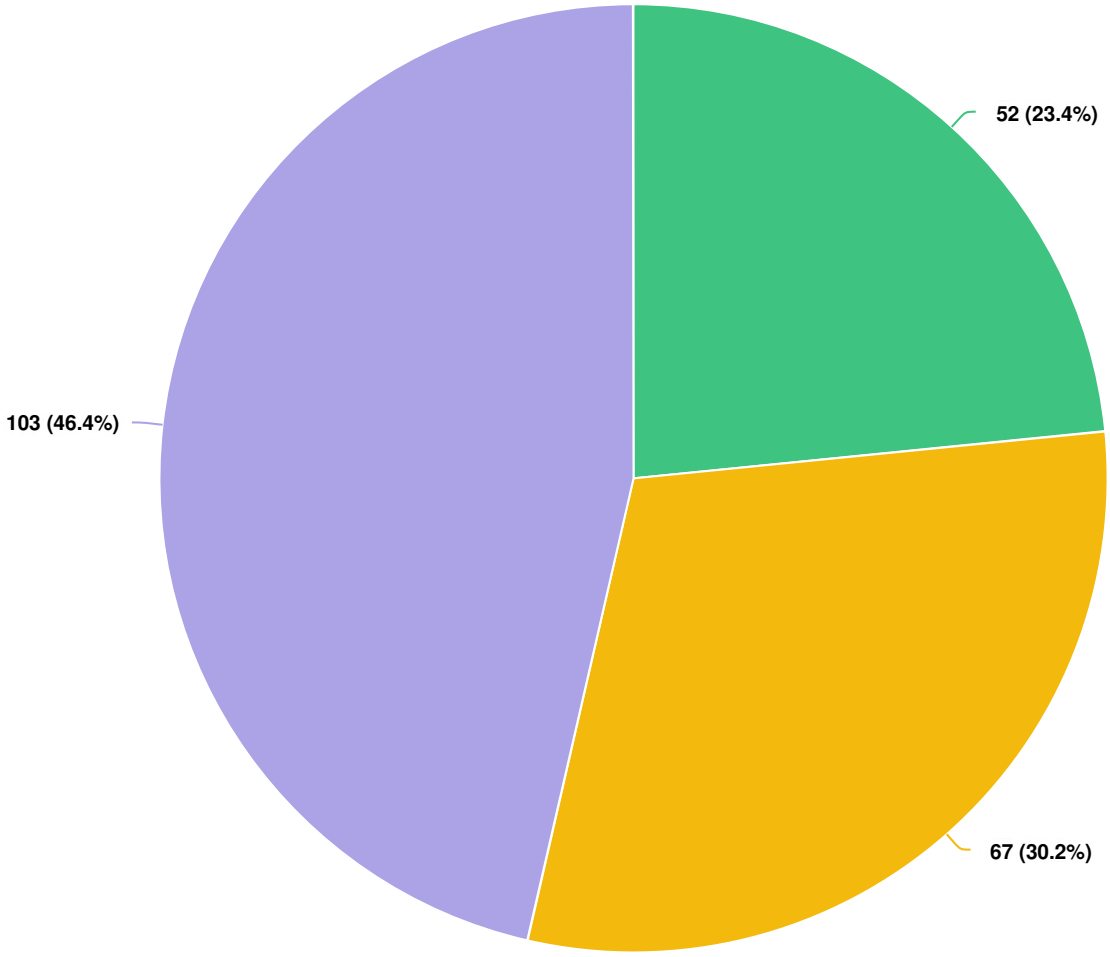


Question options

- Bedroom
- Single-Family Detached Home
- Accessory Dwelling Unit (granny flat, garage apartment, mother-in-law suite, etc.)
- Townhome
- Duplex
- Apartment/Condominium

Optional question (191 response(s), 33 skipped)
Question type: Checkbox Question

Q6 Do you currently live near a short-term rental?



Question options

- Yes
- No
- Unsure

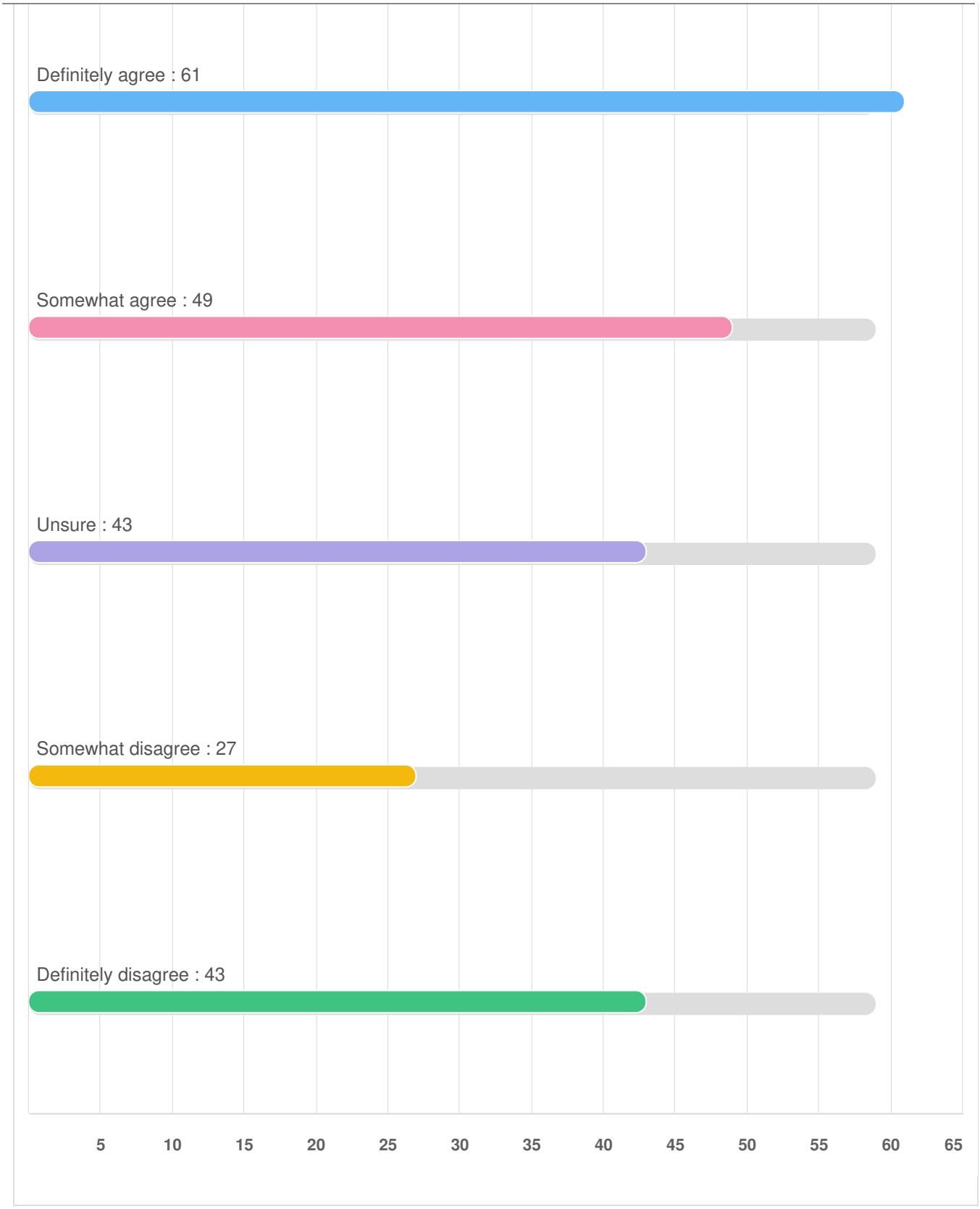
Optional question (222 response(s), 2 skipped)
Question type: Radio Button Question

Q7 **As short-term rentals register in Denton, which of the following experiences associated with short-term rentals do you think will happen?Rank all that apply on a scale from "definitely disagree" to "definitely agree".**

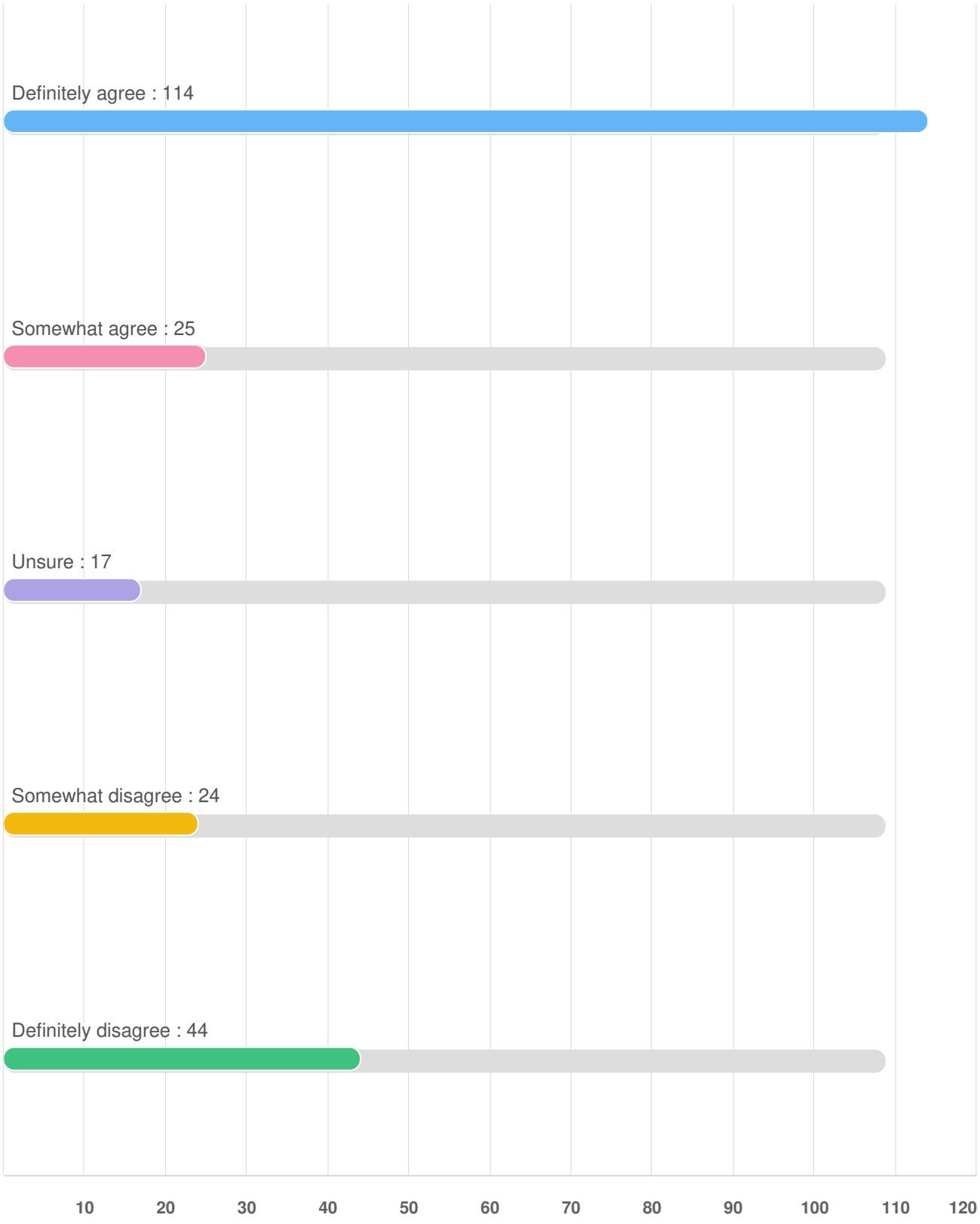
Optional question (224 response(s), 0 skipped)
Question type: Likert Question

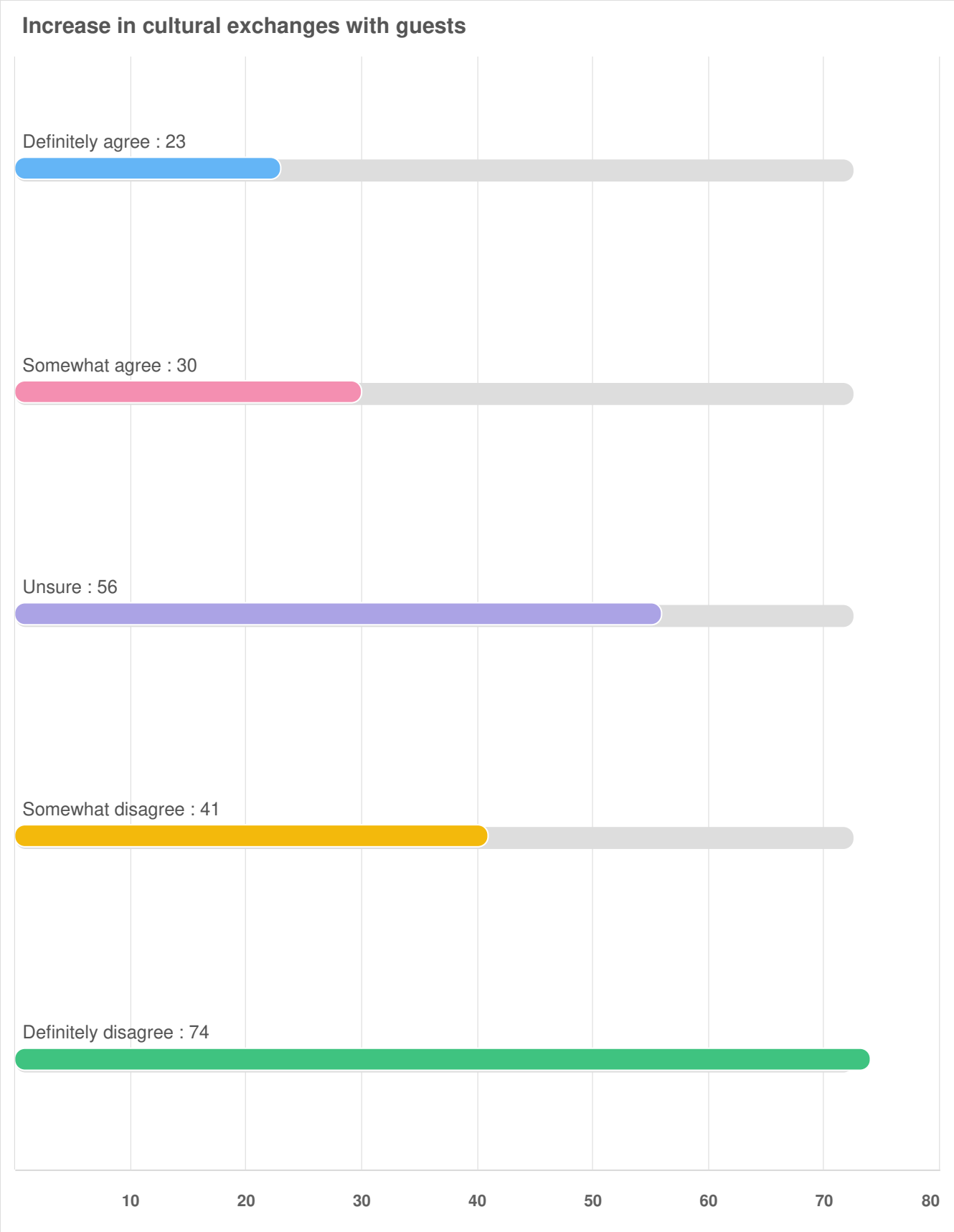
Q7 **As short-term rentals register in Denton, which of the following experiences associated with short-term rentals do you think will happen?Rank all that apply on a scale from "definitely disagree" to "definitely agree".**

Increase in convenient lodging for guests

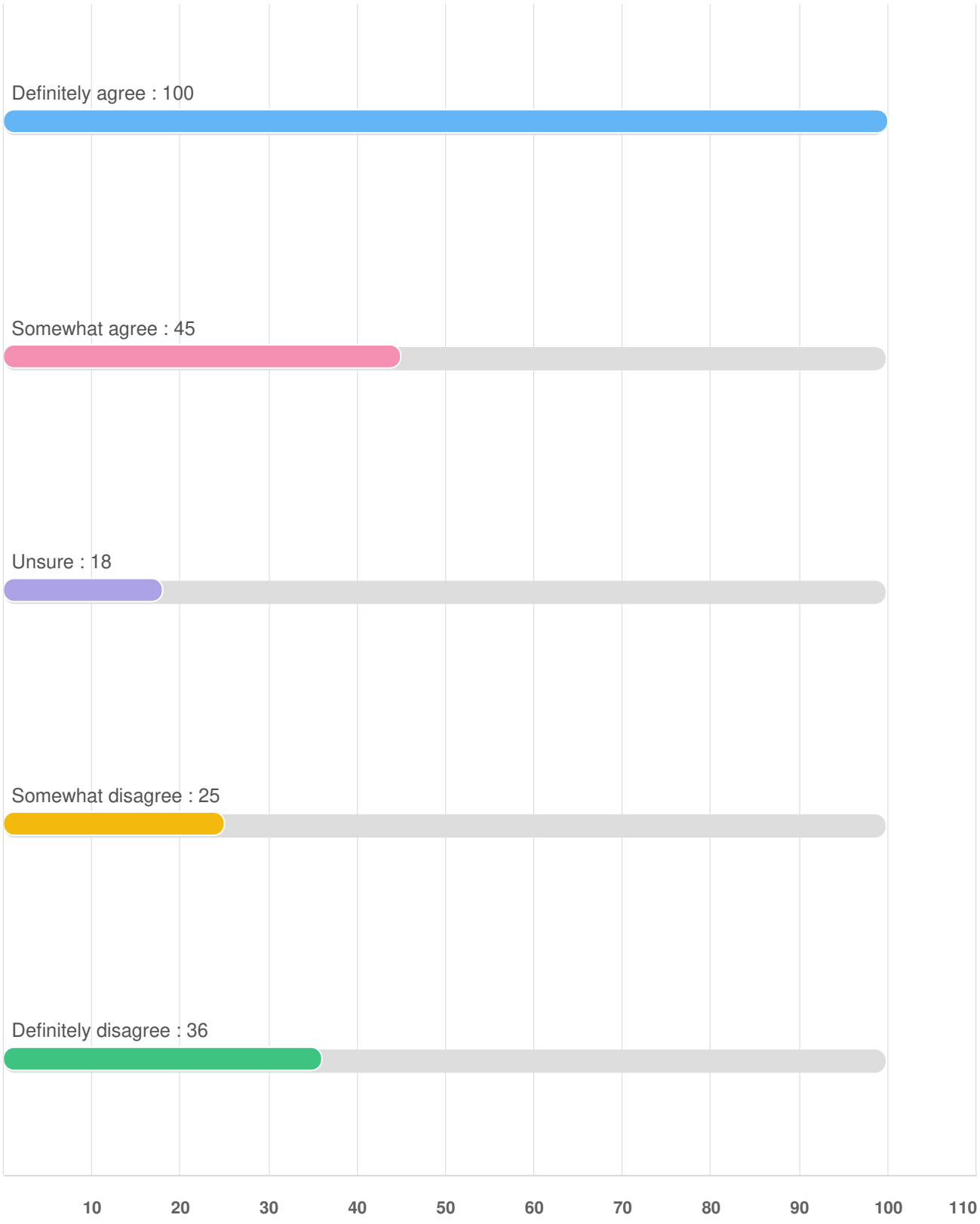

Definitely agree : 61
Somewhat agree : 49
Unsure : 43
Somewhat disagree : 27
Definitely disagree : 43
5
10
15
20
25
30
35
40
45
50
55
60
65

Decline in neighborhood character

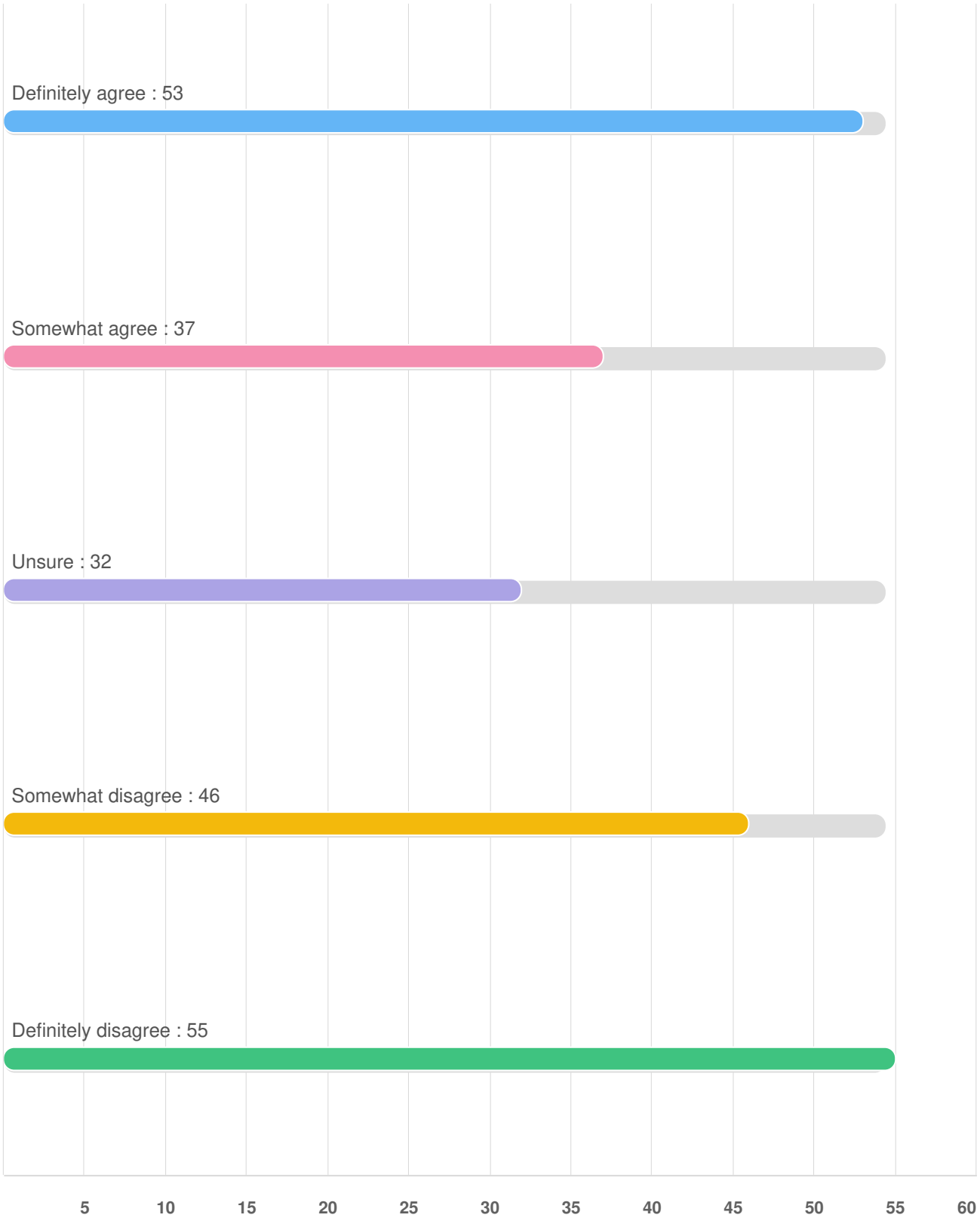



Increase in cultural exchanges with guests
Definitely agree : 23
Somewhat agree : 30
Unsure : 56
Somewhat disagree : 41
Definitely disagree : 74
10
20
30
40
50
60
70
80

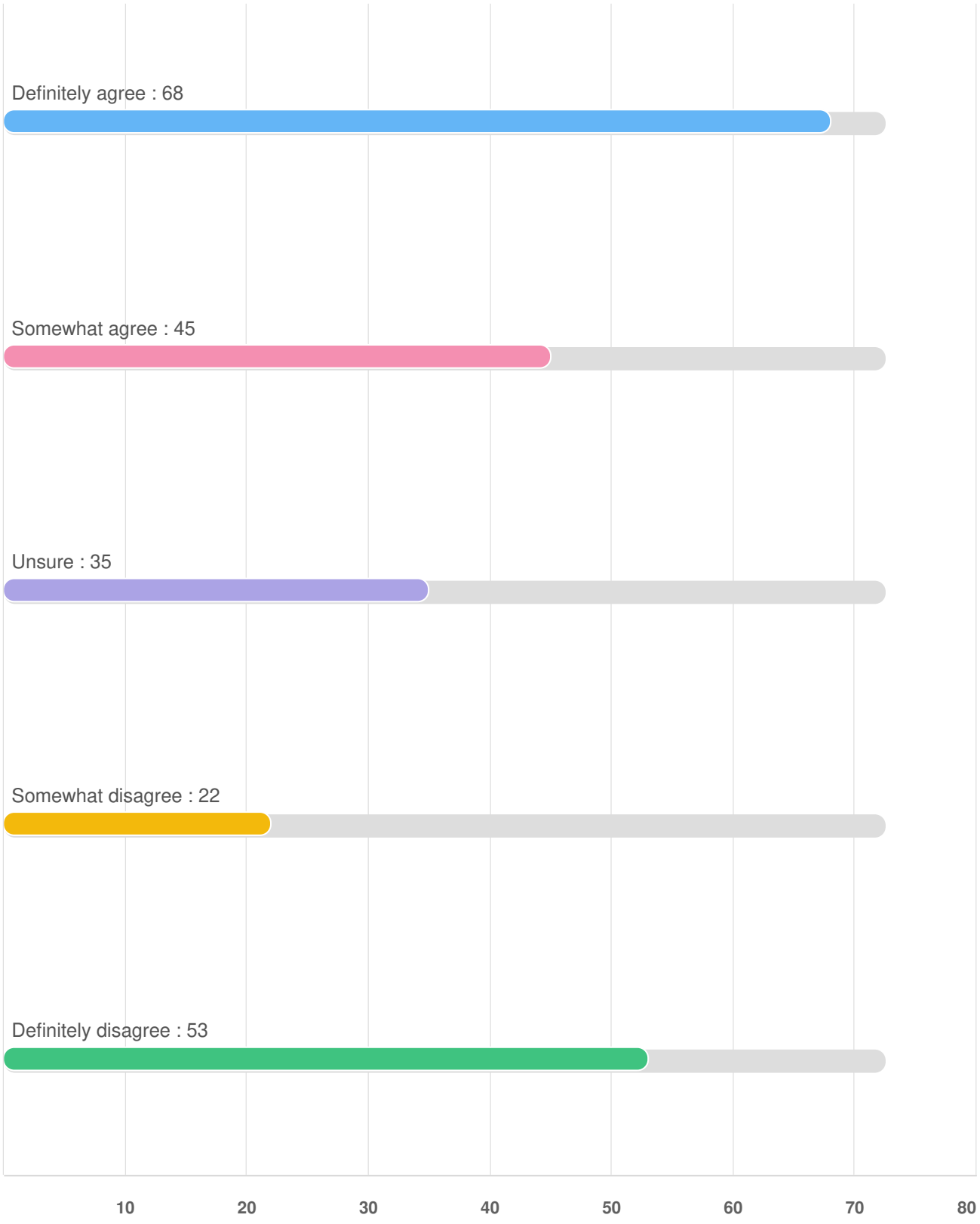
Guests having large parties



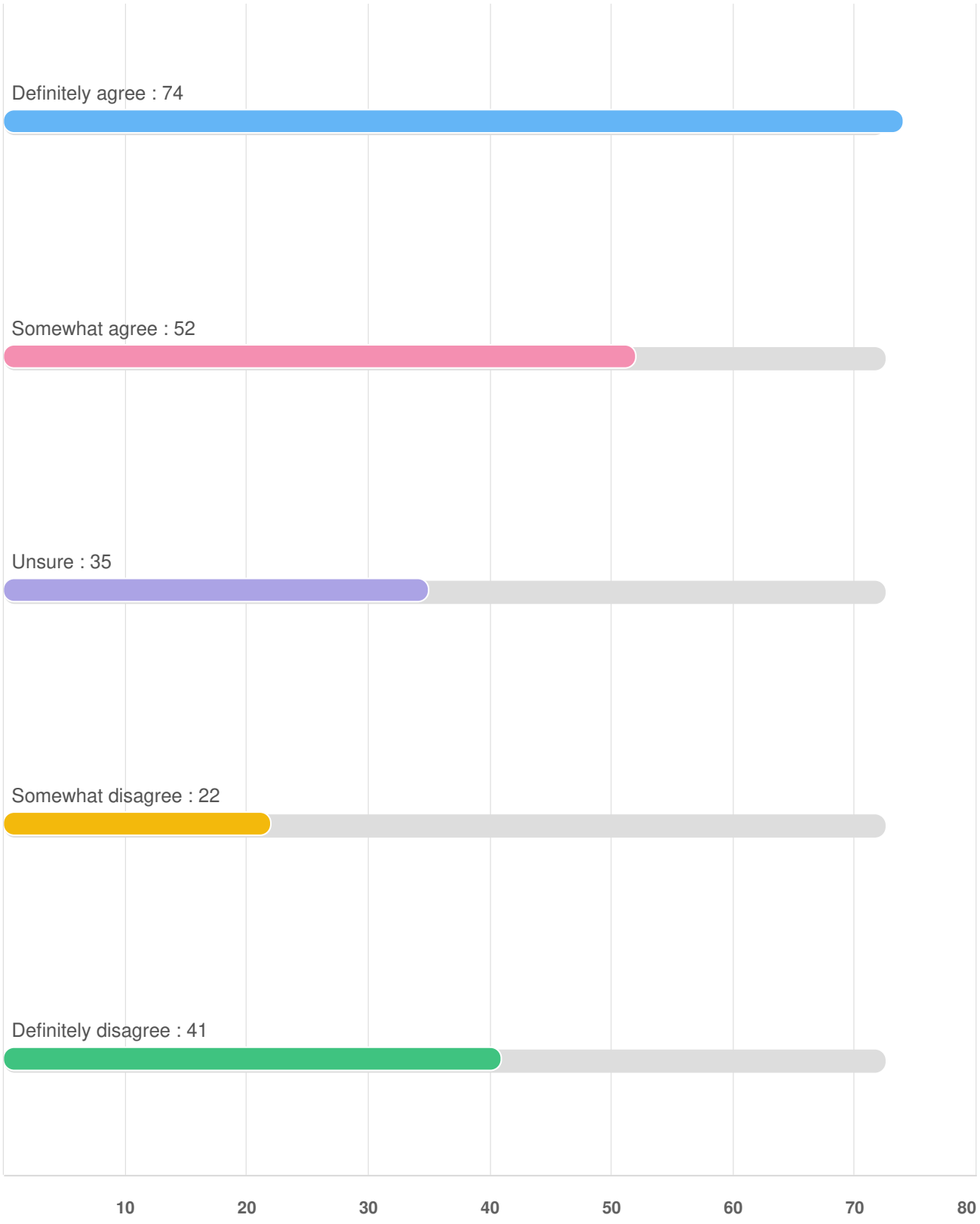
Positive economic impacts to surrounding businesses



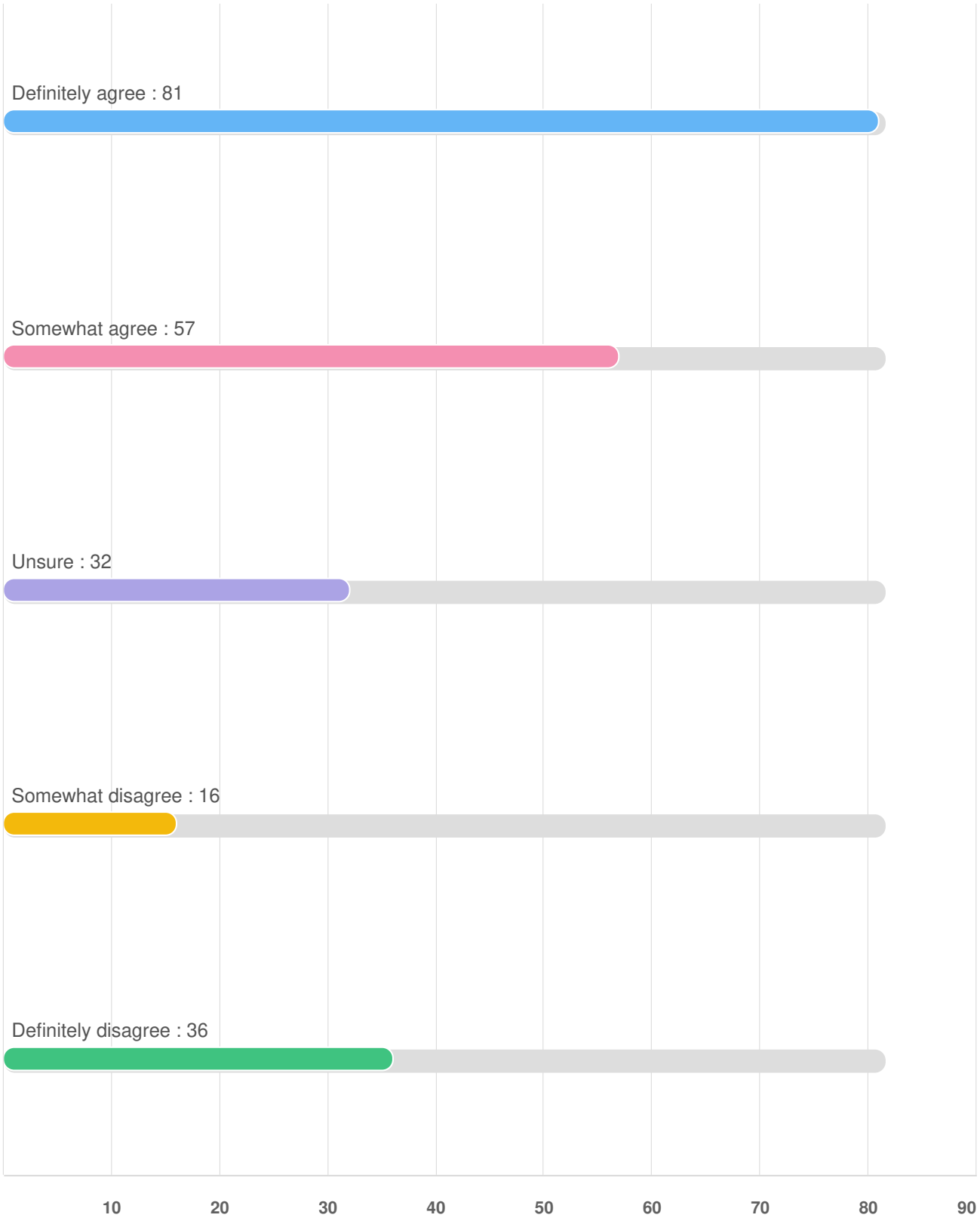
Increase in criminal activities



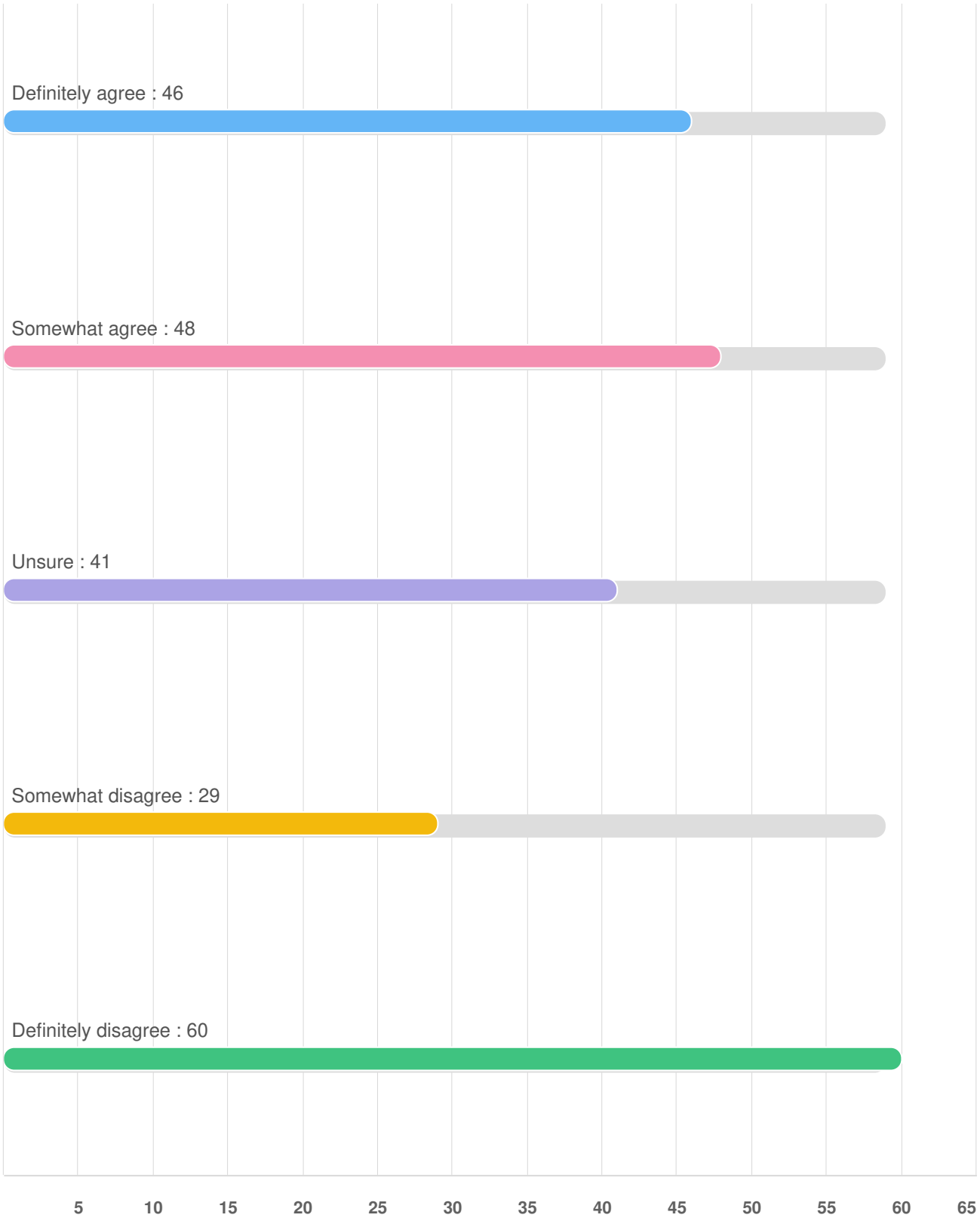
New financial opportunities for property owners

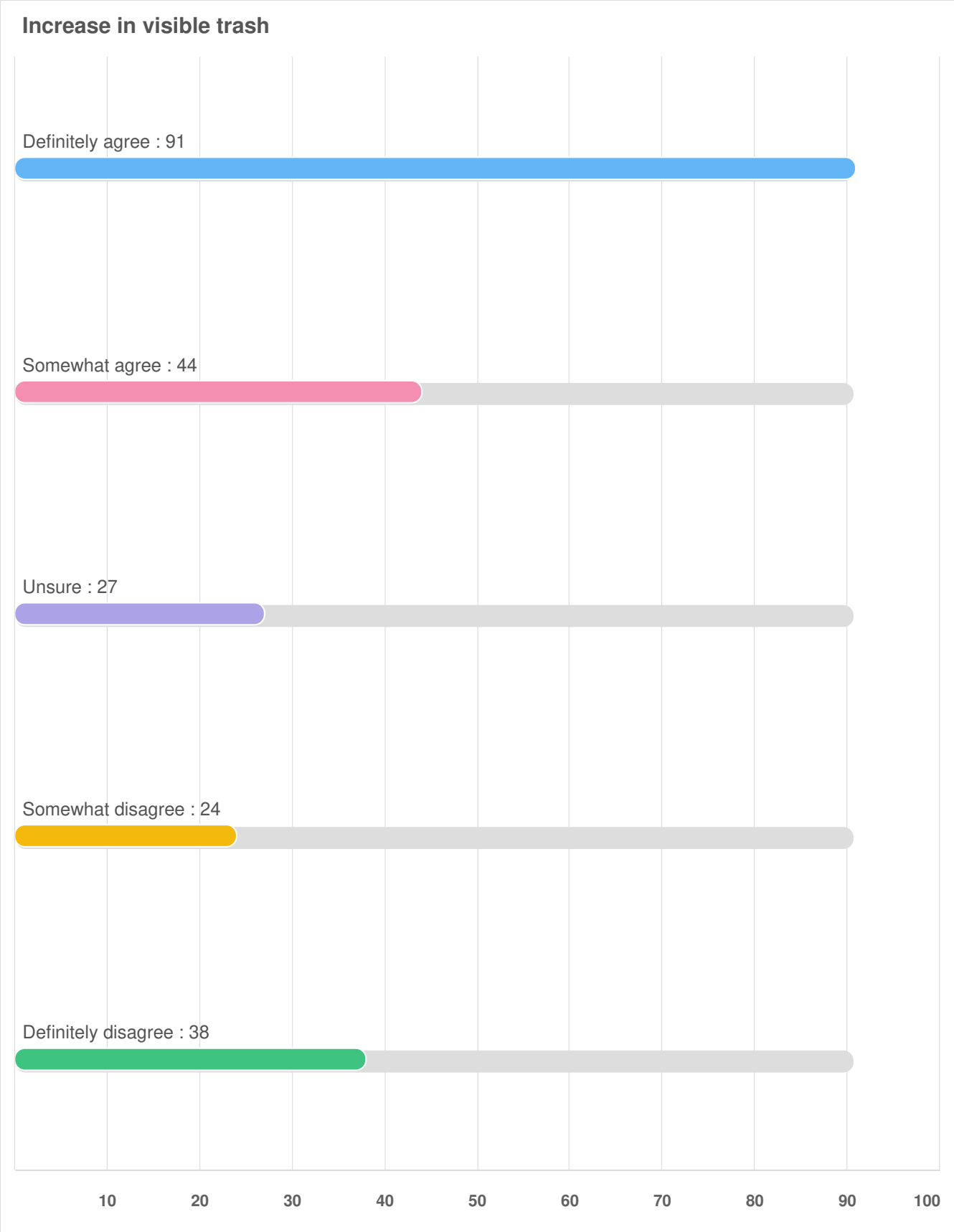


Increase in maintenance of homes

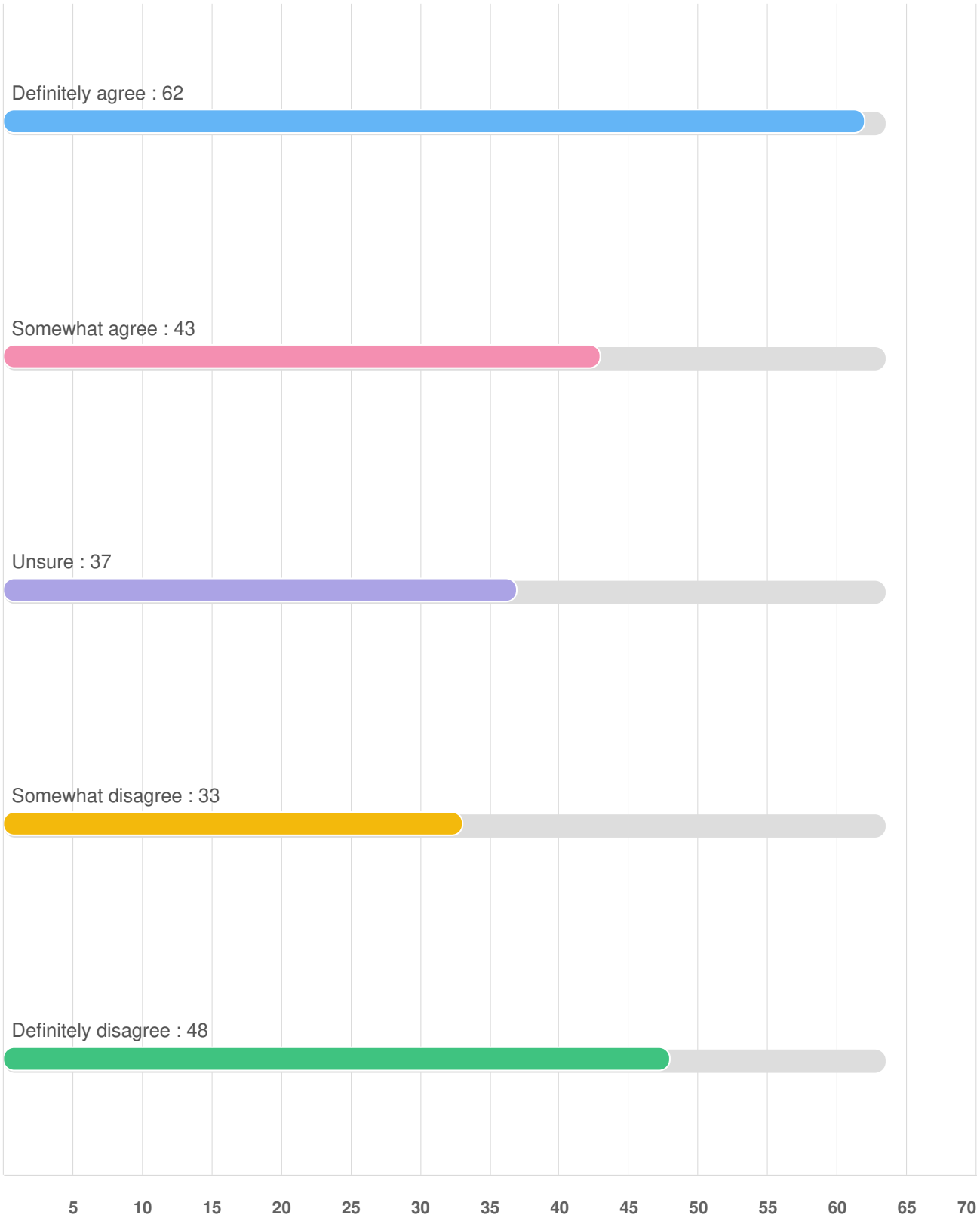


Renovation of neglected properties

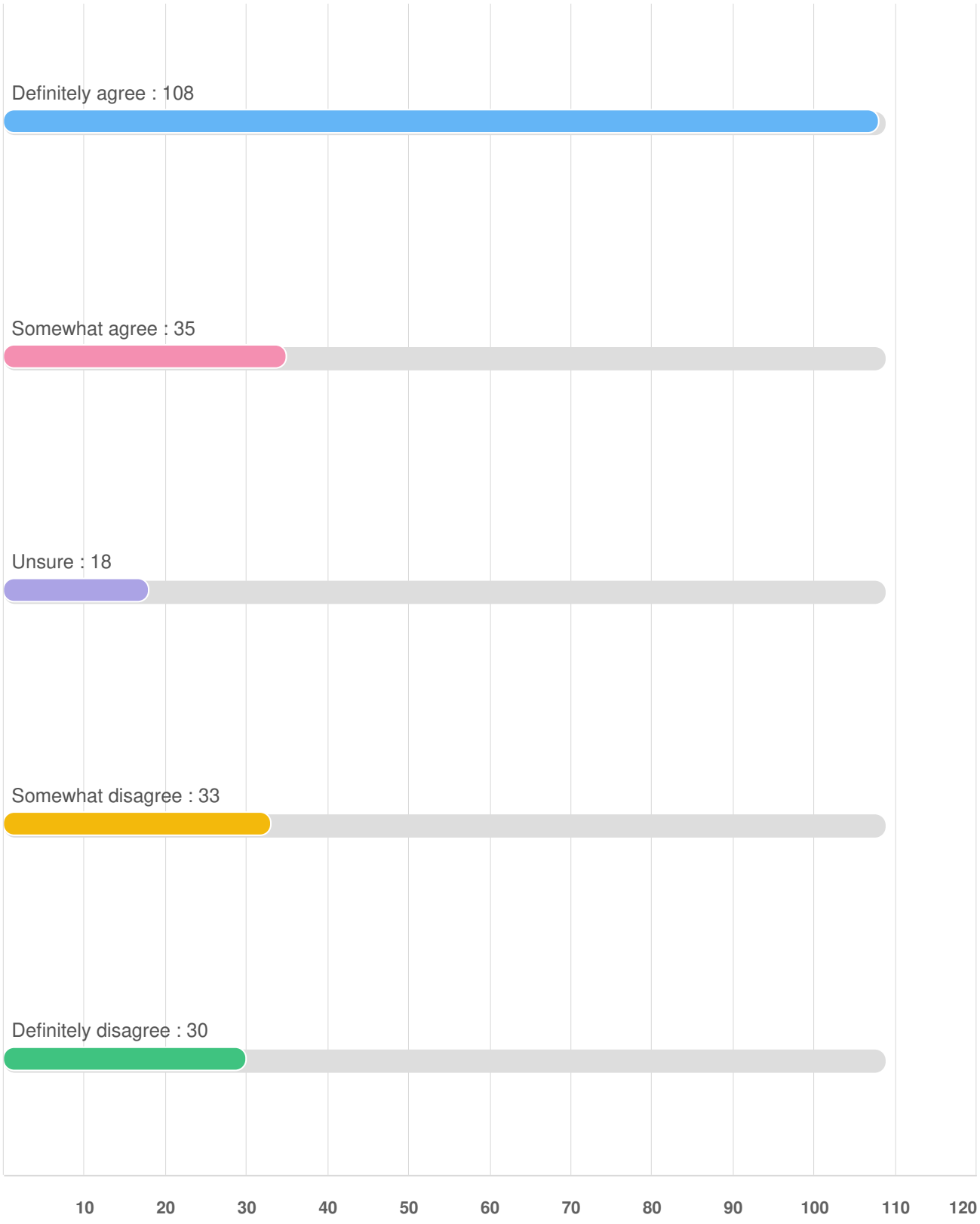


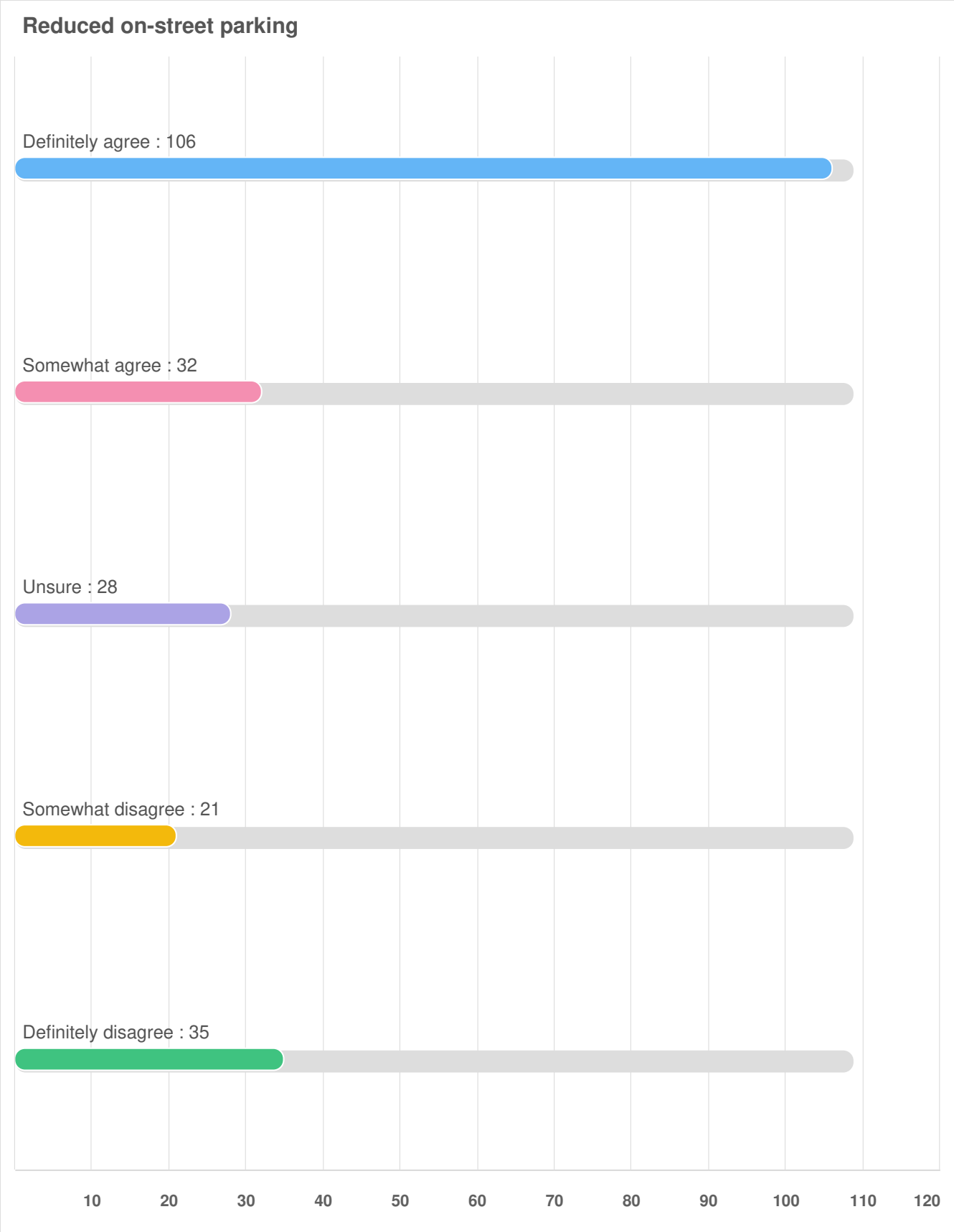

Increase in visible trash
Definitely agree : 91
Somewhat agree : 44
Unsure : 27
Somewhat disagree : 24
Definitely disagree : 38
10
20
30
40
50
60
70
80
90
100

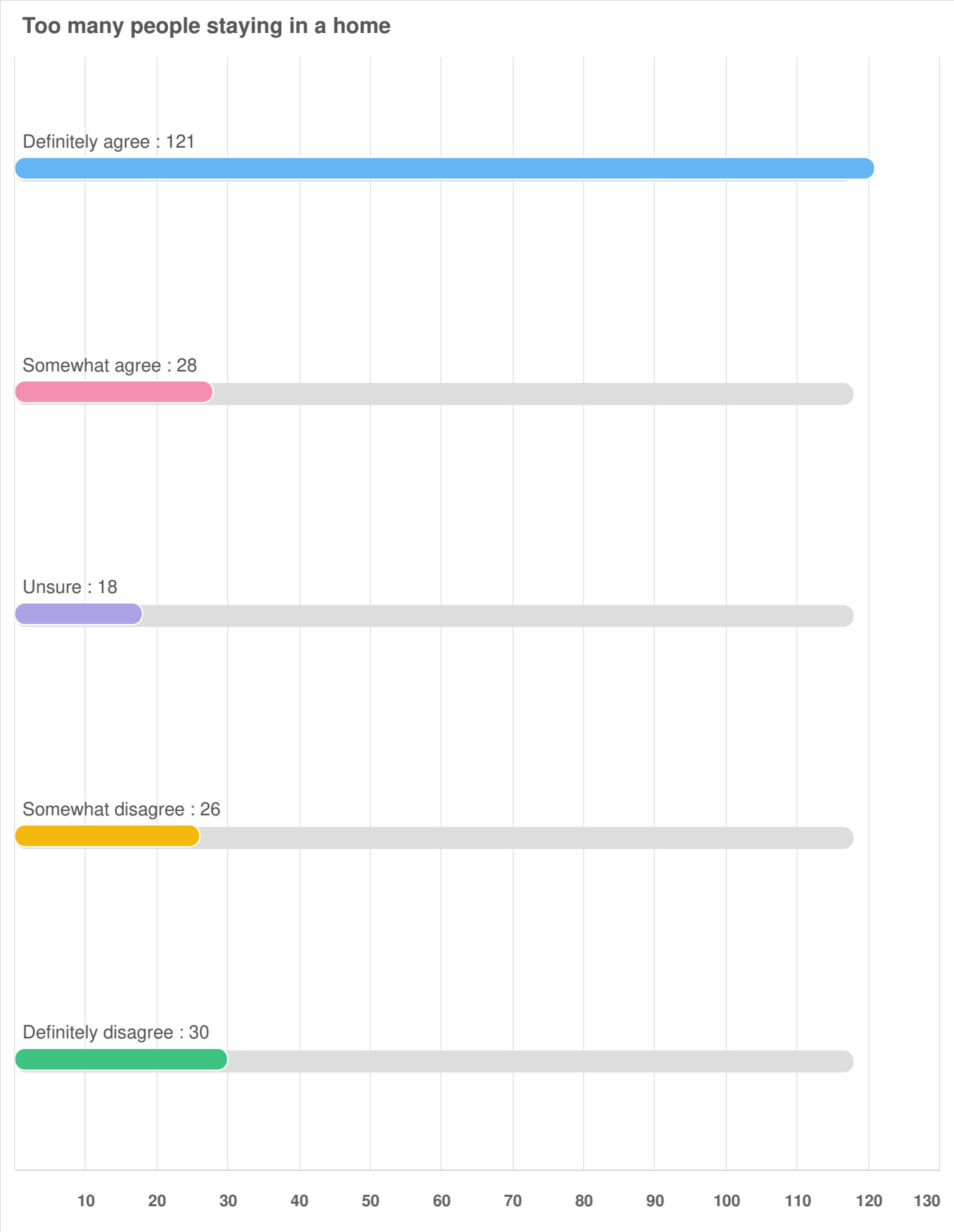
Increase in unique lodging experiences for guests



Increase in loud noises




Reduced on-street parking
Definitely agree : 106
Somewhat agree : 32
Unsure : 28
Somewhat disagree : 21
Definitely disagree : 35
10
20
30
40
50
60
70
80
90
100
110
120



Q8 **Are there experiences you think you will have that are not mentioned above? Please explain**

As long as STR owners are diligent and enforce their rules, STR's will only have a positive impact on Denton.

Increased visits to local establishments

Homeless persons renting rooms. Guests watching residents as they try to live their daily lives

Cheaper prices for travelers. Lower inflation. Help small business.

One big downside is that it will push rents up by deceasing the supply of long term rentals. This will adversely impact renters who live sbd work year round in Denton.

I believe that people who manage multiple short term rental properties will make affordable housing less available for residents and people who really need a place to live.

Serving out-of-town guests as ambassador for Denton

More accidents, decreased owner occupied homes, increased out of town investment, lose of character of neighborhood

This is a residential neighborhood, not a commercial one which is where these HOTELS ....called short termed rentals....are located. These are rented for reunions and parties. Why mess up your own house when you can use someone else's? True.

Our neighborhood is a single family home. Not meant for more.

Absentee landlords typically do not take care of their properties.

Decrease in student/inexpensive housing.

I do not want short term rentals!

decline in property value for established sing family neighborhoods

I believe the rental market is grossly distorted by short-term rentals operating in the city. The negative impact on affordability is immense when spaces that might otherwise be rented to long-term tenants are instead used for short-term rentals.

There are indicators of guests who could be trouble or have parties. I think educating host on the indicators would be beneficial in your process.

Short term rentals have a dark side. I worked in the industry. Prostitutes and drug dealers do business in short-term rentals. People have affairs in short-term rentals. People commit suicide in short-term rentals. I don't want this in my neighborhood

Rental properties become eyesores. No one maintains the yard, picks up trash, etc…

I did live next to a house that was being used as a AirBNB, and the noise was awful. Very disrespectful and no recourse for me.

Allowing short term rentals like this will prevent families from being able to own homes

It will decrease the availability of housing as well as affordable housing in a city that already does not have enough housing.

lowers the availibility of affordable housing for residents

My major and most serious concern is the impact on the supply of affordable homes for Denton residents. My second concern is large out-of-town corporations sucking up the housing stock, be it BnBs or

long-term rentals.

Unnoticeable. Most short-term rentals are invisible. I don't know if my neighbors are renters, owners, short-term rentals. The house next to us has been empty for two years as owners want way to much in rent which is far worse to have empty unused homes.

The Denton housing market is already absolutely ridiculous, and people and companies buying homes to use for STR only makes it more difficult for residents to have a chance at home ownership in their hometown.

I'm concerned because people who are looking for a primary home are competing with investors who can pay cash for affordable properties and rent them out to tourists. We have too many people without affordable housing and I believe that takes priority.

An increase in short term rental properties could add more traffic through residential neighborhoods.

A lack of affordable housing for residents who live and work in denton

greater traffic trough the neigborhood

Short term rentals, like Air BNB, take rental and ownership out of the hands of people who want to live in Denton, and instead give a more expensive option than the hotels we already have for people visiting Denton.

Outside of an expectation that registration of these dwellings will increase the likelihood of oversight, I don't know what the effects would be. I hope registration creates oversight rather than advertising the viability of investment properties here.

There is no longer a sense of community and pride in homeownership.

Noise issues - people arriving late night. Parking in front of mail boxes and driveways, trash left over, increase in trash in bins

Hearing via news/online and news of situations occurring in neighborhoods that would normally not occur. This includes parties, fights (with and without guns), parking issues as well as trash.

In residential neighborhoods no idea if sex offender is temporarily there or criminal with added security risk for residents and young children walking and playing in neighborhood. Also additional vehicles parking on our narrow curved streets…dangerous.

Decreased sense of community among neighbors. Our city prides itself in having that small town feel. With a constant rotation of strangers that's hard to sustain.

Too many short term rentals causes housing prices to skyrocket into unaffordable rates for EVERYONE. It’s very harmful.

An increase in residents' calls to law enforcement; a lack of response from law enforcement to residents needs; a decrease in response time from law enforcement to needs not related to str's; a decrease in property values in surrounding properties;

There are already apartments being used for short term rentals probably without property management knowledge

Increased neighbor complaints if they don’t want a rental house near them.

Gunshots more often, drunks roaming the street and driveway areas, strangers in our neighborhoods, etc.

Less community nurtured in the neighborhood

No

Violence and gun violence.

Giant parties at short-term rentals can result in violence

they reduce the number of long term affordable houses

No

College and high school parties are problems

Having five or six cars and them parking in front of mail boxes and across sidewalks

More crime than we already have

Racing up & down our street has increased over the passed few years with the addition of apartments & businesses.

Decline in nearby housing value. Nobody willingly buys a family home next door to a short term rental.

Feeling unsafe

Decrease in available long-term housing both rented and owned.

All of the short term rentals that we have stayed in both in the US and abroad have definite rules to be followed.

General crime and vandalism & unwanted people prowling the neighborhood. Maybe coming back later to do harm/damage.

No

These places are needed

Yes, inappropriate parties. A friend of ours neighbors home is a short term rental and is used for pornography films, drug parties and so on

Bringing under age drinking and drugs into quiet neighborhoods.

Its the best thing for the economy.

Already experiencing problems with a single short term rental on our street. Party goers parking everywhere & walking to house

na

Making new friends with the hosts.

I think STR's would bring problems to residential neighborhoods

Because VRBO and AirBnB use property review rating systems, property owners must stay on top of maintenance to avoid negative reviews that impact booking.

Most house property owners are not comfortable w/strangers in their neighborhoods, especially if they have children or are elderly.

Downtown Denton is a hotel desert. As such, every time I bring in business guests to Denton, everything they do from meetings at our offices to grabbing a drink to having dinner is done downtown - all except for lodging. AirBnBs in the area help.

Increased crime

I have had experience in a quiet neighborhood when a short term rental came in and suddenly there were unfamiliar cars speeding up and down the street at all hours of the night.

I am fully against STR in residential areas

Drug dealers, sex traffickers

Need to have a city permit for each new booking and inspect property from last rental. Shirt term rentals should NOT be in residential areas. Backgrounds of rentals should be checked for felons and pedaphyls.

increased crime, drug,sex trafficking and drunk driving on local streets loud parties with many people too many guests failure the background check all guests

Decreases access to long term rentals for current residents looking for affordable housing and drives up cost of rent due to property scarcity.

Potential illegal activities, like trafficking or prostitution.

Short Term Rentals lead to decreased property values. They take away from "community living", and make neighborhoods less "friendly".

As people buy up homes to turn into short-term rentals, that means less property for first-time home buyers and others looking for starter homes. This is why I do not support the expansion of short-term rentals as convenient as they may be for tourists.

This will increase criminal activity and having different guest that are on vacation being loud will disturb the people that live in the neighborhood.

Increased celebration of Denton as a destination spot in North Texas.

the STR in my neighborhood has one of the nicest landscaping and the house is well maintained. The owner lived in this house for years and is still a great neighbor

Worried for my children and others children that play outside. Random people, no background checks, renting rooms in homes nearby

Decline in property values for neighboring homeowners

There is not a way to police this and it will be the property owners near the STR that suffer.

Yes. As the Universities in our city force upperclassmen into apartments, as UNT has, more of the seniors and graduates will be looking for homes. We cannot fill them with vacationers and rob people of a place to live.

No

Lived next to a STR trailer that dumped gray water down the driveway.

Homeless

We've had issues with rental properties on long term and had issues.

There was no mention of the decrease in foreclosure properties that will result from allowing short term rentals . If short term rentals are not allowed many will lose a source of income and therefore possibly face foreclosure. Consider prop owner rights

The opportunity for Denton to continue to be a unique destination where other cities are squashing the same opportunity.

“Guests” are not members of the community and have short term interests that generally conflict with residents interests. Keep the hospitality industry in parts of the city zoned for commercial activity. Residential zoning should not be trespassed with

Decline in affordable housing in this city where we have an affordable housing crisis.

Less availability for long term rentals and home buyers

Lack of available housing for residents

Decreased property values, increased drug activity & crime

These experiences will depend on if private companies or individuals with multiple properties are able to do short term rentals. When the owners and operators are not part of the local community

ST rental companies I’ve used do an excellent job vetting guests and hosts are able to get a good idea of who is staying. I’m very respectful as a ST guest bc I don’t want to lose my future privileges. ST rent is the best way to truly see a town.

Unknown people staying in homes near homes where children live and play possibly creating an unsafe environment.

n/a

increase in traffic

I think it could devalue a neighborhood, depending on whether or not the owner maintains the property and enforces the rules.

We do have a short term rental near us and it has only caused a noise problem one time with very loud music late into the night.

Upset neighbors that couldn't be pleased anyway.

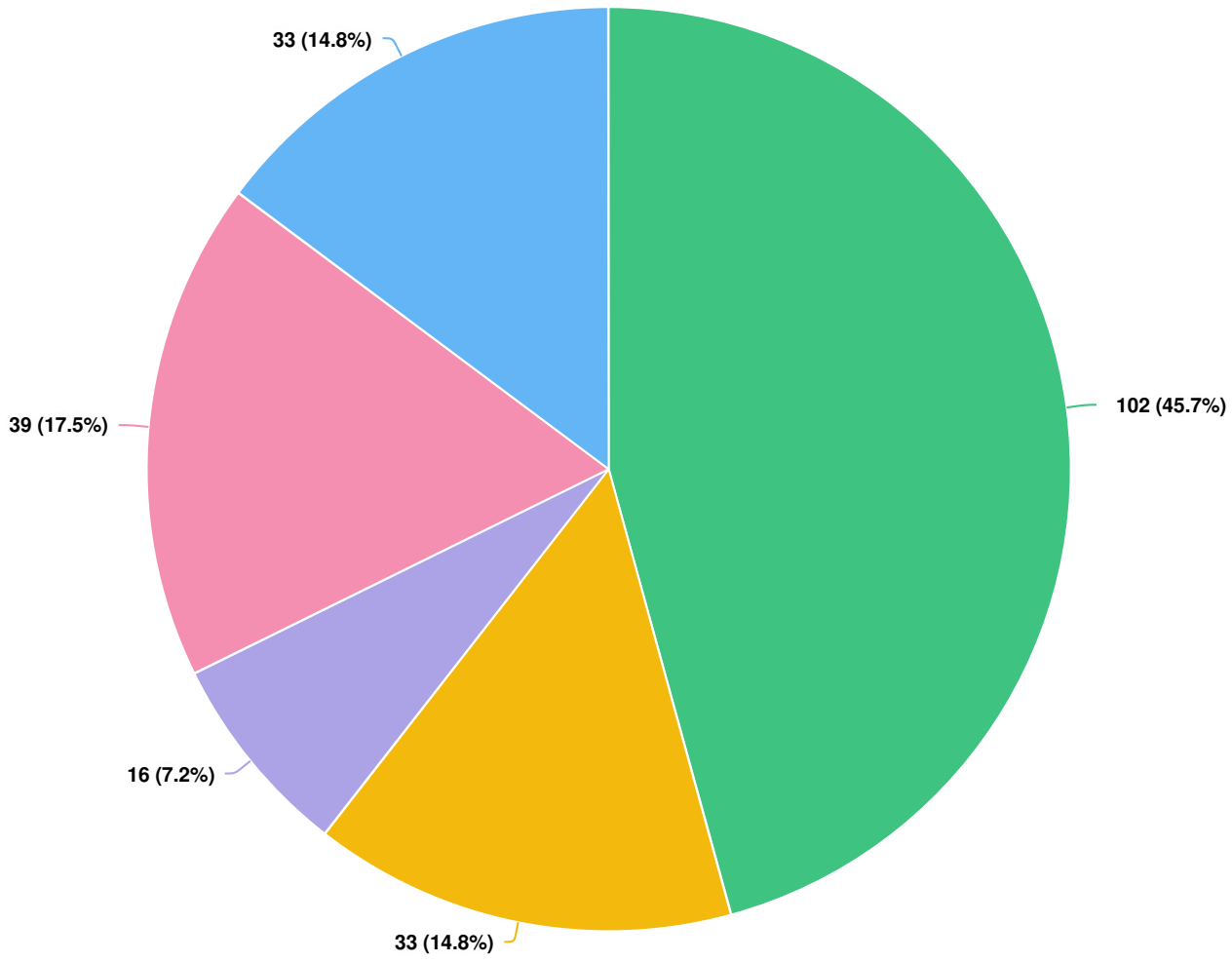
There will be increases of large parties

Short term renters are not concerned about the neighborhood. They are typically satisfying there lodging and entertainment interests.

decline in residential property value

Optional question (107 response(s), 117 skipped)
Question type: Single Line Question

Q9 If a short-term rental registers in your neighborhood, how would you feel?

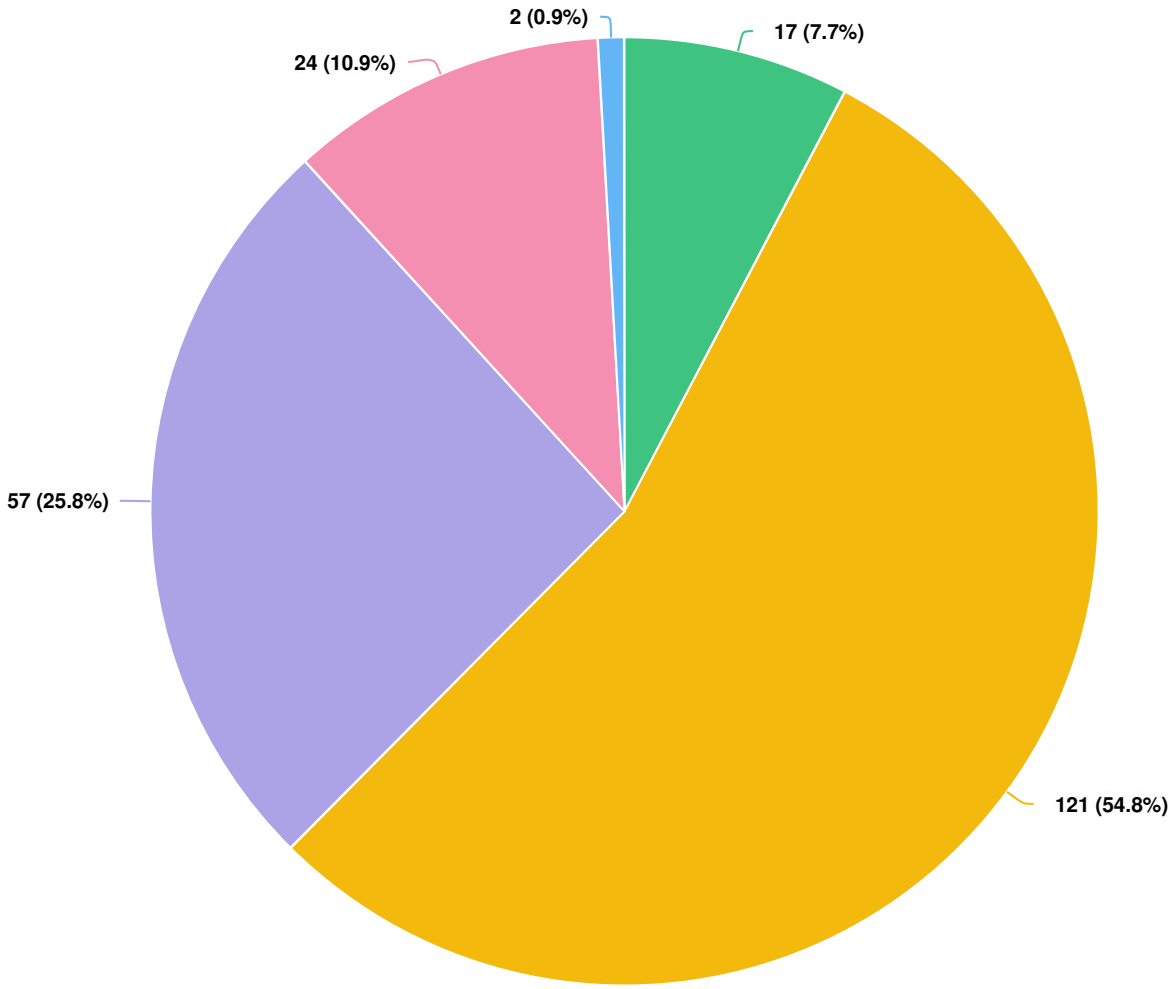


Question options

- Very Comfortable
- Comfortable
- Unsure
- Uncomfortable
- Very Uncomfortable

Optional question (223 response(s), 1 skipped)
Question type: Radio Button Question

Q10 **If a short-term rental registers in your neighborhood, how do you think it would affect your property value?**

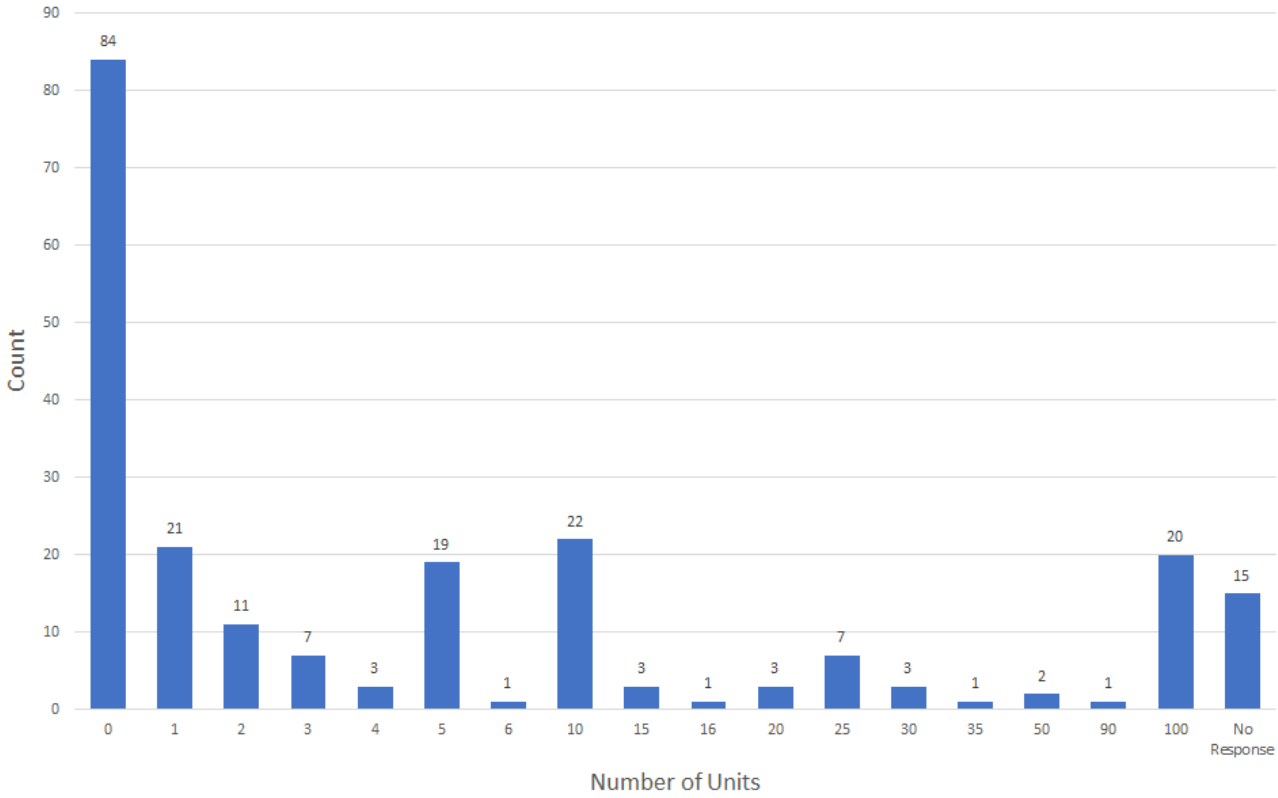


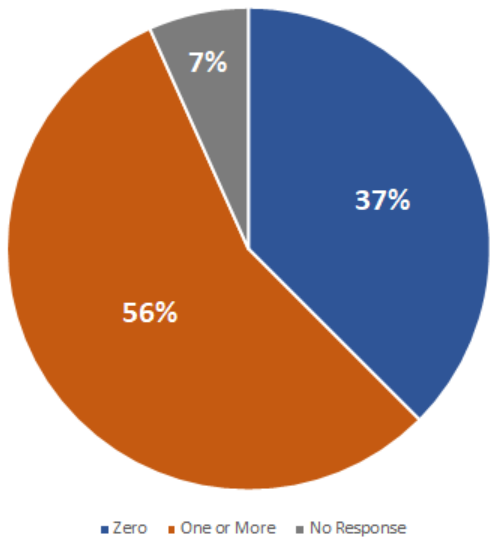
Question options

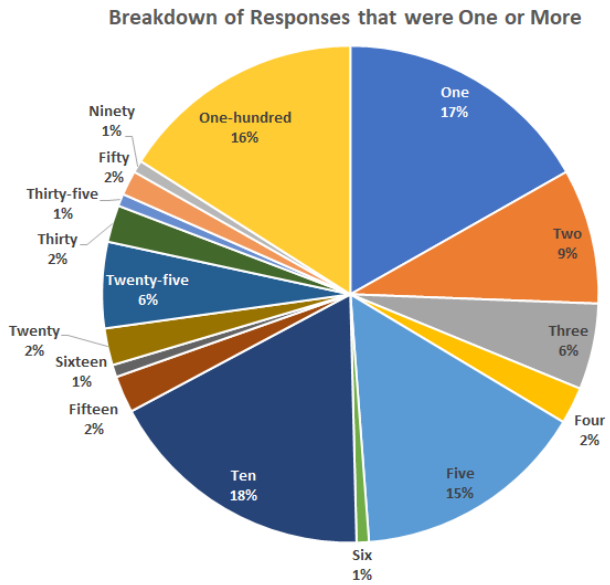
Not Applicable · Unsure · No Impact/Neutral · Decreases Property Value · Increases Property Value

Optional question (221 response(s), 3 skipped)
Question type: Radio Button Question

Q11 Out of 100 residential dwelling units, how many residential units should be allowed as short-term rentals?







Optional question (209 response(s), 15 skipped)
Question type: Number Question

Q12 What areas of the city would you want to see fewer short-term rentals?

**Results summarized on pg 133

NA

high density

All areas

Everywhere. We have a housing shortage and housing is wildly expensive now. Short term rentals exacerbate the issue.

neighborhoods

Denia, North Lakes

None.

Traditional single family residential neighborhoods

None

Historic district

All except downtown

Single family neighborhood

Downtown neighborhoods

Northeast

Residential

All areas

established single family neighborhoods

Across all residential housing

I don’t have any suggestions for this question.

areas that are zoned for housing.

Neighborhoods

Short term rentals are bad. We need more affordable housing in

Denton.

Any area where home owners live in their homes.

Residential neighborhoods, or anywhere that would take away affordable housing or single family homes

All

None

all

Around valued historical neighborhoods especially around downtown and near UNT and TWU Campuses.

Everywhere, downtown, residential neighborhoods, apartment complexes

everywhere

No strong opinion

More in my area. Don't really visit other areas, so no strong opinions on what happens there.

None

Southridge

All of them

Anywhere near colleges or downtown area

I haven't seen many in Denton so I can't answer

Denton

Lower ses neighborhoods

everywhere

most

All of Denton honestly. We need as many houses available for actual residents to able to rent and live.

residential neighborhoods

In HOA occupied neighborhoods and communities.

Single family residential neighborhood esp near K-12 schools

Suburbs, near schools and children areas

My neighborhood

Anywhere outside of downtown. Keep them close to business.

Residential neighborhoods.

All areas

Denton

Residential areas around the UNT and TWU campuses

In the suburbs

Everywhere

I feel that as a college town Denton should not allow any short term rentals and should solely rely on new and existing hotel infrastructure.

All of them

In neighborhoods

Neighborhoods. Short-term rentals have no place in residential neighborhoods. Residents in neighborhoods have reasonable expectations of peace and quiet and the stability of property values that go with established neighborhoods and long-term occupation.

All over

All residential neighborhoods

None

Hotels are are for short term rentals, our neighborhoods are not.

Residential neighborhoods

Residential areas more than a mile from city center

ALL

Everywhere

Area adjacent to Rayzor Ranch, residential areas in the northeast part of town.

Denton

All areas

Residential Areas outside 288

None should be allowed in residential areas.

All

East side

All

Single family homes

The whole city

Near schools.

Most! I prefer they be removed from residential areas. We stayed out in the country.

All areas. No one wants to be nearby these homes

Any residential neighborhood

Outer parts of the city

All areas

All suburban/neighborhood areas.

Entire city

Neighborhoods, w/10 miles of any schools. Basically I don’t see short term rentals as necessary in this area at all.

N/A

Neighborhoods

NA

Old North Idiots Hill

All areas

Denton city limits

would like all banned.

In residential neighborhoods. These are like hotels.

Nonr

Single family dwellings

should not stop anyone or any place for m renting out their own property

South ridge

Outskirts of town

University areas

residential

Residential Subdivisions

any where near or around the Square, ie, 5-10 block radius

Next to schools

South Denton

Residential sub divisions

All

Denton

None.

Let the market figure this out. We have many attractions in this town that will be a driver for this - 2 large universities, downtown, etc.

Residential aread

All areas. Use a hotel.

Corinth

Residential neighborhoods

None

There should be no short-term rentals in areas or neighborhoods that are not common tourist attractions or near a major economic hub like the Denton Square, UNT, TWU or the finished Rayzor Ranch development.

Not in residential areas

all areas

All of them

N/A

Everywhere.

Anywhere outside of tourist corridors or convention center district.

Single family residential

If there is a community that is ALL short term rentals, it would be fine, as it's a common interest. Maybe an investment group or homebuilder could build a small community of those types of homes near the north end (university access/location).

I would like to see fewer short-term rentals all throughout Denton

None come to mind.

None in neighborhoods. This is a commercial business and shouldn’t be allowed in residential areas, only areas zoned for commercial

All are welcome

na

I think all areas of Denton could use the aesthetic upgrades brought by upkept short term rental spaces.

Residential neighborhoods

All

In high crime areas and run down neighborhoods bc this will give a bad opinion of Denton and the guest may not return.

Neighborhoods not in the general area of downtown/colleges

Residential areas around schools

South of Southridge, north of 380

Residential single-family neighborhoods.

Near UNT

Downtown, near businesses, residential areas

Anywhere that the property owner does not live. Allowing non-residents to manage short term rentals is asking for neglect

I think they can be wherever

All of Denton

Areas with lower value homes, so that there are more available to purchase to live in.

No preference

All residential neighborhoods within the city limits

residential neighborhoods

Single family neighborhoods outside of the downtown, UNT, TWU areas

Near businesses, but not in residential neighborhoods

None . All areas of the city are located in Denton TX AMERICA! Should be owners right as long as owners pay taxes , maintain property , and implement rules . Enforce rules vs tell AMERICANS how they may use proper they worked to obtain

Outskirts neighborhoods

None, property owners should be able to decide how to use their property

Downtown

Areas that would disrupt a positive neighborhood

No comment

There should be no limitations or special areas. All property owners should be given the opportunity to have a short-term rental without

the city interfering or requiring any registration. Private Property is Private Property as long as no laws are broken

Residential single family home areas

Residential zoning should remain residential - not commercial. Short term rentals are commercial enterprises. They do not belong in areas zoned residential.

Central denton and historical neighborhoods.

None, they should be allowed anywhere in the city

Downtown

Residential areas

any single family zoned neighborhoods

Single family residential neighborhoods

Wherever long term housing is needed

I don’t see an issue with them anywhere, if the owner is managing or having a management company handle it.

Residential near schools

Close to elementary and middle schools

Country Lakes Community

All

Any in HOAs

established neighborhoods, residential neighborhoods with little traffic and few rentals currently

n/a

Southridge, Forrestridge and areas south of there

Areas immediately adjacent to a public school

none

residential neighborhoods

Downtown

Na

Apartments should not be allowed to be turned into short term rentals

N/A

Residential neighborhoods will suffer with the current and proposed requirements the COD has applied to this business activity.

Denton

single family residential neighborhoods

Residential neighborhood

Optional question (183 response(s), 41 skipped)
Question type: Single Line Question

Q13 What areas of the city would you be fine with seeing more short-term rentals?

**Results summarized on pg 133

anywhere near downtown, UNT, and TWU

downtown and close to universities

None

None. Short term rentals reduce the livability and desirability of a city. They increase housing costs while simultaneously straining housing supply. We can look to Austin for examples of this.

All areas.

near the square

Downtown

Everywhere. Anytime a short-term rental is created, the property was often times a very neglected rental property that was behind on maintenance and upkeep, with property owners simply interested in

making nominal rents in exchange for zero effort.

downtown

All

On the square itself

Downtown square

None

None

Southwest

Downtown

None

established business areas

Keep short-term rentals to hotels, motels, and b&b businesses

I don’t have suggestions for this question. I think a few short term rentals all over Denton is beneficial for the community with the universities and local businesses.

short-term rentals are a business and should be in commercial zones like a hotel.

Nowhere

Short term rentals are bad. We need more affordable housing in Denton.

All

Apartments or somewhere in cement city.

Ideally nowhere considering there's a affordable housing issue, but if I had to pick then high income high density residential areas like higher end condos.

None

Downtown, around campuses

none

Outskirts, if any.

Nowhere we should discourage them

nowhere

No strong opinion

My area. (Downtown, UNT, and land between.)

All

None

Outskirts or closer to highways and the loop

None, more long-term rental housing is needed.

Denton

None

none

Near the downtown area

around the universities

No areas

"downtown"

Down off the square in Denton

Downtown. Right next to college campus

Downtown business area, business areas only

Closer to the center of the city where there is more things to do within the city.

Downtown

Maybe around university areas. Apartments and business locations. Should not be allowed in residential neighborhoods.

No areas

Denton

Downtown

Nowhere there are too many already

There is no area of Denton that I feel would benefit from short term rentals. We can rely on our existing hotel infrastructure.

None

Downtown areas

In the city, none that I can think of. Large ranches, cabins near the lake, or property in areas dedicated to vacation or recreation are the only types of areas where short-term rentals would be appropriate.

In the neighborhood of the two universities

Outside of denton

Downtown - walking distance to the square

Downtown areas; apartment complexes

None, they can go to a hotel who has security to deal with parties.

Commercial or downtown areas

Homes within a mile of city center

NONE

Next to the mayor's home.

Closer to the Square and to campus

Denton

None

Anywhere

I don’t know

Near UNT, TWU, downtown, rural

Facilities in downtown Denton that are in a business zone.

None

None

None

Apts

None

Most areas.

Outer skirts of town or downtown lofts.

None. Devalues surrounding homes. Homes are generally the largest financial asset of a family why impact them with a short term rental next door.

Downtown

None

No areas

Urban/downtown only

None

Neighborhoods

None

Neighborhood

Downtown

I don’t think we need any more than we have now.

Not sure UNT, Downtown

None

None

would like all banned

Business district

Denton, Corinth

Areas with parking.

Downtown

Downtown

Downtown

near downtown

1

anything that's at least 5-10 blocks from Square

Denton, TX 76201, USA

Downtown area and adjacent to Universities

Condos/apartments

None

Denton

All.

Downtown is a hotel desert and short term rentals are helping fill the void of where people actually want to be in Denton.

Downtown

None

None

Commercial properties

any

Near or around major tourist attractions or major economic hubs like the Denton Square, UNT, TWO or the finished Rayzor Ranch development.

None

none

None

Anywhere

downtown

Nowhere.

Downtown square. On college campuses.

Downtown near shops and restaurants

Near the Universities, north side of town.

I would not like to see more short-term rentals

Around the square area

Anywhere is fine.

Commercial zoned areas, not residential zoned

All areas

any

Anywhere!

I don’t want to see MORE short-term rental anywhere. Unless it was tiny homes in a designated area.

None

All except run down and high crime areas

Downtown, and around the colleges

Downtown around the square, and by the universities.

Near universities and downtown

Downtown, near college campuses.

None

I don't want to see more short term rentals, but I'd have to say the suburbs maybe

In areas where resident homeowners manage the rental. Possibly also industrial (lightly populated) areas.

None

Areas with higher value homes

No preference

None

further from the already congested town center

Downtown, near UNT and TWU

Business

Any/All Denton will lose residents/ property owners if they are not allowed to use their property as they wish resulting in less tax dollars and lower property values throughout.

Downtown and near unt and twu.

Any and all

None

Downtown

No comment

Should be open to anyone who owns property in Denton

Apartment neighborhoods

Areas zoned for commercial activity.

I don't think Denton needs short-term rentals.

All

Outskirts of city, if any

Nowhere

none

None, we are not a resort community!!! these acessory structures going up around Denton that are being used for short term rentals do not belong in a single family neighborhood. Dallas has banned it, why cant Denton. Quit building on every inch of land

Any area

	Downtown
	Downtown, close to highways
Mound	None
	Non HOA
	any area where there are many rentals already; around campus?
	downtown, near unt
	Close to both universities and downtown. Many of these are already rentals and are close to the most popular attractions
	Anywhere in town
	any
	downtown
	Neighborhoods
	All
	Suburban area
	The older denton neighborhoods

Central business district and multi family properties such as apartments.

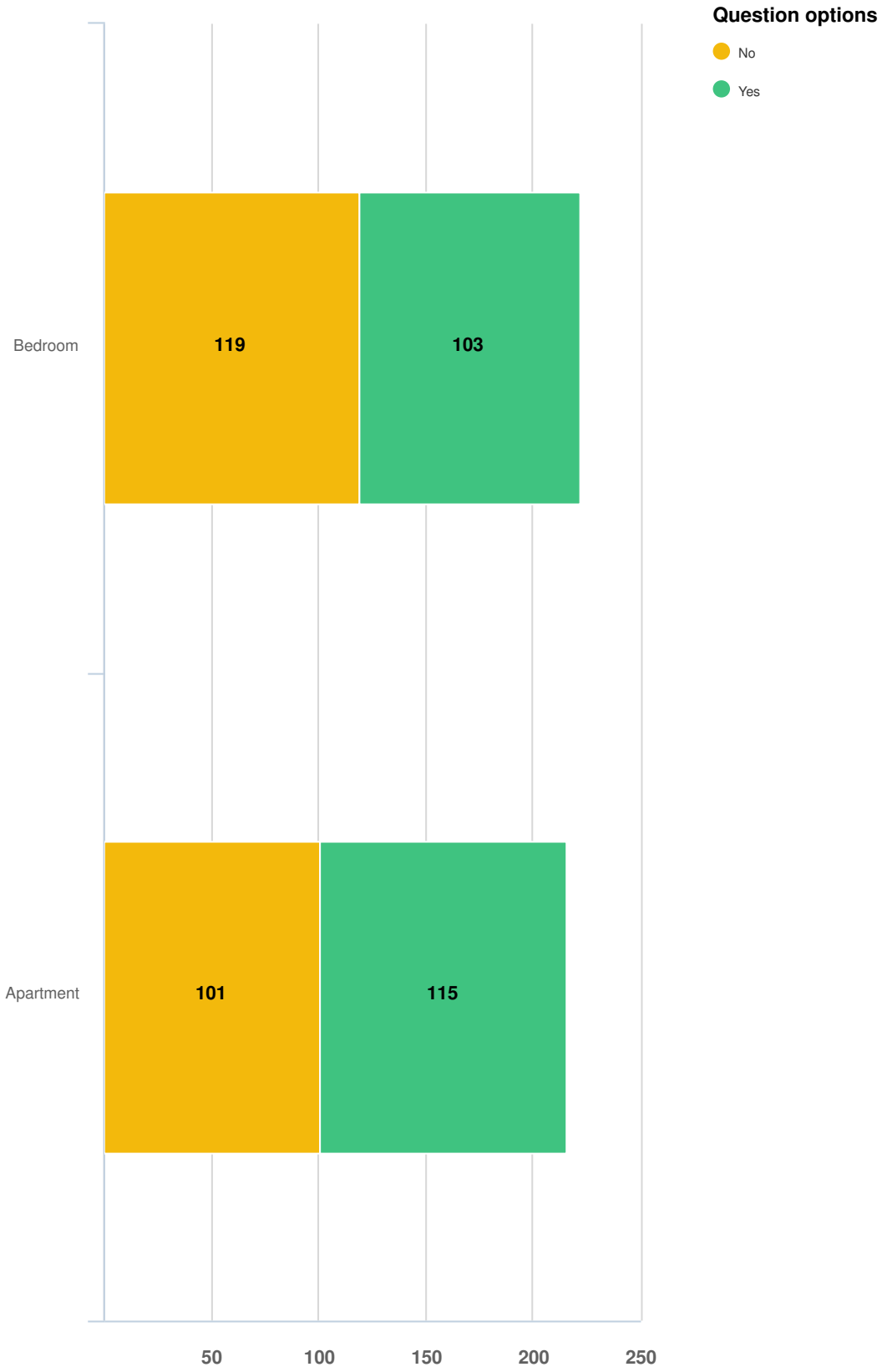
N/A

apartments

Downtown

Optional question (186 response(s), 38 skipped)
Question type: Single Line Question

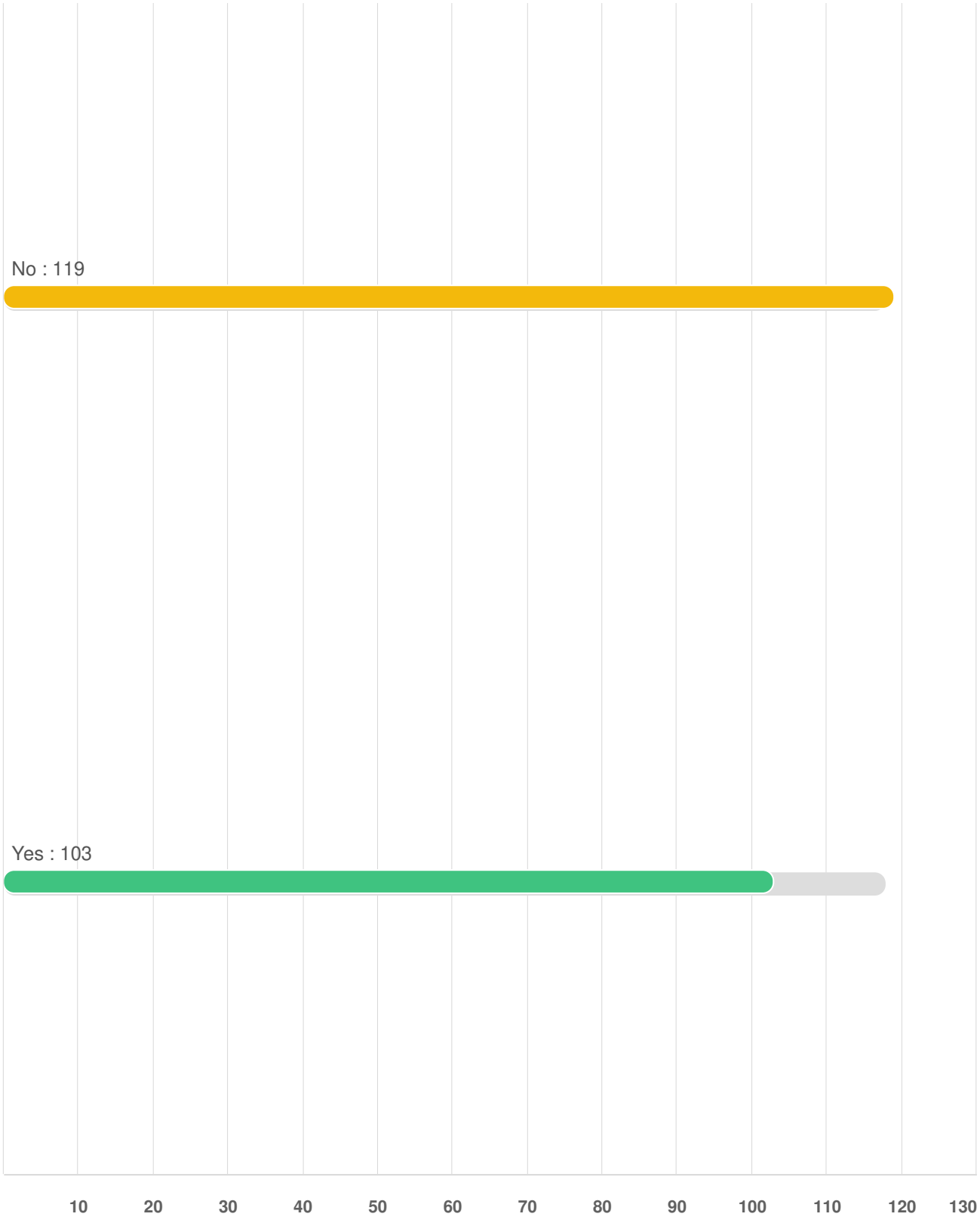
Q14 Should the following types of dwelling places be allowed as short-term rentals?

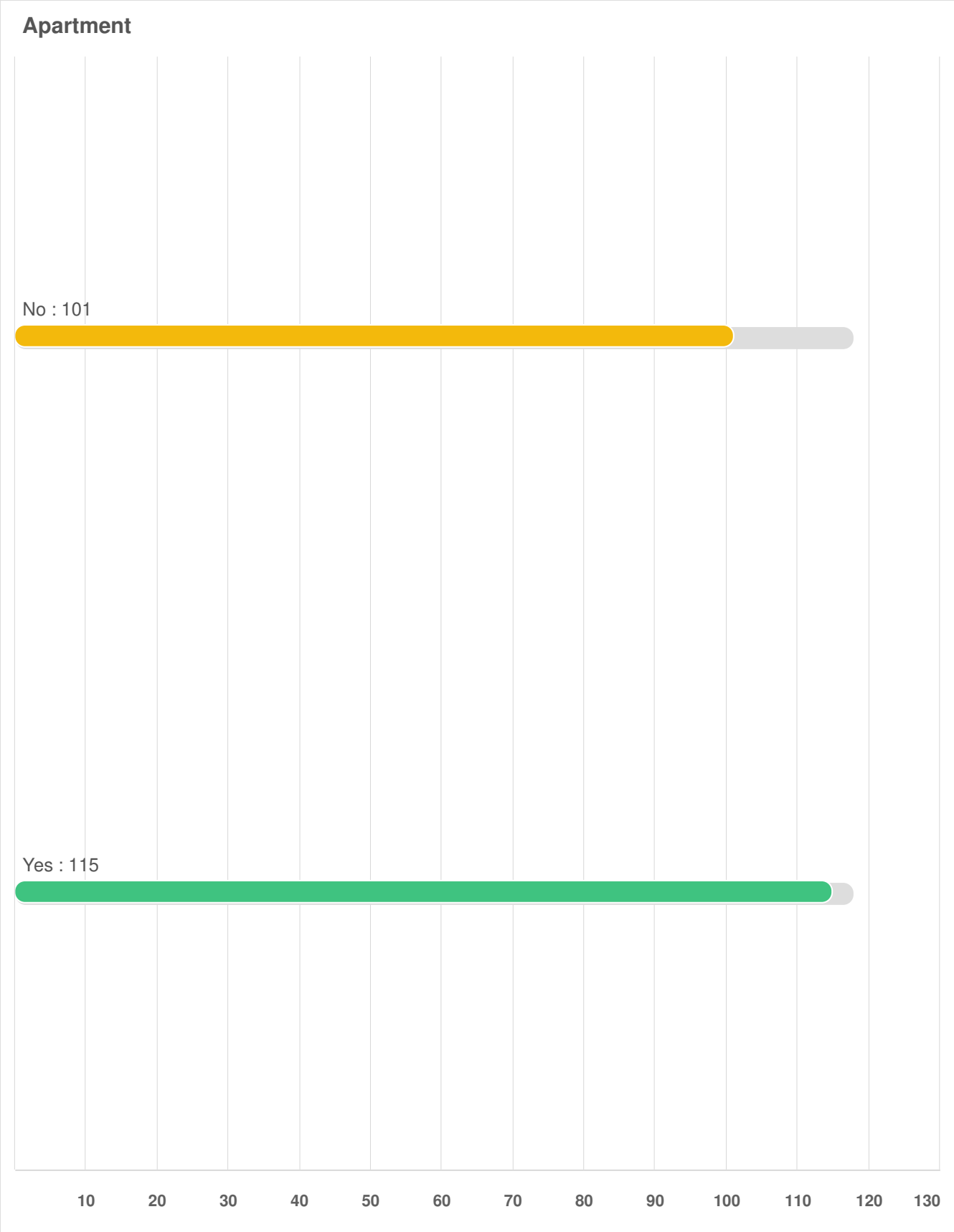


Optional question (222 response(s), 2 skipped)
Question type: Likert Question

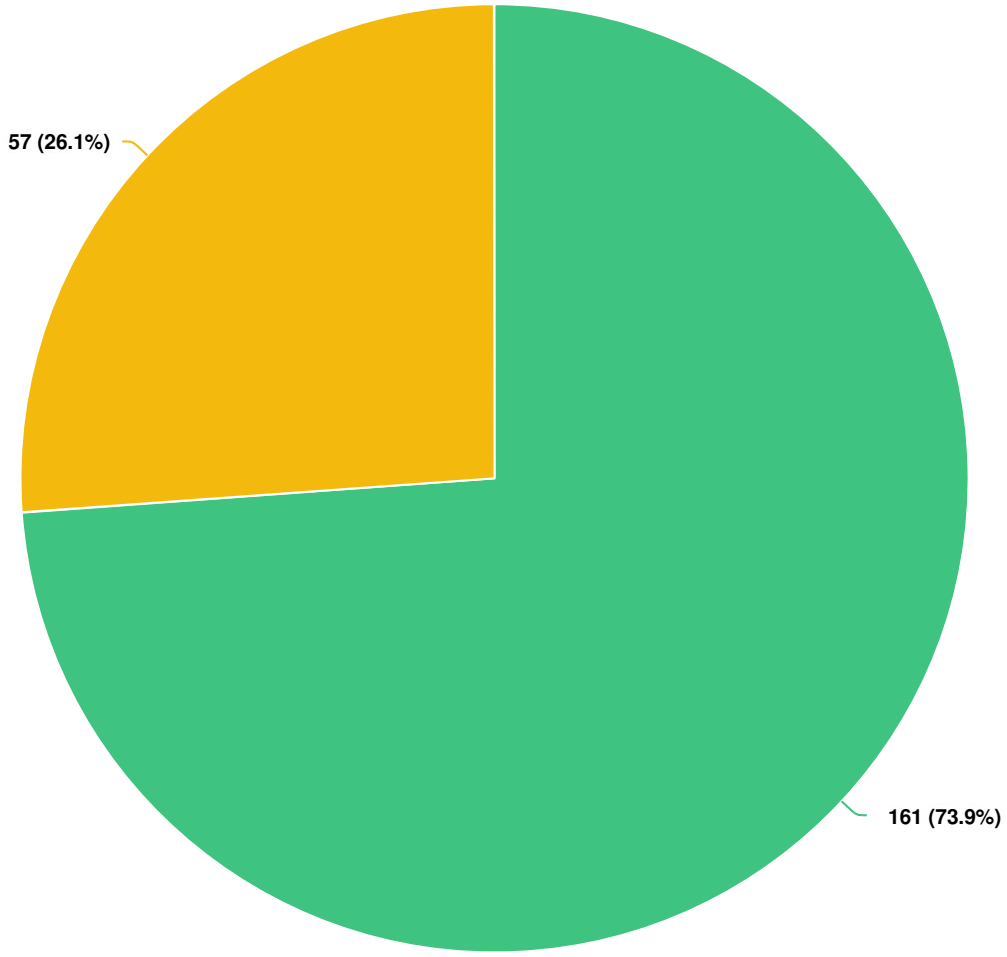
Q14 Should the following types of dwelling places be allowed as short-term rentals?

Bedroom




Apartment
No : 101
Yes : 115
10
20
30
40
50
60
70
80
90
100
110
120
130

Q15 Should there be a maximum number of short-term rentals an owner can have?

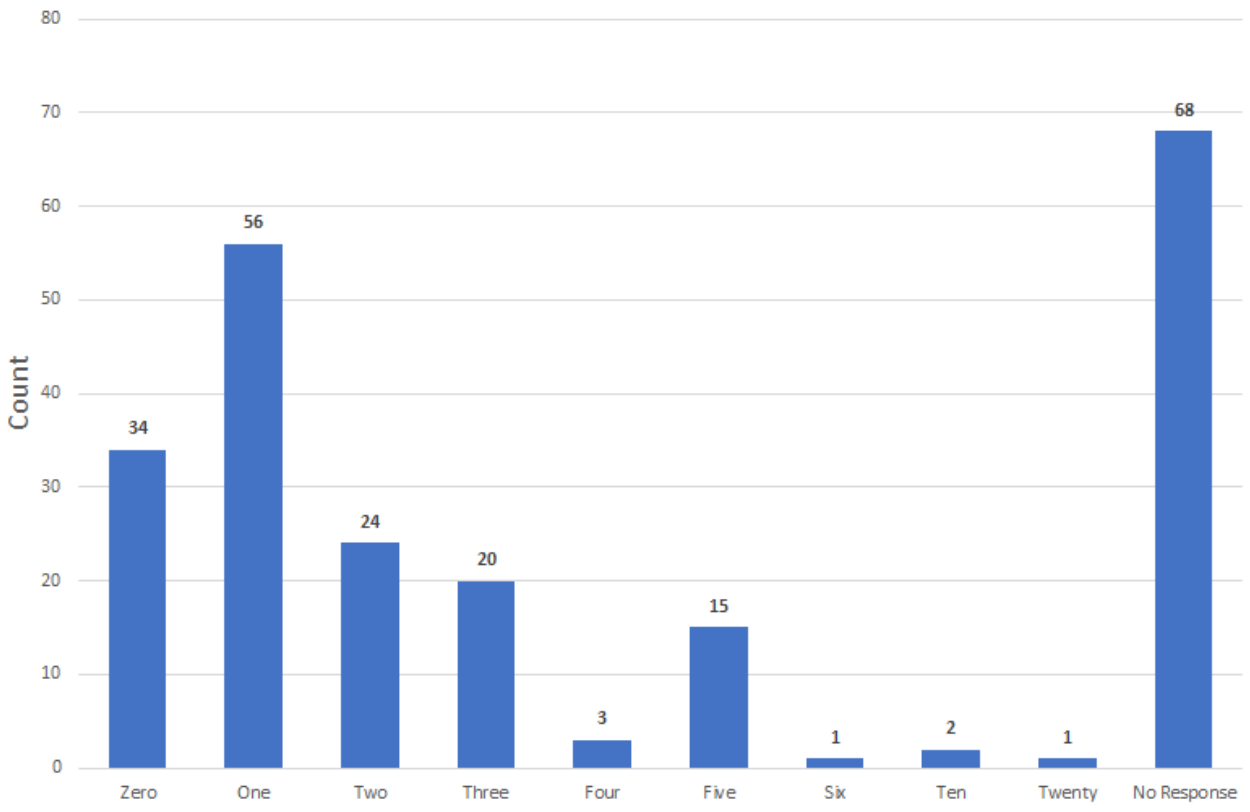


Question options

No Yes

Optional question (218 response(s), 6 skipped)
Question type: Radio Button Question

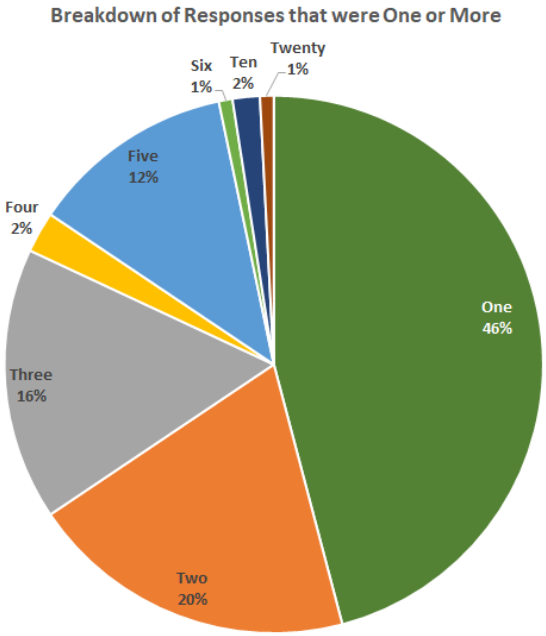
Q16 If yes to the previous question, how many properties?



15% responded zero

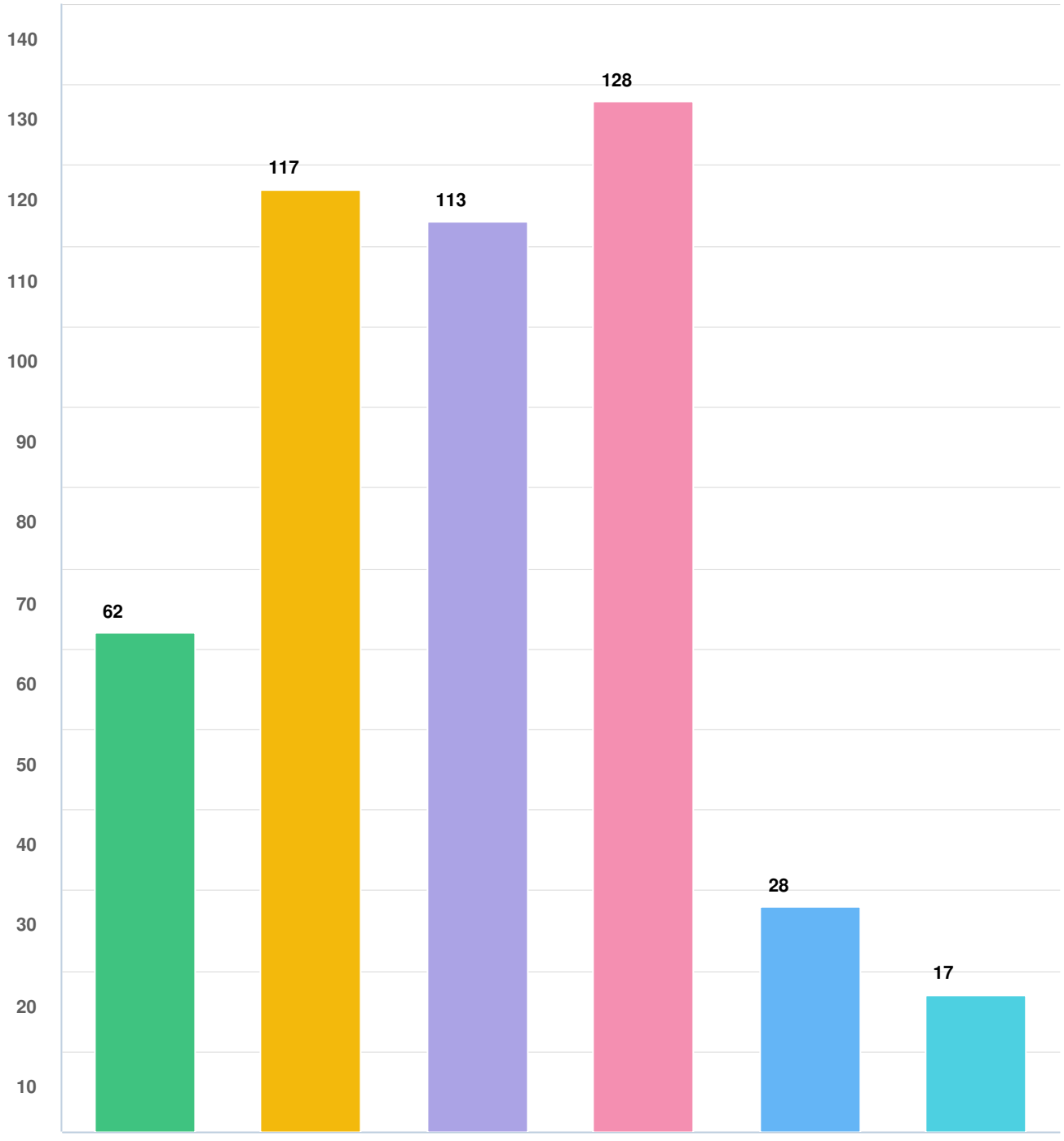
55% responded one or more

30% no response (includes "No" responses to Q15)



Optional question (156 response(s), 68 skipped)
Question type: Number Question

Q17 **If concerned about parking, which of the following solutions would be acceptable? Check all that apply.**

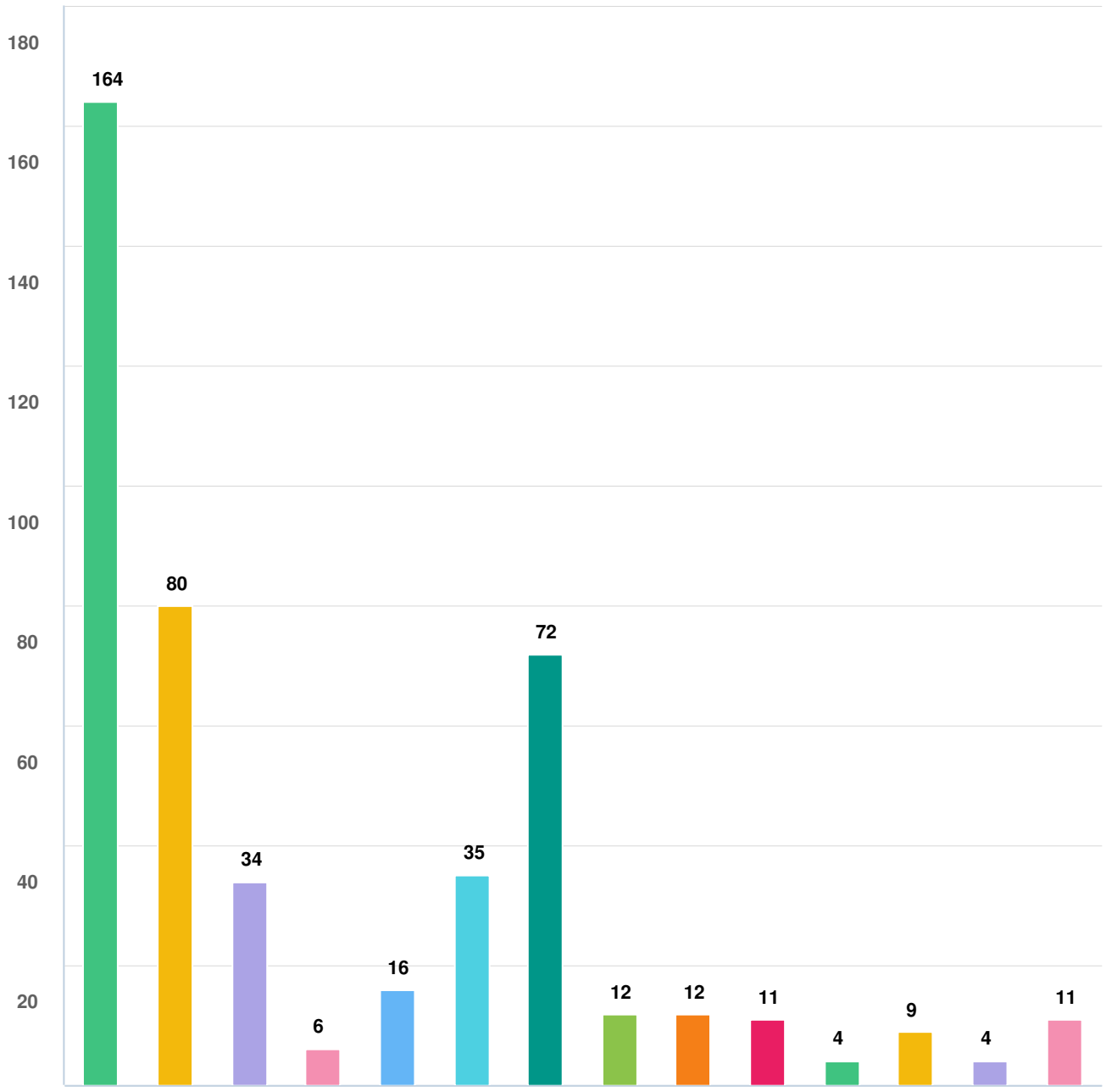


Question options

- Other (please explain)
- Not concerned about parking
- Require owners to provide parking regulations to guests
- Require owners to advertise the number of available parking spots on the property
- Require all guest parking be accommodated on site
- Require one parking space on site per bedroom

Optional question (218 response(s), 6 skipped)
Question type: Checkbox Question

Q18 How would you describe yourself?Check all that apply.

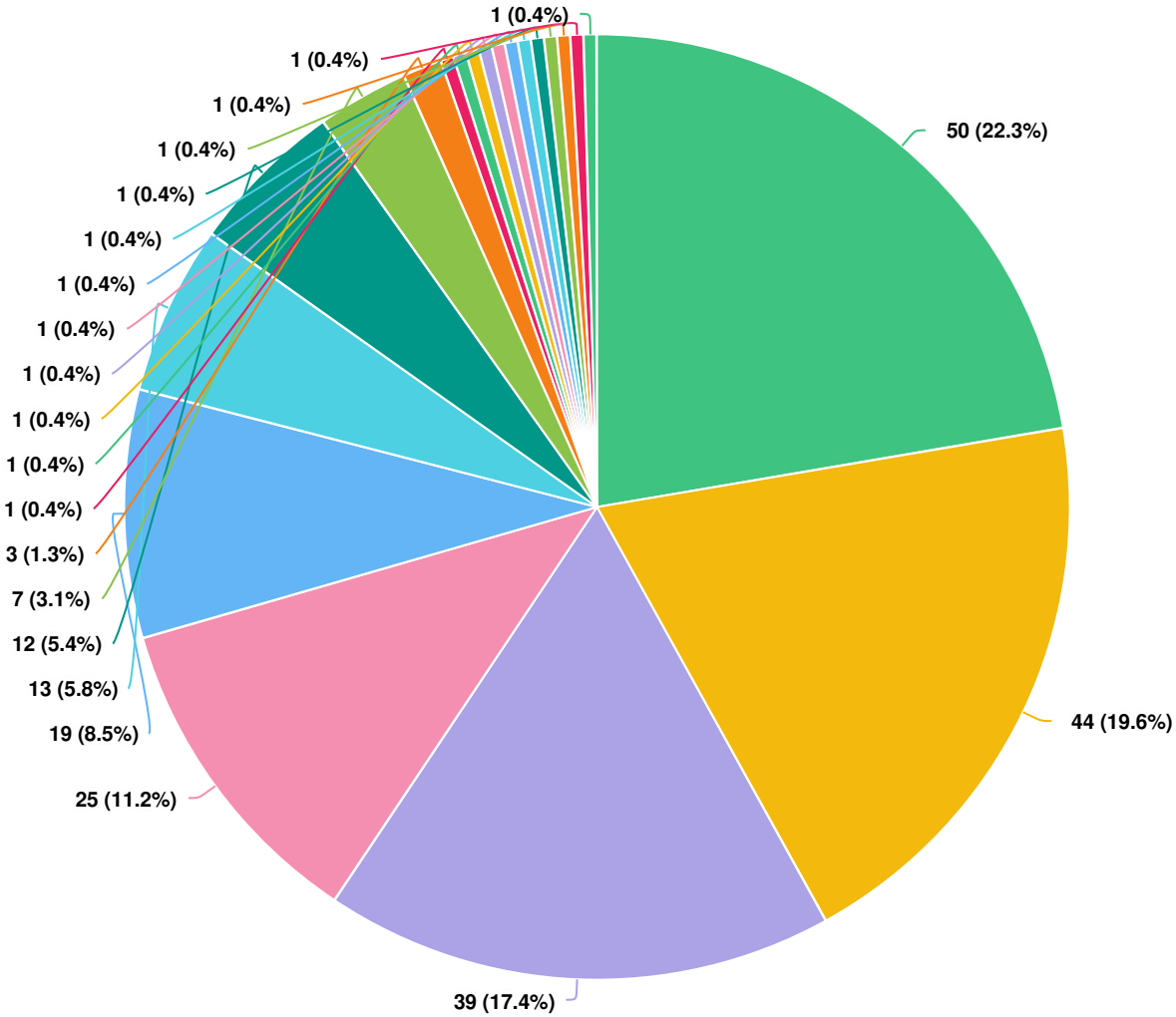


Question options

- Other (please specify)
- I manage a short-term rental in Denton
- I own a short-term rental in Denton
- I am in the hospitality industry (e.g. hotel professional)
- I am a real estate professional
- I own residential property in Denton, but do not reside there
- I am a student in Denton
- I work in Denton
- I own a business in Denton
- I reside outside of Denton, but visit often
- I live with family/friends in Denton but do not pay rent
- I am a tenant at residential property in Denton
- I reside in a HOA in Denton
- I own and reside at residential property in Denton

Mandatory Question (224 response(s))
Question type: Checkbox Question

Q19 Please enter your zip code.



Question options

- Plano, TX 75093
- Highland Vill, TX 75077
- Oak Point, TX 75068
- Flowermound, TX 75022
- Flower Mound, TX 75028
- Sanger, TX 76266
- Krum, TX 76249
- The Colony, TX 75056
- Roanoke, TX 76262
- Lewisville, TX 75057
- Lewisville, TX 75077
- Hickory Creek, TX 75065
- Flower Mound, TX 75022
- Corinth, TX 76210
- Argyle, TX 76226
- Denton, TX 76208
- Denton, TX 76207
- Denton, TX 76205
- Denton, TX 76201
- Denton, TX 76210
- Denton, TX 76209

Mandatory Question (224 response(s))
Question type: Region Question

Q20 Are there any additional comments on short-term rentals, including current and proposed standards, you would like to make?

I think the proposed STR guidelines are good.

I think properly regulated short term rentals can be a win/win for both residents and the city.

Short term rentals in a subdivision just do not belong. It adds parking on the street which causes clear site issues. Since no background checks are done, it is a safety concern for all residents in the subdivision. Children are not even allowed to play in their front yards with short term rentals because parents have sincere safety concerns.

Need to encourage STR because it creates healthy competition, helps small businesses and lowers inflation.

Short term rentals can drive up prices for residential real estate because real estate agents often advertise extra bedrooms as “mortgage helpers.”

We need to make sure that our people are taken care of and housed before we worry about business owners and their profits.

Thank you for being organized in providing this kind of forum. Short-term rentals are needed in Denton and the demand is high. As an operator, we have had so many amazing opportunities to welcome, visit with, and engage with people from all over Texas, the United States, and the globe. Their interaction with us often is the baseline of their expectation in town and causes them to have a higher level of regard for the city, thereby increasing tourism revenue. We explicitly recommend restaurants, shops, and other businesses in Denton, proactively advocating for the tourism and revenue of other businesses in Denton (with zero kick back or commission!) Families of UNT and TWU students rave about having a place nearby that isn't a hotel. Families of athletes playing in Denton feel the same way. Our own neighbors THANKED us for putting so much time, money, and effort into making the property we operate a very nice-looking property. It was transformed from eye sore to gem and I think Denton

would greatly benefit from short-term rental operators rehabbing and fixing up properties in town. There are large sections of properties in Denton that are poorly maintained and, without fail, the short-term rentals are one of the nicest in the area. Compliance honestly might want to look closer at the health and safety of long-term rentals. I've noticed that the resistance to short term rentals comes about from those that are simply reacting out of fear, rather than experience, and are almost solely focused on noise and parties. We as operators HATE parties, and we already expressly forbid them. It's bad business. It's bad for the house and bad for our neighbors, and we want to be excellent neighbors, which we explicitly state in all of our materials to guests. That being said, people host parties all the time at long term rental properties, houses, and apartments. I would love to see the police report volume of officers responding to legitimate noise complaints at short term rentals because I suspect they are very few. The bulk of short term rental guests want to be great guests because they want to come back. One way we've combatted this as hosts is enacting a 2-night stay minimum, which has a great way of sifting out the riffraff. We clearly mark and explain our parking policies. We clearly explain and communicate emergency information. I honestly think that Denton short-term rental hosts are among the best in property upkeep, maintenance, and serve as great ambassadors for the city of Denton. Thank you and don't hesitate to reach out with any questions; happy to help.

Current requirement of 1 on-site parking space per bedroom should be 1 parking space per STR dwelling or apartment.

None near crouched, just like bars. STR rental owners need to abide by a neighborhood zoning, ie none in residential neighborhoods. All STRs need to be inspected initially and every 3 months

Make the owners of short term rentals public. It's important in order to discover any corruption, fraud, shell companies, etc. And to find who has been cited for Violations. TRANSPARENCY. .

I don’t think you should be able to rent in a family single home neighborhood.

I believe that STR owners should be held accountable for the conditions of their properties and the impact that they have on the neighborhoods. Most of the STR's we've stayed in had owners nearby or in the same building.

Fight this hard! Wasted millions on fracking. Get this one right!

The requirements to notify neighbors within 1000 feet is not in proposed changes and the old says 100 feet. Need clarification.

The short-term rental market is a driver of housing inequality and insecurity - both for home buyers and renters. Allowing people to short-term rent a bedroom does not rise to the level of taking apartments and houses off the rental and buyer market when housing costs are in a crisis zone. No economic boon to the city can recoup the harm done by short-term rentals of residential housing.

As a new faculty member it was crucial for me to stay in short term rentals to get a sense of different neighborhoods.

I think education is key. It would be beneficial to educate the STR owners of early indicators of problematic guests and safety. . It may not always prevent parties & criminal activity, but it will help. I think having at least a 2 night minimum may be helpful also. Usually, problematic situations happen with 1 night stays. I think safety inspections should be done on the homes before receiving permits. There are so many concerns many owners do not consider. (Railings, containers for cleaners, tripping hazards are a few examples)

I have less of a problem with people that rent out a guest house or a bed room. As long as they live there, I don't like it, but can understand it. What is unacceptable to me is a short term rental where the owner does not live there. This is a hotel, and should be illegal. There is one two houses down from me and there are different people there every day.

No STRs

Short term rentals kill neighborhoods, falsely inflate home prices, and are impossible to monitor. Keep them in rental complexes, but out of family neighborhoods. I live where rentals are prevalent & not one tenant tends to their yards. Not one. Short term rentals turn neighborhoods into run-down areas. I'm a big NO on them.

By allowing an excess of short term rentals in areas that would otherwise be primary residences, it takes away from housing available to locals and drives up the cost of real estate. Cheap housing is a necessity for lower income individuals and if there's a desire to keep small businesses open, they need access to cheap labor. Labor won't be cheap if no one can afford to live here. If anything, many neighborhoods should be zoned in a way that don't allow short term rentals at all, only long term rentals or owners, i.e. people with a vested interest in the property, including its care and appearance.

I live next to a STR and several others, and have experienced fewer problems with the STRs than with the LTR properties surrounding me in terms of noise and property maintenance. The STRs nearby allow me to have friends and family from out of town to stay in Denton within walking distance of my house and experience one of Denton's beloved neighborhoods, as opposed to staying in an impersonal hotel in an unattractive part of town along a major highway.

Seeing how short-term rentals decimated southern California and their already bad parking/ownership I highly advise against short-term housing and should anything pass allowing it I hope all HOA and apartment companies amend their rules to disallow short-term rentals.

We need to discourage short term rentals as it takes away from the ability of private citizens in Denton to be able to both afford rentals available or purchasing a residential home in general. At this state in the city's development we need to prioritize the individuals living in the city rather than the outsiders coming in. While we should welcome them, if we prioritize those not living within the city then we are not serving our citizens the way we deserve to be served.

More short-term rentals reduces affordable housing opportunities for Denton residents

The main attraction to staying in a short term rental for us when we first visited Denton to see the UNT campus and meet faculty was being able to find somewhere that was walkable to the square and walkable to UNT. We found a lovely Airbnb on West Oak and moved here a few months later renting a house one block away. The whole point of short term rentals is that everyone can find exactly what they

need and no more. I have one friend who a pianist who has played both the Royal Albert Hall and Carnegie Hall. He searches for Airbnb's with specific pianos to practice on. Other friends search Airbnb's with outdoor space for their pets and wouldn't consider any place that doesn't meet their needs. Others search for Airbnb's with a Peloton fitness bike. That is the whole point of Airbnb. For my wife and I, we want an affordable place walkable and have no desire whatsoever for parking spaces. If someone wants to have a short-term rental with a parking space because that's what people want, then let them serve that crowd. But if they want to have a short-term rental without a parking space as not everyone wants a parking space, let that market be served too. If certain guests need 10 parking spaces, they can search for properties that meet their needs. And if guests don't need a parking space at all because they are visiting faculty with no desire to drive as many faculty feel, they should be allowed to search for that and not overpay for things they don't need, grand piano, peloton bike, or parking spaces for cars they don't have. That is fundamentally the whole point of this generation of internet websites. People can search exactly for what they need. A parking requirement for Airbnbs is non-sensical, no more than a grand-piano requirement, a Peloton requirement, a lap-pool requirement, an outdoor bike stand requirement on all residential properties or any other nonsense requirement. If people want a parking space, let them get one and if they don't want one as they have no need whatsoever for a parking space, don't force them to pay extra for something they don't need, don't want or won't use.

I know there are several short term rentals in my neighborhood. They have been fine. We have much more issues with regular rentals and their tenants. I'd honestly love to see every rental around me replaced with short term rentals, just because they've been so much less noisy, less parking issues, and less crime brought by them compared to the long term rentals, like 1005 Panhandle

Ban them completely. They price residents out of housing.

Do not allow corporations to buy up residential properties in Denton. It destroys the character and makes it difficult for the residents who make Denton desirable to afford to live here.

Denton has so much to offer because of the people who live here. I acknowledge the need for lodging options near downtown, but I don't have any interest in encouraging more short-term rentals to pop up here.

The short term rental business began as a way to allow folks with extra space to offer it up to someone needing that space. It was friendly, local, and allowed both parties to benefit. However, greed can turn anything sour, and that's what we are seeing in communities all over the country where STRs have been allowed to swallow up towns. I do not want to see large companies owning and renting out numerous short term rentals all over Denton. This would make our town less family friendly. I don't have an issue with people having the right to rent out property they own, but there is a reasonable limit, and our community members have a right to have a vote on that. We also deserve to have a say in what constitutes a short term rental. The more frequently renters move in and out of homes, the less likely neighbors are to get to know them. A huge problem we have today is we do not even know our own neighbors. We are all busy people, and that's ok, but adding high turnover to neighborhoods is only going to decrease Denton's sense of community at a time when we need to get to know each other and be able to care for each other the most. Rotating families and individuals through homes will diminish a lot of the heart that makes Denton an awesome place to live. Whatever happens, there must be full transparency to residents and renters. When we travel and use short term rentals, we often wonder who actually OWNS the place, as it seems those managing the rentals are NOT the owners. This isn't all bad, but I want to understand if I'm renting from a large property management company, or a local who lives here and has the community's best interest at heart. Whole subdivisions are being bought up by large corporations who are not local, and do NOT care what happens to the property or the community; they are simply in it to charge a high rent and turn a profit. Lately we've heard of private equity companies snapping up properties en mass in many new construction neighborhoods here in Denton; these aren't considered short term rentals, but last we heard, nearly 40% of Denton's single family homes are owned by corporations. And STRs can be a huge contributor to that rate rising. The city must be ready to set up databases for residents to see and understand who owns the house, apartment, or duplex next door. We should be able to see how many other properties this person/ company owns, and that number should be fairly limited, in order to protect the integrity of our amazing city of Denton.

Short term rentals remove housing opportunities from current residents. While it would be good for occasional times where local hotels and similar accommodations are overwhelmed (graduation seasons, college move in times, NTFR season), putting the hope of a few times of short term rentals ahead of housing for many in town for long term ks a shortsighted mission and one I hope my fellow

Dentonites do not support.

Short term rentals should never be allowed. They drive up prices for "investors" that do not take care of their properties while denying the chance for first time home buyers to get their home and contribute to the community.

Prefer no short term rentals in any established neighbohoods

With the number of college students we have, as well as the number of people that would like to live in Denton and commute in to dfw because of our location, I don't think short term reants have any place in Denton. These only benifit the owner, and only slightly more than a typical rental house will, and have far less oversight than your typical long term rental. Personally I would not want to live next to house that has new "tenants" every week. As apposed to the typical renter you can get to know and become actually become neighbors with.

Short term rentals should not be allowed in communities that pay HOA fees and who strive to make their neighborhoods a safer place to live. Strangers coming in and out too frequently endangers us all and our property values.

The affect on housing and rental prices cannot be denied. In long term rentals, both of the ones near my house are owned by companies from only not in Denton, but not in Texas. You can see how other cities have seen dramatic increases in prices

Property taken care of properly, no damage or affect to neighborhood and ability to revoke said property when there are numerous violations and complaints.

As elderly widow chose to live in safe neighborhood and no longer feel safe with unknown people renting bedroom for $40 nightly. It’s also against our HOA regulations that I bought property in expecting rules and guidelines to be followed.

While they may seem like a good solution to housing issues, you are just slapping tape over a fire hose. Housing issues in Denton need to be addressed from the bottom up. Providing housing for our

homeless or providing resources for those at risk should be more important than property owners wanting to gain extra income.

STOP allowing short term rentals, it’s driving up inflation in the housing market for EVERYONE

I have explained my belief that short-term rentals do not belong in residential neighborhoods in Denton. That said, if short-term rentals are allowed to exist, then there should be strict regulations established to go along with them in regards to noise (no parties), number of occupants, lighting, parking and property upkeep. To this end, there should also be an expectation to surrounding property owners that there will be a reasonable response time from law enforcement for violations and a system for fines and license-revocation for irresponsible short-term rental property owners.

Many students and their families come to Denton to visit or to audition at TWU and UNT, the cost of hotels in Denton is very high, and we are short changing those people who have a reason to come to Denton but who cannot afford those hotels.

Limit of 2 vehicles. Quiet time after 10pm. No parties allowed. Require trash recycling.

Until rent in Denton is reasonable for its full time inhabitants, I have no interest in seeing more short term rentals and more money going into the property owner pockets while Denton residents pay ridiculous amounts for poorly maintained spaces and less than caring landlords

Owners should be required to post all restrictions such as maximum occupancy, quiet times, parking, etc. in their on line offerings for short term rentals

I don't want short term rentals in our neighborhoods, put them in hotels.

They should not be permitted. There are plenty of short term lodging options existing in town. Short-term rentals reduce the sense of community, and only exaserbate the widespread supply issue of affordable permanent housing in this country.

Please put a stoop to this nonsense. Venture capitalists make money on the companies that coordinate these with no concern about municipalities or local residents. Do not allow rental scooters or self-driving cars either.

I am absolutely not a fan of Airbnb and the like. I feel like those kinds of properties invite disturbances, violence, visitors who don't care about leaving their trash around the neighborhood, and they drive up the price of rent on an exponential basis. I feel like the nearly unaffordable housing costs in North Texas have, in part, resulted from these kinds of properties. If I had my way, I wouldn't allow them at all, but I understand that some folks feel differently, and I am willing to compromise.

owners are taking low rent long term properties whitch Denton needs and turning them into short term rentals to make more money in turn hurting low income families

I am totally against short term rentals in Denton

I feel short term rentals should be confined to tourist area with mostly vacation homes and rental for vacations. That is NOT Denton. That said, I do not like governments limiting property rights.

6 month a longer rentals pnly

Limit the number of people, and cars a rental can have

Short term rental are hotels. Put them next to hotel zoned areas of Denton. Do. Not allow them in Neighborhoods. It is a scary thing to wake up to.a new set of neighbors each week.

The city will be making a huge mistake if they allow this to happen.

Certainly need regulations but they should be pro property rights and pro Denton. We need to make Denton convenient for all to visit.

The city can’t possibly control short term rentals with existing city services. The city is better off servicing existing Denton residences by not allowing short term rentals. Don’t give in to the few and not honor numerous of your true residents that live here in Denton and make this a great place to raise a family.

I don’t want any in my neighborhood!

Short term rentals have caused property values to increase, negatively impacting existing neighborhoods via property taxes, and caused me to reconsider plans to buy a house here knowing I won't be able to compete with the much higher offers multi-property short-term rental owners and leasing companies can do. I think allowing it other than the absolute minimum is a dangerous precedent that will see good chunks of Denton sold off and die, similar to what's happened in College Station in the last 3-5 years.

Denton should enact the same laws on this issue as Dallas. They got it RIGHT and for all the right reasons!!

We would eventually like to rent out only one to two bedrooms… at times.

They are a danger and unsafe for anyone with kids & a nuisance to adults and families in the area working to keep their property decent and safe.

I do believe one or 2 per person is best. I have heard of a few investors buying many homes in the same neighborhood, which is not fair to the rest of the community.

Do not allow them

Didlstressing when you're quiet neighborhood turns into party central every weekend. Finding items used for drugs, used condoms, can't get through your neighborhood because cars are blocking the street. Police called and nothing changes. Shots from a gun fired and noise

increases. Once again, police called. Nothing changes. Still loud partying, underage drinking, etc. Do not feel safe anymore in own home.

There should be more short term rentals in Denton.

Major complaint is a house with 2 car driveway being used for parties that bring 20+ vehicles

If someone owns their property then you should not tell them they can not rent it out, Government always trying to control private property is never good.

Short term rentals can be a big benefit to local businesses and the community.

!!!!!!!!!!!Couldnt enter zip code correctly on survey -- should be Denton, Tx 76210 Public registry maintained of short term rental properties in the city. Greater law enforcement visibility when number of rentals exceed some standard. Annual city inspection of property to insure property is maintained and safe.

No issues with STRs as long as rules are in place and managed properly

We have never had a bad experience staying in a short term rental. We leave the property clean. Take out the trash and always leave feedback about the host on the rental site. Communication is the key. We have 2 rentals booked for the near future. I can hardly wait to travel.

I think they should be allowed but limited with certain conditions: Renting a guest house on your own property should be OK. Renting out one or more of your bedrooms should be OK. Parties should be prohibited, Noise should be kept to a minimum. Parking should be carefully regulated. All STR's should have video surv.

Denton wants to become the largest Non Owner Occupied Housing city. When it does, the decline in quality of life in Denton will become

even more apparent than it is today! I pay Taxes, Renters do not!

Short term rentals can be very good for a community as long as they have some basic rules in regards to parking and quite hours. And those same rules should apply to long term rentals as well....

ident

Your application does not allow me to respond to #: 11, 12, 13, & 16.

Both the council and staff forwarding these proposals have yet to clearly elucidate what problems they are hoping to solve by entering into the regulation of short-term rentals, apart from perception problems raised by certain residents. As such, it is difficult to address these regulations in a data-driven way, as should be the case with all policy in our city.

Please do not allow STR in residential areas

I have small children. The world is scary enough without a revolving door of strangers staying in our neighborhood. They don't recieve background checks, they could be anybody. I would prefer NO short term rentals allowed in ANY residential neighborhood.

Residents hold wedding and homecoming parties, make noise, jam neighbor parking lot all the times.

Short-term rentals should not be allowed in residential areas with no easy access to a major tourist attraction or economic/entertainment hub.

No

From the nextdoor app discussion where almost everyone not a host or owner hates them and thinks they are bad. Anyone allowing these to come into residential communities is asking for trouble. people will be hurt neighborhoods will revolt, gang activity will abound, drug dealers lover these Prositution will now be in the house next to your and woman are being trafficked. Once you live the experience you

will see that this is insanity The airbnb next to my at the neighboring home has been shut down. They cant get past town requirements 4 permits and other issues. It has been vacant for about a year now. Yes, I should have used my gopro to record illicit activity but with the Thugs, lowlifes and seemingly gangster types who looked like they were packing at times with something down their pants I decided to not even go outside at all because I felt that at any time the bullets were going to start flying. . It is quite different when the mayhem is actually happening. There were at other times older men with what looked like teen girls at least 2 times. Lots of visitors. likely trafficking, I think. I could smell the weed and observed behavior of extreme drug intoxication. It is the perfect setup for them to get away from places that the police target for drug trade and trafficking. In reality some people were very respectful and obvious to me just good family folk needing a house because they had a family get together or some other event. One very nice family stayed for about 2 months, they were pleasant and waiting for their home to be finish being built they had 2 small dogs and kept them quiet and controlled on a leash when needed. It was that 20% that were either inconsiderate , noisy, keeping late hours, playing loud music. screaming late at night or just sitting out back on the porch at 3AM having a conversation but laughing and alerting my dog since it was maybe 20 feet or so from my bedroom window. The person who put his german shepherd into the storage building that was up against my fence line and let it bark night and day very loud also had taken that same dog out front unleashed and was beating the dog HARD. It was very upsetting dealing with the scum of the earth during that time. I will add the photos of the storage building illegally placed which was advertised as additional living quarters. I won the battle and town had them remove that thing from the property.

Airbnb and the like have only made it harder to own property as everyone with money have bought up everything around and raised the price an exorbitant amount. These rentals should be limited.

They all need to pay hotel occupancy taxes. If a STR is not collecting and paying hotel taxes, than they should not be allowed to operate.

Short Term Rentals might work in a vacation destination (beach/mountain/beach/Orlando), but the ones we stay in are "short term communities". When ALL of the homes are STR, it's better, as it keeps the crime/parking/noise/etc all in one area.

We already have a housing shortage here in Denton. Limiting short-

term rentals throughout the city would be a great move in my opinion. If people want to provide their spare bedroom as a short-term rental, I see no problem with that. But otherwise, tourists should stay in a hotel or with family so more folks can afford a home. Thank you.

I would prefer accepted applicants be a Texas resident or Texas company, no out of state entities.

Keep commercial businesses on commercially zoned land…not in out neighborhoods!

It takes away from the beauty of getting to know your neighbors when the house next to you has a new person there every week. It also limits the available rentals for residents in an already very stressful market. We don't have enough affords housing options for families.

Because of the income I've received from short term rentals, hundreds of guests have experienced the charm of Denton (and many have returned), I have the funds (and incentive!) to keep my property well maintained and looking nice for the sake of my neighborhood and future guests, I have been able to renovate the home while preserving its original Craftsman glory (which is attractive to guests!), and visit my own family in town when we don't have guests. My entire street is beautified and lifted up by our home, and this level of upkeep is only possible because of the income we make from our short term rental. We have never had any complaints or disturbances with neighbors.

NO. We don't need trois in residential areas

1) Airbnb no longer allows parties or events, VRBO and other STR should do the same. 2) Require owners to provide neighbors within 100 ft their contact number and Airbnb's contact info for filing complaints about how a particular STR. 3) If a neighbor complains to the owner & get no response, they should be encouraged to file a complaint to Airbnb/VRBO, etc. If the neighbor does not receive a response or the problem continued they should be encouraged to file complaint with the City of Denton. The city should have a policy outlining this process; include that the StR owner is fined if the problem the neighbor complains about is not corrected.

Your survey is poorly worded. Instead of "unsure", it should read "no change" or "none" or something. Unsure make me sound indecisive, and I have very definite opinions.

I beg the City of Denton to understand that we do not need more short-term rentals for accommodations. If the city wants to bolster our economic appeal for tourism, it should focus on public transportation and infrastructure to make it easier to get to and from Downtown/areas of interest from the various hotels we already have. There is no reason to use housing that could go to families/individuals in order for landlords to make more money than they already do, all the while not maintaining the properties they already have.

I feel strongly that the property owner needs to have a personal interest in maintaining the property and living with the results of actions taken by renters. Allowing people to live remotely and run a rental property that the owner does not have a personal stake in will invite abuse. Placing fines and penalties on the non-resident owner will not discourage people who are only interested in the revenue stream.

No comments

Anyone who has thought it through would prefer a short term rental next door vs an empty property. Vacant property draws rodents , thief’s, squatting, deterioration, drugs , and crime . It should be up to property owners how they use the property they worked for , pay tax on , and own ! It should be up to the property owner to set rules , monitor compliance of rules , and enforce rules . A better deterrent to noise and other concerns would be a fine from the city if owners fail to enforce rules , thank you for allowing input .

I think if a person went to the energy and expense of buying, owning and maintaining a house, they should be allowed to use it for short term rental purposes. If they are concerned with bad behavior, simply require a security deposit. If they break the rules, they lose their deposit. Also, check their reviews before renting to them.

It doesn't matter if its short or long term rentals. There are already laws and ordinances that have to be abided by and enforced. No need to create a solution to a problem that doesn't exist.

Streets are already too narrow for emergency vehicles when property owners park e tra vehicles on the street (teen drivers, etc) without adding more cars for people renting space in those same homes.

Do not allow short term rentals within areas zoned reside. Short term rentals are businesses period.

It is already increasingly difficult to find affordable housing due to developers and investors buying up multiple properties, often not taking care of them or their tenants. If short term rentals become popular, there will be less housing and less incentives to keep housing livable. Growth and tourism are wonderful, but not at the expense of the current residents.

there should not be any short term rentals allowed. 6 months or more should be the requirement

Short term rentals should not be allowed within residential neighborhoods, we have plenty of hotels for people to stay at when visiting!!!! Whoever is approving these accesory structures & developing every inch of land needs to stop! We need preservation of green space, more parks, trees, trails, less development.

Limiting the number of properties an individual can own as short term rentals is more important than a broad policy for all short term rentals. Many of the potential issues from the above questions will depend on if the property owner/managers are part of, and responsive to, local community needs. Also prevent companies from buying properties for short term rentals. Only allow individual property owners with Denton or surrounding county addresses to own properties for short term rentals.

I don’t think the city needs to over-regulate this. Property owners should have the freedom to rent out their dwelling, and it’s up to them to maintain their property. As I mentioned, ST Rental companies have many of their own regulations in place encouraging both respectful guests and appropriate accommodations. Bad guests get bad reviews and don’t get invited to future rentals. Bad hosts get bad reviews and people don’t stay there.

There have been multiple articles in newspapers and magazines about short term rentals especially in Dallas and Austin, there have been many problems those cities are trying to work with. Being a college town, I feel these problems that they have spoken about will increase.

I don’t have a problem with short term rentals. The issue will be if there is not appropriate infrastructure to support existing residents, plus traveling guests.

The more short term rentals are allowed in our area, there will be less affordable homes for low income or first time home buyers. It will turn our neighborhoods from a neighborly communities into a money making opportunity for a few who may not even live in or care about our communities.

Decline. This should not be an option.

I don't think short term rentals should be allowed in HOAs unless the property owner resides in the home for the majority of the year.

I never was concerned about STRs until I read about the problems in Carrollton/Plano and would not want to see that here.

Most of the people I have come across in the short term rentals are families or couples traveling. I've not met one that had any ill intent.

As an investor, I'm considering buying a short term rental; however, there are certain neighborhoods I believe are best suited for this and those would be downtown and around the universities because they're already mostly rentals. I also believe 10 guests are too many, regardless of the size of the property because of the increased noise, cars and trash. I think there should be a maximum of 6 guests per property. In a tourist-heavy city like Branson, MO you have whole areas of condos and cabins that are short term rentals and they're not in single family neighborhoods.We don't have that here in Denton so you're basically turning existing homes into vacation homes. It's not going to go over well in most neighborhoods.

Look into limitations for LLCs from operating short-term rentals.

We enjoy AirBNB and VRBO units while traveling. They enhance our experiences learning more about each community and the hosts as we travel. Denton could certainly benefit if this type of lodging increases here.

Limits on # of persons per bed

1. Inspections of the properties requesting permit to STR should occur prior to granting the permit and at the beginning of each annual retegistration. 2. Establish sizes for parking spots similar to retail and commercial businesses. 3. There must be a mechanism to investigate and record violations to the permit conditions. A police report is ineffective because not all permit violations are criminal offenses and will not be recorded by the police, I.e. use of the STR for throwing a party is not illegal. Each of the permit conditions should have a stated method/ contact for neighbors to register violations. A COD response contact and timeframe to logged complaints should be stated. 4. Most problems with STRs in a residential neighborhood will occur outside of normal business hours and need a 24 hr. response to address violation concerns. Allow photo documentation by neighbors or violation report calls to count toward the permit revocation criteria. 5. The registration/ permit process should not include an owner provided sketch of the subject property. Require submital of the property information from DCAD which is easily available, more accurate, states the number of bedrooms to determine parking required and confirms any ADU is legitimate and on the books. Taxes lost from illicit structures offsets any economic benefit the rental sales tax would provide. 6. Unregistered STRs should have an accompanied penalty to discourage non-compliance. Why would anyone register and be subject to requirements until they are caught. 7. Require the owner provide the mechanism/websites the property is advertised on. 8.The COD should publish registered STRs as a service to potential guests, property owners and to allow neighboring citizens to know if an active property is registered. This would not create a risk for the properties any more than it being listed on a website. If a concern, have the list be available only after registering to access.

• Priority should be provided for neighborhood density, safety, privacy, traffic, and aesthetics. City of Denton is creating opportunities for slums that decreases property value. • Parking for STR needs to remain on the property site. Additionally, sizes for parking spots can

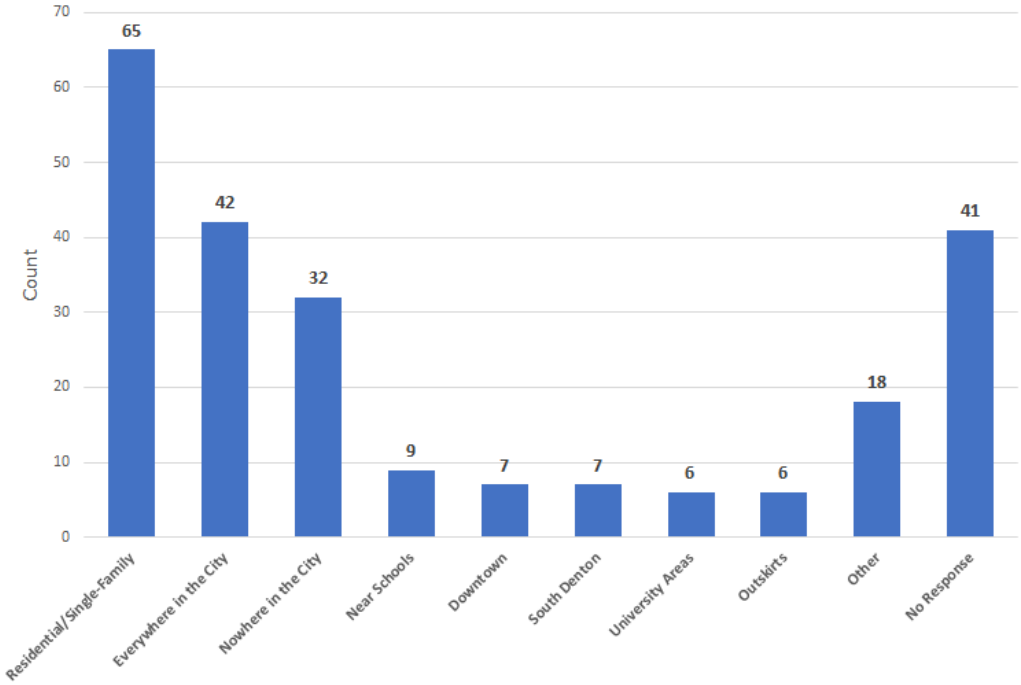
be established like retail and commercial businesses. • In the interest of transparency and convenience, STR registration should be attached to DCAD as specs for the resident/property are already in an organized system and the structures can be taxed appropriately. • The registration/permit process should not include an owner provided sketch of the subject property. Require submittal of the property information from DCAD which is easily available, more accurate, states the number of bedrooms to determine parking required and confirms any ADU is legitimate and on the books. Taxes lost from illicit structures offsets any economic benefit the rental sales tax would provide. • Unregistered STRs should have an accompanied penalty to discourage non-compliance. Why would anyone register and be subject to requirements until they are caught. • At the meeting on Thursday, August 17th, it was reported that Compliance for STR is the priority. Compliance cannot be attained without Enforcement. Requesting enforcement be coupled with compliance. Examples were provided of police notification of incidents at STR without follow-up on the calls. • Most problems with STRs in a residential neighborhood will occur outside of normal business hours and need a 24-hr. response to address violation concerns. Allow photo documentation by neighbors or violation report calls to count toward the permit revocation criteria. • There must be a mechanism to investigate and record violations to the permit conditions. A police report is ineffective because not all permit violations are criminal offenses and will not be recorded by the police, for example, use of the STR for throwing a party is not illegal. Each of the permit conditions should have a stated method/ contact for neighbors to register violations. A COD response contact and timeframe to logged complaints should be stated. • It was also mentioned at the August 17th meeting that STRs are not a business. Clearly, a fee for a service is a business and should be taxed and monitored as such. • Permits and Enforcement of STR should be tracked at a public City website. • The City of Denton should publish registered STRs as a service to potential guests, property owners and to allow neighboring citizens to know if an active property is registered. This would not create a risk for the properties any more than it being listed on a website. If there is a concern, have the list be available only after registering to access. • Require the owner provide the mechanism/websites on which the property is advertised. • Inspections of the properties requesting permit to STR should occur prior to granting the permit and at the beginning of each annual registration. • Currently 300 or more STR in COD. Recommending the COD place, a limit on the number of STR allowed.

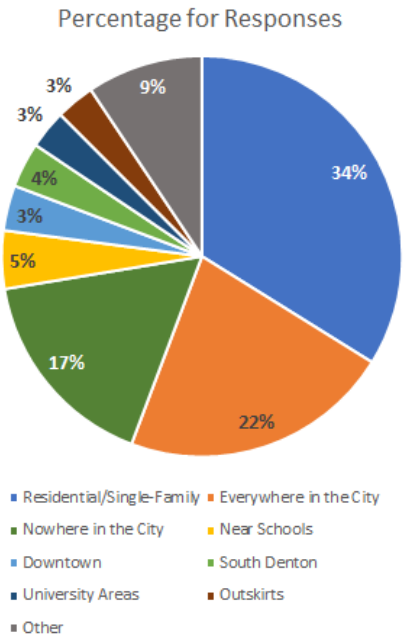
Our HOA wouldn’t t allow it so I am not worried about my neighborhood. Not sure if there is a market for it here in Denton. I rented a few in Colorado and New Mexico and they were well taken

care of.

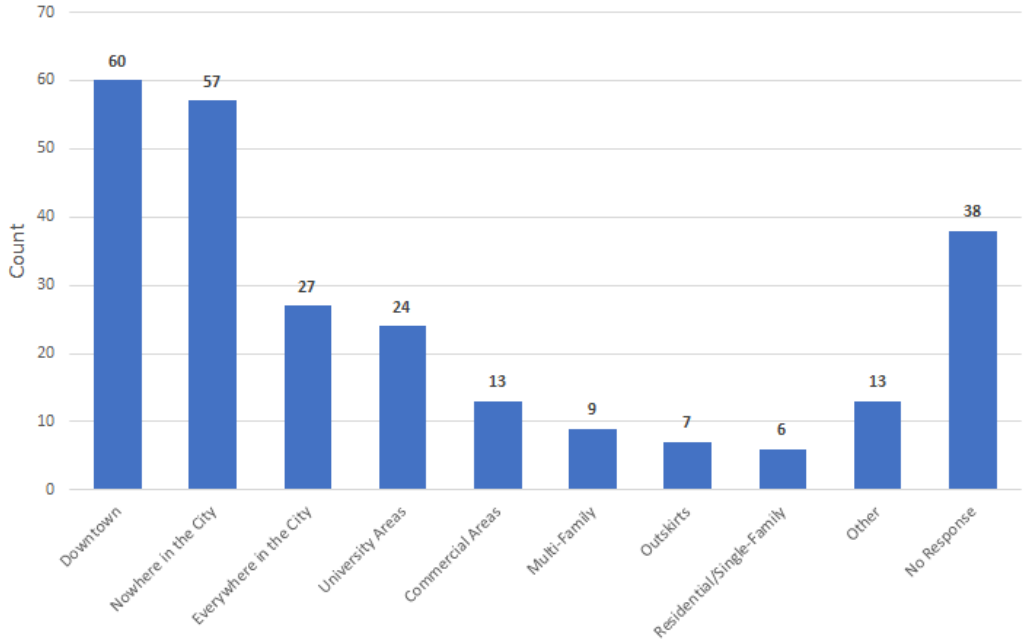
Optional question (123 response(s), 101 skipped)
Question type: Essay Question

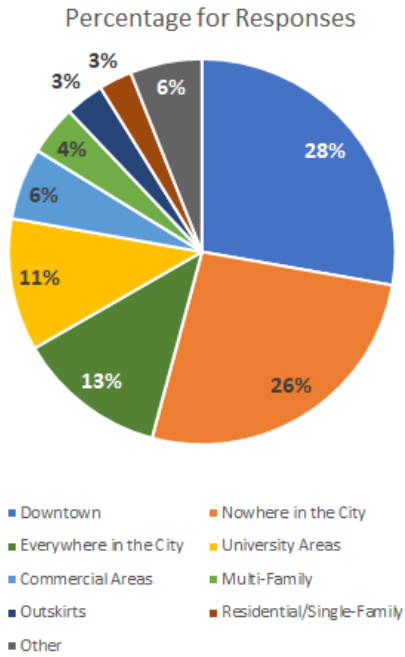
Q12 What areas of the city would you want to see fewer short-term rentals?





Q13 What areas of the city would you be fine with seeing more short-term rentals?



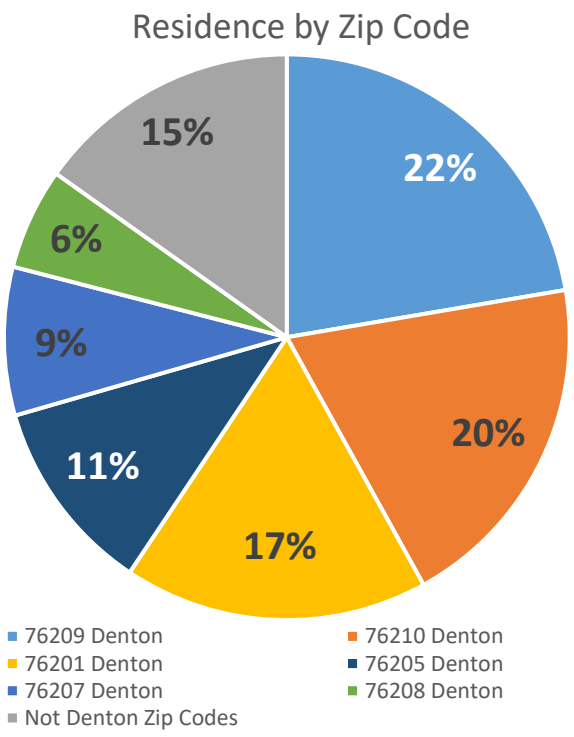


DCA23-0002b
Short-Term Rental Survey

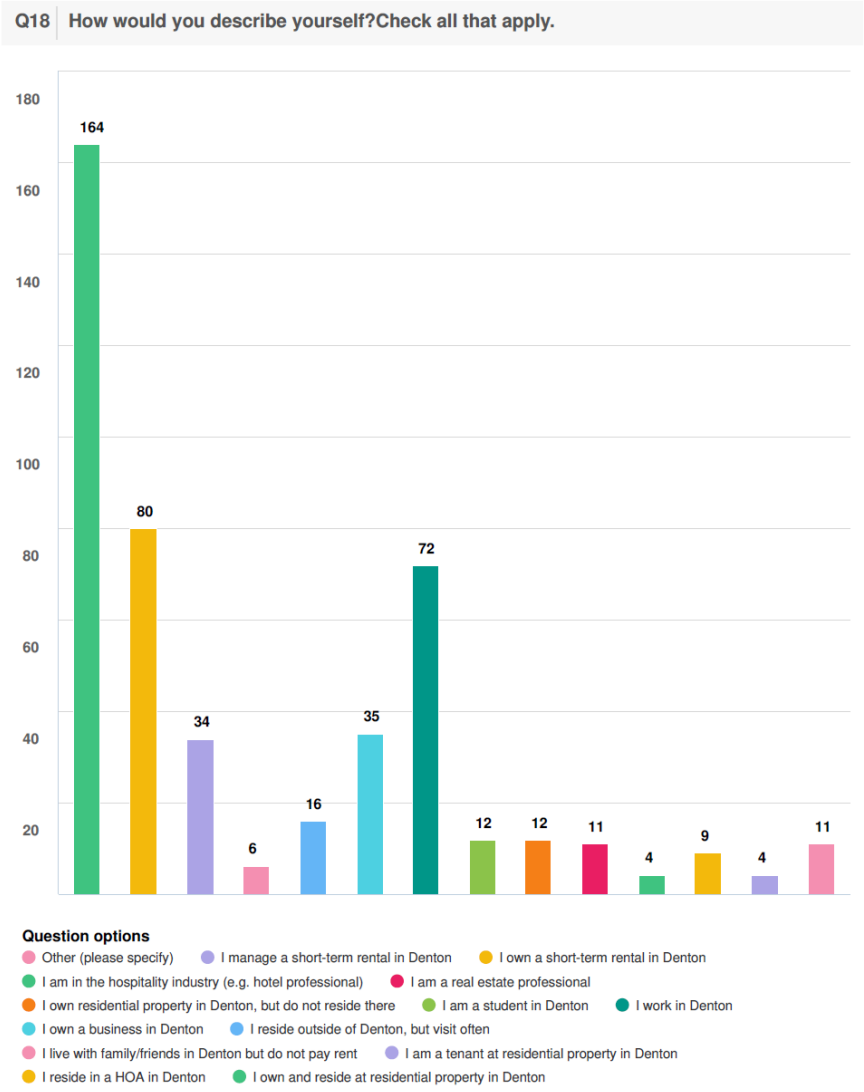
Survey Response Report
August 18, 2023 – September 11, 2023

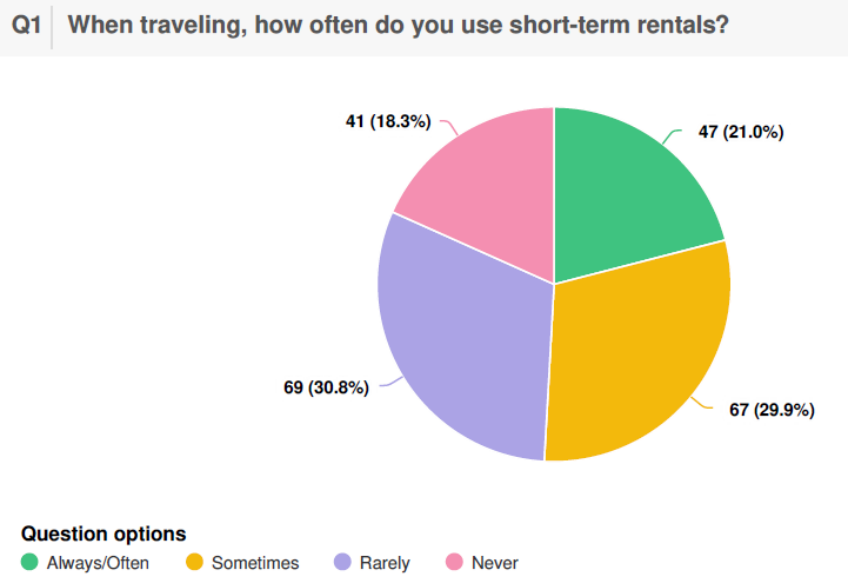
CITY OF DENTON

Respondents



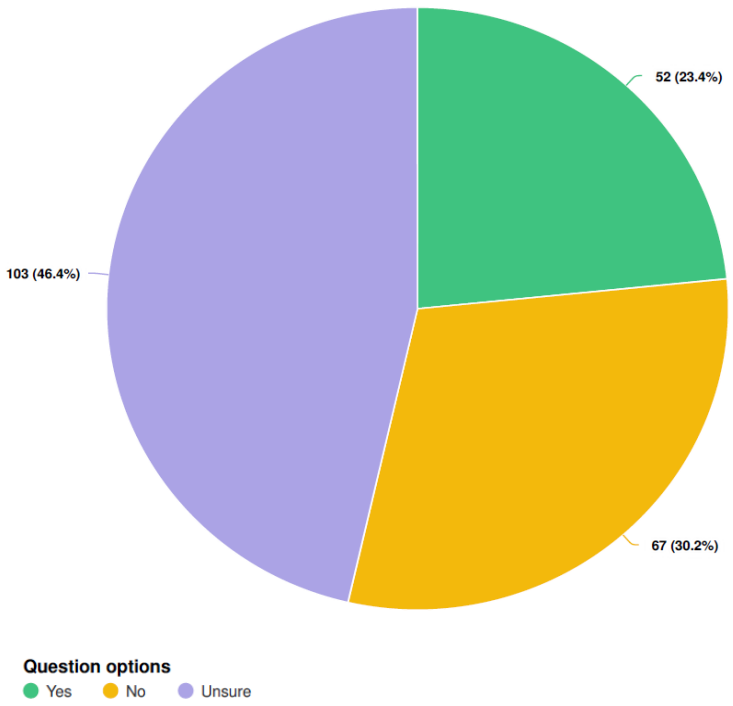
*85% of respondents identified as having a Denton zip code



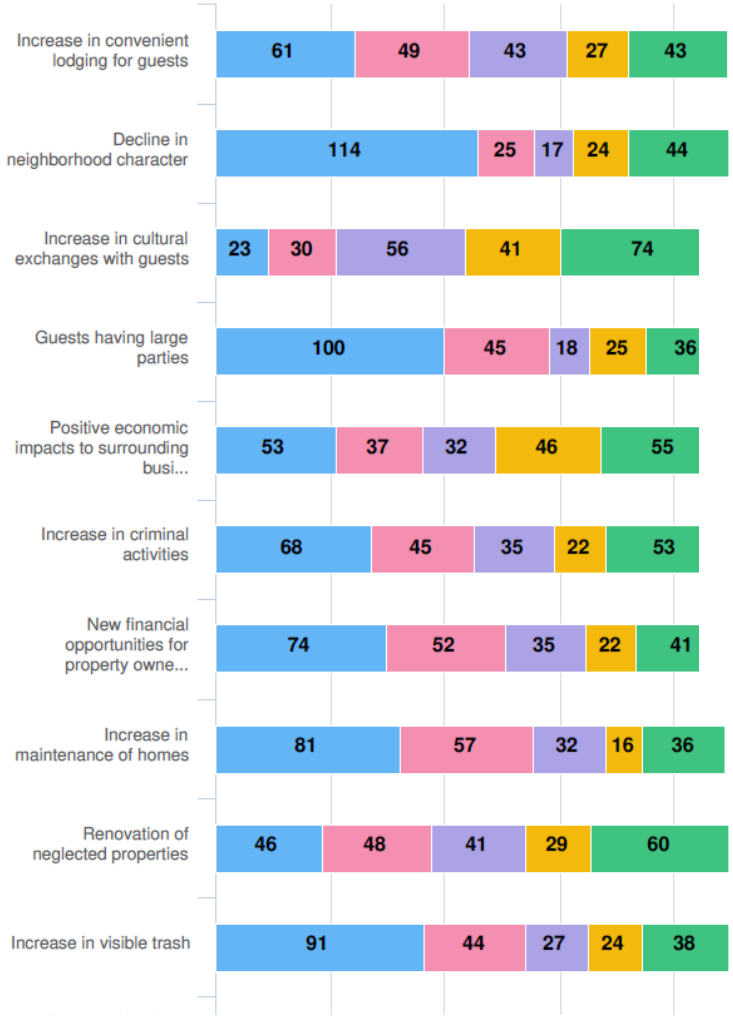


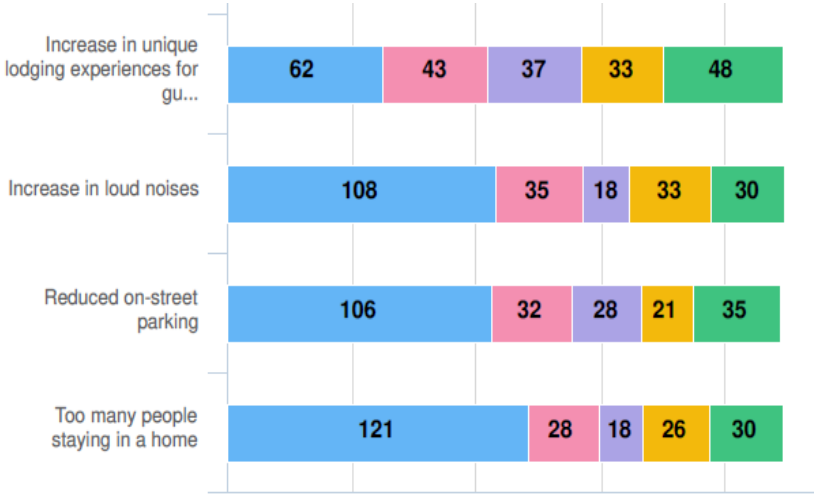
STR Sentiments

Q6 Do you currently live near a short-term rental?



Q7 Which of the following experiences associated with short-term rentals do you think will happen.



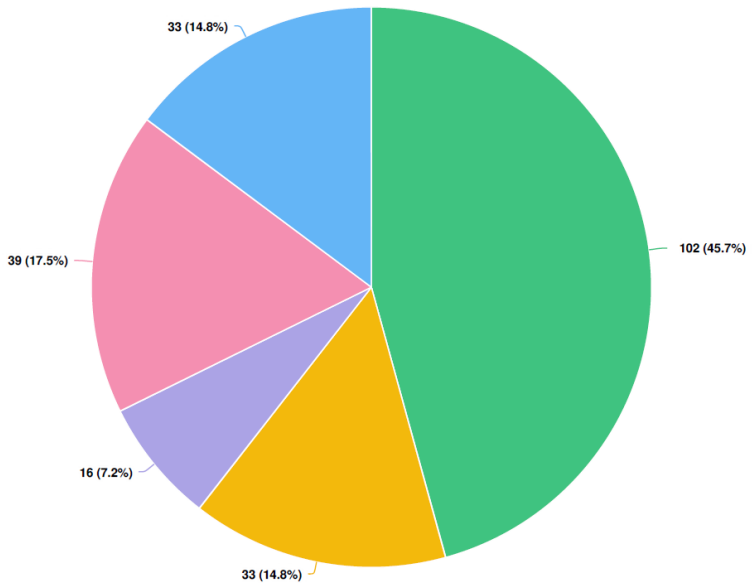


Question options

- Definitely agree
- Somewhat agree
- Unsure
- Somewhat disagree
- Definitely disagree

STR Sentiments

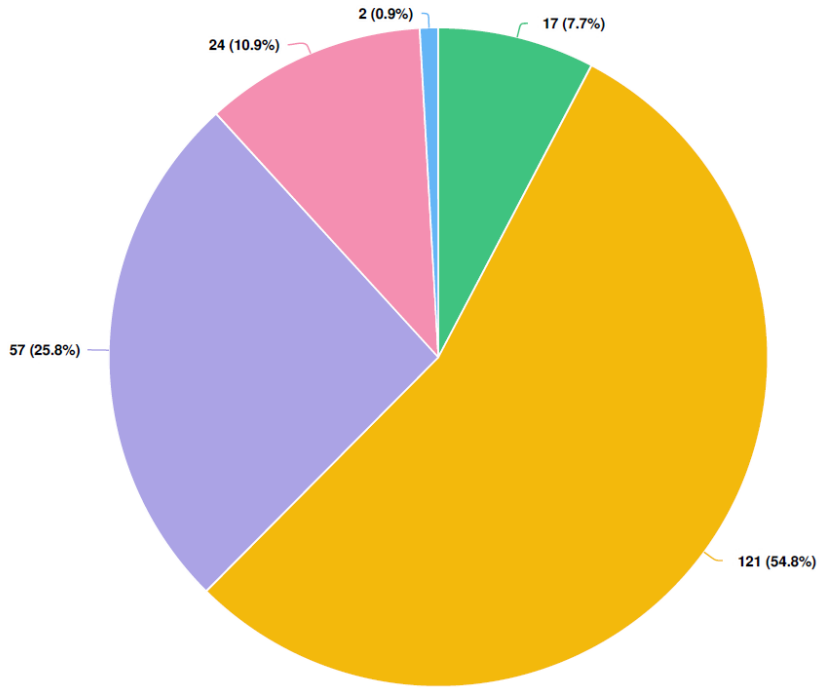
Q9 If a short-term rental registers in your neighborhood, how would you feel?



*65% uncomfortable/very uncomfortable

Question options
Very Comfortable · Comfortable · Unsure · Uncomfortable · Very Uncomfortable

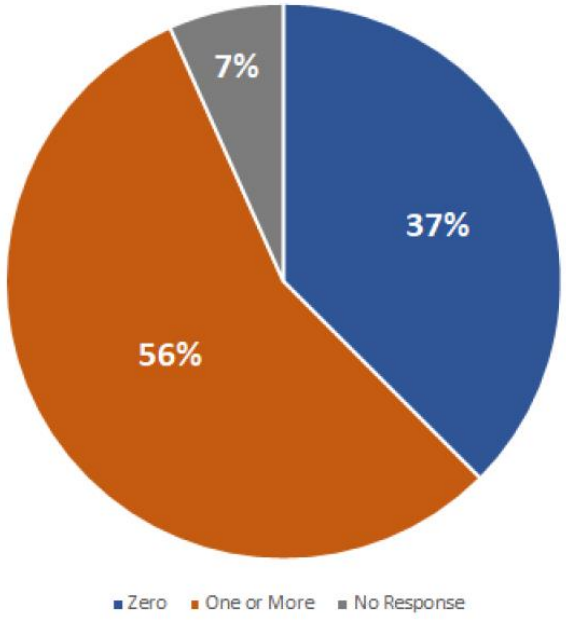
Q10 If a short-term rental registers in your neighborhood, how do you think it would affect your property value?

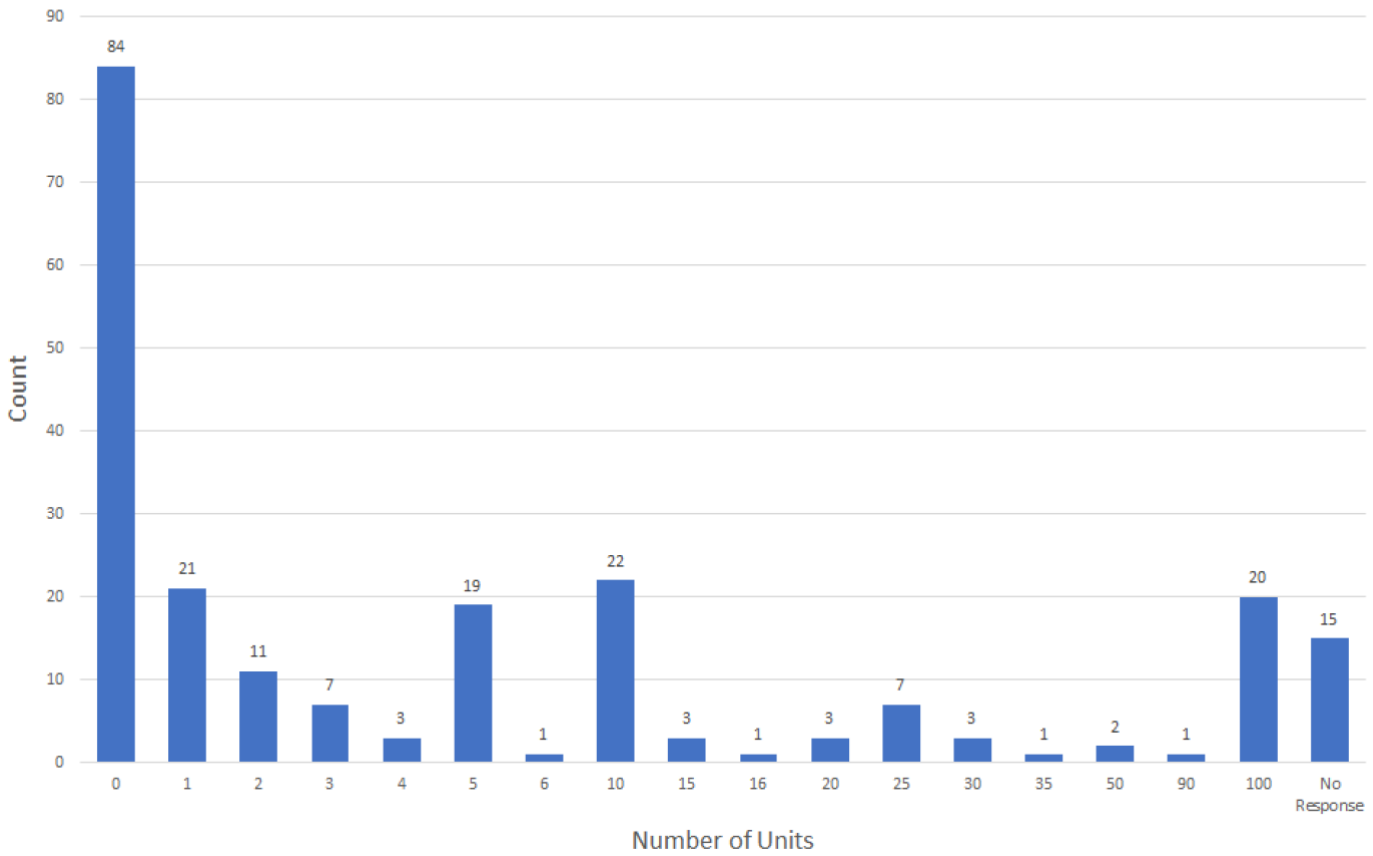


Question options
Not Applicable · Unsure · No Impact/Neutral · Decreases Property Value · Increases Property Value

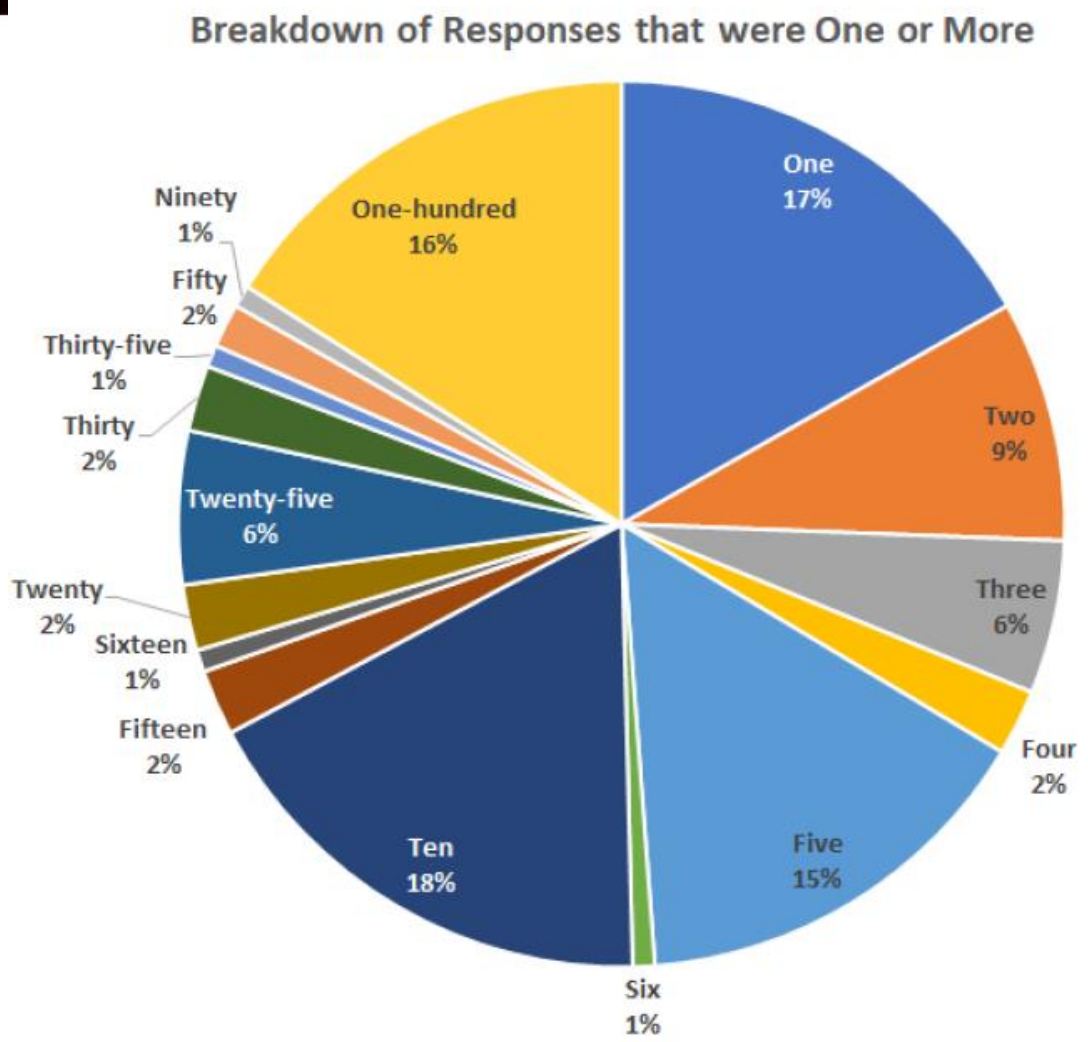
STR Density

Q11 Out of 100 residential dwelling units, how many residential units should be allowed as short-term rentals?





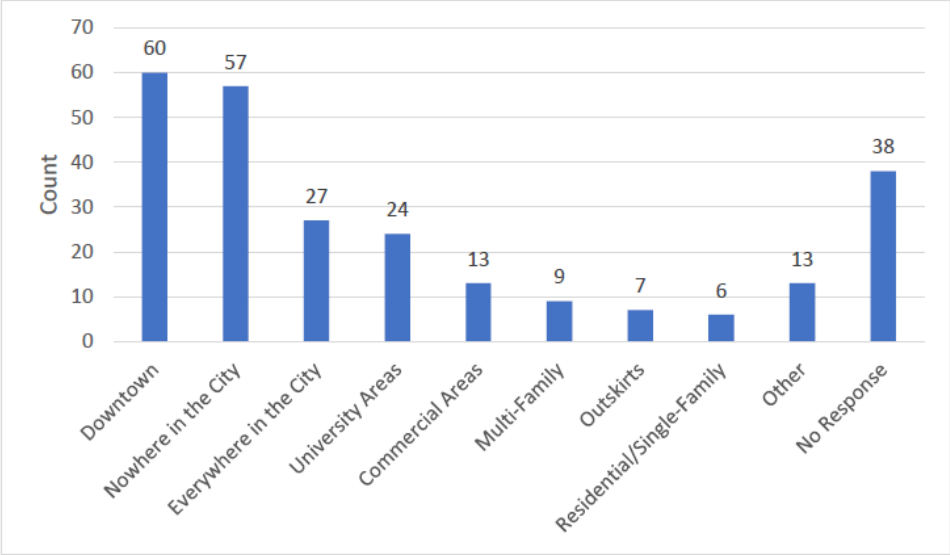
STR Density



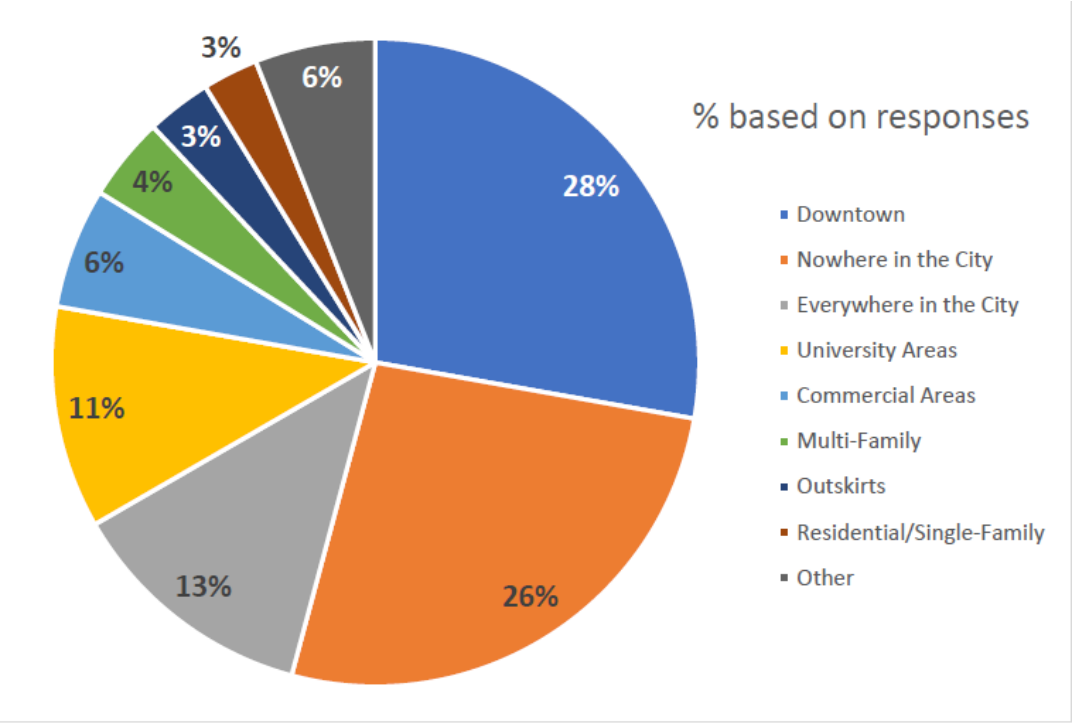
*68% of those who responded one picked a number between 1 and 10 units.

STR Location

Q13: What areas would you be fine with seeing more short-term rentals?

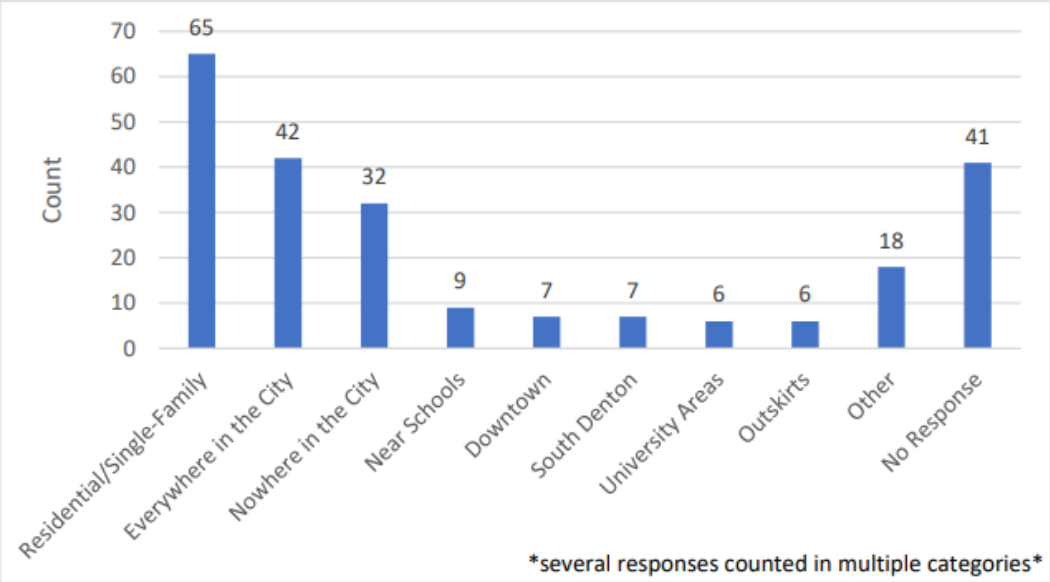


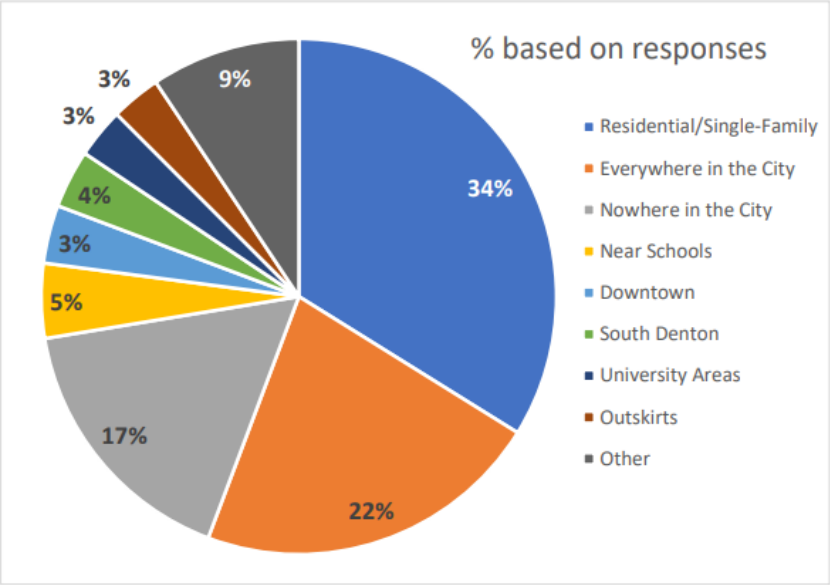
several responses counted in multiple categories



STR Location

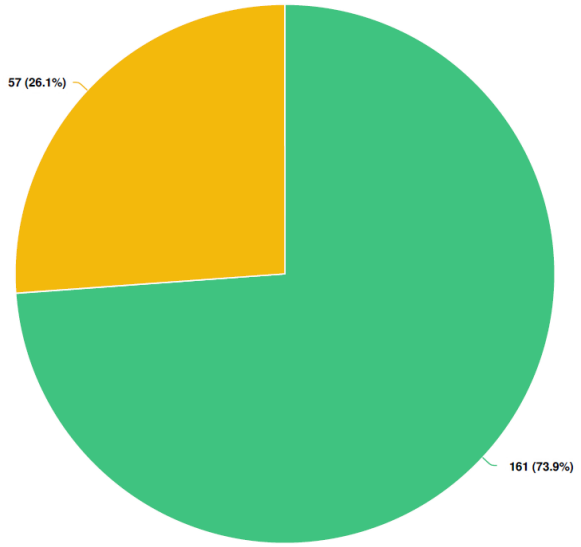
Q12: What areas of the city would you want to see fewer short-term rentals?



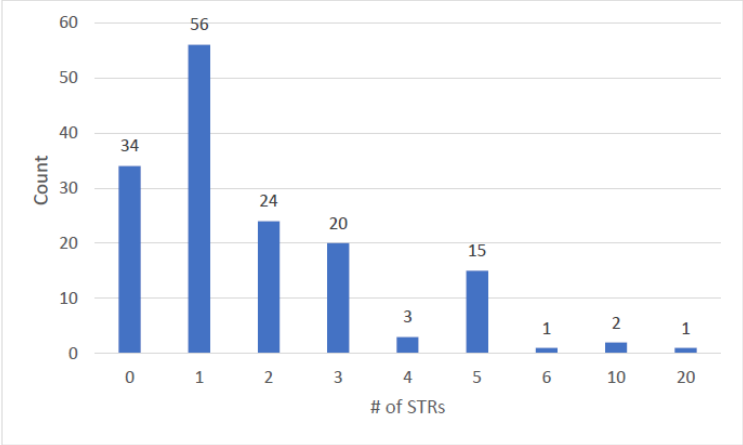


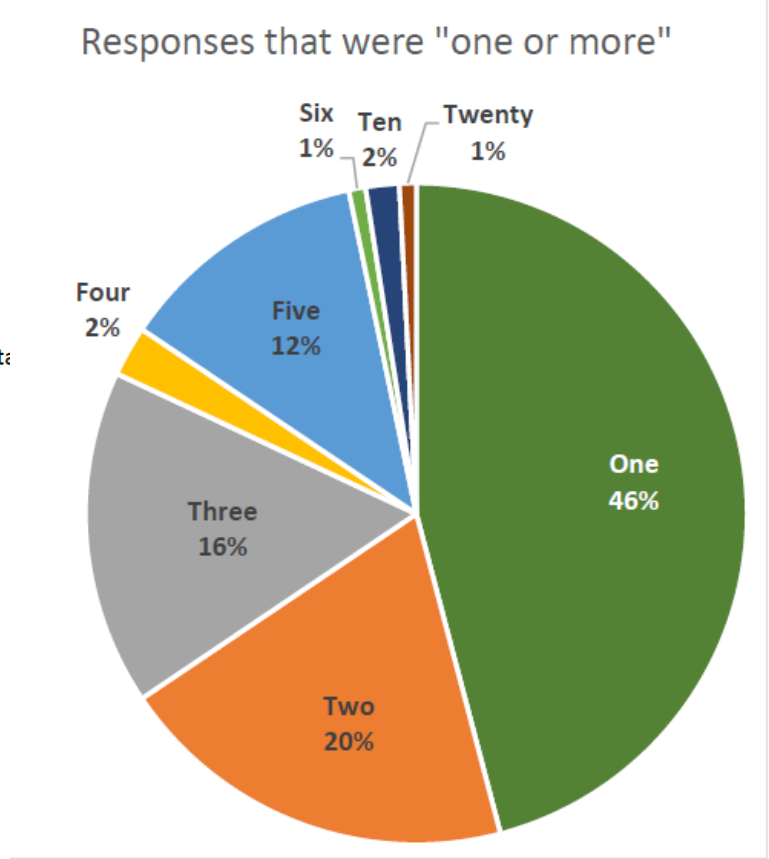
STR Ownership Maximums

Q15 Should there be a maximum number of short-term rentals an owner can have?



Q16: If yes to the previous question (should there be a maximum number of short-term renta
an owner can have?), how many properties?



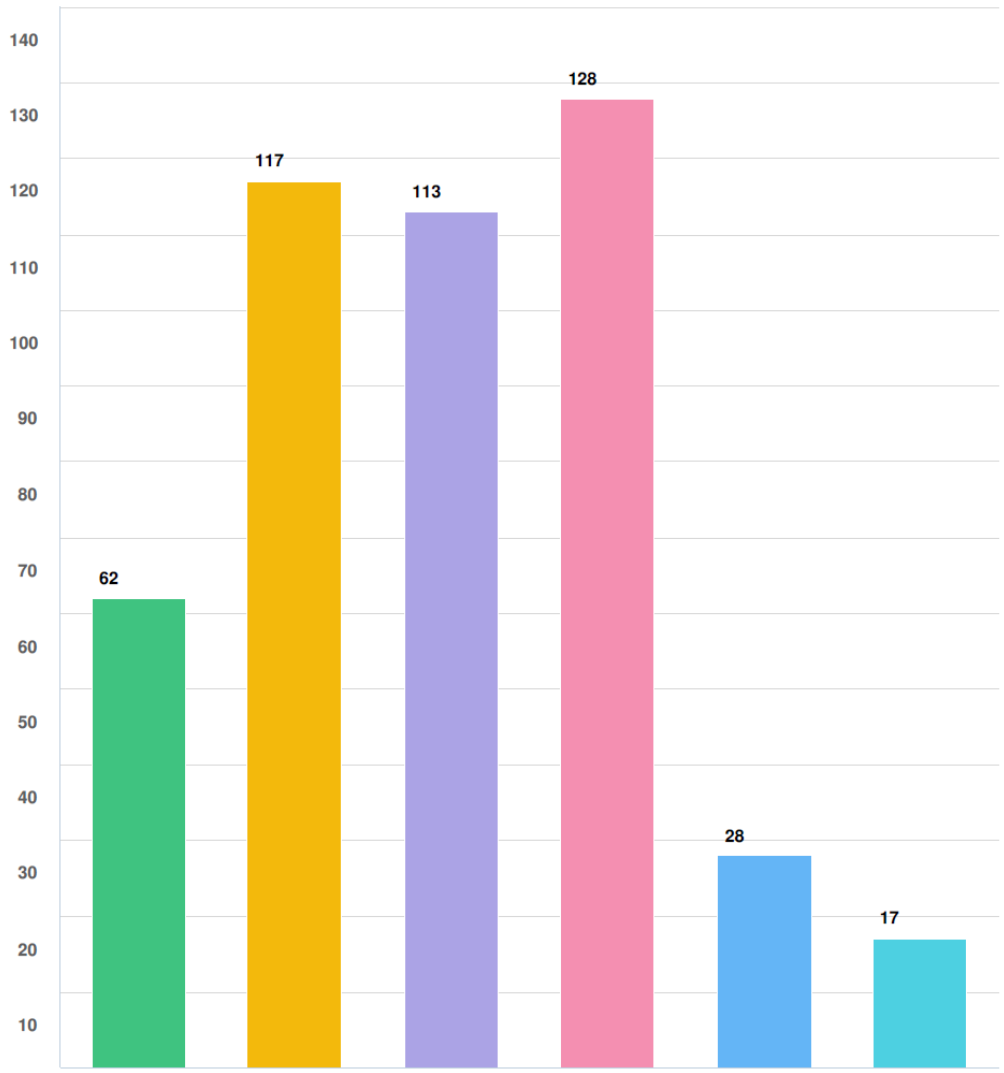


STR Parking

Question options

- Other (please explain)
- Not concerned about parking
- Require owners to provide parking regulations to guests
- Require owners to advertise the number of available parking spots on the property
- Require all guest parking be accommodated on site
- Require one parking space on site per bedroom

Q17 If concerned about parking, which of the following solutions would be acceptable? Check all that apply.



Q20 | Additional Comments on Short-Term Rentals:

Concern	Policy
Affordable Housing Concerns	• Affordable Housing Toolkit • Denton 2040 Comprehensive Plan • Consolidated Plan for Housing and Community Development
Increased Trash in Neighborhoods	• City of Denton Code of Ordinances: Chapter 15, Article V: It is **unlawful and declared a nuisance** for any person owning, claiming, occupying or having supervision or control of any real property, occupied or unoccupied, within the corporate limits of the city, **to fail to remove any refuse, trash, debris, filth, carrion, junk, or garbage from any such real property, including easements and rights-of-way**.
Noise Disturbances	• City of Denton Code of Ordinances: Chapter 15, Article II: **It shall be unlawful** for a person to make or cause any **unreasonably loud or disturbing noise,** which causes material distress, discomfort or injury to persons of ordinary sensibilities in the immediate vicinity thereof
Health/Life/Safety Concerns	• City of Denton Non-Emergency Line • 911 in event of emergency

Questions?

Manglaris, Angie

From: Lauren with RealEstateManDFW <lauren@dougshanahan.net>
Sent: Wednesday, May 29, 2024 3:07 PM
To: Manglaris, Angie
Subject: STR Hosting caps and regulating feet apart

Follow Up Flag: Follow up
Flag Status: Flagged

This message has originated from an **External Source**. Please be cautious regarding links and attachments.

Dear Ms. Manglaris,

My husband and I own and operate two furnished rentals in Denton. One is a block from the UNT campus and the other is close to TWU. We have been offering these rentals for more than 6 years and love what we do.

We host all sorts of guests from families transferring to our area who need a place to stay while their home is being repaired, or maybe they are waiting for their close date for those moving here.

We also get visiting teachers, nurses and other professionals who need a home away from home for a few months. In fact, during Covid, we helped a military family who were escaping from Egypt and were desperate for find a nice home for their family here in Denton. We were so happy to host them, and we have remained good friends since.

On occasion, we may also offer a shorter term stay depending on what our guests need, provided we have vacancy in between the longer stays.

In addition, my husband and I will soon be building our new home on Amarillo Street in Denton, near the square and UNT. We plan to offer a guest suite as a short term rental for visiting professors and others who need accommodations near UNT.

We are worried that the new proposed regulations could hamper our ability to continuing to offer our fantastic homes to such wonderful guests.

I am not sure I understand why the City would have to limit the number of STR's. This could limit and push out some fantastic Super Hosts in our area that have been working hard keeping their properties to be some of the nicest homes on the block - as do we!

In addition, if my next door neighbor wants to also offer his home as a STR, let's say near UNT, this new proposed regulation of being 100 feet apart could also hamper that, and could hamper us as well. We would find it very hard to do business, knowing that we could be made unlawful at any time.

I can't express enough how hard we work to keep our guests happy and offer a comfortable and well equipped home away from home for them.

We hope these proposed changes will be reconsidered. Thank you for your time and effort on this!

Sincerely,
Lauren Shanahan
817-881-9258

To help protect your privacy, Microsoft Office prevented automatic download of this picture from the Internet.

Manglaris, Angie

From: James King <jamesking@agentsalliance.biz>
Sent: Wednesday, May 29, 2024 1:29 PM
To: Firgens, Tina
Cc: Manglaris, Angie; Zagurski, Hayley; Bodine, Matt
Subject: RE: STR suggestions and/or Requests

Hi Ms. Firgens,

Would you please forward to all the P&Z members, y email was returned from most of their email addresses.

Thank you very much,

James

From: Firgens, Tina <Tina.Firgens@cityofdenton.com>
Sent: Wednesday, May 29, 2024 1:24 PM
To: James King <jamesking@agentsalliance.biz>
Cc: Manglaris, Angie <Angie.Manglaris@cityofdenton.com>; Zagurski, Hayley <Hayley.Zagurski@cityofdenton.com>; Bodine, Matt <Matt.Bodine@cityofdenton.com>
Subject: RE: STR suggestions and/or Requests

Received. Thank you.

Tina M. Firgens, AICP
Deputy Director of Development Services/Planning Director
Department of Development Services
Office: (940) 349-8507 (Direct)
401 N. Elm Denton, TX 76201
www.cityofdenton.com

From: James King <jamesking@agentsalliance.biz>
Sent: Wednesday, May 29, 2024 12:04 PM
To: Firgens, Tina <Tina.Firgens@cityofdenton.com>
Cc: Ellis, Margie <Margie.Ellis@cityofdenton.com>; Smith, Tim <Tim.Smith@cityofdenton.com>; jason.coe@cityofdenton.com; desiree.pardon@cityofdenton.com; Pruett, Eric <Eric.Pruett@cityofdenton.com>; Villarreal, Jordan <Jordan.Villarreal@cityofdenton.com>; Kimberly Thaggard <Kimberly.Thaggard@cityofdenton.com>; Melinda King <melinda@reddooroperations.com>
Subject: STR suggestions and/or Requests

This message has originated from an **External Source**. Please be cautious regarding links and attachments.

Thank you all for serving, I've been in your seat literally. Thankfully, that was 15 years ago!! These are some concerns I have and hope they will be helpful.

It is understood that **the first goal** is to bring in all the current Airbnb locations for occupant and neighbor safety and collection of HOT taxes. **Please make this a plan that allows the owners comply and cure deficiencies, if any? With a reasonable cure period.**

Renewal Applications and Code enforcement:

Please consider confirming that owners have a cure period such as 30 days to comply. For example: after a heavy rain there are frequent letters about tall grass. While these are easy to correct and usually without a notice, something such as this could be used to shut down a person's Airbnb business without any real due process.

2.a i.

1,000 limitation seems like an arbitrary number that just causes confusion. Even the Airbnb website shows less than that. While we all love our City of Denton, we are not even close to the destination location of New Orleans.

If you stay with any set numerical limitation, then **I would suggest that renewals get priority over new applications**.

100-foot Distance requirement causes a problem in that a property owners' freedoms can be restricted if a neighbor already has an approved Airbnb.

2.b.ii.iii.

Some locations are better and sometimes obvious locations for an Airbnb.
Example: Please consider allowing a 4-plex in a mixed use, corridor, other non-residential to use all 4 units as Airbnbs.

Thanks

James E King, CPA
940-367-1184
jamesking@agentsalliance.biz
AgentsAlliance
SALES ★ SERVICE ★ SUPPORT ★ INDEPENDENCE

This email has been scanned for spam and viruses by Proofpoint Essentials. Click here to report this email as spam.

Manglaris, Angie

From: Mark Haiducek <markhaiducek@gmail.com>
Sent: Tuesday, May 28, 2024 6:15 PM
To: Manglaris, Angie
Subject: Short Term Rentals

Follow Up Flag: Follow up
Flag Status: Flagged

This message has originated from an External Source. Please be cautious regarding links and attachments.

Dear Angie,

Could you please send this to the proper channels to be heard and evaluated by the City Council and Code Office at the upcoming Planning and Zoning Commission Public Hearing tomorrow night. I will be attending the meeting as well.

Thank you,
Mark Haiducek

Thank you for your time to listen to my concerns and ideas regarding Short-term Rental homes. I went to the Denton informational meeting on May 23, 2024 where I met Judge Joe Holland, City Councilman and retired Justice of the Peace of Precinct 1 in Denton.

I was discussing my concerns and ideas about short-term rental homes in comparison to long-term rentals. Short-term rentals haven't been around as long as long-term rentals and there is a need for short-term rentals in our community.

To start off, I have concerns about implementing the HOT tax and increasing prices. Please think about how we are gathering, as a community, 8.25% sales tax on existing real estate that has never been taxed before. It is a completely new revenue source for our city/community that we should be embracing.

This is a new and wonderful way to bring more money to our small businesses and support property values in our community. Large Corporate companies who own the hotels do not spend their profits in our community like our local citizens that own short-term rentals.

As a homeowner, I have enjoyed the ability to rent my home short-term which can bring me additional income to aid in better care and maintaining my home. If I were long-term renting my home, I would loose rights and control over my immediate house to a renter that does not always have the same values.

When a long-term renter decides to destroy and vandalize a home in our community, Law Enforcement has not tools to assist in preventing or stopping these crimes and the renters are never brought up on charges for criminal vandalism or

forced to make restitution. Renters can destroy $10k to $20k or more in real property damage. This should and would be a federal crime but it's not supported under long-term rentals.

In a short-term rental, when someone breaks house rules, they can be immediately held accountable and resolve the situation at that time with financial charges and / or vacate the premises if needed.

In my experience, this has reduced the need to involve law enforcement and the court system.

A few years ago, I called Denton police about a long-term renter who was actively damaging my property. They explained that it was a Civil issue and the renters had 'owner's rights' to my property which prevented Law enforcement from stopping the vandalism.

To my knowledge and experience in providing rental property, over 50% of long-term rentals have required law enforcement and/or court systems from different illegal situations; but have not experienced or heard of any issues requiring either because of situations with short-term rentals.

As a landowner, I have always care about the Immediate condition of my properties. I.E., I have a Super Host rating of a 4.82 star. Repairs are immediate and property is cleaned thoroughly between every guest.
I hire cleaning services, landscaping and handyman services to keep my property in pristine condition. Through the short-term rental platforms like Airbnb and VRBO, if house rules are not followed IE party's, parking violations they can be fined and charged a fee per house rules. By limiting and controlling any volume or density of short-term rentals is reducing business opportunities and taxes for our existing community. Never has long-term rental property limited by location.

Our community is going to benefit from short-term rentals gathering 8.25% sales tax where we have never been able to receive on long-term rentals. In my opinion, short-term rentals are not in the same category as the hotels. We should take this opportunity to keep our cost and taxes low to entice more professionals to stay in our community in short-term rentals.

--
Mark Haiducek
214-636-2947

Manglaris, Angie

From: Bob Bobo <bbobo@therapyspacestx.com>
Sent: Wednesday, May 29, 2024 12:00 PM
To: Manglaris, Angie; Bodine, Matt
Cc: hbobo@therapyspacestx.com
Subject: Feedback on the proposed 100-foot Rule for Short Term Rentals

Follow Up Flag: Follow up
Flag Status: Flagged

This message has originated from an **External Source**. Please be cautious regarding links and attachments.

We are unable to be at the P&Z meeting this evening but wanted to submit our feedback.

I appreciate all the work the city has done to clarify the landscape for the short-term rental market in Denton. The city has a reasonable handle on the issues and is acting for the good of all residents.

However, I have a concern regarding the proposed 100-foot rule for short-term rentals. This rule could unfairly put Airbnb owners at risk of losing their business simply for not being first in line for registration renewal.

I believe a better approach would be to set a percentage limit in the zone-to-area. This would ensure a fair distribution and avoid penalizing owners based on their timing of registration.

Thank you for considering my feedback.

Best regards,

Bob and Heather Bobo

On Monday, May 20, 2024 at 12:01 PM, Manglaris Angie <Angie.Manglaris@cityofdenton.com> wrote:

Good morning,

This is Angie Manglaris and Matt Bodine from the City of Denton Planning Division. You have previously indicated interest in the City's Short-Term Rental Code Amendment Project, and we wanted to reach out to you regarding our upcoming Town Hall and future Public Hearings for the project.

A Town Hall will be held on May 23, 2024, at 6:30 p.m., at the Development Service Center, 401 N. Elm Street, to discuss the proposed amendments with the community with opportunities to ask questions directly to city staff.

Further discussions are scheduled for the Planning and Zoning Commission meeting on May 29, 2024, and the City Council meeting on June 4, 2024, both starting at 6:30 p.m. These meetings will take place in the City Council Chambers at City Hall, located at 215 E. McKinney St. They

will include public hearings where amendments concerning the regulation of Short-Term Rentals in Denton will be reviewed and considered.

For more information on these meetings or the proposed amendments to Short-Term Rental regulations, please visit: www.discussdenton.com/short-term-rentals

As always, please feel free to contact us with additional questions.

Respectfully,

Angie Manglaris, AICP

Development Review Manager

Department of Development Services

401 N. Elm Street, Denton, Texas 76201

Office: (940) 349-8381

Matt Bodine | Assistant Planner

Development Services Planning Division

matt.bodine@cityofdenton.com

Desk: (940) 349-8921

www.cityofdenton.com

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON, TEXAS AMENDING THE DENTON DEVELOPMENT CODE, REGARDING SHORT-TERM RENTAL USE REGULATIONS AND DEFINITIONS, SPECIFICALLY AMENDMENTS TO SECTION TABLE 5.2-A- TABLE OF ALLOWED USES, SECTION 5.3.1 USE-SPECIFIC STANDARDS – GENERALLY, SECTION 5.3.5: COMMERCIAL USE-SPECIFIC STANDARDS, TABLE 7.9-I PARKING, AND SECTION 9.2: DEFINITIONS; PROVIDING FOR A PENALTY IN THE MAXIMUM AMOUNT OF $2,000.00 FOR VIOLATIONS THEREOF; PROVIDING A SEVERABILITY CLAUSE AND AN EFFECTIVE DATE. (DCA23-0002g)

WHEREAS, pursuant to Ordinance No. DCA18-0009q, the City Council of the City of Denton adopted the newly revised 2019 Denton Development Code, the ("DDC"); and

WHEREAS, City staff was directed to research the nature and extent of short-term rentals in the City of Denton, conduct a public survey, and amend the DDC to provide regulatory options which provide opportunities for conducting short-term rentals and protecting residential neighborhoods where short-term rentals may be a disruptive land use; and

WHEREAS, City staff presented the results of the short-term rental preference survey, reflecting a desire in residents to maintain the integrity of single-family areas while allowing higher densities of short-term rentals within certain areas of the city; and

WHEREAS, the regulation of the use and operation of short-term rentals residential zoning districts is consistent with the 2040 Comprehensive Plan's goal of ensuring the continued viability of Denton's established neighborhoods through thoughtful conservation; and

WHEREAS, the City also finds medium and higher density residential uses are dispersed throughout the City in mixed-use and nonresidential zoning districts, the City Council finds that such locations are less disrupted by the presence of short-term rentals due to current density, and therefore, provide adequate opportunities for short-term rentals to operate outside the City's residential neighborhoods; and

WHEREAS, the amendments proposed include the following:

1. Table 5.2-A: Table of Allowed Uses – Update table to show Short-Term Rentals as a permitted use in all zoning districts which allow residential uses.
2. Section 5.3.1 Use-Specific Standards – Generally – related to maximum persons occupying a dwelling unit.
3. Section 5.3.5: Commercial Use-Specific Standards – related to the regulations and permitting of Short-Term Rental Uses
4. Table 7.9-I: Parking – related to parking requirements for Short-Term Rental Uses
5. Section 9.2: Definitions – clarify definitions related to Short-Term Rental Uses

WHEREAS, on March 20, 2024, the Planning and Zoning Commission, in compliance with the laws of the State of Texas, gave the requisite notices by publication, held due hearings, and recommended Approval [7-0] of the amendment to the Denton Development Code; and

WHEREAS, following the March 20, 2024, Planning and Zoning Commission meeting, and due to continually evolving litigation surrounding Short-Term Rentals, staff determined it necessary to conduct a broader public notification process for the Code amendments by providing a mailed notice to property owners potentially affected by the proposed zoning changes; and

WHEREAS, on May 29, 2024, the Planning and Zoning Commission, in compliance with the laws of the State of Texas, gave the requisite notices by publication, held due hearings, and recommended approval [5-0] of the amendment to the Denton Development Code; and

WHEREAS, on June 4, 2024, the City Council likewise conducted a public hearing in accordance with local and state law and the City Council hereby finds that the Code amendments are consistent with the City's comprehensive plan, and federal, state, and local law are in best interests of the City of Denton; NOW, THEREFORE, THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The findings and recitations contained in the preamble of this ordinance are incorporated herein by reference and found to be true.

SECTION 2. Table 5.2-A: Table of Allowed Uses, Section 5.3.1 Use-Specific Standards, Section 5.3.5. Commercial Use-Specific Standards, Table 7.9-i: Parking, and Section 9.2: Definitions of the DDC are amended as set forth in **"Exhibit A"** which is attached and fully incorporated herein by reference.

SECTION 3. Any person, firm, partnership, or corporation violating any provision of this ordinance shall, upon conviction, be deemed guilty of a misdemeanor and shall be punished by fine in sum not exceeding $2,000.00 for each offense. Each day that a provision of this ordinance is violated, shall constitute a separate and distinct offense.

SECTION 4. If any provision of this ordinance or the application thereof to any person or circumstance is held invalid by any court, such invalidity shall not affect the validity of the provisions or applications, and to this end the provisions of this ordinance are severable.

SECTION 5. That an offense committed before the effective date of this ordinance is governed by prior law and the provisions of the Denton Development Code, as amended, in effect when the offense was committed, and the former law is continued in effect for this purpose.

SECTION 6. In compliance with Section 2.09(c) of the Denton Charter, this ordinance shall become effective August 1, 2024, and the City Secretary is hereby directed to cause the caption of this ordinance to be published twice in the Denton Record Chronicle, a daily newspaper published in the City of Denton, Texas, within ten (10) days of the date of its passage.

The motion to approve this ordinance was made by _____ and seconded by _____, the ordinance was passed and approved by the following vote [___ - ___]:

	Aye	Nay	Abstain	Absent
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: _____

Exhibit A

Amend 5.2.ATable of Allowed Uses as follows:

Table 5.2-A: Table of Allowed Uses																	
P = permitted S = specific use permit required Blank cell = use prohibited + = use-specific standards apply																	
	Residential							Mixed-Use			Corridor		Other Nonresidential				Use-Specific Standards
	RR	R1	R2	R3	R4	R6	R7	MN	MD	MR	SC	HC	GO	LI	HI	PF	
Commercial Uses																	
Lodging Facilities																	
Short-Term Rental	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+				5.3.5T

Amend Section 5.3.1 Use-Specific Standards as follows:

D. Maximum Persons Occupying a Dwelling

No single dwelling unit shall have more than four unrelated persons residing therein, nor shall any "family" have, additionally, more than four unrelated persons residing with such family. Hotels, motels, bed and breakfast establishments, boarding houses, chapter house, dormitories, Community Homes, Group Homes, Elderly Housing, and Short-Term Rentals are exempt from this requirement. Additionally, any organization or institutional group that receives federal or state funding for the care of individuals is exempt from this requirement.

Amend Section 5.3.5 Commercial Use-Specific Standards as follows:

T. Short-Term Rental

1. Registration Requirements

No person or entity shall advertise, offer to rent, or rent, lease, sublease, license, or sublicense a dwelling unit or bedroom within the city as a short-term rental for which a registration has not been properly made and filed with the Development Services Department. Registration shall be made upon forms furnished by the city for such purpose and shall specifically require the following minimum information:

a. Name, address, phone number and e-mail address of the property owner and the management company (if applicable) of the short-term rental property;
b. Verification that the proposed short-term rental dwelling unit or bedroom is managed by the property owner or by a management company;
c. Name, address, phone number and e-mail address of the designated Local Emergency Contact;
d. If the applicant does not own the property where the short-term rental is located, the registrant must provide written authorization, signed by the property owner before a notary public, authorizing the registrant to operate a short-term rental on the premises.
e. A submission of a sketch floor plan of the dwelling unit or bedroom with dimensional room layout; and

f. A site plan/survey of the property indicating maximum number of vehicles that can be legally parked on the property, without encroaching onto streets, sidewalks or alleys, other public rights-of-way or public property. The site plan/survey is required to ensure compliance with Section 5.3.5T.2.c.

2. Registration Certificates

a. **Residential Zoning Districts**

i. One thousand (1,000) Registration Certificate Limit. The Department of Development Services shall issue a maximum of one thousand (1,000) short-term rental registration certificates per calendar year in Residential Zoning Districts (RR-R7). Registration certificates are per short-term rental unit, and the registration certificate cap applies to all residential use types (including multi-family) in residential districts.

ii. The Department of Development Services shall process applications in the order of receipt and shall issue new registration certificates in the order that complete applications are received.

iii. If the number of registration certificates reaches the one thousand (1,000) registration certificates, then the Department of Development Services shall stop processing applications and add applicants to a waiting list.

iv. A maximum of two (2) short-term rental registration certificates may be issued per parcel.

v. A short-term rental unit cannot be within 100 feet of an existing short-term rental unit, measured at the property boundary. This does not apply to units on the same parcel.

vi. All short-term rental registration certificates expire on December 31 of each calendar year.

vii. Renewal season takes place from November 1 through December 31 of each year. Only renewal applications are accepted during this time

b. **Non-residential Zoning Districts**

i. Registered short-term rentals in non-residential zoning districts do not count toward the one thousand (1,000)- registration certificate cap.

ii. In multifamily developments, no more than 10% of the units within a given development may be registered as a short-term rental.

iii. At least two (2) short-term rental units shall be allowed per multifamily development.

iv. Short-term rentals within non-residential zoning districts are not subject to the 100-foot separation rule.

3. Operation

a. **External Signage**

There shall be no external on-site or off-site advertising signs or displays indicating the property is a short-term rental.

b. **Limit on Occupants Allowed**

No more than two adult guests per bedroom, plus no more than two additional adults shall be allowed when renting a property as a short-term rental, except that there shall be a maximum occupancy of 10 persons, adults and children.

c. **Limits on Number of Vehicles**
The maximum number of vehicles allowed at a short-term rental shall be limited to the number of available off-street parking spaces.

d. **Advertisements and Contracts**
Any advertisement of the property as a short-term rental and all rental contracts must contain language that specifies: the allowed maximum number of occupants; maximum number of vehicles; and states that the short-term rental may not be used for the sole or primary purpose of having a party venue (e.g. wedding reception, concert, bachelor or bachelorette party, or any similar activity that would assemble large numbers of attendees).

e. **Restrictions and Enforcement**

The following actions are violations of this DDC and are enforceable as established in Section 1.6 Enforcement Actions.

i. To advertise, offer, operate or allow to be operated as a short-term rental without first registering, in accordance with this DDC, the property in which the rental is to occur;
ii. To operate a short-term rental that does not comply with all applicable city and state laws and codes;
iii. To operate a short-term rental without paying the required hotel occupancy taxes;
iv. To offer or allow the use of a short-term rental for the sole or primary purpose of having a party venue (e.g. wedding reception, concert, bachelor or bachelorette party, or any similar activity that would assemble large numbers of attendees);
v. To permit the use of short-term rental for the purpose of: housing sex offenders; operating a structured sober, recovery or other purpose living home or similar enterprise; selling illegal drugs; selling alcohol or another activity that requires a permit or license under the Alcoholic Beverage Code; or operating as a sexually oriented business;
vi. To fail to update all required registration materials within 30 days if there is a change in Local Emergency Contact, property ownership, or property management company for a registered short-term rental.
vii. To operate a short-term rental in a vehicle. Refer to Chapter 17, Section 17-2 of the City's Municipal Code of Ordinances for the definition of vehicle and Section 17-101.A (12) prohibiting the use a vehicle for living or sleeping quarters;
viii. To operate a short-term rental within a non-permanent structure;

ix. To not have a Local Emergency Contact available to respond to complaints; and

x. To not correct any violation(s) found during inspection.

4. Written Briefing and Safety Features

a. **Informational Written Briefing**

Each registrant operating a short-term rental shall provide to guests, in writing, a brochure or e-brochure that includes:

i. The contact information of the designated Local Emergency Contact;

ii. Pertinent neighborhood information including, but not limited to, parking restrictions, restrictions on noise and amplified sound, and trash collection schedules; and

iii. Information to assist guests in the case of emergencies posing threats to personal safety or damage to property, including emergency and non-emergency telephone numbers for police, fire, and emergency medical services providers and instructions for obtaining severe weather, natural or manmade disaster alerts and updates.

b. **Safety Features**

Each short-term rental registrant shall provide, in the premises, working smoke detectors in accordance with adopted codes, at least one working carbon monoxide detector and alarm, and one working fire extinguisher. The premises shall, otherwise comply with all applicable City regulations, including but not limited to Building and Fire Codes.

5. Notification of Approval of Short-Term Rental Registration

Within 10 days of the approval of a short-term rental registration, the city shall send notice to all property owners within 100 feet of the subject property, and shall include the contact information of the designated Local Emergency Contact, and pertinent information about standards regulating short-term rentals.

6. Registration Term, Fees, and Revocation

a. All short-term rental registrations approved under this DDC shall expire on December 31 of each calendar year.

b. The fee for registration of a short-term rental is identified in the City's adopted fee Schedule.

c. In lieu of the revocation standards in Subsection 1.6.5B.4, the Director may revoke a short-term rental registration if the registrant has:

i. Received three notices for violations of the Property Maintenance Code or citations for violations of the Denton Development Code, any other ordinance of the city, or any state or federal law on the premises within the preceding 12-month time period. Examples of such violations include, but

are not limited to, noise violations, trash and debris violations, violations for parking vehicles in a manner that impedes the sidewalk or is on an unimproved surface; or

ii. Knowingly permitted three notices for violations of the Property Maintenance Code or citations for violations of the Denton Development Code, any other ordinance of the city, or any state or federal law on the premises by any other person within the preceding 12-month time period; or

iii. Knowingly made a false statement on the registration application.

d. Notice of the revocation shall be given to the registrant in writing, served by certified United States mail to the registrant's mailing address on record. The revocation shall become effective fourteen (14) days from the date of mailing.

e. The Director's decision is final unless the owner files a written appeal pursuant to the procedures established in Subsection 2.8.3: *Appeal of Administrative Decision.*

f. In the event registrant's short-term rental registration is revoked by the Director and the registrant fails to successfully appeal the Director's decision, no second or additional registration shall be issued for a short-term rental on the premises for 12 months of the date such registration was revoked.

7. Right to Inspect Premises

The City of Denton reserves the right, with reasonable notice to the owner or property management company (as applicable), to inspect the dwelling unit or bedroom to determine compliance with this DDC as well as other applicable city codes.

a. If only a portion of the premises (bedroom) is offered for rent, then that portion, plus shared amenities and points of access, may be inspected.

b. If, upon completion of an inspection, the premises are found to be in violation of one or more provisions of applicable city codes and ordinances, the city shall provide written notice of such violation and shall set a re-inspection date for a violation to be corrected prior to renewal of registration.

c. Inspections shall be required within six (6) months for all new registrations, when a registration is transferred to another owner, or when additions or modifications are performed to the property which requires a City building permit. Inspections may be required for renewals or upon a violation of any ordinance of the city, state, or federal law.

d. Inspections shall occur between the hours of 8:00 a.m. and 5:00 p.m.; provided, however, that in cases of emergency where extreme hazards are known to exist which may involve imminent injury to persons, loss of life, or severe property damage, the building official or designee may enter the short-term rental at any time and upon presentation of identification without the owner's permission.

<u>Amend Table 7.9-I: Minimum Off-Street Parking as follows:</u>

Short-Term Rental: The maximum number of vehicles allowed at a short-term rental shall be limited to the number of available off-street parking spaces.

Amend Section 9.2: Definitions as follows:

Modify the following terms and definitions:

Short-Term Rental: The rental of an entire dwelling unit or bedroom for monetary consideration for a period of time not less than 24 hours and not more than 29 consecutive days, not including a bed and breakfast, boarding or rooming house, hotel, or motel. This definition does not include offering the use of one's property where no fee is charged or collected.

Local Emergency Contact: The property owner, registrant, or individual designated by the property owner who is available on a 24-hour basis, have access to the Short-Term Rental Property, and be authorized to address any complaints, disturbances, and emergencies.

DCA23-0002g: Short-Term Rentals

Angie Manglaris, AICP

Development Review Manager

June 4, 2024

CITY OF DENTON

File ID: DCA23-0002g

Current State of Short-Term Rentals

LODGING FACILITIES	RR	R1	R2	R3	R4	R6	R7	MN	MD	MR	SC	HC	GO	LI	HI	PF	
Bed and Breakfast	P+				S+	S+	S+	P+	P+	P+	P+						5.3.5S
Boarding or Rooming House								S	P	P	P						
Hotel								P	P	P	P	P	P	P			
Motel										P	P	P	P	P			
Short-Term Rental	P+	P+	P+	P+	P+	P+	P+	P+									5.3.5T

- Defined as rental of an **entire dwelling unit** for monetary consideration for a period of time **less than 30 consecutive days**, not including a bed and breakfast, boarding or rooming house, hotel, or motel. This definition does not include offering the use of one's property where no fee is charged or collected.
- **Registration required** to operate – currently 33 of estimated 250 registered
- Local Emergency Contact required
- **No registration certificate cap** for Short-Term Rentals
- Hotel Occupancy Tax (HOT) remittance required (per Ordinance 96-136)

Proposed Amendments

Table 5.2-A: Table of Allowed Uses

P = permitted S = specific use permit required Blank cell = use prohibited + = use-specific standards apply

	Residential							Mixed-Use			Corridor		Other Nonresidential				Use-Specific Standards
	RR	R1	R2	R3	R4	R6	R7	MN	MD	MR	SC	HC	GO	LI	HI	PF	
Commercial Uses																	
LODGING FACILITIES																	
Short-Term Rental	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+				5.3.5T

Amend Table 5.2.A Table of Allowed Uses to allow STRs as a permitted use in any Zoning District that allows residential uses by right or by Specific Use Permit

Amend Section 5.3 Use-Specific Standards by amending Subsection 5.3.1.D Maximum Persons Occupying a Dwelling Unit to include Short-Term Rentals as an exempt land use from this regulation.

Proposed Amendments – Use Specific Standards

1. ***Registration Requirements*** – amendments to this Section include: clarification that a single bedroom **or a unit** may be listed as a Short-Term Rental, requirements **to provide management company information** (when applicable), clarifies **Local Emergency Contact** is a defined term in the DDC, and adds additional detail regarding registration submittal requirements.

2. ***Registration Certificates*** –a **proposed addition to the Short-Term Rental Use Specific Standards** to address the results of the short-term rental preference survey

1. **Registration Requirements**

No person or entity shall advertise, offer to rent, or rent, lease, sublease, license, or sublicense a ~~residential property~~ dwelling unit or bedroom within the city as a short-term rental for which a registration has not been properly made and filed with the Development Services Department. Registration shall be made upon forms furnished by the city for such purpose and shall specifically require the following minimum information:

a. Name, address, phone number and e-mail address of the property owner and the management company (if applicable) of the short-term rental property;

b. Verification that the proposed short-term rental ~~property~~ dwelling unit or bedroom is managed by the property owner or by a management company;

c. Name, address, phone number and e-mail address of the designated Local Emergency Contact ~~local emergency contact~~;

~~d. The maximum number of occupants permitted for the dwelling unit or sleeping room in accordance with Subsection 5.3.1D: Maximum Persons Occupying a Dwelling;~~

~~e.~~d. If the applicant does not own the property where the short-term rental is located, the registrant must provide written authorization, signed by the property owner before a notary public, authorizing the registrant to operate a short-term rental on the premises.

~~f.~~e. A submission of a sketch floor plan of the dwelling unit or bedroom with dimensional room layout; and

Proposed Amendments – Use Specific Standards

Registration Certificates in Residential Zoning Districts

- One thousand (1,000)- Registration Certificate Limit. The Department of Development Services shall issue a **maximum 1,000 STR registration certificates** per calendar year.
- A **maximum of two** (2) STR registration certificates may be issued per parcel.
- A short-term rental **unit cannot be within 100 feet of an existing short-term rental** unit, measured at the property boundary. Does not apply to units on the same parcel.

Registration Certificates in Non-Residential Zoning Districts

- Registered Short-Term Rentals (STR) in Non-Residential Zoning Districts **do not count toward the 1,000-registration certificate cap**.
- For multifamily developments, **no more than 10% of the units** within a given development may be registered as a Short-Term Rentals.
- At least two (2) Short-Term Rentals shall be allowed per multifamily development.
- **Not subject to the 100-foot separation rule.**

Proposed Amendments – Use Specific Standards

4. ***Written Briefing and Safety Features*** –clarify an owner's or management's responsibilities to **provide safety information to guests in writing.**

~~Brochure~~ Written Briefing and Safety Features

a. **Informational ~~Brochure~~ Written Briefing**

Each registrant operating a short-term rental shall provide to guests, in writing a brochure or e-brochure that includes:

i. The ~~registrant's 24-hour~~ contact information of the designated Local Emergency Contact;

~~ii. A local responsible party's 24-hour contract information if the owner is not within the city limits when guests are renting the premises;~~

5. ***Notification of Approval of Short-Term Rental Registration*** –clarify **when notification** of an approved Short-Term Rental shall occur and **what information shall be included** within the notification.

Notification of Approval of Short-Term Rental Registration

Within 10 days of the approval of a short-term rental registration, the city shall send notice to all property owners within 100 feet of the subject property, and shall include the contact information of the designated Local Emergency Contact ~~24-hour complaint line~~, and pertinent information about standards regulating short-term rentals.

Proposed Amendments – Use Specific Standards

6. ***Registration Term, Fees, and Revocation*** –revise and clarify the circumstances under which the Director may r**evoke a Short-Term Rental permit**

7. ***Right to Inspect Premises*** **- specify** the circumstances under **which an inspection of a Short-Term Rental may occur.**

c. The Director may revoke a short-term rental registration if the registrant has:

1. Received three notices for violations of the Property Maintenance Code or citations for violations of the Denton Development Code, any other ordinance of the city, or any state or federal law on the premises within the preceding 12-month time period. Examples of such violations include, but are not limited to, noise violations, trash and debris violations, violations for parking vehicles in a manner that impedes the sidewalk or is on an unimproved surface; or

2. Knowingly permitted three notices for violations of the Property Maintenance Code or citations for violations of the Denton Development Code, any other ordinance of the city, or any state or federal law on the premises by any other person within the preceding 12-month time period; or

3. Knowingly made a false statement on the registration application.

Proposed Amendments

- ***Table 7.9-I: Minimum Required Off-Street Parking*** –specify the maximum number of vehicles allowed on premise for a Short-Term Rental shall limited to available off-street parking

- ***Section 9.2 Definitions –*** revise the following definitions:
  - *Short-Term Rental* –clarify the duration of stay for a Short-Term Rental shall be **not less than 24 hours and not greater than 29 consecutive days**, as well as **allow for a bedroom** to be a Short-Term Rental
  - *Local Emergency Contact* – this definition is amended to **clarify and consolidate the requirements** for Local Emergency Contact.

Recommendation

Planning and Zoning Commission considered this item at their May 29, 2024, meeting and recommended approval of the Code Amendments as presented.

Staff recommends **approval** of the amendments related to Short-Term Rental regulations as the proposed amendments meet the established criteria for approval for Code Text Amendments as outlined in Section 2.7.4D of the DDC.

Questions?

File #: DCA24-0006a, **Version:** 1

AGENDA CAPTION

Hold a public hearing and consider adoption of an ordinance of the City of Denton, Texas amending the Denton Development Code standards and regulations for Donation Boxes; amendments include but are not limited to Table 5.2-A: Table of Allowed Uses, Section 5.4.3: General Standards for Accessory Uses and Structures, Section 5.4.4: Additional Standards for Specific Accessory Uses, and Section 9.2: Definitions related to Donation Boxes; providing for application requirements and process; providing for a penalty in the maximum amount of $2,000.00 for violations thereof; providing savings and severability clauses and an effective date. The Planning and Zoning Commission voted 7-0 to recommend approval of the proposed Code amendment. Motion for approval by Commissioner Villarreal and second by Commissioner Cole. (DCA24-0006a, Donation Boxes, Mia Hines)

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: Department of Development Services

ACM: Cassey Ogden

DATE: June 4, 2024

SUBJECT

Hold a public hearing and consider adoption of an ordinance of the City of Denton, Texas amending the Denton Development Code standards and regulations for Donation Boxes; amendments include but are not limited to Table 5.2-A: Table of Allowed Uses, Section 5.4.3: General Standards for Accessory Uses and Structures, Section 5.4.4: Additional Standards for Specific Accessory Uses, and Section 9.2: Definitions related to Donation Boxes; providing for application requirements and process; providing for a penalty in the maximum amount of $2,000.00 for violations thereof; providing savings and severability clauses and an effective date. The Planning and Zoning Commission voted 7-0 to recommend approval of the proposed Code amendment. Motion for approval by Commissioner Villarreal and second by Commissioner Cole. (DCA24-0006a, Donation Boxes, Mia Hines)
https://dentontx.new.swagit.com/videos/305404?ts=12443

BACKGROUND

The purpose of this proposed amendment is to establish regulations for where donation boxes are allowed to be located within the City of Denton, expand the use-specific standards related to donation boxes, and refine other aspects of the Denton Development Code related to this accessory use. As described below, the City's existing regulations related to this use are inconsistent, and updates are needed to ensure consistency with recent court rulings in other North Texas communities that have restricted a city's ability to impose regulations that effectually prohibit or significantly limit the visibility of donation boxes in highly trafficked areas.

The United States Supreme Court has determined that, in general, the solicitation of donations qualifies as expressive conduct protected by the First Amendment. Today, it is not uncommon for the solicitation and collection of donated goods to occur via unattended receptacles placed on properties deemed convenient for both the donors and the receiving agency (i.e. school campuses, retail hubs, religious assembly establishments, etc.). In drawing a distinction between the unique charitable use of a "donation box" and other portable structures and receptacles that may also be used for the temporary storage and collection of items, governing agencies have an avenue to establish reasonable standards for the more permanent placement and operations of such facilities to ensure compatible land uses and limit points of conflict, especially in areas where charitable giving and receiving may not be the primary use.

Subchapter 9.2 of the Denton Development Code (DDC) currently defines a "donation box" as a "portable container for the acceptance of donations operated by a non-governmental entity, a for-profit company, or non-profit organization that can be emptied and readily moved." The Code also currently requires that such uses shall be accessory to a primary business on the same lot and shall not restrict the use or access to any parking spaces required for that principal use. While the use is listed in the Accessory Uses category in DDC Table 5.2-A: Table of Allowable Uses, it is not shown to be permitted in any Zoning Districts. Under

these current standards, the City is inherently prohibiting the use of donation boxes for the solicitation and collection of donated goods. Given that this has become a more common form of exchanging such items, staff proposes to amend the DDC to allow for donation boxes and establish narrowly tailored regulations (see Exhibit 4).

Proposed Amendments:
To address the City's current restrictions, staff recommends the below Code amendments related to Donation Boxes. A summary of the proposed modifications is included below; a redline draft of the relevant DDC Sections can be found in Exhibit 3:

- Amend Table 5.2-A Table of Allowed Uses to allow Donation Boxes as a permitted use in any Zoning District in accordance with recent court findings that this use, if permitted, may not be restricted to zoning districts that account for only a miniscule portion of the city or that would restrict the ability to locate donation boxes in frequently visited locations such as commercial centers. Additionally, staff evaluated land uses that are typically associated with having donation boxes (e.g. religious facilities, educational institutions, retail) and the zoning districts in which those uses are located within, to assess appropriate zoning districts in which to allow donation boxes.
- Amend Subsection 5.4.3 General Standards for Accessory Uses and Structures by amending Subpart 5.4.3.B to allow for donation boxes to be located in front and side yards in accordance with recent court findings that this use, if permitted, may not be restricted to areas of low visibility.
- Amend Subsection 5.4.4 Additional Standards for Specific Accessory Uses by repealing the existing language in Subpart 5.4.4.B Donation Box, and replacing it as follows:
    1. *General* – this section is added to require that donation boxes be accessory to only those uses most appropriate for soliciting public donations (i.e. retail centers, schools, or churches as opposed to single-family homes or industrial facilities the public does not frequent) and to ensure proper storage of donated items in an enclosed box rather than in a way that leaves the items exposed to the elements. This section also allocates the number of permitted structures based on the size of the principal structures.
    2. *Location and Design* – this section is added to impose specific criteria for the placement of donation boxes to ensure these receptacles do not encroach into required setbacks and public easements. This section also establishes specific criteria for the design of donation boxes, ensuring their durability and requiring the display of a local contact in case of emergency and/or violation of these proposed standards.
    3. *Registration and Permitting* – this section is added to ensure compliance with the standards above. This section also requires an annual registration to ensure continued property owner consent and maintain up-to-date contact information for those responsible for the upkeep of these receptacles.
    4. *Maintenance and Upkeep* – this section is added to ensure donation boxes are kept in good condition and remain clear of trash and debris.
    5. *Revocation of Permit* – this section is added to establish a process for the revocation of an issued permit in the event an applicant and/or property owner fails to comply with these proposed standards.
- Amend Section 9.2 Definitions by removing the statement pertaining to the accessory nature of donation boxes. The requirement that donation boxes be accessory is captured via the proposed amendments to Subsection 5.4 as well as the existing land use categorization in Table 5.2.

An analysis of this proposed Code amendment based upon the DDC's criteria for approval for code amendments is provided in Exhibit 2.

PLANNING AND ZONING COMMISSION

On May 15, 2024, the Planning and Zoning Commission held a public hearing and recommended approval (7-0) of the proposed amendment. One member of the public spoke to understand the proposed land use permissions and express concerns related to the staff's capacity to enforce the proposed standards. Staff clarified that while the proposed amendment to DDC Table 5.2-A would permit donation boxes as accessory uses in every zoning district, the proposed amendments also include use specific standards to ensure that the use may only be accessory to those principal uses deemed appropriate for this charitable activity. Additionally, the proposed registration and enforcement standards were drafted to balance the unique nature of the use within the City's existing Code compliance and enforcement framework, so the proposed standards are not anticipated to significantly impact Staff time. There was no discussion amongst the Commission regarding the proposed amendments.

Since the Commission meeting, Staff has slightly modified the proposed amendments to address legal concerns pertaining to the wording of certain regulations. These changes have been highlighted in Exhibit 3. These modifications are intended to clarify the enforcement of certain provisions and are not substantive changes to the draft Ordinance presented to the Commission.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

Date	Council, Board, Commission	Request	Action
April 23, 2019	City Council	Consider 2019 DDC Update	Approved with an effective date of October 1, 2019

OPTIONS

1. Approve
2. Approve with conditions
3. Denial
4. Postpone Item

RECOMMENDATION

The Planning and Zoning Commission voted [7-0] to recommend approval of the proposed amendment.

Staff recommends **approval** of the amendments related to Donation Boxes as the proposed amendments meet the established criteria for approval for Code Text Amendments as outlined in Section 2.7.4D of the DDC.

See Exhibit 2 for Staff Analysis.

EXHIBITS

Exhibit 1 - Agenda Information Sheet
Exhibit 2 - Staff Analysis
Exhibit 3 - Redline Markups
Exhibit 4 - Draft Ordinance
Exhibit 5 - Presentation

Respectfully submitted:
Tina Firgens, AICP
Deputy Director of Development Services/
Planning Director

Prepared by:
Mia Hines, AICP
Senior Planner

Staff Analysis
DCA24-0006a/ Donation Box Code Amendments

REQUEST:
This is a city-initiated Code amendment to the Denton Development Code (DDC) related to Donation Boxes, specifically amendments to Table 5.2-A: Table of Allowed Uses, Section 5.4.3: General Standards for Accessory Uses, Section 5.4.4 Additional Standards for Specific Accessory Uses, and Section 9.2: Definitions related to the regulation of Donation Boxes.

CONSIDERATIONS:
Section 2.7.4D of the DDC states that an application for a DDC text amendment may be approved upon consideration of the following criteria as to whether and to what extent the proposed amendment:

1. *Is consistent with the Comprehensive Plan, other adopted plans, and other city policies;*

   The proposed Code amendments related to Donation Boxes are consistent with the following Comprehensive Plan policies and actions related to ensuring the continued viability of Denton's established neighborhoods:

- **Action Item 7.8.2** Prevent impacts and encroachments of incompatible uses, development scales, and intensities through adherence to the established land use standards and urban design principles.
- **Action Item 7.7:** Establish tools and strategies to enhance the quality and character of housing and neighborhoods.
- **GOAL HN-2:** Ensure the continued viability of Denton's established neighborhoods through thoughtful conservation.

The proposed amendments would allow for donation boxes to potentially be located within any zoning district, but require the use to be associated with either "Group Living" types of residential uses (group homes, chapter houses, and other uses listed under the Group Living header in Table 5.2-A), commercial uses, or institutional uses. By not allowing the placement of donation boxes as an accessory use to single-family, duplex, multifamily or other uses classified as "Household Living" types of residential uses in Table 5.2-A, the proposed amendments would help preserve the character of residential neighborhoods by preventing potential nuisances that could be associated with donation boxes.

The proposed Code amendments are also consistent with the Denton Development Code's purpose statements that promote the health, safety, and general welfare of its inhabitants and implementing the City's Comprehensive Plan:

- **Subsection 1.2.1.** Promote the health, safety, and general welfare of the City's inhabitants.
- **Subsection 1.2.2** Implement the City's comprehensive plan - the City's guide in managing growth, promoting reinvestment, and improving the quality of life of the citizens of Denton.
- **Subsection 1.2.7** Encourage the appropriate use of land, buildings, and structures.

The proposed standards are intended to bring the City's code into compliance with recent court rulings by broadly allowing for this use with use-specific standards regarding the number of allowed boxes, placement of boxes, and upkeep of the boxes.

2. *Does not conflict with other provisions of this DDC or other provisions in the Municipal Code of Ordinances;*

   The proposed code amendments do not conflict with any provisions of the DDC or Municipal Code of Ordinances. The proposed code amendments propose tailored standards and a mechanism for ensuring the placement of these receptacles are permitted in areas that allow for them to serve their charitable purpose while minimizing adverse impacts on the public welfare and aesthetics of the City.

3. *Is necessary to address a demonstrated community need;*

   This proposed city-initiated Code amendment to the Denton Development Code is needed for the following reasons:

   - Ensure compliance with recently established legal precedent related to municipal regulation of Donation Boxes, including cases from Mansfield, Texas and Arlington, Texas.
   - Permit the charitable solicitation of donations via Donation Boxes as accessory uses to certain compatible principal uses.
   - Establish an enforcement mechanism of the Donation Box regulations to ensure compliance with the DDC.
   - Provide additional requirements within the Donation Box regulations to address notification and a local contact for those responsible for the maintenance and upkeep of these receptacles.

4. *Is necessary to respond to a substantial change in conditions and/or policy; and*

   As described above, the City desires to amend the DDC to ensure consistency with existing city policies and recent court rulings regarding this land use.

5. *Is consistent with the general purpose and intent of this DDC.*

   The proposed code amendments are consistent with the general purpose and intent of the DDC as described above with Consideration 1.

Exhibit A

Amend 5.2-A Table of Allowed Uses as follows:

Table 5.2-A: Table of Allowed Uses																	
P = permitted S = specific use permit required Blank cell = use prohibited + = use-specific standards apply																	
	Residential							Mixed-Use			Corridor		Other Nonresidential				Use-Specific Standards
	RR	R1	R2	R3	R4	R6	R7	MN	MD	MR	SC	HC	GO	LI	HI	PF	
Accessory Uses																	
Donation Box	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	5.4.4B

Amend Section 5.4.3: to related to for Donation Boxes, as follows:

"

B. Accessory structures, with the exception of donation boxes, non-residential detached carports, gas station car wash facilities, and security/entry booths, are prohibited in front and side yards. Accessory structures for public or private schools may be located in side yards, but shall not be located in front yards.

Amend Section 5.4.4: to repeal and replace add standards and requirements for Donation Boxes, as follows:

"

B. Donation Box. ~~A donation box shall not restrict the use or access to any parking spaces that are required for the principal use on the lot.~~ Donation boxes shall comply with the following:

1. **General**
   a. A donation box shall not be an allowed accessory use to those uses listed under the headers Residential Uses Household Living and Industrial Uses as provided for in Table 5.2-A: Table of Allowed Uses.
   b. The storage of donated materials, goods, supplies shall occur only within the permitted donation box. Donated items shall not be stored outside of the permitted donation box.
   c. A donation box shall not be used for the donation and collection of hazardous chemicals, mechanical equipment, or electrical equipment.
   d. A maximum of one donation box is allowed for buildings 50,000 square feet or less. One additional donation box may be permitted for every additional 50,000 square feet (or portion thereof) of floor area of the principal structure. In no instance shall more than three (3) donation boxes be permitted on a single lot.
   e. For shopping center sites, a site shall be defined as the lot or contiguous area of real property which encompasses all the buildings, structures, appurtenances and land devoted to a common use occupying and using multiple contiguous lots. Shopping center sites shall be subject to the same square footage requirements provided in subsection (1)(d) and no more than three (3) donation boxes may be permitted on a shopping center site. Pad sites or outparcels platted independent of the parent lot(s) shall be considered included as part of the shopping center site.
2. **Location and Design.**
   a. Donation box placement must comply with the minimum front-, side-, and rear-yard setback of the applicable zoning district.

b. Donation boxes shall be located on an improved surface, but may not be located in any part of a public easement, fire lane, required parking space, maneuvering lane, public right-of-way, or Vision Clearance Area.

c. The base area of a donation box shall not exceed 50 square feet in size.

d. The height of a donation box shall not exceed 8 feet in height.

e. A donation box shall not be allowed to contain text and/or illustrations related to any off-premises businesses and/or organization. A donation box may contain signage related to the entity/organization for which donations are being solicited.

f. A donation box shall be required to display the name, address, phone number, and e-mail of a designated local contact who is responsible for the maintenance and upkeep of the donation box as well as a current permit decal issued by the City.

g. Donation boxes shall be constructed from sturdy, weather resistant material in accordance with the City's adopted building code.

3. Registration and Permitting. No person or entity shall place and utilize a donation box for which a registration has not been properly made and fee paid and filed with the Development Services Department and a permit decal issued by the City. Permits shall be valid for 12 months and registration shall be made upon forms furnished by the city for such purpose and shall require the following minimum information:

a. Name, address, phone number, and e-mail address of the property owner and the owner and operator of the donation box (if different);

b. Name, address, phone number and e-mail address of the management company if the donation box is to be managed by a management company that is not the property owner nor the owner and operator of the donation box;

c. Name, address, phone number and e-mail address of the designated local contact responsible for the maintenance and upkeep of the donation box;

d. If the applicant does not own the property where the donation box is to be located, the applicant must provide written authorization, signed by the property owner before a notary public, authorizing the applicant to place a donation box on the premises; and

e. A site plan/survey of the property including the principal use, associated parking, and proposed location of the donation box to ensure compliance with Section 5.4.4B.2

4. Maintenance and Upkeep.

a. The permit holder and the property owner shall be held jointly and severally liable and responsible for the maintenance, upkeep, and servicing of the donation box and clean up and removal of any donations left on the property outside of the donation box. Any maintenance, service, or cleanup associated with a donation box shall be completed within 24 hours of notification and/or issuance of citation by the city to the designated local contact for the box or the management company and/or owner listed on the registration.

b. The city shall have the authority to abate any property in violation of this subsection that is deemed a public nuisance under any other provision of the Code of Ordinances.

c. The visual and structural integrity of the donation box must be maintained continuously.

d. The current permit decal for the specific donation box must be affixed and displayed at all times on the outside of the donation box.

5. Revocation of Permit

a. Grounds. Any permit issued hereunder may be revoked by the City if the permit holder has received two citations for violation(s)~~notice of violation for violations~~ of this Subsection or any other provision of this code within a 12-month time period or has knowingly made a false material statement in the application or otherwise becomes disqualified for the issuance of a permit under the terms of this Subsection.

b. Notice. Notice of the revocation shall be given to the permit holder in writing, with the reasons for the revocation specified in the notice, served either by personal service or by certified United States mail to their last known address. The revocation shall become effective the date following personal service or if mailed, three days from the date of mailing.

c. Stay. Any appeal of revocation pursuant to this section shall stay the revocation until said appeal ~~revocation~~ is finalized.

d. Removal of box; impoundment. Upon finalization of any revocation, the permit holder shall remove said donation box no later than ten days after said final decision. Upon expiration of this ten-day grace period, the donation box shall acquire noncompliant status and be subject to immediate impoundment without further notice.

e. One-year waiting period. In the event the permit of any permit holder or affiliated entity is revoked by the city, no subsequent permit shall be issued to such person or affiliated entity within one year of the date such permit revocation was finalized.

Amend Section 9.2: Definitions, to update the definition as follows:

Donation Box: A portable container for the acceptance of donations operated by a non-governmental entity, a for-profit company, or a non-profit organization that can be emptied and readily moved. ~~Such uses shall be accessory to a primary business on the same lot.~~

ORDINANCE NO. DCA24-0006

AN ORDINANCE OF THE CITY OF DENTON, TEXAS AMENDING THE DENTON DEVELOPMENT CODE STANDARDS AND REGULATIONS FOR DONATION BOXES; AMENDMENTS INCLUDE BUT ARE NOT LIMITED TO TABLE 5.2-A: TABLE OF ALLOWED USES, SECTION 5.4.3: GENERAL STANDARDS FOR ACCESSORY USES AND STRUCTURES, SECTION 5.4.4: ADDITIONAL STANDARDS FOR SPECIFIC ACCESSORY USES, AND SECTION 9.2: DEFINITIONS RELATED TO DONATION BOXES; PROVIDING FOR APPLICATION REQUIREMENTS AND PROCESS; PROVIDING FOR A PENALTY IN THE MAXIMUM AMOUNT OF $2,000.00 FOR VIOLATIONS THEREOF; PROVIDING SAVINGS AND SEVERABILITY CLAUSES AND AN EFFECTIVE DATE. (DCA24-0006a)

WHEREAS, pursuant to Ordinance No. DCA18-0009q, the City Council of the City of Denton adopted the newly revised 2019 Denton Development Code, the ("DDC"); and

WHEREAS, donation boxes are not an allowed use in the DDC; and

WHEREAS, the United States Supreme Court has recognized that solicitation of donations is expressive conduct protected by the First Amendment; and

WHEREAS, the amendments proposed include the following:

1. Table 5.2-A: Table of Allowed Uses – Update regulations for a Donation Box

2. Section 5.4.3: General Standards for Accessory Uses and Structures – exempting donation boxes from front and side yard prohibitions

3. Section 5.4.4: Additional Standards for Specific Accessory Uses – related to a Donation Box

4. Section 9.2: Definitions – Update definitions for Donation Box; and

WHEREAS, on May 15, 2024, the Planning and Zoning Commission, in compliance with the laws of the State of Texas, gave the requisite notices by publication, held due hearings and recommended approval [7-0] of the amendment to the Denton Development Code; and

WHEREAS, on June 4, 2024, the City Council likewise conducted a public hearing in accordance with local and state law and the City Council hereby finds that the Code amendments are consistent with the City's comprehensive plan, and the federal, state, and local law are in the best interests of the City of Denton; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The findings and recitations contained in the preamble of this ordinance are incorporated herein by reference and found to be true.

SECTION 2. Table 5.2-A: Table of Allowed Uses, Section 5.4.4: Additional Standards for Specific Accessory Uses, and Section 9.2: Definitions of the DDC are amended as set forth in **"Exhibit A"** which is attached and fully incorporated herein by reference.

SECTION 3. By the adoption of the provisions herein, existing donation boxes located in the Denton City Limits and identified on **"Exhibit B"** which is attached and fully incorporated herein by reference, are hereby deemed allowed, conforming uses as they exist on the date of approval of this Ordinance. Existing Donation Boxes shall comply with Section 5.4.4 of the Denton Development Code, as amended.

SECTION 4. Any person, firm, partnership, or corporation violating any provision of this ordinance shall, upon conviction, be deemed guilty of a misdemeanor and shall be punished by a fine in a sum not exceeding $2,000.00 for each offense. Each day that a provision of this ordinance is violated, shall constitute a separate and distinct offense.

SECTION 5. If any provision of this ordinance or the application thereof to any person or circumstance is held invalid by any court, such invalidity shall not affect the validity of the provisions or applications, and to this end the provisions of this ordinance are severable.

SECTION 6. An offense committed before the effective date of this ordinance is governed by prior law and the provisions of the Denton Development Code, as amended, in effect when the offense was committed, and the former law is continued in effect for this purpose.

SECTION 7. Save and except as amended hereby, the provisions, sections, subsections, paragraphs, sentences, clauses, and phrases of the Denton Development Code shall remain in full force and effect.

SECTION 8. In compliance with Section 2.09(c) of the Denton Charter, this ordinance shall become effective fourteen (14) days from the date of its passage, and the City Secretary is hereby directed to cause the caption of this ordinance to be published twice in the Denton Record Chronicle, a daily newspaper published in the City of Denton, Texas, within ten (10) days of the date of its passage.

The motion to approve this ordinance was made by _____ and seconded by _____, the ordinance was passed and approved by the following vote [___ - ___]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____

Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: _____

Exhibit A

Amend 5.2-A Table of Allowed Uses as follows:

Table 5.2-A: Table of Allowed Uses																	
P = permitted S = specific use permit required Blank cell = use prohibited + = use-specific standards apply																	
	Residential							Mixed-Use			Corridor		Other Nonresidential				Use-Specific Standards
	RR	R1	R2	R3	R4	R6	R7	MN	MD	MR	SC	HC	GO	LI	HI	PF	
Accessory Uses																	
Donation Box	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	5.4.4B

Amend Section 5.4.3: related to for Donation Boxes, to read as follows:

"

B. Accessory structures, with the exception of donation boxes, non-residential detached carports, gas station car wash facilities, and security/entry booths, are prohibited in front and side yards. Accessory structures for public or private schools may be located in side yards, but shall not be located in front yards.

Amend Section 5.4.4: to repeal and replace the standards and requirements for Donation Boxes, to read as follows:

"

B. Donation Box. ~~A donation box shall not restrict the use or access to any parking spaces that are required for the principal use on the lot.~~ Donation boxes shall comply with the following:

1. **General**
   a. A donation box shall not be an allowed accessory use to those uses listed under the headers Residential Uses Household Living and Industrial Uses as provided for in Table 5.2-A: Table of Allowed Uses.
   b. The storage of donated materials, goods, supplies shall occur only within the permitted donation box. Donated items shall not be stored outside of the permitted donation box.
   c. A donation box shall not be used for the donation and collection of hazardous chemicals, mechanical equipment, or electrical equipment.
   d. A maximum of one donation box is allowed for buildings 50,000 square feet or less. One additional donation box may be permitted for every additional 50,000 square feet (or portion thereof) of floor area of the principal structure. In no instance shall more than three (3) donation boxes be permitted on a single lot.
   e. For shopping center sites, a site shall be defined as the lot or contiguous area of real property which encompasses all the buildings, structures, appurtenances and land devoted to a common use occupying and using multiple contiguous lots. Shopping center sites shall be subject to the same square footage requirements provided in subsection (1)(d) and no more than three (3) donation boxes may be permitted on a shopping center site. Pad sites or outparcels platted independent of the parent lot(s) shall be considered included as part of the shopping center site.
2. **Location and Design.**

a. Donation box placement must comply with the minimum front-, side-, and rear-yard setback of the applicable zoning district.
b. Donation boxes shall be located on an improved surface, but may not be located in any part of a public easement, fire lane, required parking space, maneuvering lane, public right-of-way, or Vision Clearance Area.
c. The base area of a donation box shall not exceed 50 square feet in size.
d. The height of a donation box shall not exceed 8 feet in height.
e. A donation box shall not be allowed to contain text and/or illustrations related to any off-premises businesses and/or organization. A donation box may contain signage related to the entity/organization for which donations are being solicited.
f. A donation box shall be required to display the name, address, phone number, and e-mail of a designated local contact who is responsible for the maintenance and upkeep of the donation box as well as a current permit decal issued by the City.
g. Donation boxes shall be constructed from sturdy, weather resistant material in accordance with the City's adopted building code.

3. **Registration and Permitting.** No person or entity shall place and utilize a donation box for which a registration has not been properly made and fee paid and filed with the Development Services Department and a permit decal issued by the City. Permits shall be valid for 12 months and registration shall be made upon forms furnished by the city for such purpose and shall require the following minimum information:
   a. Name, address, phone number, and e-mail address of the property owner and the owner and operator of the donation box (if different);
   b. Name, address, phone number and e-mail address of the management company if the donation box is to be managed by a management company that is not the property owner nor the owner and operator of the donation box;
   c. Name, address, phone number and e-mail address of the designated local contact responsible for the maintenance and upkeep of the donation box;
   d. If the applicant does not own the property where the donation box is to be located, the applicant must provide written authorization, signed by the property owner before a notary public, authorizing the applicant to place a donation box on the premises; and
   e. A site plan/survey of the property including the principal use, associated parking, and proposed location of the donation box to ensure compliance with Section 5.4.4B.2
4. **Maintenance and Upkeep.**
   a. The permit holder and the property owner shall be held jointly and severally liable and responsible for the maintenance, upkeep, and servicing of the donation box and clean up and removal of any donations left on the property outside of the donation box. Any maintenance, service, or cleanup associated with a donation box shall be completed within 24 hours of notification and/or issuance of citation by the city to the designated local contact for the box or the management company and/or owner listed on the registration.
   b. The city shall have the authority to abate any property in violation of this subsection that is deemed a public nuisance under any other provision of the Code of Ordinances.
   c. The visual and structural integrity of the donation box must be maintained continuously.
   d. The current permit decal for the specific donation box must be affixed and displayed at all times on the outside of the donation box.
5. **Revocation of Permit**
   a. Grounds. Any permit issued hereunder may be revoked by the City if the permit holder has received two citations for violation(s) of this Subsection or any other provision of this code within a 12-month time period or has knowingly made a false material statement in the application or otherwise becomes disqualified for the issuance of a permit under the terms of this Subsection.

b. Notice. Notice of the revocation shall be given to the permit holder in writing, with the reasons for the revocation specified in the notice, served either by personal service or by certified United States mail to their last known address. The revocation shall become effective the date following personal service or if mailed, three days from the date of mailing.

c. Stay. Any appeal of revocation pursuant to Section 2.8.3 shall stay the revocation until said appeal is finalized.

d. Removal of box; impoundment. Upon finalization of any revocation, the permit holder shall remove said donation box no later than ten days after said final decision. Upon expiration of this ten-day grace period, the donation box shall acquire noncompliant status and be subject to immediate impoundment without further notice.

e. One-year waiting period. In the event the permit of any permit holder is revoked by the city, no subsequent permit shall be issued to such person or affiliated entity within one year of the date such permit revocation was finalized.

Amend Section 9.2: Definitions, to update the definition to read as follows:

Donation Box: A portable container for the acceptance of donations operated by a non-governmental entity, a for-profit company, or a non-profit organization that can be emptied and readily moved. ~~Such uses shall be accessory to a primary business on the same lot.~~

Exhibit B

Existing Donation Boxes

- Newton Rayzor Elementary: 1400 Malone St.
- Denton Bible Church: 2300 E. University Dr.
- Singing Oaks Church of Christ: 101 Cardinal Dr.
- Ginnings Elementary: 2525 Yellowstone Pl.
- Thrift Giant: 1701 Brinker Rd.
- Callhoun Middle School: 709 W Congress
- Hodge Elementary: 3900 Grant Pkwy.
- Borman Elementary: 1201 Parvin St. (in the parking lot, left side)
- Alexander Elementary: 800 Mack Dr.
- Ann Windle School for Young Children: 901 Audra Ln.
- Evers Elementary: 3300 Evers Pkwy.
- Pecan Creek Elementary: 4400 Lakeview Rd.
- Salvation Amy: 1508 E McKinney Street

DCA24-0006a: Donation Boxes

Mia Hines, AICP

Senior Planner

June 4, 2024

File ID: DCA24-0006a

Existing Regulations

	RR	R1	R2	R3	R4	R6	R7	MN	MD	MR	SC	HC	GO	LI	HI	PF	
Accessory Uses																	
Accessory Dwelling Unit	P+	P+	P+	P+	P+	P+	P+	P+									5.4.4A
Donation Box																	5.4.4B
Home Occupation	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+						5.4.4C
Outdoor Storage, Accessory												P+	P+	P+	P+	P+	05.4.4D

- Defined as: a **portable container for the acceptance of donations** operated by a non-governmental entity, a for-profit company, or a non-profit organization that **can be emptied and readily moved**. Such uses shall be accessory to a primary business on the same lot.

- **DDC 5.4.4B:** A donation box shall not restrict the use or access to any parking spaces that are required for the principal use on the lot

Background

- **2002 DDC did not address Donation Boxes**
- City position was that donation boxes were **only allowed as an accessory use** secondary to some primary uses
- City regulations **challenged in 2016**, but **this position was never tested** as the dismissal of the case was not related to the merits of the case

- A Code amendment was discussed with City Council in 2017, but there was no consensus to adopt new regulations at the time

Legal Precedent – other North Texas city's regulations have been challenged:

- Arlington (2022)
  - Courts upheld regulations requiring permitting, spacing and setback requirements, and maintenance
  - Courts rejected strict restrictions limiting the placement of donation boxes to areas of low traffic and low visibility
- Mansfield (2023)
  - Courts upheld registration requirements
  - Courts rejected the effective zoning prohibitions, unreasonable setbacks, and limited visibility

Proposed Amendments

	RR	R1	R2	R3	R4	R6	R7	MN	MD	MR	SC	HC	GO	LI	HI	PF	
Accessory Uses																	
Accessory Dwelling Unit	P+	P+	P+	P+	P+	P+	P+	P+									5.4.4A
Donation Box	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	5.4.4B
Home Occupation	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+	P+						5.4.4C
Outdoor Storage, Accessory												P+	P+	P+	P+	P+	05.4.4D

1. **Amend Table 5.2.A Table of Allowed Uses** to allow donation boxes as a permitted use in any Zoning District subject to the proposed use specific standards of DDC Subsection 5.4.4B

2. **Amend Section 5.4.3 General Standards for Accessory Uses and Structures by amending Subpart 5.4.3.B** to add donation boxes to the list of items permitted within front and side yards:

   B. Accessory structures, with the exception of donation boxes, non-residential detached carports, gas station canopies, gas station car wash facilities, and security/entry booths, are prohibited in front and side yards. Accessory structures for public or private schools may be located in side yards, but shall not be located in front yards.

Proposed Amendments – Use Specific Standards

3. **Repeal and replace Section 5.4.4B Additional Standards for Specific Accessory Uses to:**
   - Add general standards to fit the accessory nature of the use, encourage proper placement and storage of goods, and ensure compatible count and size of structures
     - Prohibited from being accessory to Residential Household Living and Industrial uses
     - Principal structure </= 50,000 sq. ft. – max 1 box allowed
     - Principal structure > 50,000 sq. ft. – 1 box allowed per 50,000 sq. ft. BUT no more than 3 on any site

   - Adopt specific placement and design criteria to ensure compatible placement and limit points of conflict
     - Must adhere to applicable building setbacks
     - Restricted from encroachments into public spaces, easements, and site visibility clearances
     - Max 50 sq. ft. base allowed
     - Max 8 feet height allowed
     - Requires durable construction
     - Signage limited to important information related to collection activities

Proposed Amendments – Use Specific Standards Cont.

3. **Repeal and replace Section 5.4.4.B Additional Standards for Specific Accessory Uses to:**
   - Establish site plan review and annual registration requirements to ensure up-to-date contact information and assist with compliance of the proposed standards

   - Adopt specific maintenance criteria to minimize impacts on the general welfare and City's aesthetics
     - Gives 24 hours to clean after notice of violation has been issued
     - Requires display of permit decal

   - Establish a specific process for the revocation of an issued permit and/or removal of donation boxes not in compliance with these standards
     - Permit may be revoked after 2 citations
     - 12-month waiting period following revocation
     - Gives 10 days to remove a box with a revoked permit

Proposed Amendments – Definition

4. **Amend Section 9.2 Definitions for 'Donation Box'** to remove a use-specific standard from the definition and prevent redundancy to read as follows:

   Donation Box: *A portable container for the acceptance of donations operated by a non-governmental entity, a for-profit company, or a non-profit organization that can be emptied and readily moved.* ~~*Such uses shall be accessory to a primary business on the same lot.*~~

Recommendation

On May 15, 2024, the Planning and Zoning Commission recommended **approval** of the proposed amendments as presented.

Staff recommends **approval** of the amendments related to Donation Box regulations as the proposed amendments meet the established criteria for approval for Code Text Amendments as outlined in Section 2.7.4D of the DDC.

Questions?

File #: ID 24-1102, **Version:** 1

AGENDA CAPTION

Conduct the first of two public hearings of the City of Denton, Texas regarding the adoption of a strategic partnership agreement between the City of Denton and Denton County Municipal Utility District No. 16.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: **Development Services**

CM/DCM/ACM: **Cassey Ogden**

DATE: **June 4, 2024**

SUBJECT

Conduct the first of two public hearings of the City of Denton, Texas regarding the adoption of a strategic partnership agreement between the City of Denton and Denton County Municipal Utility District No. 16.

STRATEGIC ALIGNMENT

This action supports Key Focus Area: Enhance Infrastructure and Mobility.

BACKGROUND

On April 29, 2020 the City received a petition for consent to the creation of Denton County Municipal Utility District No. 16. This Municipal Utility District (MUD) is located near FM 156 and US 380 and is also known as "Olex MUD" or "Meadows MUD". The MUD will feature 1,523 residential lots, 8 acres of multifamily property, and 30 acres of commercial property.

A MUD is a special-purpose district created to provide essential services such as water, wastewater, and drainage to areas outside city limits. Governed by an elected board, MUDs fund infrastructure and operations through bonds repaid by property taxes and user fees. MUDs are required to seek City consent when the MUD is within the extraterritorial jurisdiction (ETJ) of the City.

Olex Inc. initially petitioned the City for consent to the creation and the City began negotiating a development agreement and the property was subsequently sold to VS Development, LLC. Initially, a development agreement was approved by the City Council on August 18, 2020, and included provisions on Denton County's consent, utilities, floodplain/ESA, roadway construction specifications, and limited purpose annexation to receive sales tax for commercial property. A first amendment was made to the development agreement on January 25, 2022, to name the City of Denton as the fire service provider and approve a Fire Services Agreement.

The development agreement included a Strategic Partnership Agreement (SPA) which allows for the limited purpose annexation of portions of the property for commercial use for the purpose of collecting sales tax. Following the limited purpose annexation, the City is required to provide 50 percent of the sales tax collected back to the MUD.

The SPA has to be executed by both the City of Denton and the MUD by each holding two public hearings. The MUD completed the two public hearings in April 2024 and provided the executed SPA to the City on May 16, 2024. This is the first of two public hearings the City needs to hold to complete the requirements of the SPA with the second public hearing being held on June 18, 2024.

OPTIONS
No action is required for this public hearing.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)
August 18, 2020- City Council adopted a resolution of consent to the creation of the MUD.
August 18, 2020- City Council approved a development and consent agreement.
January 25, 2022- City Council approved a first amendment to the development and consent agreement.
June 4, 2024- City Council will consider approval of a resolution reaffirming the consent of the MUD.

EXHIBITS
Exhibit 1 - Agenda Information Sheet
Exhibit 2 - Strategic Partnership Agreement
Exhibit 3 - Presentation

Respectfully submitted:
Charlie Rosendahl
Business Services Manager

STRATEGIC PARTNERSHIP AGREEMENT BY AND BETWEEN THE CITY OF DENTON, TEXAS AND DENTON COUNTY MUNICIPAL UTILITY DISTRICT NO. 16

STATE OF TEXAS §
§
COUNTY OF DENTON §

This Strategic Partnership Agreement (this "Agreement") is entered into by the City of Denton, Texas, a home rule municipality situated in Denton County, Texas (the "City"), and Denton County Municipal Utility District No. 16, a political subdivision of the State of Texas, acting by and through its duly authorized Board of Directors (the "District"), under the authority of Section 43.0751 of the Texas Local Government Code (the "Local Government Code").

RECITALS

WHEREAS, Local Government Code Section 43.0751 (the "Act") authorizes the City and the District to negotiate and enter into a strategic partnership agreement by mutual consent; and

WHEREAS, the District encompasses approximately 552.985 acres, all of which are located within the City's extraterritorial jurisdiction, described by metes and bounds on Exhibit "A" (the "Property"); and

WHEREAS, the City desires to annex certain portions of the Property that have been or may in the future be designated for commercial use for limited purposes for the purpose of collecting Sales and Use Tax Revenues (hereinafter defined); and

WHEREAS, subject to the terms of this Agreement, the District consents to the City annexing the commercial use areas within the District for the sole and exclusive purpose of imposing and collecting sales and use taxes within such areas; and

WHEREAS, pursuant to the Act, the Parties desire to enter into this Agreement to accomplish the annexation by the City for the sole and exclusive purpose of imposing and collecting sales and use taxes within the commercial use areas of the Limited Purpose Property (hereinafter defined); and

WHEREAS, pursuant to this Agreement, the City will pay to the District an amount equal to a portion of such Sales and Use Tax Revenues (hereinafter defined), which may be used by the District to fund the installation and construction of infrastructure and for other purposes as set forth in Section 4.3 of this Agreement; and

WHEREAS, the City and the District acknowledge that this Agreement provides benefits to each party, including revenue, services and regulatory benefits.

NOW, THEREFORE, for and in consideration of the mutual agreements, covenants and conditions contained in this Agreement, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the City and the District agree as follows:

ARTICLE I
FINDINGS

A. The District is a municipal utility district encompassing approximately 552.985 acres that are within the City's extraterritorial jurisdiction.

B. The District was created by the Texas Commission on Environmental Quality (the "TCEQ") pursuant to Article XVI, Section 59, and Article III, Section 52(b)(3), of the Texas Constitution, and Chapters 49 and 54 of the Texas Water Code, as amended.

C. On August 18, 2020, the City Council adopted Resolution No. 20-1379 consenting to the creation of the District (the "Consent Resolution").

D. The District provided notice of two public hearings concerning the adoption of this Agreement following the District's notification procedures for other matters of public importance, in accordance with the procedural requirements of the Act.

E. The Board of Directors of the District conducted two public hearings regarding this Agreement, at which members of the public who wished to present testimony or evidence regarding this Agreement and the proposed limited purpose annexation were given the opportunity to do so, in accordance with the procedural requirements of the Act, on April 18, 2024, at 12:00 p.m. at 1213 Country Club Road, Argyle, Texas 76226, and on April 25, 2024, at 12:00 p.m. at 1213 Country Club Road, Argyle, Texas 76226.

F. The Board of Directors of the District adopted and approved this Agreement on April 25, 2024, in open session at a meeting held in accordance with Chapter 551 of the Texas Government Code.

G. The City provided notice of two public hearings concerning the adoption of this Agreement by publishing said notices in a newspaper of general circulation in the City and in the District, in accordance with the procedural requirements of the Act.

H. The City Council conducted two public hearings regarding this Agreement, at which members of the public who wished to present testimony or evidence regarding this Agreement and the proposed limited purpose annexation were given the opportunity to do so, in accordance with the procedural requirements of the Act, on _____, 2024, at _____ p.m. at the City Council Chambers, and on _____, 2024, at _____ p.m. at the City Council Chambers.

I. The City Council adopted and approved this Agreement on _____, 2024, in open session at a meeting held in accordance with Chapter 551 of the Texas Government Code, which approval occurred after the Board of Directors of the District approved this Agreement.

J. All procedural requirements imposed by law for the adoption of this Agreement have been met.

K. In accordance with the requirements of Subsection (p)(2) of the Act, this Agreement provides benefits to the City and the District, including revenue, services and regulatory benefits which are reasonable and equitable with regard to the benefits provided to the other.

L. The Act authorizes the City and the District to enter into this Agreement and to define terms under which services, if any, will be provided to City and the District and under which the District will continue to exist after the Property is annexed for limited purposes pursuant to this Agreement.

M. This Agreement does not require the District to provide revenue to the City solely for the purpose of an agreement with the City to forego annexation of the District.

N. All the terms contained in this Agreement are lawful and appropriate to provide for the provision of municipal services.

O. The City and the District negotiated this Agreement by mutual consent; the terms of this Agreement are not a result of the City's annexation plan or any arbitration between the City and District.

ARTICLE II
DEFINITIONS

Terms used in this Agreement shall have the following meanings:

"Act" means the Texas Local Government Code, Section 43.0751, and any amendments thereto.

"Agreement" means this Strategic Partnership Agreement between the City and the District.

"Board of Directors" means the Board of Directors of the District.

"City" means the City of Denton, Texas, a home rule municipality of the State of Texas.

"City Council" means the City Council of the City.

"City Share" means the City's share of the Sales and Use Tax Revenues as defined in Section 4.2 of this Agreement.

"Commercial Property" means those certain tracts within the District that are adjacent to and abutting U.S. Highway 380, which tracts are within the City's ETJ.

"Comptroller" means the Comptroller of Public Accounts for the State of Texas.

"Consent Resolution" means the City's Resolution No. 20-1379 consenting to the creation of the District.

"Development and Consent Agreement" means the Development and Consent Agreement Concerning Denton County Municipal Utility District No. 16 by and between the City, VS Development, LLC ("VS") and Olex (United States), Inc. ("Olex" and, collectively with VS, "Owners") effective August 18, 2020, regarding development of the Property.

"District" means Denton County Municipal Utility District No. 16.

"District Share" means the District's share of the Sales and Use Tax Revenues as defined by Section 4.2 of this Agreement.

"ETJ" means the extraterritorial jurisdiction of a city as defined by the Local Government Code, as amended.

"Effective Date" means the date on which the City adopts this Agreement.

"Government Code" means the Texas Government Code, as amended.

"Implementation Date" means the date the limited-purpose annexation ordinance is passed by City Council pursuant to Sections 3.4, 3.5 and 3.6.

"Limited Purpose Annexation Period" means the period commencing on the effective date of the limited purpose annexation of the Limited Purpose Property and ending upon the full purpose annexation or disannexation of such property.

"Limited Purpose Property" means the property in the District that is within the City's ETJ and is annexed pursuant to Sections 3.4, 3.5 and 3.6.

"Local Government Code" means the Texas Local Government Code, as amended.

"Notice" means notice as defined in Section 7.1 of this Agreement.

"Party" means, individually, the City or the District, their successors and assigns as permitted by Section 7.8 of this Agreement.

"Property" means the approximately 552.985 acres located partially within the City's extraterritorial jurisdiction, described by metes and bounds on Exhibit "A"

"Sales and Use Tax Revenues" means those revenues received by the City from the sales and use tax authorized to be imposed by the City on sales consummated at locations within the Limited Purpose Property pursuant to the Act and Chapter 321 of the Tax Code and whose use is not otherwise controlled or regulated, in whole or in part, by another governmental entity, authority or applicable law, ordinance, rule or regulation.

"Tax Code" means the Texas Tax Code, as amended.

ARTICLE III
ADOPTION OF AGREEMENT AND LIMITED PURPOSE ANNEXATION OF COMMERCIAL PROPERTY

3.1 Public Hearings. The District and the City acknowledge and agree that prior to the execution of this Agreement, the governing bodies of the District and the City have conducted two public hearings for the purpose of considering the adoption of this Agreement and that such hearings were noticed and conducted in accordance with the terms of the Act, this Agreement and Chapter 551 of the Government Code.

3.2 Effective Date. Pursuant to Subsection (c) of the Act, this Agreement is effective on the date of adoption of this Agreement by the City.

3.3 Filing in Property Records. The District shall file this Agreement in the Real Property Records of Denton County, Texas. This Agreement binds each owner and future owner of land included within the District's boundaries in accordance with Subsection (c) of the Act.

3.4 Limited Purpose Annexation of Commercial Property. The District and the City agree that the City may annex all or any portion of the Commercial Property for the limited purpose of collecting Sales and Use Tax Revenues within the Commercial Property pursuant to Subsection (k) of the Act. The District acknowledges that the City Council may adopt one or more limited purpose annexation ordinances at one or more meetings conducted in accordance with Chapter 551 of the Government Code and further acknowledges that no additional notices, hearings or other procedures are required by law in order to approve such limited purpose annexations. The City may annex for limited purposes any portion of the Commercial Property at any time after Owners, or any subsequent owner of the Commercial Property, submits a final plat for such property to the City.

3.5 Limited Purpose Annexation of Additional Commercial Property. If in the future any non-commercial land within the District as of the Effective Date is converted to any commercial use, the District and the City agree that the City may annex such additional commercial land (the "Additional Commercial Property") for the sole and exclusive purpose of imposing sales and use taxes within the Additional Commercial Property, pursuant to this Agreement. The District acknowledges and agrees that the City Council may adopt a limited purpose annexation ordinance applicable to the Additional Commercial Property at a meeting conducted in accordance with Chapter 551 of the Texas Government Code and that no further notices, hearings, or other procedures shall be required to adopt such limited purpose annexation ordinance. The City may annex for limited purposes any portion of the Commercial Property at any time after Owner, or any subsequent owner of the Commercial Property, submits a final plat for such property to the City.

3.6 Limited Purpose Annexation of Connecting Land. The District and the City further agree that the City may limited purpose annex additional land within the District (up to a maximum width of 1,001 feet) as reasonably necessary to connect the Commercial Property or Additional Commercial Property to the corporate or extraterritorial limits of the City (the "Connecting Limited Purpose Property"). The City may annex Connecting Limited Purpose Property for the sole and exclusive purpose of imposing sales and use taxes pursuant to this Agreement. The District acknowledges and agrees that the City Council may adopt a limited purpose annexation ordinance applicable to the Connecting Limited Purpose Property at a meeting conducted in accordance with Chapter 551 of the Texas Government Code and that no further notices, hearings, or other procedures shall be required to adopt such limited purpose annexation ordinance.

3.7 Limited Purpose Property and Sales and Use Tax Revenues. For purposes of this Agreement, the Commercial Property, Additional Commercial Property, and Connecting Limited Purpose Property shall collectively be referred to as the "Limited Purpose Property"; and the sales and use taxes collected within the Limited Purpose Property shall be referred to as the "Sales and Use Tax Revenues".

3.8 Consent to Limited Purpose Annexation. The District, on behalf of itself and all present and future owners of land within the District, hereby requests that the City annex the Limited Purposes Property for limited purposes as provided in this Agreement. The District expressly consents to such annexation, from time to time, and to the collection of Sales and Use Tax Revenues by the City within such Limited Purpose Property. Such consent shall bind the District and all current and future owners of land within the District.

ARTICLE IV
TAXATION AND PROVISIONS OF SERVICES

4.1 Collection of Sales and Use Tax Revenues. The City may impose a sales and use tax within the Limited Purpose Property pursuant to Subsection (k) of the Act. The sales and use

tax shall be imposed on all eligible commercial activities at the rate allowed under the Tax Code and imposed by the City. Collection of the Sales and Use Tax Revenues shall take effect on the date described in Section 321.102 of the Tax Code.

4.2 Payment of Sales and Use Tax. In return for the benefits received by the City pursuant to this Agreement, the City shall pay to the District an amount equal to fifty percent (50%) of the Sales and Use Tax Revenues collected within the Limited Purpose Property commencing upon the effective date of the limited purpose annexation of the Limited Purpose Property. All amounts payable to the District are hereafter referred to as the "District Share." The City shall pay the District Share within thirty (30) days after the City receives the sales tax report reflecting such revenue from the Comptroller. Any payment of the District Share not made within such thirty (30) day period shall bear interest calculated in accordance with Section 2251.025 of the Government Code. The City shall retain all Sales and Use Tax Revenues that do not constitute the District Share (the "City Share").

4.3 Use of the Sales and Use Tax Revenues. The District may use the District Share for any lawful purpose. The City may use the City Share for any lawful purpose.

4.4 Delivery of Sales Tax Reports to District. The City shall deliver to the District a condensed version of each monthly area sales tax report provided by the Comptroller, containing only the contents of the sales tax report relating to retail sales and retailers in the Property within thirty (30) days of City's receipt of the sales tax report.

4.5 Notification of Comptroller. The City shall send notice of this Agreement, together with other required documentation, to the Comptroller in the manner provided by Section 321.102 of the Tax Code, after the City Council annexes any portion of the Limited Purpose Property for limited purposes.

4.6 Termination of Sales and Use Tax Sharing. Upon termination of this Agreement, the City shall have no further financial obligation to the District pursuant to this Agreement.

4.7 City Audit Rights. The District is required by law to prepare annual audits within 120 days after the close of the District's fiscal year, subject to the exemptions provided under Section 49.198 of the Texas Water Code allowing for the District to file annual audit reports with the executive director of the TCEQ in lieu of conducting an annual audit if it meets certain criteria. The District shall provide a copy of its annual audit or annual financial report to City within thirty (30) days after the audit or financial report is completed. City may audit the District's expenditures with the Sales and Use Tax Revenue paid under Section 4.2, solely to determine whether the expenditures have been made by the District in accordance with Section 4.3. Any audit shall be made at City's sole cost and expense and may be performed at any time during regular business hours by City's internal auditors or an independent auditing firm on thirty (30) days' written notice to the District. For the purpose of any audits made by the City, the District shall maintain and make available to City or its representatives all books, records, documents, and other evidence of

accounting procedures or practices in whatever form maintained sufficient to reflect the expenditure of all Sales and Use Tax Revenues that are subject to this Agreement.

ARTICLE V
TERM

This Agreement commences and binds the Parties on the Effective Date and continues until the City annexes the Limited Purpose Property for full purposes or disannexes the Limited Purpose Property. Any rights or privileges of the Parties and their successors or assigns under this Agreement will terminate upon the expiration or termination of this Agreement. If the City elects to annex the Limited Purpose Property for full purposes or disannex the Limited Purpose Property, the City will provide written notice to the District at least one hundred eighty (180) days before such annexation or disannexation. If the District elects to dissolve, it shall provide written notice to the City at least one hundred eighty (180) days before the dissolution.

ARTICLE VI
BREACH, NOTICE AND REMEDIES

6.1 Notification of Breach. If either Party commits an alleged breach of this Agreement, the non-breaching Party shall give Notice to the breaching Party that described the breach in reasonable detail. A Party receiving such Notice shall determine: (i) whether a failure to comply with a provision has occurred; (ii) whether the failure is excusable; and (iii) whether the failure has been cured or will be cured by the purportedly breaching Party. The Parties shall make available to each other such records, documents, or other information necessary to make these determinations upon reasonable written request.

6.2 Cure of Breach. The breaching Party shall commence curing such breach within fifteen (15) calendar days after receipt of Notice of the breach and shall complete the cure within thirty (30) calendar days from the date of commencement of the cure; however, if the breach is not reasonably susceptible to cure by the breaching Party within such thirty (30) day period, the non-breaching Party shall not bring any action so long as the breaching Party has commenced to cure the breach within such thirty (30) day period and diligently completes the cure within a reasonable time without unreasonable cessation. A Party providing Notice of breach may provide for a longer period of time to cure the alleged failure within its written notice.

6.3 Remedies for Breach. If the breaching Party does not substantially cure such breach within the stated period of time, the non-breaching Party may, in its sole discretion, and without prejudice to any other right under this Agreement, law, or equity, seek relief available at law or in equity, including, but not limited to, an action under the Uniform Declaratory Judgment Act, specific performance, mandamus and injunctive relief. Damages, if any, to which any non-breaching Party may be entitled shall be limited to actual damages and shall not include special or consequential damages. In addition, the prevailing Party in any such action shall be entitled to

reasonable attorney's fees and costs of litigation as determined in a final, non-appealable order in a court of competent jurisdiction.

ARTICLE VII
ADDITIONAL PROVISIONS

7.1 Notices. All notices under this Agreement ("Notice") shall be in writing, shall be signed by or on behalf of the Party giving the Notice, and shall become effective as follows: (a) on the tenth (10th) business day after being deposited with the United States mail service, postage prepaid, Certified Mail, Return Receipt Requested addressed to the Party to be notified; (b) on the day delivered by private delivery or private messenger service (such as FedEx or UPS) as evidenced by a receipt signed by any person at the delivery address (whether or not such person is the person to whom the Notice is addressed); or (c) otherwise on the day actually received by the person to whom the Notice is addressed, including, but not limited to, delivery in persona and delivery by regular mail. All Notices given pursuant to this section shall be addressed as follows:

To the City:	City of Denton Attn: City Manager 215 E. McKinney St. Denton, TX 76201
With a copy to:	City of Denton Attn: City Attorney 215 E. McKinney St. Denton, TX 76201
To the District:	Denton County Municipal Utility District No. 16 Attn: President, Board of Directors c/o Coats Rose, P.C. 16000 N. Dallas Parkway, Suite 350 Dallas, Texas 75248
With a copy to:	Coats Rose, P.C. Attn: Mindy L. Koehne 16000 N. Dallas Parkway, Suite 350 Dallas, Texas 75248

7.2 No Waiver. Any failure by a Party to insist upon strict performance by the other Party of any provision of this Agreement shall not be deemed a waiver thereof, and the Party shall have the right at any time thereafter to insist upon strict performance of any and all of the provisions of this Agreement. No provision of this Agreement may be waived except in writing signed by the Party waiving such provision. Any waiver shall be limited to the specific purpose for which it is given. No waiver by any Party hereto of any term or condition of this Agreement

shall be deemed or construed to be a waiver of any other term or condition or subsequent waiver of the same term or condition.

7.3 Governing Law and Venue. This Agreement must be construed and enforced in accordance with the laws of the State of Texas, as they apply to contracts performed within the State of Texas and without regard to any choice of law rules or principles to the contrary. The Parties acknowledge that this Agreement is performable in Denton County, Texas, and hereby submit to the jurisdiction of the courts of Denton County, Texas, and agree that any such court with proper jurisdiction shall be a proper forum for the determination of any dispute arising hereunder.

7.4 Authority to Execute. The City warrants that this Agreement has been approved by the City Council in accordance with all applicable public meeting and public notice requirements (including, but not limited to, notices required by the Texas Open Meetings Act) and that the individual executing this Agreement on behalf of the City has been authorized to do so. The District warrants that this Agreement has been approved by the Board in accordance with all applicable public meeting and public notice requirements (including, but not limited to, notices required by the Open Meetings Act) and the individual executing this Agreement on behalf of the District has been authorized to do so.

7.5 Entire Agreement; Severability. This Agreement constitutes the entire agreement between the Parties and supersedes all prior agreements, whether oral or written, covering the subject matter of this Agreement. If any provision of this Agreement is determined by a court of competent jurisdiction to be unenforceable for any reason, then (a) such unenforceable provision shall be deleted from this Agreement; (b) the unenforceable provision shall, to the extent possible, be rewritten to be enforceable and to give effect to the intent of the Parties; and (c) the remainder of this Agreement shall remain in full force and effect and shall be interpreted to give effect to the intent of the Parties.

7.6 Changes in State or Federal Law. If any state or federal law changes so as to make it impossible for the City or the District to perform its obligations under this Agreement, the Parties will cooperate to amend this Agreement in such a manner that is most consistent with the original intent of this Agreement and legally possible.

7.7 Additional Documents and Acts. The Parties agree that at any time after execution of this Agreement, they will, upon request of the other Party, execute and/or exchange any other documents necessary to effectuate the terms of this Agreement and perform any further acts as the other Party may reasonably request to effectuate the terms of this Agreement.

7.8 Assignability, Successors and Assigns. This Agreement shall not be assignable by any Party without the other Party's written consent. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective officers, directors, partners, employees, representatives, agents, vendors, grantees and/or trustees, heirs, executors, administrators, legal

representatives, successors and assigns, as authorized herein. No assignment by a Party will be valid or enforceable unless all of the following conditions have been satisfied:

a. The assignment of the Agreement must be evidence by a recordable document (the "Assignment"), the form of which must be approved in writing by the Parties (such approval not to be unreasonably withheld);

b. The Assignment must expressly contain, among other reasonable requirements and/or conditions of the Parties, an acknowledgment and agreement that all obligations, covenants, and/or conditions contained in the Agreement will be assumed solely and completely by the assignee, and also contain the name, address, phone number, and electronic mail address of the assignee;

c. The Assignor must file any approved, executed Assignment in the Land Records of Denton County, Texas; and

d. Assignor shall provide the other Party with a file-marked copy of the Assignment within ten (10) days of filing the same.

7.9 Amendment. This Agreement may be amended only by written agreement with approval of the governing bodies of both the City and the District.

7.10 Interpretation. The Parties acknowledge that each Party (and, if it so chooses, its counsel) has reviewed and revised this Agreement and that the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting Party shall not be employed in the interpretation of this Agreement or any amendments or exhibits hereto. Unless otherwise specified, as used in this Agreement, the term "including" means "including, without limitation" and the term "days" means calendar days, not business days. Wherever required by the context, the singular shall include the plural, and the plural shall include the singular. Each defined term herein may be used in its singular or plural form whether or not so defined. Headings in this Agreement are for the convenience of the Parties and are not intended to be used in construing this document.

7.11 No Third-Party Beneficiaries. This Agreement is solely for the benefit of the City and the District. Neither the City nor the District intends by any provision of this Agreement to create any rights in any third-party beneficiaries or to confer any benefit or enforceable rights under this Agreement or otherwise upon anyone other than the City and the District.

7.12 Governmental Powers. By execution of this Agreement, neither the City nor the District waives or surrenders any of its respective governmental powers, immunities or rights, except as specifically waived pursuant to this section. The City and the District mutually waive their governmental immunity from suit and liability only as to any action brought by a Party to pursue the remedies available under this Agreement and only to the extent necessary to pursue

such remedies. Nothing in this section shall waive any claims, defenses or immunities that the City or the District has with respect to suits against the City or the District by persons or entities not a party to this Agreement.

7.13 Incorporation of Exhibits by Reference. All exhibits attached to this Agreement are incorporated into this Agreement by reference for the purposes set forth herein, as follows:

Exhibit A Legal Description of Property
Exhibit B Plan Depicting Commercial Property

7.14 Counterpart Originals. This Agreement may be executed in multiple counterparts, each of which shall be deemed to be an original.

7.15 Recitals. The recitals contained in this Agreement: (a) are true and correct as of the Effective Date; (b) form the basis upon which the Parties negotiated and entered into this Agreement; and (c) reflect the final intent of the parties with regard to the subject matter of this Agreement. In the event it becomes necessary to interpret any provision of this Agreement, the intent of the Parties, as evidenced by the recitals, shall be taken into consideration and, to the maximum extent possible, given full effect. The Parties have relied upon the recitals as part of the consideration for entering into this Agreement and, but for the intent of the Parties reflected by the recitals, would not have entered into this Agreement, and the recitals are incorporated as part of this Agreement's terms.

7.16 Voting Rights in the District. Upon annexation of the Commercial Property for limited purposes by the City, any qualified voters within the Commercial Property may vote in City elections, pursuant to Local Government Code § 43.130(a). Voting rights are subject to all state and federal laws and regulations. City will comply with all the notice requirements as set forth in § 43.130 of the Local Government Code, as it now exists or is hereafter amended.

7.17 Reservation of Rights. To the extent not inconsistent with this Agreement, each party reserves all rights, privileges, and immunities under applicable laws. By entering into and executing this Agreement, the City does not in any way waive, limit or surrender its sovereign immunity.

7.18 Authority for Execution. All signatories certify and represent that the execution of this Agreement is duly authorized and adopted in conformity with applicable law, and the signatory has been provided with all authority, consent, and/or permissions necessary to bind his/her respective principal to the terms set forth in this Agreement. The District certifies and represents that the execution of this Agreement is duly authorized and adopted by its Board of Directors.

[THE REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

CITY OF DENTON, TEXAS

By: _____
Mayor

Date: _____

ATTEST:

By: _____
City Secretary

APPROVED AS TO FORM

By: _____
City Attorney

STATE OF TEXAS §

COUNTY OF DENTON §

This instrument was acknowledged before me, the undersigned notary, on the ____ day of _____, 2024, by _____, Mayor, and _____, City Secretary, of the city of Denton, Texas, on behalf of said city.

_____
Notary Public in and for the State of Texas

(NOTARY SEAL)

DENTON COUNTY MUNICIPAL
UTILITY DISTRICT NO. 16

By: _____
Name: Kenneth Williamson
Title: VP
Date: April 25, 2024

STATE OF TEXAS §

COUNTY OF Denton §

This instrument was acknowledged before me, the undersigned notary, on the 25th day of April, 2024, by Kenneth Williamson, Vice President of the Board of Directors of Denton County Municipal Utility District No. 16, on behalf of said district.

_____
Notary Public in and for the State of Texas

(NOTARY SEAL)

CARSON H LUDDECKE
NOTARY ID #13330768-8
My Commission Expires
September 01, 2025

4878-7059-0134.v2

EXHIBIT "A"

Exhibit A
Metes and Bounds Description of the Property

Tract 1
144.086 Acres

BEING a tract of land situated in the Uberto Allen Survey, Abstract No. 14, William Stonham Survey, Abstract No. 1145 and the Harris Young Survey, Abstract No. 1450, Denton County, Texas and being the remaining portion of a called Tract One (153.488-acres) described in a General Warranty Deed to Olex (United States), Inc., f/k/a Olex Corporation N. V., recorded in Volume 1129, Page 185, Deed Records of Denton County, Texas, and being more particularly described by metes and bounds as follows:

BEGINNING at an aluminum TXDOT right of way disk found on the westerly line of said Tract One (153.488-acres), for the northwest corner of a called Parcel 17, described in an Agreed Judgment to the State of Texas, recoded in Instrument No. 2012-80554, Official Records of Denton County, Texas, same being the northeast corner of a called Parcel 16, described in a Deed to the State of Texas, recorded in Instrument No. 2009-71718, Official Records of Denton County, Texas, same also being the current northerly right of way line of U. S. Highway 380, a variable width right of way;

THENCE North 00°02'22" West, departing the northerly right of way line of said U. S. Highway 380, along the westerly line of said Tract One (153.488-acres) and generally along a barbed wire fence, a distance of 2,236.16 feet to a metal fence corner post found for the northwest corner of said Tract One (153.488-acres), same being the southwest corner of a called 1.931-acre tract of land, described in a Special Warranty Deed to Vangard Wireless, LP, recorded in Instrument No. 2005-79339, Official Records of Denton County, Texas;

THENCE South 89°58'24" East, along the northerly line of said Tract One (153.488-acres), the southerly line of said 1.931-acre tract, the southerly line of a called 5.00-acre tract of land, described in a Warranty Deed to Amanda Noles Nelson, recorded in Instrument No. 2013-92845, Official Records of Denton County, Texas, the southerly line of a called 19.6390-acre tract of land, described in a Special Warranty Deed to Nancy Kay Jones, recorded in Instrument No. 2010-57685, Official Records of Denton County, Texas, the southerly line of Myers Farm, an addition to the City of Denton, according to the final plat, recorded in Document No. 2011-77, Plat Records of Denton County, Texas, and generally along a barbed wire fence, a distance of 2091.05 feet to a 1/2-inch iron rod with a yellow plastic cap found for the southeast corner of said Myers Farm, same being the southwest corner of called 21.1455-acre tract of land described in a Special Warranty Deed to Janis June Myers, recorded in Instrument No. 2010-57683, Official Records of Denton County, Texas;

THENCE South 89°53'09" East, continuing along the northerly line of said Tract One (153.488-acres), the southerly line of said 21.1455-acre tract, and generally along a barbed

wire fence, a distance of 1368.48 feet to a 1/2-inch iron rod found for the northeast corner of said Tract One (153.488-acres) and the southeast corner of said 21.1455-acre tract, same being on the westerly right of way line of F. M. 156, a variable width right of way;

THENCE South 17°28'47" West, along the easterly line of said Tract One (153.488-acres) and the westerly right of way line of said F. M. 156, a distance of 94.26 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set at the beginning of a non-tangent curve to the right having a central angle of 15°08'00", a radius of 5659.58 feet, a chord bearing and distance of South 21°13'35" West, 1490.50 feet, from said point, a wooden right of way marker bears South 13°42' West, 3.93 feet;

THENCE in a southwesterly direction, continuing along the easterly line of said Tract One (153.488-acres) and the westerly right of way line of said F. M. 156, along said curve to the right, an arc distance of 1494.85 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner, from which, a wooden right of way marker bears South 03°03' West, 1.20 feet;

THENCE South 28°47'35" West, continuing along the easterly line of said Tract One (153.488-acres) and the westerly right of way line of said F. M. 156, a distance of 556.36 feet to an aluminum TXDOT right of way disk found for the northeast corner of aforesaid Parcel 17, same being the intersection of the westerly right of way line of said F. M. 156 with the northerly right of way line of aforesaid U. S. Highway 380;

THENCE in a westerly direction, departing the westerly right of way line of said F. M. 156, along the northerly line of said Parcel 17 and the northerly right of way line of said U. S. Highway 380, the following:

North 61°04'40" West, a distance of 679.63 feet to an aluminum TXDOT right of way disk found for corner;

South 78°35'46" West, a distance of 296.07 feet to an aluminum TXDOT right of way disk found for corner;

South 38°16'12" West, a distance of 548.81 feet to an aluminum TXDOT right of way disk found for corner;

South 62°08'29" West, a distance of 218.57 feet to an aluminum TXDOT right of way disk found for corner;

South 86°00'46" West, a distance of 322.43 feet to an aluminum TXDOT right of way disk found for corner;

North 90°00'00" West, a distance of 469.04 feet to an aluminum TXDOT right of way disk found for corner;

North 87°16'23" West, a distance of 413.60 feet to the **POINT OF BEGINNING** and containing 144.086 acres (6276387 square feet) of land, more or less.

Tract 2
408.899 Acres

BEING a tract of land situated in the George W. Anderson Survey, Abstract No. 12, Uberto Allen Survey, Abstract No. 14, Edward F. Anderson Survey, Abstract No. 16, B. B. B & C. RR. Co. Survey, Abstract No. 168, B. B. B & C. RR. Co. Survey, Abstract No. 188, William Stonham Survey, Abstract No. 1145 and the Harris Young Survey, Abstract No. 1450, Denton County, Texas and being the remaining portion of a called Tract Three (425.898-acres) described in a General Warranty Deed to Olex (United States), Inc., f/k/a Olex Corporation N. V., recorded in Volume 1129, Page 185, Deed Records of Denton County, Texas, and being more particularly described by metes and bounds as follows:

BEGINNING at an aluminum TXDOT right of way disk found on the easterly line of said Tract Three (425.898-acres), for the southeast corner of a called Parcel 15, described in an Agreed Judgment to the State of Texas, recoded in Instrument No. 2012-80554, Official Records of Denton County, Texas, same being the intersection of the current southerly right of way line of U. S. Highway 380, a variable width right of way with the westerly right of way line of F. M. 156, a variable width right of way;

THENCE in a southerly direction, departing the southerly right of way line of said U. S. Highway 380, along the easterly line of said Tract Three (425.898-acres) and the westerly right of way line of said F. M. 156, the following:

South 28°45'02" West, a distance of 581.24 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set at the beginning of a tangent curve to the right having a central angle of 03°49'00", a radius of 5659.58 feet, a chord bearing and distance of South 30°39'32" West, 376.93 feet;

in a southwesterly direction, along said curve to the right, an arc distance of 377.00 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

South 27°44'04" West, a distance of 118.70 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner, from which, a wooden right of way marker bears South 44°02' West, 3.82 feet;

South 32°34'02" West, a distance of 1000.02 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner, from which, a wooden right of way marker bears South 42°17' West, 2.01 feet;

South 38°16'40" West, a distance of 100.50 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner, from which, a wooden right of way marker bears South 44°22' West, 2.44 feet;

South 32°34'02" West, a distance of 1900.00 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner, from which, a wooden right of way marker bears South 27°02' West, 8.82 feet;

South 26°51'24" West, a distance of 100.50 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

South 32°34'02" West, a distance of 924.50 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for the beginning of a tangent curve to the left having a central angle of 6°27'51", a radius of 2924.79 feet, a chord bearing and distance of South 29°20'06" West, 329.80 feet;

in a southwesterly direction, with said curve to the left, an arc distance of 329.97 feet to a PK nail with a washer, stamped "KHA" set in an asphalt road, known as Old Stoney Road, an apparent public use roadway, no record found, for the southeast corner of said Tract Three (425.898-acres);

THENCE South 89°39'42" West, departing the westerly right of way line of said F. M. 156, along the southerly line of said Tract Three (425.898-acres) and along said Old Stoney Road, a distance of 1706.19 feet to a 1/2-inch iron rod found for the southwest corner of said Tract Three (425.898-acres);

THENCE North 0°02'12" West, departing said Old Stoney Road and along the westerly line of said Tract Three (425.898-acres), a distance of 5443.65 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set on the southerly line of a called Parcel 14, described in a Deed to the State of Texas, recorded in Instrument No. 2008-19039, Official Records of Denton County, Texas, same being the current southerly right of way line of aforesaid U. S. Highway 380;

THENCE in an easterly direction, departing the westerly line of said Tract Three (425.898-acres) and along the southerly right of way line of said U. S. Highway 380, the following:

South 87°16'23" East, passing at a distance of 8.26 feet, an aluminum TXDOT right of way disk found for the south common corner of said Parcel 14 and aforesaid Parcel 15, continuing for a total distance of 1274.95 feet to a point for corner;

North 63°54'58" East, a distance of 83.00 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

South 87°16'24" East, a distance of 299.75 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

North 88°52'11" East, a distance of 1520.81 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

North 90°00'00" East, a distance of 160.25 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

South 85°24'02" East, a distance of 457.49 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

South 55°26'56" East, a distance of 259.95 feet to an aluminum TXDOT right of way disk found for corner;

South 25°29'50" East, a distance of 449.43 feet to an aluminum TXDOT right of way disk found for corner;

South 61°21'38" East, a distance of 239.94 feet to a 5/8-inch iron rod with a red plastic cap, stamped "KHA" set for corner;

South 54°31'02" East, a distance of 100.71 feet to an aluminum TXDOT right of way disk found for corner;

South 61°21'39" East, a distance of 91.38 feet to the **POINT OF BEGINNING** and containing 408.899 acres (17811656 square feet) of land, more or less.

EXHIBIT "B"

TRACT A

BEING a tract of land situated in the B. B. B. & C. RR. CO. Survey, Abstract No. 168, Denton County, Texas, and being a portion of a called 403.899-acre tract of land described as Tract 2 in a Special Warranty Deed to VS Development, recorded in Instrument No. 2021-167738 of the Official Records of Denton County, Texas, and being more particularly described as follows:

BEGINNING at a 5/8 inch iron rod with plastic cap stamped "KHA" set for the northerly northwest corner of a called 101.952 acre tract of land described in a Special Warranty Deed to M/I Homes of DFW, LLC, recorded in Instrument No. 2022-61108 of the Official Records of Denton County, Texas, same being on the northerly line of said Tract 2, same also being on the southerly right-of-way line of U.S. Highway 380, a variable width right-of-way;

THENCE Departing the southerly right-of-way line of said U.S. Highway 380 and the northerly line of said Tract 2, and along the northerly line of said 101.952-acre tract, the following courses and distances:

South 45°35'01" East, a distance of 28.01 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set for corner;

South 00°02'12" East, a distance of 381.71 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set at the beginning of a tangent curve to the right with a radius of 30.00 feet, a central angle of 46°16'17", and a chord bearing and distance of South 23°05'56" West, 23.57 feet;

In a southerly direction, with said tangent curve to the right, an arc distance of 24.23 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set at the beginning of a reverse curve to the left with a radius of 78.50 feet, a central angle of 49°55'24", and a chord bearing and distance of South 21°16'23" West, 66.26 feet;

In a southerly direction, with said reverse curve to the left, an arc distance of 68.40 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set for corner;

South 89°57'48" West, a distance of 613.30 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set for corner;

THENCE North 00°02'12" West, departing the northerly line of said 110.952-acre tract and crossing said Tract 2, a distance of 492.94 5/8 inch iron rod with plastic cap stamped "KHA" set for corner on the southerly right-of-way line of said U.S. Highway 380, same being on the northerly line of said Tract 2;

THENCE South 87°16'24" East, along the southerly right-of-way line of said U.S. Highway 380 and along the northerly line of said Tract 2, a distance of 299.75 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set for corner;

THENCE North 88°52'11" East, continuing along the southerly right-of-way line of said U.S. Highway 380 and the northerly line of said Tract 2, a distance of 327.30 feet to the **POINT OF BEGINNING** and containing 7.135 acres (311,209 square feet) of land, more or less.

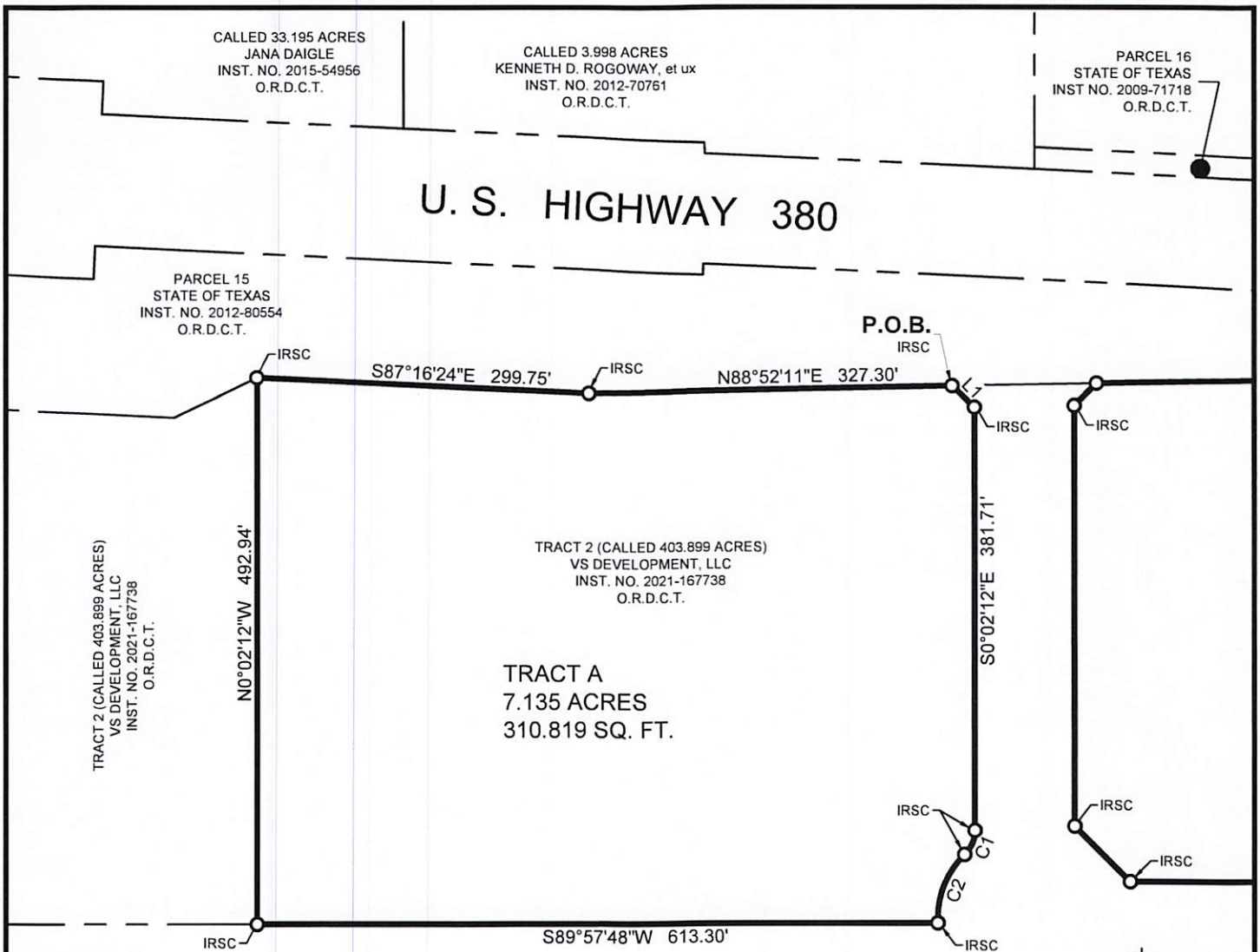
BOUNDARY EXHIBIT
TRACT A: 7.135 ACRES
TRACT B: 15.156 ACRES
SITUATED IN THE B. B. B. & C. RR. CO SURVEY, ABSTRACT NO. 168, THE GEORGE W. ANDERSON SURVEY, ABSTRACT NO. 12 & THE HARRIS YOUNG SURVEY, ABSTRACT NO. 1450
CITY DENTON OF E.T.J., DENTON COUNTY, TEXAS

MICHAEL MARX
REGISTERED PROFESSIONAL
LAND SURVEYOR NO. 5181
6160 WARREN PKWY., SUITE 210
FRISCO, TEXAS 75034
PH. 972-335-3580
michael.marx@kimley-horn.com

STATE OF TEXAS
REGISTERED
MICHAEL B. MARX
5181
PROFESSIONAL
LAND SURVEYOR

Kimley»Horn
6160 Warren Parkway, Suite 210
Frisco, Texas 75034
FIRM # 10193822
Tel. No. (972) 335-3580
Fax No. (972) 335-3779

Drawn by	Checked by	Date	Project No.	Sheet No.
GGL	KHA	April 2024	069306746	1 OF 7



NOTES
Bearing system based on the Texas Coordinate System of 1983, North Central Zone (4202), North American Datum of 1983.

CALLED 101.952 ACRES
M/I HOMES OF DFW, LLC
INST. NO. 2022-61108
O.R.D.C.T.

B. B. B. & C. RR. CO. SURVEY
ABSTRACT NO. 168

NORTH

0 75 150
GRAPHIC SCALE IN FEET

LEGEND

Δ = CENTRAL ANGLE
P.O.C. = POINT OF COMMENCING
P.O.B. = POINT OF BEGINNING
IRSC = 5/8" IRON ROD W/ "KHA" CAP SET
IRFC = IRON ROD W/CAP FOUND
IPF = IRON PIPE FOUND
D.R.D.C.T. = DEED RECORDS, COLLIN COUNTY, TEXAS
O.P.R.D.C.T. = OFFICIAL PUBLIC RECORDS, COLLIN COUNTY, TEXAS

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Scale	Drawn by	Checked by	Date	Project No.	Sheet No.
1" = 150'	GGL	KHA	April 2024	069306746	2 OF 7

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TRACT B

BEING a tract of land situated in the B. B. B. & C. RR. CO. Survey, Abstract No. 168 and the George W. Anderson Survey, Abstract No. 12, Denton County, Texas, and being a portion of a called 403.899 acre tract of land described as Tract 2 in a Special Warranty Deed to VS Development, recorded in Instrument No. 2021-167738 of the Official Records of Denton County, Texas, and being more particularly described as follows:

BEGINNING at a 5/8 inch iron rod with plastic cap stamped "KHA" set for the northerly northeast corner of a called 101.952 acre tract of land described in a Special Warranty Deed to M/I Homes of DFW, LLC, recorded in Instrument No. 2022-61108 of the Official Records of Denton County, Texas, same being on the northerly line of said Tract 2, same also being on the southerly right-of-way line of U.S. Highway 380, a variable width right-of-way;

THENCE along the southerly right-of-way line of said U.S. Highway 380 and along the northerly line of said Tract 2 the following courses and distances;

North 88°52'11" East, a distance of 1063.49 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set for corner;

North 90°00'00" East, a distance of 160.25 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set for corner;

South 85°24'02" East, a distance of 457.49 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set for corner;

South 55°26'56" East, a distance of 118.80 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set for corner;

THENCE departing the southerly right-of-way line of said U.S. Highway 380 and the northerly line of said Tract 2, and crossing said Tract 2 the following courses and distances,

South 29°35'01" West, a distance of 227.74 feet to a point for corner;

North 60°24'59" West, a distance of 76.34 feet to a point for corner;

North 85°24'02" West, a distance of 385.65 feet to a point for corner;

North 90°00'00" West, a distance of 124.47 feet to a point for corner;

South 10°28'12" West, a distance of 283.66 feet to a point on the northerly line of said 101.952-acre tract, and at the beginning of a non-tangent curve to the left with a radius of 1,422.50 feet, a central angle of 00°24'05", and a chord bearing and distance of North 79°43'50" West, 9.96 feet;

THENCE along the northerly line of said 101.952 acre tract, the following courses and distances,

In a westerly direction, with said non-tangent curve to the left, an arc distance of 9.96 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set for corner;

BOUNDARY EXHIBIT
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FRISCO, TEXAS 75034
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Scale	Drawn by	Checked by	Date	Project No.	Sheet No.
N/A	GGL	KHA	April 2024	069306746	3 OF 7

North 79°56'46" West, a distance of 172.38 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set at the beginning of a non-tangent curve to the left with a radius of 783.99 feet, a central angle of 09°21'15", and a chord bearing and distance of North 85°21'35" West, 127.85 feet;

In a westerly direction, with said non-tangent curve to the left, an arc distance of 128.00 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set for corner;

South 89°57'48" West, a distance of 700.88 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set for corner;

North 45°02'12" West, a distance of 70.71 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set for corner;

North 00°02'12" West, a distance of 379.33 feet to a 5/8-inch iron rod with red plastic cap stamped "KHA" set for corner;

North 44°24'59" East, a distance of 28.55 feet to the **POINT OF BEGINNING** and containing 660,187 square feet or 15.156 acres of land, more or less.

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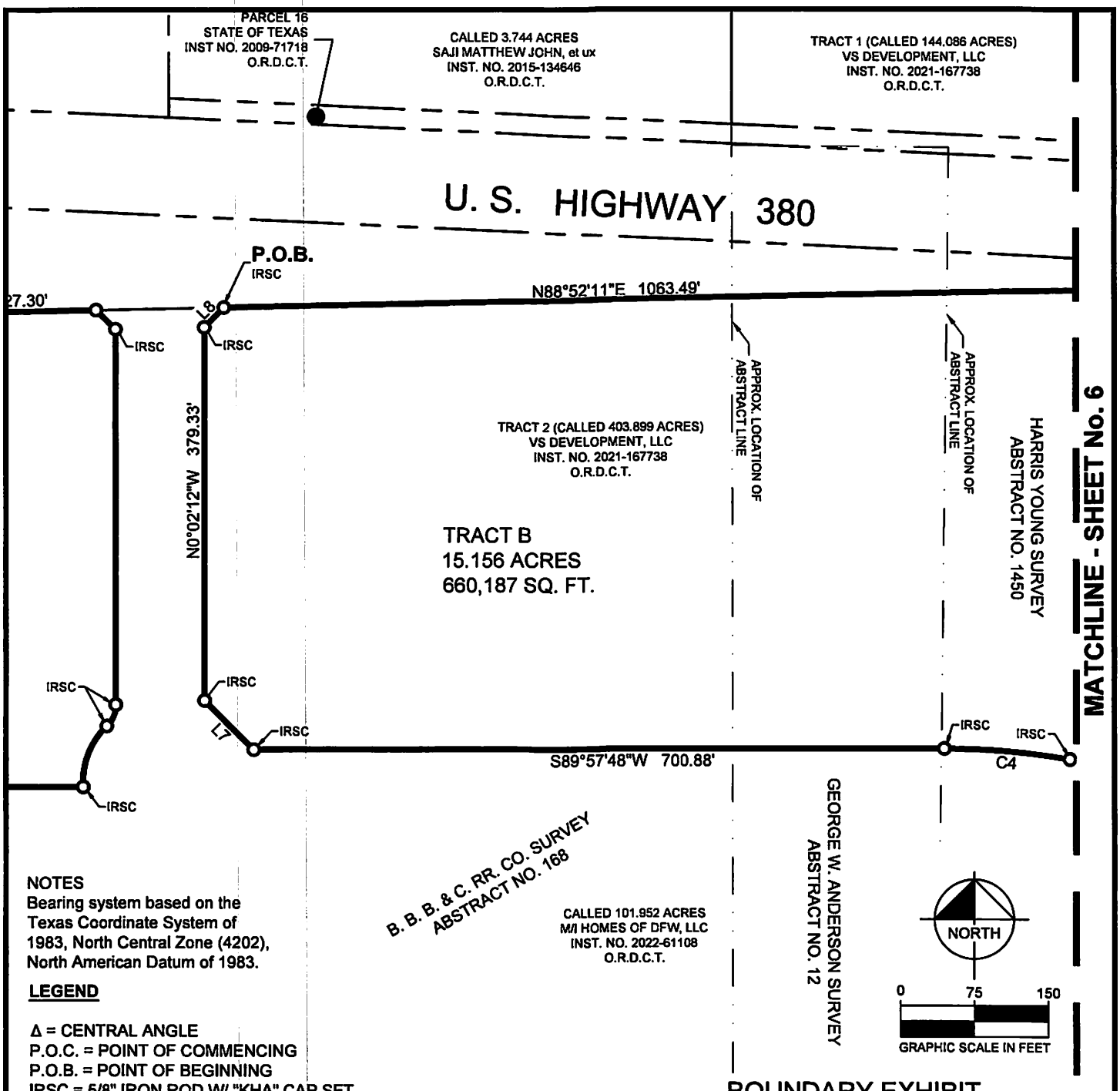
GGL	KHA	April 2024	069306746	4 OF 7



NOTES
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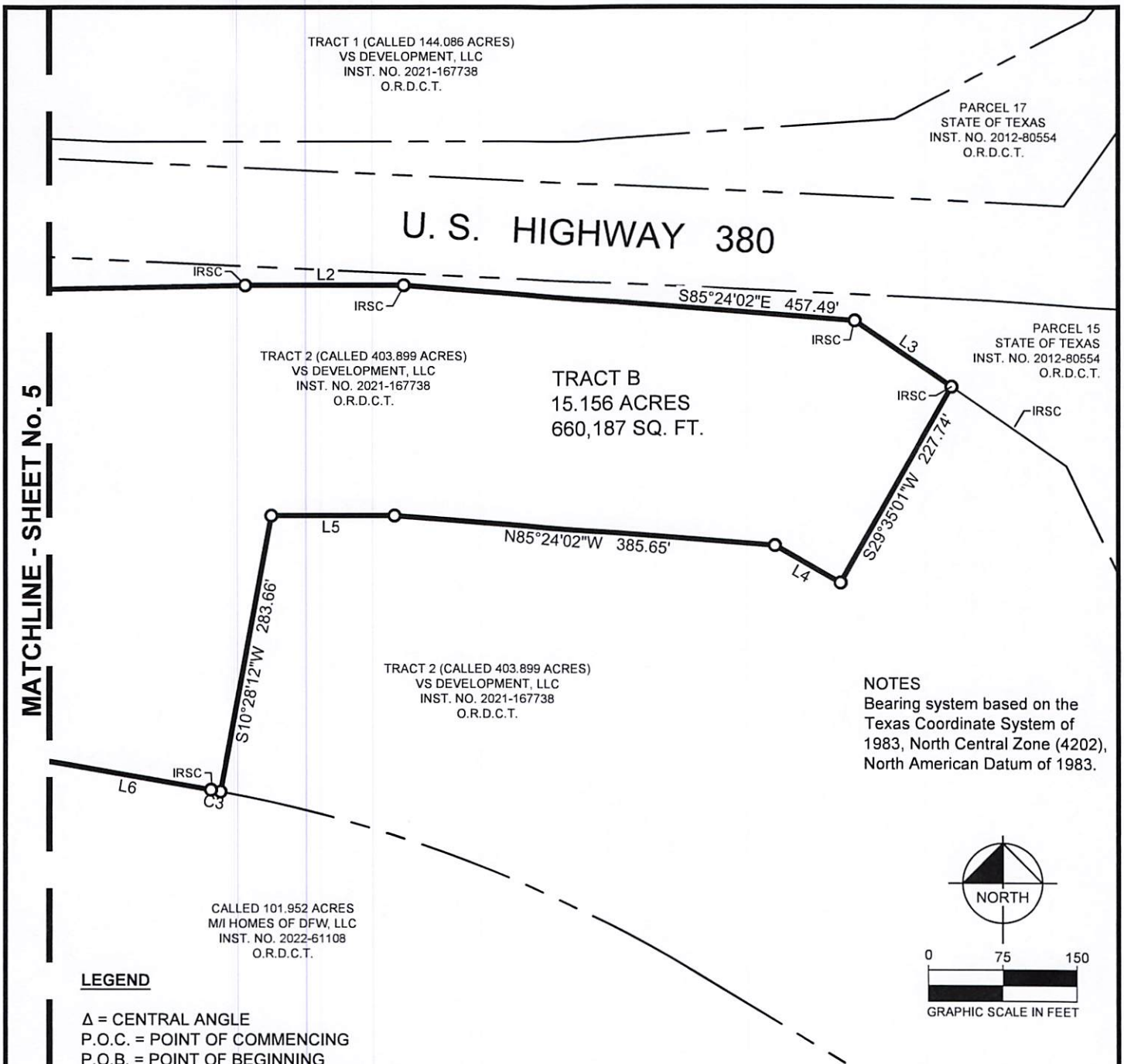
1" = 150'	GGL	KHA	April 2024	069306746	5 OF 7



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1" = 150'	GGL	KHA	April 2024	069306746	6 OF 7

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LINE TABLE		
NO.	BEARING	LENGTH
L1	S45°35'01"E	28.01'
L2	N90°00'00"E	160.25'
L3	S55°26'56"E	118.80'
L4	N60°24'59"W	76.34'
L5	N90°00'00"W	124.47'
L6	N79°56'46"W	172.38'
L7	N45°02'12"W	70.71'
L8	N44°24'59"E	28.55'

CURVE TABLE					
NO.	DELTA	RADIUS	LENGTH	CHORD BEARING	CHORD
C1	46°16'17"	30.00'	24.23'	S23°05'56"W	23.57'
C2	49°55'24"	78.50'	68.40'	S21°16'23"W	66.26'
C3	0°24'05"	1422.50'	9.96'	N79°43'50"W	9.96'
C4	9°21'15"	783.99'	128.00'	N85°21'35"W	127.85'

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1" = ###'	GGL	KHA	April 2024	069306746	7 OF 7

Meadows MUD Strategic Partnership Agreement

Charlie Rosendahl
Business Services Manager
Development Services
June 4, 2024
File ID: 24-1102

Background

Municipal Utility District (MUD)

- Special-purpose district created to provide essential services such as water, wastewater, and drainage to areas outside city limits.

Meadows MUD History

- April 2020- City received a petition for consent to the creation of the MUD.
- August 2020- City consented to creating the MUD and approved a development agreement.
  - Included a strategic partnership agreement.
- January 2022- First amendment to development agreement to add a Fire Services agreement.

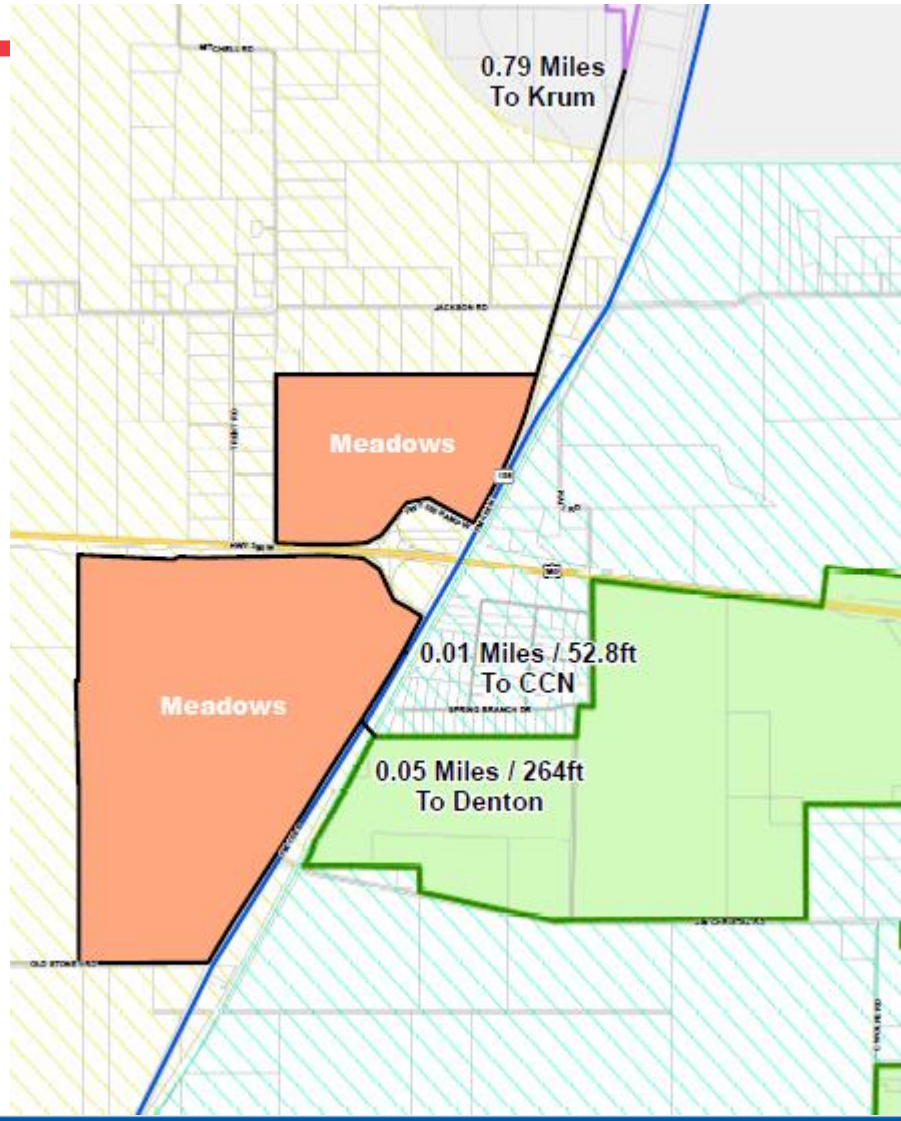
Meadows MUD

553-acre mixed-use development

- 1,600 single-family lots
- 396 multifamily units
- 19 commercial acres (86,000sf)

Timeline

- Single Family: Starting in Oct. 24 approx. 350-400/yr
- Multifamily: 2-3 year buildout
- Commercial: Lots selling now (4 tenants confirmed)



Strategic Partnership Agreement

- Initiated by Development Agreement (20-1496).
- Requires 2 public hearings by each the City and MUD for adoptions of the agreement.
  - This is the 1st public hearing.
  - 2nd public hearing is planned for June 18.
- Limited Purpose Annexation
  - Allows the City to collect sales tax on this property which otherwise would not be collected.
  - 50% of the taxes collected go to the MUD.
  - Est. $14.3M of retail sales tax ($7.15M City; $7.15M Meadows MUD) over 30 years.
  - Limited to commercial property and connections to commercial property.

Questions?

Charlie Rosendahl

Business Services Manager

Development Services

File #: ID 24-950, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton considering all matters incident and related to the issuance, sale and delivery of up to $151,660,000 in principal amount of "City of Denton General Obligation refunding and improvement bonds, Series 2024"; authorizing the issuance of the bonds; delegating the authority to certain city officials to execute certain documents relating to the sale of the bonds; approving and authorizing instruments and procedures relating to said bonds; enacting other provisions relating to the subject; and providing an effective date. The Public Utilities Board recommends 4-0.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: **Finance**

ACM: **Cassey Ogden**

DATE: **June 4, 2024**

SUBJECT

Consider adoption of an ordinance considering all matters incident and related to the issuance, sale and delivery of up to $151,660,000 in principal amount of "City of Denton General Obligation refunding and improvement bonds, Series 2024"; authorizing the issuance of the bonds; delegating the authority to certain city officials to execute certain documents relating to the sale of the bonds; approving and authorizing instruments and procedures relating to said bonds; enacting other provisions relating to the subject; and providing an effective date. The Public Utilities Board recommends 4-0.

BACKGROUND

The General Obligation (GO) Bonds will be the fifth issuance of bonds for the 2019 Bond Election and first issuance for the 2023 Bond Election. In addition to funding for these voters approved bond programs, the GO Bonds will include a refunding component. The City's Financial Advisors, Hilltop Securities, identified one refunding opportunity this year: Certificates of Obligation, Series 2014 and General Obligation Refunding and Improvement Bonds, Series 2014. The total outstanding amount is $62,940,000 and includes General Government, Airport, Solid Waste, Water, Wastewater and Electric debt. The projected savings is approximately $1.62 million based on current market conditions.

The projected savings associated with each fund is as follows.

General Fund	Airport	Solid Waste	Water	Wastewater	Electric	Total*
$153,355	$36,502	$108,347	$196,058	$140,080	$968,188	$1,602,530

*Preliminary, subject to change

GO and CO bond sale costs are a shared expense. CO's require Notice of Intentions to be issued early in the bond sale process calculating costs based on current market conditions and CO Utility project totals. The estimated CO cost will cover the GO bond sale this year.

The below table summarizes the 2024 GO issuance.

General Fund	$ 88,720,000
Refunding (Including Utilities)	62,940,000
Subtotal	$ 151,660,000
Issuance Cost and Pricing Flexibility*	-
Total GO Bond Sale	**$ 151,660,000**

*Covered by CO estimate

Since bond market conditions can change rapidly, staff is recommending the City Council approve a delegated parameters sale for the GOs. The parameters ordinance sets the following requirements in order to complete the sale of the GOs. By doing so, City staff will be authorized to execute the sale without additional approval.

- Maximum amount of sale is $151,660,000
- Final stated maturity of February 15, 2044
- Maximum net effective interest rate of 5.00%
- Delegation authority ends December 4, 2024

Below is a listing of the GO funded projects:

		BOND SALE
Street Reconstruction	$	18,000,000
Hickory Creek Road		8,100,000
Ryan Road		4,000,000
Street Lighting		3,500,000
Sidewalks		2,000,000
Total 2019 Bond Program	**$**	**35,600,000**
Ruddell, Mingo Roadway & Quiet Zones (Prop A)	$	5,000,000
Oakland Drainage & Upstream Detention Improvements (Prop B)		5,000,000
PEC 3&4 Drainage Improvements (Prop B)		5,000,000
Inclusive Playground (Prop C)		3,450,000
Trail Development (Prop C)		4,000,000
Aquatic Improvements (Prop C)		2,000,000
Fire Station # 5 (Prop D)		5,000,000
Fire Station # 6 (Prop D)		5,000,000
Linda McNatt Animal Care & Adoption Center (Prop D)		15,850,000
Public Art - Public Safety (Prop D)		320,000
South Branch Library (Prop G)		2,500,000
Total 2023 Bond Program	**$**	**53,120,000**
Grand Total GO Projects	**$**	**88,720,000**

RECOMMENDATION

Staff recommends adoption of the ordinance.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

On October 23, 2024, the City Council adopted reimbursement ordinance (Ord. 23-1426) authorizing General Obligation Bonds and Certificates of Obligation funded projects in preparation of the 2024 Bond Sale.

On January 23, 2024, the City Council adopted reimbursement ordinance (Ord. 24-2433) authorizing General Obligations 2023 Bond Election funded projects in preparation of the 2024 Bond Sale.

On May 20, 2024, the Public Utilities Board recommended this item which includes Utilities refundings to the City Council for consideration.

EXHIBITS

1. Agenda Information Sheet
2. Preliminary Official Statement
3. GO Ordinance
4. Presentation

Respectfully submitted:
Randee Klingele
Treasury Manager

DRAFT

This Preliminary Official Statement and the information contained herein are subject to completion or amendment. These securities may not be sold nor may offers to buy be accepted prior to the time the Preliminary Official Statement is delivered in final form. Under no circumstances shall the Preliminary Official Statement constitute an offer to sell or the solicitation of an offer to buy nor shall there be any sale of these securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of such jurisdiction.

HTS Continuing Disclosure Services
A Division of Hilltop Securities

(See "Continuing Disclosure of Information" herein)

PRELIMINARY OFFICIAL STATEMENT

Dated May __, 2024

Ratings:
Fitch: "___"
S&P: "___"
(See "Other Information - Ratings" herein)

NEW ISSUE - Book-Entry-Only

In the opinion of Bond Counsel, interest on the Certificates will be excludable from gross income for federal income tax purposes under statutes, regulations, published rulings and court decisions existing on the date thereof, subject to the matters described under "Tax Matters" herein, including the alternative minimum tax on certain corporations.

THE CERTIFICATES WILL NOT BE DESIGNATED AS "QUALIFIED TAX-EXEMPT OBLIGATIONS" FOR FINANCIAL INSTITUTIONS.

$240,610,000*
CITY OF DENTON, TEXAS
(Denton County)
CERTIFICATES OF OBLIGATION, SERIES 2024

Dated Date: June 1, 2024
Interest Accrues from Delivery Date

Due: February 15, as shown on page 2

PAYMENT TERMS . . . Interest on the $240,610,000* City of Denton, Texas Certificates of Obligation, Series 2024 (the "Certificates") will accrue from the delivery date (the "Delivery Date"), will be payable February 15 and August 15 of each year, commencing February 15, 2025, until maturity or prior redemption, and will be calculated on the basis of a 360-day year consisting of twelve 30-day months. The definitive Certificates will be initially registered and delivered only to Cede & Co., the nominee of The Depository Trust Company ("DTC") pursuant to the Book-Entry-Only System described herein. Beneficial ownership of the Certificates may be acquired in denominations of $5,000 or integral multiples thereof within a maturity. **No physical delivery of the Certificates will be made to the beneficial owners thereof.** Principal of, premium, if any, and interest on the Certificates will be payable by the Paying Agent/Registrar to Cede & Co., which will make distribution of the amounts so paid to the participating members of DTC for subsequent payment to the beneficial owners of the Certificates. See "The Obligations - Book-Entry-Only System" herein. The initial Paying Agent/Registrar is BOKF, NA, Dallas, Texas (see "The Obligations - Paying Agent/Registrar").

AUTHORITY FOR ISSUANCE . . . The Certificates are issued pursuant to the Constitution and general laws of the State of Texas, (the "State") particularly Subchapter C of Chapter 271, Texas Local Government Code (the Certificate of Obligation Act of 1971), as amended, and Texas Government Code, Chapter 1371, as amended, and constitute direct obligations of the City of Denton, Texas (the "City"), payable from a combination of (i) the levy and collection of a direct annual ad valorem tax, within the limits prescribed by law, on all taxable property within the City, and (ii) a limited pledge of surplus net revenues of the City's Utility System not in excess of $1,000, as provided in the Certificate Ordinance (defined herein) authorizing the Certificates (see "The Obligations - Authority for Issuance").

PURPOSE . . . Proceeds from the sale of the Certificates will be used for the purchase, construction and acquisition of certain real and personal property, to wit: (a) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's waterworks and wastewater system; (b) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's electric light and power system; (c) renovating, constructing, expanding, improving and equipping existing municipal service center building; (d) acquisition of vehicles and equipment for the fire, police, building inspections, community improvement services, animal services, streets and traffic control, facilities management, airport, technology services, fleet management, warehouse management, and parks and recreation departments; (e) renovations to, and equipping of, existing municipal buildings, including the acquisition and installation of replacement heating, venting and air conditioning equipment, roofing and flooring; (f) acquiring, expanding, constructing, renovating, improving and equipping parking facilities; (g) acquiring, constructing and installing building security systems, including security system technology equipment and software, for municipal buildings; (h) constructing, reconstructing, renovating, installing and equipping municipal parks; (i) renovations to and equipping existing municipal vehicle maintenance facility; (j) acquisition and installation of technology equipment, including radio equipment, computer equipment and software, for various municipal departments; (k) constructing and improving streets, including traffic signalization, landscaping, drainage, sidewalks, utility line relocations and the acquisition of land and rights-of-way therefor; (l) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's drainage and storm sewer systems; and (m) acquisition of vehicles and equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's solid waste disposal system , and also for the purpose of paying all or a portion of the City's contractual obligations for professional services, including engineers, architects, attorneys, map makers, auditors, and financial advisors, in connection with said projects and the Certificates (see "Plan of Financing").

MATURITY SCHEDULE

See page 2

SEPARATE ISSUES . . . The Certificates are being offered by the City concurrently with the "City of Denton, Texas General Obligation Refunding and Improvement Bonds, Series 2024" (the "Bonds") under a common official statement, and the Certificates and Bonds are hereinafter sometimes referred to collectively as the "Obligations." The Certificates and Bonds are separate and distinct securities offerings being issued and sold independently except for the common Official Statement, and, while the Obligations share certain common attributes, each issue is separate from the other and should be reviewed and analyzed independently, including the type of obligation being offered, its terms for payment, the security for its payment, the rights of the holders, the federal, state or local tax consequences of the purchase, ownership or disposition of the Obligations and other features.

LEGALITY . . . The Certificates are offered for delivery when, as and if issued and received by the Initial Purchaser subject to the approving opinion of the Attorney General of Texas and the opinion of McCall, Parkhurst & Horton L.L.P., Bond Counsel, Dallas, Texas (see Appendix C, "Forms of Bond Counsel's Opinions").

DELIVERY . . . It is expected that the Certificates will be available for delivery through The Depository Trust Company on July 16, 2024.

SEALED BIDS DUE JUNE 12, 2024, AT 9:45 AM, CDT**

* Preliminary, subject to change. See "Adjustment of Principal Amount and/or Types of Bids" in the Notice of Sale for the Certificates.
** Place and Time of Bid Opening . . . The City will accept bids for the sale of the Certificates on a day during the period beginning June 12, 2024 and initially ending June 26, 2024. At least 12 hours prior to the sale of the Certificates, Hilltop Securities Inc., as Financial Advisor to the City, will communicate, through Parity and Bloomberg, the date and time for submission of bids. The Financial Advisor, acting on behalf of the City, shall accept bids up to the time specified in the notice as hereinbefore described.

MATURITY SCHEDULE* **CUSIP Prefix: 248867 (1)**

Principal Amount	15-Feb Maturity	Interest Rate	Yield	CUSIP Suffix (1)	Principal Amount	15-Feb Maturity	Interest Rate	Yield	CUSIP Suffix (1)
$ 7,655,000	2025				$ 11,885,000	2040			
9,065,000	2026				12,525,000	2041			
9,545,000	2027				13,135,000	2042			
10,055,000	2028				13,705,000	2043			
10,595,000	2029				14,295,000	2044			
9,065,000	2030				2,185,000	2045			
9,560,000	2031				2,275,000	2046			
10,070,000	2032				2,380,000	2047			
10,610,000	2033				2,485,000	2048			
11,185,000	2034				2,595,000	2049			
9,135,000	2035				2,710,000	2050			
9,640,000	2036				2,835,000	2051			
10,150,000	2037				2,960,000	2052			
10,695,000	2038				3,100,000	2053			
11,275,000	2039				3,240,000	2054			

(1) CUSIP® is a registered trademark of the American Bankers Association. CUSIP data herein is provided by CUSIP Global Services ("CGS") managed on behalf of the American Bankers Association by FactSet Research Systems Inc. This data is not intended to create a database and does not serve in any way as a substitute for the CGS database. CUSIP® numbers are provided for convenience of reference only. None of the City, the Financial Advisor, or the Initial Purchaser of the Certificates take any responsibility for the accuracy of such numbers.

REDEMPTION . . . The City reserves the right, at its option, to redeem Certificates having stated maturities on and after February 15, 2035, in whole or in part in principal amounts of $5,000 or any integral multiple thereof, on February 15, 2034, or any date thereafter, at the par value thereof plus accrued interest to the date of redemption (see "The Obligations – Optional Redemption").

* Preliminary, subject to change. See "Adjustment of Principal Amount and/or Types of Bids" in the Notice of Sale for the Certificates.

This Preliminary Official Statement and the information contained herein are subject to completion or amendment. These securities may not be sold nor may offers to buy be accepted prior to the time the Preliminary Official Statement is delivered in final form. Under no circumstances shall the Preliminary Official Statement constitute an offer to sell or the solicitation of an offer to buy nor shall there be any sale of these securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of such jurisdiction.

HTS Continuing Disclosure Services
A Division of Hilltop Securities

(See "Continuing Disclosure of Information" herein)

PRELIMINARY OFFICIAL STATEMENT

Dated May __, 2024

Ratings:
Fitch: "__"
S&P: "__"
(See "Other Information - Ratings" herein)

NEW ISSUE - Book-Entry-Only

In the opinion of Bond Counsel, interest on the Bonds will be excludable from gross income for federal income tax purposes under statutes, regulations, published rulings and court decisions existing on the date thereof, subject to the matters described under "Tax Matters" herein, including the alternative minimum tax on certain corporations.

THE BONDS WILL NOT BE DESIGNATED AS "QUALIFIED TAX-EXEMPT OBLIGATIONS" FOR FINANCIAL INSTITUTIONS.

$135,175,000*
CITY OF DENTON, TEXAS
(Denton County)
GENERAL OBLIGATION REFUNDING AND IMPROVEMENT BONDS,
SERIES 2024

Dated Date: June 1, 2024
Interest Accrues from Delivery Date

Due: February 15, as shown on page 4

PAYMENT TERMS . . . Interest on the $135,175,000* City of Denton, Texas General Obligation Refunding and Improvement Bonds, Series 2024 (the "Bonds") will accrue from the delivery date (the "Delivery Date"), will be payable February 15 and August 15 of each year, commencing February 15, 2025, until maturity or prior redemption, and will be calculated on the basis of a 360-day year consisting of twelve 30-day months. The definitive Bonds will be initially registered and delivered only to Cede & Co., the nominee of The Depository Trust Company ("DTC") pursuant to the Book-Entry-Only System described herein. Beneficial ownership of the Bonds may be acquired in denominations of $5,000 or integral multiples thereof within a maturity. **No physical delivery of the Bonds will be made to the beneficial owners thereof.** Principal of, premium, if any, and interest on the Bonds will be payable by the Paying Agent/Registrar to Cede & Co., which will make distribution of the amounts so paid to the participating members of DTC for subsequent payment to the beneficial owners of the Bonds. See "The Obligations - Book-Entry-Only System" herein. The initial Paying Agent/Registrar is BOKF, NA, Dallas, Texas (see "The Obligations - Paying Agent/Registrar").

AUTHORITY FOR ISSUANCE . . . The Bonds are issued pursuant to the Constitution and general laws of the State of Texas, (the "State") including particularly Texas Government Code, Chapters 1207, 1371 and 1331, as amended, and are direct obligations of the City of Denton, Texas (the "City"), payable from an annual ad valorem tax levied, within the limits prescribed by law, on all taxable property within the City, as provided in the Bond Ordinance (defined herein) authorizing the Bonds (see "The Obligations - Authority for Issuance" and "The Obligations – Security and Source of Payment").

PURPOSE . . . Proceeds of the Bonds are expected to be used for (i) various street improvements, (ii) drainage and flood control improvements; (iii) park system improvements; (iv) fire and animal control public safety facilities; (v) a new South Branch library; (vi) refunding the obligations described in Schedule I – Schedule of Refunded Obligations (the "Refunded Obligations") for debt service savings, and (vii) paying the costs associated with the issuance of the Bonds (see "Plan of Financing").

MATURITY SCHEDULE

See page 4

SEPARATE ISSUES . . . The Bonds are being offered by the City concurrently with the "City of Denton, Texas Certificates of Obligation, Series 2024" (the "Certificates"), under a common Official Statement, and the Bonds and Certificates are hereinafter sometimes referred to collectively as the "Obligations." The Bonds and Certificates are separate and distinct securities offerings being issued and sold independently except for the common Official Statement, and, while the Obligations share certain common attributes, each issue is separate from the other and should be reviewed and analyzed independently, including the type of obligation being offered, its terms for payment, the security for its payment, the rights of the holders, the federal, state or local tax consequences of the purchase, ownership or disposition of the Obligations and other features.

LEGALITY . . . The Bonds are offered for delivery when, as and if issued and received by the Initial Purchaser subject to the approving opinion of the Attorney General of Texas and the opinion of McCall, Parkhurst & Horton L.L.P., Bond Counsel, Dallas, Texas (see Appendix C, "Forms of Bond Counsel's Opinions").

DELIVERY . . . It is expected that the Bonds will be available for delivery through The Depository Trust Company on July 16, 2024.

SEALED BIDS DUE JUNE 12, 2024, AT 10:15 AM, CDT**

* Preliminary, subject to change. See "Adjustment of Principal Amount and/or Types of Bids" in the Notice of Sale for the Bonds.

** Place and Time of Bid Opening . . . The City will accept bids for the sale of the Bonds on a day during the period beginning June 12, 2024 and initially ending June 26, 2024. At least 12 hours prior to the sale of the Bonds, Hilltop Securities Inc., as Financial Advisor to the City, will communicate, through Parity and Bloomberg, the date and time for submission of bids. The Financial Advisor, acting on behalf of the City, shall accept bids up to the time specified in the notice as hereinbefore described.

MATURITY SCHEDULE* **CUSIP Prefix: 248867 (1)**

Principal Amount	15-Feb Maturity	Interest Rate	Yield	CUSIP Suffix (1)	Principal Amount	15-Feb Maturity	Interest Rate	Yield	CUSIP Suffix (1)
$ 4,100,000	2025				$ 5,860,000	2035			
4,875,000	2026				6,195,000	2036			
5,155,000	2027				6,555,000	2037			
5,445,000	2028				6,935,000	2038			
5,755,000	2029				7,330,000	2039			
6,105,000	2030				7,740,000	2040			
6,475,000	2031				8,155,000	2041			
6,840,000	2032				8,555,000	2042			
7,245,000	2033				8,930,000	2043			
7,630,000	2034				9,295,000	2044			

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REDEMPTION . . . The City reserves the right, at its option, to redeem Bonds having stated maturities on and after February 15, 2035, in whole or in part in principal amounts of $5,000 or any integral multiple thereof, on February 15, 2034, or any date thereafter, at the par value thereof plus accrued interest to the date of redemption (see "The Obligations – Optional Redemption").

* Preliminary, subject to change. See "Adjustment of Principal Amount and/or Types of Bids" in the Notice of Sale for the Bonds.

This Official Statement, which includes the cover pages, the Schedule and the Appendices hereto, does not constitute an offer to sell or the solicitation of an offer to buy in any jurisdiction to any person to whom it is unlawful to make such offer, solicitation, or sale.

No dealer, broker, salesperson, or other person has been authorized to give information or to make any representation other than those contained in this Official Statement, and, if given or made, such other information or representations must not be relied upon.

For purposes of compliance with Rule 15c 2-12 of the Securities and Exchange Commission (the "Rule"), this document constitutes an Official Statement of the City with respect to the Obligations that has been "deemed final" by the City as of its date except for the omission of no more than the information permitted by the Rule.

The information set forth herein has been obtained from the City and other sources believed to be reliable, but such information is not guaranteed as to accuracy or completeness and is not to be construed as the representation, promise, or guarantee of the Financial Advisor. Any information and expressions of opinion herein contained are subject to change without notice, and neither the delivery of this Official Statement nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the City or other matters described herein since the date hereof. See "Other Information - Continuing Disclosure of Information" for a description of the City's undertaking to provide certain information on a continuing basis.

Neither the City nor its Financial Advisor make any representation as to the accuracy, completeness, or adequacy of the information supplied by The Depository Trust Company for use in this Official Statement.

THIS OFFICIAL STATEMENT CONTAINS "FORWARD-LOOKING" STATEMENTS WITHIN THE MEANING OF SECTION 21E OF THE SECURITIES EXCHANGE ACT OF 1934, AS AMENDED. SUCH STATEMENTS MAY INVOLVE KNOWN AND UNKNOWN RISKS, UNCERTAINTIES, AND OTHER FACTORS WHICH MAY CAUSE THE ACTUAL RESULTS, PERFORMANCE, AND ACHIEVEMENTS TO BE DIFFERENT FROM FUTURE RESULTS, PERFORMANCE, AND ACHIEVEMENTS EXPRESSED OR IMPLIED BY SUCH FORWARD-LOOKING STATEMENTS. INVESTORS ARE CAUTIONED THAT THE ACTUAL RESULTS COULD DIFFER MATERIALLY FROM THOSE SET FORTH IN THE FORWARD-LOOKING STATEMENTS.

THE OBLIGATIONS ARE EXEMPT FROM REGISTRATION WITH THE SECURITIES AND EXCHANGE COMMISSION AND CONSEQUENTLY HAVE NOT BEEN REGISTERED THEREWITH. THE REGISTRATION, QUALIFICATION, OR EXEMPTION OF THE OBLIGATIONS IN ACCORDANCE WITH APPLICABLE SECURITIES LAW PROVISIONS OF THE JURISDICTION IN WHICH THE OBLIGATIONS HAVE BEEN REGISTERED, QUALIFIED OR EXEMPTED SHOULD NOT BE REGARDED AS A RECOMMENDATION THEREOF.

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The cover pages hereof, this page and the appendices included herein and any addenda, supplement or amendment hereto, are part of the Preliminary Official Statement.

PRELIMINARY OFFICIAL STATEMENT SUMMARY

This summary is subject in all respects to the more complete information and definitions contained or incorporated in this Preliminary Official Statement. The offering of the Bonds and Certificates to potential investors is made only by means of this entire Preliminary Official Statement. No person is authorized to detach this summary from this Preliminary Official Statement or to otherwise use it without the entire Preliminary Official Statement.

THE CITY ..... The City of Denton (the "City") is a political subdivision and municipal corporation of the State of Texas (the "State"), located in Denton County, Texas. The City covers approximately 97.411 square miles (see "Introduction - Description of the City").

THE BONDS ..... The City's $135,175,000* General Obligation Refunding and Improvement Bonds, Series 2024 are to mature on February 15 in the years 2025 through 2044 (see "The Obligations - Description of the Obligations").

THE CERTIFICATES ..... The City's $240,610,000* Certificates of Obligation, Series 2024 are to mature on February 15 in the years 2025 through 2054 (see "The Obligations - Description of the Obligations").

PAYMENT OF INTEREST ..... Interest on the Obligations accrues from the Delivery Date (defined herein) and is payable February 15, 2025 and each August 15 and February 15 thereafter until maturity or prior redemption (see "The Obligations - Description of the Obligations" and "The Obligations - Optional Redemption").

AUTHORITY FOR ISSUANCE..... The Certificates are issued pursuant to the Constitution and general laws of the State, particularly Subchapter C of Chapter 271, Texas Local Government Code, as amended, and Texas Government Code, Chapter 1371, as amended, and an ordinance (the "Authorizing Certificate Ordinance") of the City in which the City Council delegated to the City Manager or the Chief Financial Officer authority to complete the sale of the Certificates. The terms of the sale will be included in a "Pricing Certificate," which will complete the sale of the Certificates (the Authorizing Certificate Ordinance and the Pricing Certificate for the Certificates are jointly referred to as the "Certificate Ordinance") (see "The Obligations - Authority for Issuance").

The Bonds are issued pursuant to the Constitution and general laws of the State, including particularly Texas Government Code, Chapters 1207, 1371 and 1331, as amended, and an ordinance (the "Authorizing Bond Ordinance") of the City in which the City Council delegated to the City Manager or the Chief Financial Officer authority to complete the sale of the Bonds. The terms of the sale will be included in a "Pricing Certificate," which will complete the sale of the Bonds (the Authorizing Bond Ordinance and the Pricing Certificate for the Bonds are jointly referred to as the "Bond Ordinance") (see "The Obligations - Authority for Issuance").

SECURITY FOR THE CERTIFICATES..... The Certificates constitute direct obligations of the City, payable from a combination of (i) a direct annual ad valorem tax levied, within the limits prescribed by law, on all taxable property within the City, and (ii) a limited pledge (not to exceed $1,000) of surplus net revenues of the City's Utility System (see "The Obligations - Security and Source of Payment").

SECURITY FOR THE BONDS ..... The Bonds constitute direct obligations of the City, payable from a direct annual ad valorem tax levied, within the limits prescribed by law, on all taxable property located within the City (see "The Obligations - Security and Source of Payment").

REDEMPTION ..... The City reserves the right, at its option, to redeem Bonds and Certificates, as the case may be, having stated maturities on and after February 15, 2035, in whole or in part in principal amounts of $5,000 or any integral multiple thereof, on February 15, 2034, or any date thereafter, at the par value thereof plus accrued interest to the date of redemption (see "The Obligations - Optional Redemption").

TAX EXEMPTION..... In the opinion of Bond Counsel, the interest on the Obligations will be excludable from gross income for federal income tax purposes under existing law, subject to the matters described under "Tax Matters" herein.

* Preliminary, subject to change.

USE OF PROCEEDS ..... Proceeds from the sale of the Certificates will be used for the purchase, construction and acquisition of certain real and personal property, to wit: (a) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's waterworks and wastewater system; (b) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's electric light and power system; (c) renovating, constructing, expanding, improving and equipping existing municipal service center building; (d) acquisition of vehicles and equipment for the fire, police, building inspections, community improvement services, animal services, streets and traffic control, facilities management, airport, technology services, fleet management, warehouse management, and parks and recreation departments; (e) renovations to, and equipping of, existing municipal buildings, including the acquisition and installation of replacement heating, venting and air conditioning equipment, roofing and flooring; (f) acquiring, expanding, constructing, renovating, improving and equipping parking facilities; (g) acquiring, constructing and installing building security systems, including security system technology equipment and software, for municipal buildings; (h) constructing, reconstructing, renovating, installing and equipping municipal parks; (i) renovations to and equipping existing municipal vehicle maintenance facility; (j) acquisition and installation of technology equipment, including radio equipment, computer equipment and software, for various municipal departments; (k) constructing and improving streets, including traffic signalization, landscaping, drainage, sidewalks, utility line relocations and the acquisition of land and rights-of-way therefor; (l) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's drainage and storm sewer systems; and (m) acquisition of vehicles and equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's solid waste disposal system , and also for the purpose of paying all or a portion of the City's contractual obligations for professional services, including engineers, architects, attorneys, map makers, auditors, and financial advisors, in connection with said projects and the Certificates (see "Plan of Financing").

Proceeds of the Bonds are expected to be used for (i) various street improvements, (ii) drainage and flood control improvements; (iii) park system improvements; (iv) fire and animal control public safety facilities; (v) a new South Branch library; (vi) refunding the obligations described in Schedule I – Schedule of Refunded Obligations (the "Refunded Obligations") for debt service savings, and (vii) paying the costs associated with the issuance of the Bonds (see "Plan of Financing").

RATINGS..... The Obligations and the presently outstanding general obligation debt of the City are rated "___" by Fitch Ratings ("Fitch") and "___" by S&P Global Ratings ("S&P"), a division of S&P Global Inc. See "Other Information – Ratings" herein.

BOOK-ENTRY-ONLY SYSTEM..... The definitive Obligations will be initially registered and delivered only to Cede & Co., the nominee of DTC pursuant to the Book-Entry-Only System described herein. Beneficial ownership of the Obligations may be acquired in denominations of $5,000 or integral multiples thereof within a maturity. No physical delivery of the Obligations will be made to the beneficial owners thereof. Principal of, premium, if any, and interest on the Obligations will be payable by the Paying Agent/Registrar to Cede & Co., which will make distribution of the amounts so paid to the participating members of DTC for subsequent payment to the beneficial owners of the Obligations (see "The Obligations - Book-Entry-Only System").

PAYMENT RECORD..... The City has never defaulted on the payment of its tax-supported indebtedness.

SELECTED FINANCIAL INFORMATION

Fiscal Year Ended 9/30	Estimated Population [1]	Net Taxable Assessed Valuation [2]	Net Taxable Assessed Valuation Per Capita	Net Tax Debt Outstanding at End of Fiscal Year [8]	Per Capita Net Funded Tax Debt	Ratio Net Tax Debt to Net Taxable Assessed Valuation	% of Total Tax Collections
2020	140,956	$ 12,620,560,528 [3]	89,535	$ 249,482,532	1,770	1.98%	99.65%
2021	143,775	13,581,648,271 [4]	94,465	308,521,854	2,146	2.27%	99.74%
2022	146,950	14,403,105,063 [5]	98,014	354,343,240	2,411	2.46%	99.68%
2023	150,624	16,721,123,624 [6]	111,012	392,635,000	2,607	2.35%	99.44%
2024	150,842	19,219,843,947 [7]	127,417	517,470,000 [9]	3,431	2.69%	97.86% [10]

(1) Source: City Officials.
(2) Valuations shown are certified taxable assessed values reported by the Denton Central Appraisal District to the State Comptroller of Public Accounts. Certified values are subject to change throughout the year as contested values are resolved and the Appraisal District updates records. Source: Denton Central Appraisal District as of July 22, 2023.
(3) Includes tax incremental value of approximately $168,826,531 that is not available for the City's general obligations and debt of City.
(4) Includes tax incremental value of approximately $198,541,948 that is not available for the City's general obligations and debt of City.
(5) Includes tax incremental value of approximately $236,666,283 that is not available for the City's general obligations and debt of City.
(6) Includes tax incremental value of approximately $260,921,114 that is not available for the City's general obligations and debt of City.
(7) Includes tax incremental value of approximately $655,364,707 that is not available for the City's general obligations and debt of City.
(8) Excludes self-supported general obligation debt.
(9) Projected. Includes a portion of the Obligations. Excludes the Refunded Obligations. Preliminary, subject to change.
(10) Collections for part year only, through April 1, 2024.

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CITY OFFICIALS, STAFF AND CONSULTANTS

ELECTED OFFICIALS

City Council	Term Expires
Gerard Hudspeth Mayor	May, 2026
Vicki Byrd Councilmember, District 1	May, 2025
Brian Beck Mayor Pro Tem Councilmember, District 2	May, 2025
Paul Meltzer Councilmember, District 3	May, 2025
Joe Holland Councilmember, District 4	May, 2025
Brandon Chase McGee Councilmember, At Large Place 5	May, 2026
Jill Jester Councilmember, At Large Place 6	May, 2026

SELECTED ADMINISTRATIVE STAFF

Name	Position
Sara Hensley	City Manager
Frank Dixon	Assistant City Manager
Christine Taylor	Assistant City Manager
Cassandra Ogden	Assistant City Manager
Jessica Williams	Chief Financial Officer
Vis Bouaphanthavong	Assistant Director of Finance
Lauren Thoden	City Secretary
Jesus Salazar	Deputy City Secretary
Mack Reinwand	City Attorney

CONSULTANTS AND ADVISORS

Auditors ..... Weaver and Tidwell, L.L.P.
Dallas, Texas

Bond Counsel ..... McCall, Parkhurst & Horton L.L.P.
Dallas, Texas

Financial Advisor.....Hilltop Securities Inc.
Fort Worth, Texas

For additional information regarding the City, please contact:

Jessica Williams, Chief Financial Officer
Mack Reinwand-City Attorney
City of Denton
215 E. McKinney Street
Denton, Texas 76201
(940) 349-8244

or

Laura Alexander
Hilltop Securities Inc.
777 Main Street, Suite 1525
Fort Worth, Texas 76102
(817) 332-9710

PRELIMINARY OFFICIAL STATEMENT

RELATING TO

CITY OF DENTON, TEXAS

$240,610,000*	**$135,175,000***
CERTIFICATES OF OBLIGATION, SERIES 2024	**GENERAL OBLIGATION REFUNDING AND IMPROVEMENT BONDS, SERIES 2024**

INTRODUCTION

This Preliminary Official Statement, which includes the Schedule and Appendices hereto, provides certain information regarding the issuance of $240,610,000* City of Denton, Texas Certificates of Obligation, Series 2024 (the "Certificates") and $135,175,000* City of Denton, Texas General Obligation Refunding and Improvement Bonds, Series 2024 (the "Bonds"). The Bonds and the Certificates (collectively the "Obligations") are separate and distinct securities offerings being authorized for issuance under separate ordinances (the "Bond Ordinance" and the "Certificate Ordinance", respectively, each as defined below, and collectively the "Ordinances") adopted by the City Council of the City, but are being offered and sold pursuant to a common Official Statement, and while the Bonds and Certificates share certain common attributes, each issue is separate and apart from the other and should be reviewed and analyzed independently, including the kind and type of obligation being issued, its terms of payment, the security for its payment, the rights of the holders, the federal, state or local tax consequences of the purchase, ownership or disposition of the Obligations and the covenants and agreements made with respect thereto. The City Council is expected to adopt an ordinance on June 4, 2024 authorizing the issuance of the Bonds (the "Authorizing Bond Ordinance"). In the Authorizing Bond Ordinance, as permitted by the provisions of Chapter 1371, Texas Government Code, as amended, the City Council delegated the authority to the City Manager or the Chief Financial Officer to establish the terms and details of the Bonds and to effect the sale of the Bonds pursuant to a "Pricing Certificate" (the Authorizing Bond Ordinance and the Pricing Certificate for the Bonds are jointly referred to as the "Bond Ordinance"). The City Council is expected to adopt an ordinance on June 4, 2024 authorizing the issuance of the Certificates (the "Authorizing Certificate Ordinance"). In the Authorizing Certificate Ordinance, as permitted by the provisions of Chapters 1371, Texas Government Code, as amended, the City Council delegated the authority to the City Manager or the Chief Financial Officer to establish the terms and details of the Certificates and to effect the sale of the Certificates pursuant to a "Pricing Certificate" (the Authorizing Certificate Ordinance and the Pricing Certificate for the Certificates are jointly referred to as the "Certificate Ordinance"). Capitalized terms used in this Preliminary Official Statement have the same meanings assigned to such terms in each respective Ordinance, except as otherwise indicated herein.

There follows in this Preliminary Official Statement descriptions of the Obligations and certain information regarding the City and its finances. All descriptions of documents contained herein are only summaries and are qualified in their entirety by reference to each such document. Copies of such documents may be obtained from the City's Financial Advisor, Hilltop Securities Inc., Fort Worth, Texas.

DESCRIPTION OF THE CITY . . . The City of Denton, Texas (the "City") is a political subdivision located in Denton County operating as a home-rule city under the laws of the State of Texas (the "State") and a charter approved by the voters in 1959. The City operates under the Council/Manager form of government where the Mayor and six Councilmembers are elected for staggered two-year terms. The City Council formulates operating policy for the City while the City Manager is the chief administrative officer. The City is approximately 97.411 square miles in area.

PLAN OF FINANCING

PURPOSE . . . Proceeds from the sale of the Certificates will be used for the purchase, construction and acquisition of certain real and personal property, to wit: (a) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's waterworks and wastewater system; (b) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's electric light and power system; (c) renovating, constructing, expanding, improving and equipping existing municipal service center building; (d) acquisition of vehicles and equipment for the fire, police, building inspections, community improvement services, animal services, streets and traffic control, facilities management, airport, technology services, fleet management, warehouse management, and parks and recreation departments; (e) renovations to, and equipping of, existing municipal buildings, including the acquisition and installation of replacement heating, venting and air conditioning equipment, roofing and flooring; (f) acquiring, expanding, constructing, renovating, improving and equipping parking facilities; (g) acquiring, constructing and installing building security systems, including security system technology equipment and software, for municipal buildings; (h) constructing, reconstructing, renovating, installing and equipping municipal parks; (i) renovations to and equipping existing municipal vehicle maintenance facility; (j) acquisition and installation of technology equipment, including radio equipment, computer equipment and software, for various municipal departments; (k) constructing and improving streets, including traffic signalization, landscaping, drainage, sidewalks, utility line relocations and the acquisition of land and rights-of-way therefor; (l) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's drainage and storm sewer systems; and (m) acquisition of vehicles and equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's solid waste disposal system;, and also for the purpose of paying all or a portion of the City's contractual obligations for professional services, including engineers, architects, attorneys, map makers, auditors, and financial advisors, in connection with said projects and the Certificates.

Proceeds of the Bonds are expected to be used for (i) various street improvements, (ii) drainage and flood control improvements; (iii) park system improvements; (iv) fire and animal control public safety facilities; (v) a new South Branch library; (vi) refunding the obligations described in Schedule I – Schedule of Refunded Obligations (the "Refunded Obligations") for debt service savings, and (vii) paying the costs associated with the issuance of the Bonds .

* Preliminary, subject to change.

REFUNDED OBLIGATIONS . . . The principal and interest due on the Refunded Obligations are to be paid on the scheduled redemption dates of such Refunded Obligations, from funds to be deposited pursuant to an escrow agreement (the "Escrow Agreement") between the City and BOKF, NA (the "Escrow Agent"). The Bond Ordinance provides that from a portion of proceeds of the sale of the Bonds received from the Purchaser of the Bonds together with other funds of the City, if any, the City will deposit with the Escrow Agent the amount necessary to accomplish the discharge and final payment of the Refunded Obligations on their respective redemption dates as described in "Schedule I - Schedule of Refunded Obligations". Such funds will be held by the Escrow Agent in an escrow fund (the "Escrow Fund") irrevocably pledged to the payment of principal of and interest on the Refunded Obligations and will be used to purchase certain obligations of the United States of America and obligations of agencies or instrumentalities of the United States of America, including obligations that are unconditionally guaranteed by such agency or instrumentality, that are noncallable and that were, on the date the Bond Ordinance was adopted, rated as to investment quality by a nationally recognized rating firm not less than "AAA" (the "Escrowed Securities"). Under the Escrow Agreement, the Escrow Fund is irrevocably pledged to the payment of the principal and interest on the Refunded Obligations and amounts therein will not be available to pay the Bonds.

Public Finance Partners LLC (the "Verification Agent") will verify at the time of delivery of the Bonds to the Purchaser of the Bonds, the mathematical accuracy of the schedules that demonstrate that the Escrowed Securities will mature and pay interest in such amounts which, together with uninvested funds in the Escrow Fund, will be sufficient to pay, when due, the amount necessary to accomplish the discharge and final payment of principal of and interest on the Refunded Obligations on their respective redemption dates (see "Other Information - Verification of Arithmetical and Mathematical Computations").

By the deposit of the Escrowed Securities and cash, if any, with the Escrow Agent pursuant to the Escrow Agreement, the City will have effected the legal defeasance of the Refunded Obligations, pursuant to Chapter 1207 and the ordinances authorizing the issuance of the Refunded Obligations. It is the opinion of Bond Counsel that, as a result of such defeasance, and in reliance upon the report of the Verification Agent, the Refunded Obligations will no longer be payable from ad valorem taxes and other sources of security, if any, but will be payable solely from the principal of and interest on the Escrowed Securities and cash, if any, on deposit in the Escrow Fund and held for such purpose by the Escrow Agent, and that the Refunded Obligations will be defeased and are not to be included in or considered to be indebtedness of the City for the purpose of a limitation of indebtedness or for any other purpose. See "APPENDIX C - Forms of Bond Counsel's Opinions" herein.
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* Preliminary, subject to change.

THE OBLIGATIONS

DESCRIPTION OF THE OBLIGATIONS . . . The Obligations are dated June 1, 2024, and mature on February 15 in each of the years and in the amounts shown on page 2 and page 4 hereof. Interest will accrue from the date of initial delivery thereof (the "Delivery Date"), will be computed on the basis of a 360-day year of twelve 30-day months, and will be payable on February 15 and August 15 of each year, commencing February 15, 2025 until maturity or prior redemption. The definitive Obligations will be issued only in fully registered form in any integral multiple of $5,000 for any one maturity and will be initially registered and delivered only to Cede & Co., the nominee of The Depository Trust Company ("DTC") pursuant to the Book-Entry-Only System described herein. **No physical delivery of the Obligations will be made to the beneficial owners thereof.** Principal of, premium, if any, and interest on the Obligations will be payable by the Paying Agent/Registrar to Cede & Co., which will make distribution of the amounts so paid to the participating members of DTC for subsequent payment to the beneficial owners of the Obligations. See "The Obligations - Book-Entry-Only System" herein.

AUTHORITY FOR ISSUANCE . . . The Certificates are being issued pursuant to the Constitution and general laws of the State, particularly Subchapter C of Chapter 271, Texas Local Government Code, as amended, and Texas Government Code, Chapter 1371, as amended, and the Certificate Ordinance.

The Bonds are being issued pursuant to the Constitution and general laws of the State, particularly Chapters 1207, 1371 and 1331, Texas Government Code, as amended, and the Bond Ordinance.

SECURITY AND SOURCE OF PAYMENT . . .

The Certificates . . . The Certificates constitute direct obligations of the City, payable from a combination of (i) a direct annual ad valorem tax levied, within the limits prescribed by law, on all taxable property within the City, and (ii) a limited pledge (not to exceed $1,000) of surplus net revenues of the City's Utility System (consisting of the electric system and the waterworks and sewer system).

The Bonds . . . The Bonds constitute direct obligations of the City and the principal thereof and interest thereon are payable from an annual ad valorem tax levied by the City, within the limits prescribed by law, upon all taxable property in the City, as provided in the Bond Ordinance.

TAX RATE LIMITATION . . . All taxable property within the City is subject to the assessment, levy and collection by the City of a continuing, direct annual ad valorem tax sufficient to provide for the payment of principal of and interest on all ad valorem tax debt, including the Obligations, within the limits prescribed by law. Article XI, Section 5, of the Texas Constitution is applicable to the City, and limits its maximum ad valorem tax rate to $2.50 per $100 Taxable Assessed Valuation for all City purposes. The Home Rule Charter of the City adopts the constitutionally authorized maximum tax rate of $2.50 per $100 Taxable Assessed Valuation. Administratively, the Attorney General of the State will permit allocation of $1.50 of the $2.50 maximum tax rate for all general obligation debt, as calculated at the time of issuance and based on 90% tax collection factor.

OPTIONAL REDEMPTION . . . The City reserves the right, at its option, to redeem the Obligations having stated maturities on and after February 15, 2035 in whole or in part in principal amounts of $5,000 or any integral multiple thereof, on February 15, 2034 or any date thereafter, at the par value thereof plus accrued interest to the date of redemption. If less than all of the Bonds or Certificates are to be redeemed, the City may select the maturities of Bonds or Certificates, as the case may be, to be redeemed. If less than all the Bonds or Certificates of any maturity are to be redeemed, the Paying Agent/Registrar (or DTC while the Bonds or Certificates, as the case may be, are in Book-Entry-Only form) shall determine by lot the Bonds or Certificates, or portions thereof, within such maturity to be redeemed. If a Bond or Certificate (or any portion of the principal sum thereof) shall have been called for redemption and notice of such redemption shall have been given, such Bond or Certificate (or the principal amount thereof to be redeemed) shall become due and payable on such redemption date and interest thereon shall cease to accrue from and after the redemption date, provided funds for the payment of the redemption price and accrued interest thereon are held by the Paying Agent/Registrar on the redemption date.

With respect to any optional redemption of the Bonds or Certificates, as the case may be, unless certain prerequisites to such redemption required by the respective Ordinance have been met and money sufficient to pay the principal of and premium, if any, and interest on the Bonds or Certificates, as the case may be, to be redeemed will have been received by the Paying Agent/Registrar prior to the giving of such notice of redemption, such notice may state that said redemption will, at the option of the City, be conditional upon the satisfaction of such prerequisites and receipt of such money by the Paying Agent/Registrar on or prior to the date fixed for such redemption or upon any prerequisite set forth in such notice of redemption. If a conditional notice of redemption is given and such prerequisites to the redemption are not fulfilled, such notice will be of no force and effect, the City will not redeem such Bonds or Certificates, as the case may be, and the Paying Agent/Registrar will give notice in the manner in which the notice of redemption was given, to the effect that the Bonds or Certificates, as the case may be, have not been redeemed.

NOTICE OF REDEMPTION . . . Not less than 30 days prior to a redemption date for the Obligations, the City shall cause a notice of redemption to be sent by United States mail, first class, postage prepaid, to the registered owners of the Obligations to be redeemed, in whole or in part, at the address of the registered owner appearing on the registration books of the Paying Agent/Registrar at the close of business on the business day next preceding the date of mailing such notice. ANY NOTICE SO MAILED SHALL BE CONCLUSIVELY PRESUMED TO HAVE BEEN DULY GIVEN WHETHER OR NOT THE REGISTERED OWNER RECEIVES SUCH NOTICE. IF AN OBLIGATION (OR ANY PORTION OF ITS PRINCIPAL SUM) SHALL HAVE BEEN DULY CALLED FOR REDEMPTION AND NOTICE OF SUCH REDEMPTION DULY GIVEN, THEN UPON THE REDEMPTION DATE SUCH OBLIGATION (OR THE PORTION OF ITS PRINCIPAL SUM TO BE REDEEMED) SHALL BECOME DUE AND PAYABLE, AND, IF MONIES FOR THE PAYMENT OF THE REDEMPTION PRICE ARE HELD FOR THE PURPOSE OF SUCH PAYMENT BY THE PAYING AGENT/REGISTRAR AND ALL OTHER CONDITIONS TO REDEMPTION ARE SATISFIED, INTEREST SHALL CEASE TO ACCRUE AND BE PAYABLE FROM AND AFTER THE REDEMPTION DATE ON THE PRINCIPAL AMOUNT REDEEMED.

DEFEASANCE . . . The Ordinances provide that any Obligation and the interest thereon shall be deemed to be paid, retired, and no longer outstanding (a "Defeased Obligation") within the meaning of such Ordinance when payment of the principal of such Obligation, plus interest thereon to the due date either (i) shall have been made or caused to be made in accordance with the terms thereof, or (ii) shall have been provided for on or before such due date by irrevocably depositing with or making available to the Paying Agent/Registrar for such payment (1) lawful money of the United States of America sufficient to make such payment or (2) Government Obligations which mature as to principal and interest in such amounts and at such times as will ensure the availability, without reinvestment, of sufficient money to provide for such payment, and when proper arrangements have been made by the City with the Paying Agent/Registrar for the payment of its services until all Defeased Obligations shall have become due and payable, and thereafter the City will have no further responsibility with respect to amounts available to such paying agent (or other financial institution permitted by applicable law) for the payment of such defeased bonds, including any insufficiency therein caused by the failure of such paying agent (or other financial institution permitted by applicable law) to receive payment when due on the Government Obligations. At such time as an Obligation shall be deemed to be a Defeased Obligation hereunder, as aforesaid, such Obligation and the interest thereon shall no longer be secured by, payable from, or entitled to the benefits of, the ad valorem taxes herein levied and pledged as provided in the Ordinance, and such principal and interest shall be payable solely from such money or Government Obligations.

Any moneys so deposited with the Paying Agent/Registrar may at the written direction of the City also be invested in Government Obligations, maturing in the amounts and times as hereinbefore set forth, and all income from such Government Obligations received by the Paying Agent/Registrar which is not required for the payment of the Obligations and interest thereon, with respect to which such money has been so deposited, shall be turned over to the City, or deposited as directed in writing to the City. The Ordinances provide that "Government Obligations" means (a) direct, noncallable obligations of the United States of America including obligations that are unconditionally guaranteed by the United States of America and (b) noncallable obligations of an agency or instrumentality of the United States of America, including obligations that are unconditionally guaranteed or insured by the agency or instrumentality and that, on the date the City Council approves such defeasance, are rated as to investment quality by a nationally recognized investment rating firm not less than AAA or its equivalent.

Upon such deposit as described above, such Defeased Obligations shall no longer be regarded to be outstanding obligations payable from ad valorem taxes levied by the City or from the other revenues pledged to their payment in the Ordinances, but will be payable only from the funds and Government Obligations deposited in escrow and will not be considered debt of the City for any purpose. After firm banking and financial arrangements for the discharge and final payment or redemption of the Obligations have been made as described above, all rights of the City to initiate proceedings to call the Obligations for redemption or take any other action amending the terms of the Obligations are extinguished; provided, however, that the right to call the Obligations for redemption is not extinguished if the City: (i) in the proceedings providing for the firm banking and financial arrangements, expressly reserves the right to call the Obligations for redemption; and (ii) gives notice of the reservation of that right to the owners of the Obligations immediately following the making of the firm banking and financial arrangements; (iii) directs that notice of the reservation be included in any redemption notices that it authorizes.

BOOK-ENTRY-ONLY SYSTEM . . . *This section describes how ownership of the Obligations is to be transferred and how the principal of, premium, if any, and interest on the Obligations are to be paid to and accredited by DTC while the Obligations are registered in its nominee name. The information in this section concerning DTC and the Book-Entry-Only System has been provided by DTC for use in disclosure documents such as this Official Statement. The City believes the source of such information to be reliable, but takes no responsibility for the accuracy or completeness thereof.*

The City cannot and does not give any assurance that (1) DTC will distribute payments of debt service on the Obligations, or redemption or other notices, to DTC Participants, (2) DTC Participants or others will distribute debt service payments paid to DTC or its nominee (as the registered owner of the Obligations), or redemption or other notices, to the Beneficial Owners, or that they will do so on a timely basis, or (3) DTC will serve and act in the manner described in this Official Statement. The current rules applicable to DTC are on file with the Securities and Exchange Commission, and the current procedures of DTC to be followed in dealing with DTC Participants are on file with DTC.

DTC will act as securities depository for the Obligations. The Obligations will be issued as fully-registered securities registered in the name of Cede & Co. (DTC's partnership nominee) or such other name as may be requested by an authorized representative of DTC. One fully-registered security certificate will be issued for each maturity of the Obligations in the aggregate principal amount thereof and will be deposited with DTC.

DTC, the world's largest securities depository, is a limited-purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code, and a "clearing agency" registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934. DTC holds and provides asset servicing for over 3.5 million issues of U.S. and non-U.S. equity issues, corporate and municipal debt issues, and money market instruments (from over 100 countries) that DTC's participants ("Direct Participants") deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities, through electronic computerized book-entry transfers and pledges between Direct Participants' accounts. This eliminates the need for physical movement of securities certificates. Direct Participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation ("DTCC"). DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, and clearing corporations that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly ("Indirect Participants"). DTC has a Standard & Poor's rating of "AA+". The DTC Rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at www.dtcc.com and www.dtc.org.

Purchases of Obligations under the DTC system must be made by or through Direct Participants, which will receive a credit for the Obligations on DTC's records. The ownership interest of each actual purchaser of each Obligation ("Beneficial Owner") is in turn to be recorded on the Direct and Indirect Participants' records. Beneficial Owners will not receive written confirmation from DTC of their purchase, but Beneficial Owners are expected to receive written confirmations providing details of the transactions, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owners entered into the transaction. Transfers of ownership interest in the Obligations are to be accomplished by entries made on the books of Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in the Obligations, except in the event that use of the book-entry system for the Obligations is discontinued.

To facilitate subsequent transfers, all Obligations deposited by Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co., or such other name as may be requested by an authorized representative of DTC. The deposit of Obligations with DTC and their registration in the name of Cede & Co. or such other DTC nominee do not effect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Obligations; DTC's records reflect only the identity of the Direct Participant to whose account such Obligations are credited, which may or may not be the Beneficial Owners. The Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time. Beneficial Owners of Obligations may wish to take certain steps to augment the transmission to them of notices of significant events with respect to the Obligations, such as redemptions, tenders, defaults, and proposed amendments to the Obligation documents. For example, Beneficial Owners of Obligations may wish to ascertain that the nominee holding the Obligations for their benefit has agreed to obtain and transmit notices to Beneficial Owners. In the alternative, Beneficial Owners may wish to provide their names and addresses to the registrar and request that copies of notices be provided directly to them.

Redemption notices shall be sent to DTC. If less than all of the Obligations within a maturity are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such issue to be redeemed.

Neither DTC nor Cede & Co. will consent or vote with respect to the Obligations unless authorized by a Direct Participant in accordance with DTC's procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the City as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the Obligations are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Payments on the Obligations will be made to DTC. DTC's practice is to credit Direct Participants' accounts, upon DTC's receipt of funds and corresponding detail information from the City or the Paying Agent/Registrar on payable dates in accordance with their respective holdings shown on DTC's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as in the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC, the Paying Agent/Registrar or the City, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment to DTC is the responsibility of the City, disbursement of such payments to Direct Participants shall be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners shall be the responsibility of Direct and Indirect Participants.

DTC may discontinue providing its services as securities depository with respect to the Obligations at any time by giving reasonable notice to the City and the Paying Agent/Registrar. Under such circumstances, in the event that a successor securities depository is not obtained, Obligation certificates are required to be printed and delivered.

The City may decide to discontinue use of the system of book-entry transfers through DTC (or a successor securities depository). In that event, Obligations will be printed and delivered.

Use of Certain Terms in Other Sections of this Official Statement. In reading this Official Statement it should be understood that while the Obligations are in the Book-Entry-Only System, references in other sections of this Official Statement to registered owners should be read to include the person for which the Participant acquires an interest in the Obligations, but (i) all rights of ownership must be exercised through DTC and the Book-Entry-Only System, and (ii) except as described above, notices that are to be given to registered owners under the Ordinances will be given only to DTC.

Information concerning DTC and the Book-Entry-Only System has been obtained from DTC and is not guaranteed as to accuracy or completeness by, and is not to be construed as a representation by the City, the Financial Advisor or the Initial Purchasers.

EFFECT OF TERMINATION OF BOOK-ENTRY-ONLY SYSTEM . . . In the event that the Book-Entry-Only System is discontinued by DTC or the use of the Book-Entry-Only System is discontinued by the City, printed Obligations will be issued to the holders and the Obligations will be subject to transfer, exchange and registration provisions as set forth in the Ordinances and summarized under "The Obligations - Transfer, Exchange and Registration" below.

PAYING AGENT/REGISTRAR . . . The initial Paying Agent/Registrar for the Bonds and the Certificates is BOKF, NA, Dallas, Texas. In the Ordinances, the City retains the right to replace the Paying Agent/Registrar. The City covenants to maintain and provide a Paying Agent/Registrar at all times until the Bonds and Certificates are duly paid and any successor Paying Agent/Registrar shall be a commercial bank, trust company, financial institution or other entity duly qualified and legally authorized to serve as and perform the duties and services of Paying Agent/Registrar for the Bonds and Certificates. Upon any change in the Paying Agent/Registrar for the Bonds and Certificates, the City agrees to promptly cause a written notice thereof to be sent to each registered owner of the Bonds and Certificates, as applicable, by United States mail, first class, postage prepaid, which notice shall also give the address of the new Paying Agent/Registrar.

In the event the use of the Book-Entry-Only system is discontinued, principal of the Bonds and Certificates is payable to the registered holder appearing on the registration books of the Paying Agent/Registrar (the "Registered Owner") at the designated corporate trust office of the Paying Agent/Registrar upon surrender of the Bonds and Certificates for payment; provided, however, that so long as Cede & Co. (or other DTC nominee) is the registered owner of the Obligations, all payments will be made as described under "The Obligations - Book-Entry-Only System" herein. Interest on the Bonds and Certificates is payable to the Register Owners appearing on the registration books of the Paying Agent/Registrar at the close of business on the Record Date (identified below) and such interest shall be paid by the Paying Agent/Registrar by check mailed, first class postage prepaid, to the Register Owner or by such other arrangement, acceptable to the Paying Agent/Registrar, requested by and at the risk and expense of the Registered Owner. If the date for the payment of the principal of or interest on the Bonds and Certificates shall be a Saturday, Sunday, a legal holiday, or a day when banking institutions in the city where the designated corporate office of the Paying Agent/Registrar is located is authorized by law or executive order to close, then the date for such payment shall be the next succeeding day which is not such a Saturday, Sunday, legal holiday, or day when banking institutions are authorized to close; and payment on such date shall have the same force and effect as if made on the original date payment was due.

TRANSFER, EXCHANGE AND REGISTRATION . . . In the event the Book-Entry-Only System should be discontinued, printed Obligations will be delivered to the Registered Owners and thereafter the Obligations may be transferred and exchanged on the registration books of the Paying Agent/Registrar only upon presentation and surrender of such printed Obligations to the Paying Agent/Registrar and such transfer or exchange shall be without expense or service charge to the Registered Owner, except for any tax or other governmental charges required to be paid with respect to such registration, exchange and transfer. Obligations may be assigned by the execution of an assignment form on the Obligations or by other instrument of transfer and assignment acceptable to the Paying Agent/Registrar. New Obligations will be delivered by the Paying Agent/Registrar, in lieu of the Obligations being transferred or exchanged, at the designated office of the Paying Agent/Registrar, or sent by United States mail, first class, postage prepaid, to the new Registered Owner or his designee. To the extent possible, new Obligations issued in an exchange or transfer of Obligations will be delivered to the Registered Owner or assignee of the Registered Owner in not more than three business days after the receipt of the Obligations to be canceled, and the written instrument of transfer or request for exchange duly executed by the Registered Owner or his duly authorized agent, in form satisfactory to the Paying Agent/Registrar. New Obligations registered and delivered in an exchange or transfer shall be in any integral multiple of $5,000 for any one maturity and for a like aggregate principal amount as the Obligations surrendered for exchange or transfer. See "The Obligations—Book-Entry-Only System" herein for a description of the system to be utilized initially in regard to ownership and transferability of the Obligations. Neither the City nor the Paying Agent/Registrar shall be required to transfer or exchange any Obligation called for redemption, in whole or in part, within 45 days of the date fixed for redemption; provided, however, such limitation of transfer shall not be applicable to an exchange by the Registered Owner of the uncalled balance of an Obligation.

RECORD DATE FOR INTEREST PAYMENT . . . The record date ("Record Date") for the interest payable on the Bonds and Certificates on any interest payment date means the close of business on the last business day of the month next preceding such interest payment date.

In the event of a non-payment of interest on a scheduled payment date, and for 30 days thereafter, a new record date for such interest payment (a "Special Record Date") will be established by the Paying Agent/Registrar, if and when funds for the payment of such interest have been received from the City. Notice of the Special Record Date and of the scheduled payment date of the past due interest ("Special Payment Date", which shall be 15 days after the Special Record Date) shall be sent at least five business days prior to the Special Record Date by United States mail, first class postage prepaid, to the address of each Registered Owner of a Bond and Certificate appearing on the registration books of the Paying Agent/Registrar at the close of business on the last business day next preceding the date of mailing of such notice.

AMENDMENTS . . . In each Ordinance, the City has reserved the right to amend the Ordinance without the consent of any holder of the respective Obligation for the purpose of amending or supplementing the Ordinance to (i) cure any ambiguity, defect or omission therein that does not materially adversely affect the interests of the holders, (ii) grant additional rights or security for the benefit of the holders, (iii) add events of default as shall not be inconsistent with the provisions of the Ordinance that do not materially adversely affect the interests of the holders, (iv) qualify the Ordinance under the Trust Indenture Act of 1939, as amended, or corresponding provisions of federal laws from time to time in effect or (v) make such other provisions in regard to matters or questions arising under the Ordinance that are not inconsistent with the provisions thereof and which, in the opinion of Bond Counsel for the City, do not materially adversely affect the interests of the holders.

Each Ordinance further provides that the holders of the Bonds or Certificates, as applicable, aggregating in principal amount a majority of the outstanding Bonds or Certificates, as the case may be, shall have the right from time to time to approve any amendment not described above to the applicable Ordinance if it is deemed necessary or desirable by the City; provided, however, that without the consent of 100% of the holders in original principal amount of the then outstanding Bonds or Certificates so affected, no amendment may be made for the purpose of: (i) making any change in the maturity of any of the outstanding Bonds or Certificates; (ii) reducing the rate of interest borne by any of the outstanding Bonds or Certificates; (iii) reducing the amount of the principal of, or redemption premium, if any, payable on any outstanding Bonds or Certificates; (iv) modifying the terms of payment of principal or of interest or redemption premium on outstanding Bonds or Certificates, or imposing any condition with respect to such payment; or (v) changing the minimum percentage of the principal amount of the Bonds or Certificates necessary for consent to such amendment. Reference is made to the Ordinances for further provisions relating to the amendment thereof.

REMEDIES . . . Each Ordinance establishes specific events of default with respect to the respective series of Obligations. If the City defaults in the payment of the principal of or interest on the Bonds or Certificates when due or the City defaults in the observance or performance of any of the covenants, conditions, or obligations of the City, the failure to perform which materially, adversely affects the rights of the owners thereof, including but not limited to, their prospect or ability to be repaid in accordance with the respective Ordinance, and the continuation thereof for a period of 60 days after notice of such default is given by any owner to the City, each Ordinance provides that any registered owner of a respective Obligation is entitled to seek a writ of mandamus from a court of proper jurisdiction requiring the City to make such payment or observe and perform such covenants, obligations, or conditions. The issuance of a writ of mandamus may be sought if there is no other available remedy at law to compel performance of the respective Obligations or Ordinance and the City's obligations are not uncertain or disputed. The remedy of mandamus is controlled by equitable principles, so rests with the discretion of the court, but may not be arbitrarily refused. There is no acceleration of maturity of the Obligations in the event of default and, consequently, the remedy of mandamus may have to be relied upon from year to year. The Ordinances do not provide for the appointment of a trustee to represent the interest of the owners of the respective Obligations upon any failure of the City to perform in accordance with the terms of the Ordinances, or upon any other condition and accordingly all legal actions to enforce such remedies would have to be undertaken at the initiative of, and be financed by, the Registered Owners. The Texas Supreme Court has ruled in *Tooke v. City of Mexia* 197 S.W.3d 325 (Tex. 2006) that a waiver of sovereign immunity in a contractual dispute must be provided for by statute in "clear and unambiguous" language. Furthermore, Tooke, and subsequent jurisprudence, held that a municipality is not immune from suit for torts committed in the performance of its proprietary functions, as it is for torts committed in the performance of its governmental functions (the "Proprietary-Governmental Dichotomy"). Governmental functions are those that are enjoined on a municipality by law and are given by the State as a part of the State's sovereignty, to be exercised by the municipality in the interest of the general public, while proprietary functions are those that a municipality may, in its discretion, perform in the interest of the inhabitants of municipality. In *Wasson Interests, Ltd., V. City of Jacksonville*, No. 489 S.W.3d 427 (Tex. 2016), ("Wasson") the Texas Supreme Court (the "Court") addressed whether the distinction between governmental and proprietary acts (as found in tort-based causes of action) applies to the breach of contract claims against municipalities. The Court analyzed the rationale behind the Proprietary-Governmental Dichotomy to determine that "a city's proprietary functions are not done pursuant to the "will of the people" and protecting such municipalities "via the State's immunity is not an efficient way to ensure efficient allocation of State resources". While the Court recognized that the distinction between government and proprietary functions is not clear, the Wasson opinion held the Proprietary-Governmental Dichotomy applies in contract-claims context. Therefore, in regard to municipal contract cases (as in tort claims), it is incumbent on the courts to determine whether a function is proprietary or governmental based upon the statutory guidance and definitions found in the Texas Civil Practice and Remedies Code. Notwithstanding the foregoing new case law issued by the Court, such sovereign immunity issues have not been adjudicated in relation to bond matters (specifically, in regard to the issuance of municipal debt). Each situation will be prospectively evaluated based on the facts and circumstances surrounding the contract in question to determine if a suit, and subsequently, a judgment, is justiciable against a municipality. Because it is unclear whether the Texas legislature has effectively waived the City's sovereign immunity from a suit for money damages, owners of Obligations may not be able to bring such a suit against the City for breach of the Obligations or Ordinance covenants in the absence of City action. Chapter 1371, Texas Government Code ("Chapter 1371"), which pertains to the issuance of public securities by issuers such as the City, permits the

City to waive sovereign immunity in the proceedings authorizing its debt, but in connection with the issuance of the Obligations, the City has not waived sovereign immunity. Even if a judgment against the City could be obtained, it could not be enforced by direct levy and execution against the City's property. Further, the Registered Owners cannot themselves foreclose on property within the City or sell property within the City to enforce the tax lien on taxable property to pay the principal of and interest on the Bonds or the Certificates. Furthermore, the City is eligible to seek relief from its creditors under Chapter 9 of the U.S. Bankruptcy Code ("Chapter 9"). Although Chapter 9 provides for the recognition of a security interest represented by a specifically pledged source of revenues, the pledge of ad valorem taxes in support of a general obligation of a bankrupt entity is not specifically recognized as a security interest under Chapter 9. Chapter 9 also includes an automatic stay provision that would prohibit, without Bankruptcy Court approval, the prosecution of any other legal action by creditors or Obligationholders of an entity which has sought protection under Chapter 9. Therefore, should the City avail itself of Chapter 9 protection from creditors, the ability to enforce would be subject to the approval of the Bankruptcy Court (which could require that the action be heard in Bankruptcy Court instead of other federal or state court); and the Bankruptcy Code provides for broad discretionary powers of a Bankruptcy Court in administering any proceeding brought before it. The opinions of Bond Counsel will note that all opinions relative to the enforceability of the Obligations are qualified with respect to the customary rights of debtors relative to their creditors, by principles of governmental immunity, and by general principles of equity which permit the exercise of judicial discretion.

Initially, the only Registered Owner of the Bonds and Certificates will be Cede & Co., as DTC's nominee. See "The Obligations - Book-Entry-Only System" herein for a description of the duties of DTC with regard to ownership of the Bonds and Certificates.

TAX INFORMATION

AD VALOREM TAX LAW . . . The appraisal of property within the City is the responsibility of the Denton Central Appraisal District (the "Appraisal District"). Excluding agricultural and open-space land, which may be taxed on the basis of productive capacity, the Appraisal District is required under V.T.C.A., Title I, Tax Code, as amended (the "Property Tax Code") to appraise all property within the Appraisal District on the basis of 100% of its market value and is prohibited from applying any assessment ratios. In determining the market value of property, different methods of appraisal may be used, including the cost method of appraisal, the income method of appraisal and the market data comparison method of appraisal, and the method considered most appropriate by the chief appraiser is to be used. State law requires the appraised value of a residence homestead to be based solely on the property's value as a residence homestead, regardless of whether residential use is considered to be the highest and best use of the property. State law further limits the appraised value of a residence homestead for a tax year to an amount that would not exceed the lesser of (1) the market value of the property for the most recent tax year that the market value was determined by the appraisal office or (2) the sum of (a) 10% of the property's appraised value in the preceding tax year, plus (b) the property's appraised value in the preceding tax year, plus (c) the market value of all new improvements to the property. The value placed upon property within the Appraisal District is subject to review by an Appraisal Review Board, consisting of members appointed by the Board of Directors of the Appraisal District. The Appraisal District is required to review the value of property within the Appraisal District at least every three years. The City may require annual review at its own expense, and is entitled to challenge the determination of appraised value of property within the City by petition filed with the Appraisal Review Board.

Reference is made to the Property Tax Code, for identification of property subject to taxation; property exempt or which may be exempted from taxation, if claimed; the appraisal of property for ad valorem taxation purposes; and the procedures and limitations applicable to the levy and collection of ad valorem taxes.

Article VIII of the State Constitution ("Article VIII") and State law provide for certain exemptions from property taxes, the valuation of agricultural and open-space lands at productivity value, and the exemption of certain personal property from ad valorem taxation.

Under Section 1-b, Article VIII, and State law, the governing body of a political subdivision, at its option, may grant an exemption of not less than $3,000 of the market value of the residence homestead of persons 65 years of age or older and the disabled from all ad valorem taxes thereafter levied by the political subdivision. Once authorized, such exemption may be repealed or decreased or increased in amount (i) by the governing body of the political subdivision or (ii) by a favorable vote of a majority of the qualified voters at an election called by the governing body of the political subdivision, which election must be called upon receipt of a petition signed by at least 20% of the number of qualified voters who voted in the preceding election of the political subdivision. In the case of a decrease, the amount of the exemption may not be reduced to less than $3,000 of the market value.

The surviving spouse of an individual who qualifies for the foregoing exemption for the residence homestead of a person 65 or older (but not the disabled) is entitled to an exemption for the same property in an amount equal to that of the exemption for which the deceased spouse qualified if (i) the deceased spouse died in a year in which the deceased spouse qualified for the exemption, (ii) the surviving spouse was at least 55 years of age at the time of the death of the individual's spouse and (iii) the property was the residence homestead of the surviving spouse when the deceased spouse died and remains the residence homestead of the surviving spouse.

In addition to any other exemptions provided by the Property Tax Code, the governing body of a political subdivision, at its option, may grant an exemption of up to 20% of the market value of residence homesteads, with a minimum exemption of $5,000.

In the case of residence homestead exemptions granted under Section 1-b, Article VIII, ad valorem taxes may continue to be levied against the value of homesteads exempted where ad valorem taxes have previously been pledged for the payment of debt if cessation of the levy would impair the obligation of the contract by which the debt was created.

Under Article VIII and State law, the governing body of a county, municipality or junior college district may provide for a freeze on total amount of ad valorem taxes levied on the residence homestead of a disabled person or persons 65 years of age or older above the amount of tax imposed in the year such residence qualified for such exemption. Also, upon receipt of a petition signed by five percent of the registered voters of the county, municipality or junior college district, an election must be held to determine by majority vote whether to establish such a limitation on taxes paid on residence homesteads of persons 65 years of age or who are disabled. Upon providing for such exemption, the total amount of taxes imposed on such homestead cannot be increased except for improvements (other than maintenance, repairs or improvements required to comply with governmental requirements) and such freeze is transferable to a different residence homestead. Also, a surviving spouse of a taxpayer who qualifies for the freeze on ad valorem taxes is entitled to the same exemption so long as the property was the residence homestead of the surviving spouse when the deceased spouse died and remains the residence homestead of the surviving spouse and the spouse was at least 55 years of age at the time of the death of the individual's spouse. Once established such freeze cannot be repealed or rescinded.

State law and Section 2, Article VIII, mandate an additional property tax exemption for disabled veterans or the surviving spouse or children of a deceased veteran who died while on active duty in the armed forces; the exemption applies to either real or personal property with the amount of assessed valuation exempted ranging from $5,000 to a maximum of $12,000, dependent upon the degree of disability or whether the exemption is applicable to a surviving spouse or children; provided, however, that beginning in the 2009 tax year, a disabled veteran who receives from the United States Department of Veterans Affairs or its successor 100 percent disability compensation due to a service-connected disability and a rating of 100 percent disabled or of individual unemployability is entitled to an exemption from taxation of the total appraised value of the veteran's residence homestead. In addition, effective January 1, 2012, and subject to certain conditions, surviving spouses of a deceased veteran who had received a disability rating of 100% will be entitled to receive a residential homestead exemption equal to the exemption received by the deceased spouse until such surviving spouse remarries.

Article VIII provides that eligible owners of both agricultural land (Section 1-d) and open-space land (Section 1-d-1), including open-space land devoted to farm or ranch purposes or open-space land devoted to timber production, may elect to have such property appraised for property taxation on the basis of its productive capacity. The same land may not be qualified under both Section 1-d and 1-d-1.

Nonbusiness personal property, such as automobiles or light trucks, are exempt from ad valorem taxation unless the governing body of a political subdivision elects to tax this property. Boats owned as nonbusiness property are exempt from ad valorem taxation.

Article VIII, Section 1-j, provides for "freeport property" to be exempted from ad valorem taxation. Freeport property is defined as goods detained in Texas for 175 days or less for the purpose of assembly, storage, manufacturing, processing or fabrication. Notwithstanding such exemption, counties, school districts, junior college districts and cities may tax such tangible personal property provided official action to tax the same was taken before April 1, 1990. Decisions to continue to tax may be reversed in the future; decisions to exempt freeport property are not subject to reversal.

Article VIII, Section 1-n of the Texas Constitution provides for the exemption from taxation of "goods-in-transit." "Goods-in-transit" is defined by Section 11.253 of the Property Tax Code, as personal property acquired or imported into Texas and transported to another location in the State or outside of the State within 175 days of the date the property was acquired or imported into Texas. The exemption excludes oil, natural gas, petroleum products, aircraft and special inventory, including motor vehicle, vessel and out-board motor, heavy equipment and manufactured housing inventory. Section 11.253 permits local governmental entities, on a local option basis, to take official action by January 1 of the year preceding a tax year, after holding a public hearing, to tax "goods-in-transit" during the following tax year. After taking such official action, the goods-in-transit remain subject to taxation by the local governmental entity until the governing body of the governmental entity rescinds or repeals its previous actions to tax goods-in-transit. A taxpayer may only receive either the freeport exemption or the "goods-in-transit" exemption for items of personal property.

The City or Denton County may create one or more tax increment financing districts ("TIF") within the City or Denton County, as applicable, and freeze the taxable values of property in the TIF at the value at the time of its creation. Other overlapping taxing units levying taxes in the TIF may agree to contribute all or part of future ad valorem taxes levied and collected against the value of property in the TIF in excess of the "frozen values" to pay or finance the costs of certain public improvements in the TIF. Taxes levied by the City against the values of real property in the TIF in excess of the "frozen" value are not available for general city use but are restricted to paying or financing "project costs" within the TIF. The City also may enter into tax abatement agreements to encourage economic development. Under the agreements, a property owner agrees to construct certain improvements on its property. The City in turn agrees not to levy a tax on all or part of the increased value attributable to the improvements until the expiration of the agreement. The abatement agreement could last for a period of up to 10 years. The City has active reinvestment zones for tax abatements and tax increment financing zones for tax increment financing purposes. See "Tax Information - Tax Incentive Policy, – Property Tax Abatement" and "- Tax Increment Financing and Public Improvement District" and "Table 1 - Valuation, Exemptions and General Obligation Debt".

The City is also authorized, pursuant to Chapter 380, Texas Local Government Code, as amended ("Chapter 380"), to establish programs to promote state or local economic development and to stimulate business and commercial activity in the City. In accordance with a program established pursuant to Chapter 380, the City may make loans or grants of public funds such as ad valorem taxes or sales taxes for economic development purposes, however no obligations secured by ad valorem taxes may be issued for such purposes unless approved by voters of the City. The City has entered into several Chapter 380 Agreements. See "Tax Information - Chapter 380 Agreements".

NO-NEW-REVENUE TAX RATE AND VOTER-APPROVAL TAX RATE . . . The Following terms as used in this section have the meanings provided below:

"adjusted" means lost values are not included in the calculation of the prior year's taxes and new values are not included in the current year's taxable values.

"de minimis rate" means the maintenance and operations tax rate that will produce the prior year's total maintenance and operations tax levy (adjusted) from the current year's values (adjusted), plus the rate that produces an additional $500,000 in tax revenue when applied to the current year's taxable value, plus the debt service tax rate.

"no-new-revenue tax rate" means the combined maintenance and operations tax rate and debt service tax rate that will produce the prior year's total tax levy (adjusted) from the current year's total taxable values (adjusted).

"special taxing unit" means a city for which the maintenance and operations tax rate proposed for the current tax year is 2.5 cents or less per $100 of taxable value.

"unused increment rate" means the cumulative difference between a city's voter-approval tax rate and its actual tax rate for each of the tax years 2020 through 2022, which may be applied to a city's tax rate in tax years 2021 through 2023 without impacting the voter-approval tax rate.

"voter-approval tax rate" mean the maintenance and operations tax rate that will produce the prior year's total maintenance and operations tax levy (adjusted) from the current year's values (adjusted) multiplied by 1.035, plus the debt service tax rate, plus the "unused increment rate".

The City's tax rate consists of two components: (1) a rate for funding of maintenance and operations expenditures in the current year (the "maintenance and operations tax rate"), and (2) a rate for funding debt service in the current year (the "debt service tax rate"). Under State law, the assessor for the City must submit an appraisal roll showing the total appraised, assessed, and taxable values for all property in the City to the City Council by August 1 of each year, or as soon as practicable thereafter.

A city must annually calculate its "voter-approval tax rate" and "no-new-revenue tax rate" (as such terms are defined above) in accordance with forms prescribed by the State Comptroller and provide notice of such rates to each owner of taxable property within the city and the county tax assessor-collector for each county in which all or part of the city is located. A city must adopt a tax rate before the later of September 30 or the 60th day after receipt of the certified appraisal roll, except that a tax rate that exceeds the voter-approval tax rate must be adopted not later than the 71st day before the next occurring November uniform election date. If a city fails to timely adopt a tax rate, the tax rate is statutorily set as the lower of the no-new-revenue tax rate for the current tax year or the tax rate adopted by the city for the preceding tax year.

As described below, the Property Tax Code provides that if a city adopts a tax rate that exceeds its voter-approval tax rate or, in certain cases, its "de minimis rate", an election must be held to determine whether or not to reduce the adopted tax rate to the voter-approval tax rate.

A city may not adopt a tax rate that exceeds the lower of the voter-approval tax rate or the no-new-revenue tax rate until each appraisal district in which such city participates has delivered notice to each taxpayer of the estimated total amount of property taxes owed and the city has held a public hearing on the proposed tax increase.

For cities with a population of 30,000 or more as of the most recent federal decennial census, if the adopted tax rate for any tax year exceeds the voter-approval tax rate, that city must conduct an election on the next occurring November uniform election date to determine whether or not to reduce the adopted tax rate to the voter-approval tax rate.

For cities with a population less than 30,000 as of the most recent federal decennial census, if the adopted tax rate for any tax year exceeds the greater of (i) the voter-approval tax rate or (ii) the de minimis rate, the city must conduct an election on the next occurring November uniform election date to determine whether or not to reduce the adopted tax rate to the voter-approval tax rate. However, for any tax year during which a city has a population of less than 30,000 as of the most recent federal decennial census and does not qualify as a special taxing unit, if a city's adopted tax rate is equal to or less than the de minimis rate but greater than both (a) the no-new-revenue tax rate, multiplied by 1.08, plus the debt service tax rate or (b) the city's voter-approval tax rate, then a valid petition signed by at least three percent of the registered voters in the city would require that an election be held to determine whether or not to reduce the adopted tax rate to the voter-approval tax rate.

Any city located at least partly within an area declared a disaster area by the Governor of the State or the President of the United States during the current year may calculate its "voter-approval tax rate" using a 1.08 multiplier, instead of 1.035, until the earlier of (i) the second tax year in which such city's total taxable appraised value exceeds the taxable appraised value on January 1 of the year the disaster occurred, or (ii) the third tax year after the tax year in which the disaster occurred.

State law provides cities and counties in the State the option of assessing a maximum one-half percent (1/2%) sales and use tax on retail sales of taxable items for the purpose of reducing its ad valorem taxes, if approved by a majority of the voters in a local option election. If the additional sales and use tax for ad valorem tax reduction is approved and levied, the no-new-revenue tax rate and voter-approval tax rate must be reduced by the amount of the estimated sales tax revenues to be generated in the current tax year.

The calculations of the no-new-revenue tax rate and voter-approval tax rate do not limit or impact the City's ability to set a debt service tax rate in each year sufficient to pay debt service on all of the City's tax-supported debt obligations, including the Obligations.

Reference is made to the Property Tax Code for definitive requirements for the levy and collection of ad valorem taxes and the calculation of the various defined tax rates.

PROPERTY ASSESSMENT AND TAX PAYMENT . . . Property within the City is generally assessed as of January 1 of each year. Business inventory may, at the option of the taxpayer, be assessed as of September 1. Oil and gas reserves are assessed on the basis of a valuation process that uses pricing information contained in the most recently published Early Release Overview of the Annual Energy Outlook published by the United States Energy Information Administration, as well as appraisal formulas developed by the State Comptroller of Public Accounts. Taxes become due October 1 of the same year, and become delinquent on February 1 of the following year. Taxpayers 65 years old or older are permitted by State law to pay taxes on homesteads in four installments with the first due on February 1 of each year and the final installment due on August 1.

PENALTIES AND INTEREST . . . Charges for penalty and interest on the unpaid balance of delinquent taxes are made as follows:

Month	Cumulative Penalty	Cumulative Interest	Total
February	6%	1%	7%
March	7	2	9
April	8	3	11
May	9	4	13
June	10	5	15
July	12	6	18

After July, the penalty remains at 12%, and interest accrues at a rate of one percent (1%) for each month or portion of a month the tax remains unpaid. A delinquent tax continues to incur the penalty interest as long as the tax remains unpaid, regardless of whether a judgment for the delinquent tax has been rendered. The purpose of imposing such interest is to compensate the taxing unit for revenue lost because of the delinquency. In addition, if an account is delinquent in July, an attorney's collection fee of up to 20% may be added to the total tax penalty and interest charge. Under certain circumstances, taxes which become delinquent on the homestead of a taxpayer 65 years old or older incur a penalty of 8% per annum with no additional penalties or interest assessed. In general, property subject to the City's lien may be sold, in whole or in parcels, pursuant to court order to collect the amounts due. Federal law does not allow for the collection of penalty and interest against an estate in bankruptcy. Federal bankruptcy law provides that an automatic stay of action by creditors and other entities, including governmental units, goes into effect with the filing of any petition in bankruptcy. The automatic stay prevents governmental units from foreclosing on property and prevents liens for post-petition taxes from attaching to property and obtaining secured creditor status unless, in either case, an order lifting the stay is obtained from the bankruptcy court. In many cases post-petition taxes are paid as an administrative expense of the estate in bankruptcy or by order of the bankruptcy court.

CITY APPLICATION OF TAX CODE . . . The City grants an exemption to the market value of the residence homestead of persons 65 years of age or older of $50,000. Disabled taxpayers also receive a $50,000 exemption.

The City grants an additional one-half of one percent, or a minimum of $5,000 exemption of the market value of residence homesteads.

See Table 1 for a listing of the amounts of the exemptions described above.

Ad valorem taxes are not levied by the City against the exempt value of residence homesteads for the payment of debt.
The City does not tax nonbusiness personal property.

Denton County began collecting taxes for the City during the fiscal year 2006-07.

The City does not allow split payments, and discounts are not allowed.

The City does not tax freeport property.

The City collects the additional one-half cent sales tax for reduction of ad valorem taxes.

The City does tax "goods-in-transit".

The City has adopted the tax freeze (limitation) for citizens who are disabled or are 65 years of age or older.

The City has adopted a tax abatement policy.

The City participates in two tax increment reinvestment zones, which were created in 2010 and 2012.

TAX INCREMENT FINANCING AND PUBLIC IMPROVEMENT DISTRICT . . . The City participates in two tax increment reinvestment zones, which were created in 2010 and 2012. The first reimbursement to the developer, Westray Group, LP, from the Westpark Tax Increment Reinvestment Zone (TIRZ) Number Two included pre-development costs, drainage improvement costs and the cost associated with traffic signals for a total of $665,040. The City created Rayzor Ranch Public Improvement District No. 1 (the "District") in 2014 for the undertaking and financing of public improvements authorized by Chapter 372 of the Texas Local Government Code. Additional information on the tax increment reinvestment zones and the District can be found in the Annual Comprehensive Financial Report, Notes to Basic Financial Statements, IV. Detailed Notes on All Funds, B. Property Tax Revenue.

TAX INCENTIVE POLICY . . . The City enters into economic development incentive agreements consisting of property tax abatement agreements and Chapter 380 agreements with entities to promote development and redevelopment within the City, stimulate commercial activity, generate additional sales tax, and enhance the property tax base and economic vitality of the City. A summary of newly initiated agreements and terminated agreements follows.

PROPERTY TAX ABATEMENTS . . . No new property tax abatements were approved, initiated, or terminated in 2024.

CHAPTER 380 AGREEMENTS . . . A Chapter 380 Agreement was granted to the Fine Arts Theatre of Denton, LLC for the renovation of the historic theater on the face of the Downtown Square, representing a capital investment of $9,119,623. The agreement provides a cash grant in the amount of $1,076,366 after the developer receives a Certificate of Occupancy to pay down the construction loan principal to the required $3,195,000 for their bank loan. An additional operation grant, in the amount of $544,503, grant will be paid annually to cover the projected shortfall between Net Profit and Debt Service. The total incentive award in the amount of $1,620,869 will be funded through the downtown TIRZ Number One. No agreements were terminated in 2024. DynaGrid will likely be terminated in the future, as the company sold their property in Denton and must maintain their corporate headquarters and principal place of business within the Denton city limits. The company is also failing to render for taxation if they do not own property in Denton. From the Future will initiate in 2024.

Buc-ee's Travel Center Balloon Grant payment was made this year following the 60-month period, as a Balloon payment was due if $2 million in payments had not been reached in the 60-month period. The Balloon Grant was designed to reimburse the developer for the match they paid for the Texas Department of Transportation (TxDOT) grant to advance several mobility improvements to the intersections of Loop 288/Lillian Miller and I-35E, Mayhill Road and I-35E, and Brinker Road and I-35E. Payments continue to be made to Buc-ee's Travel Center, Unicorn Lake, Rayzor Ranch Marketplace and Town Center, Golden Triangle Mall, and O'Reilly Hotel and Convention Center for sales tax, and Mayday Manufacturing, Westgate Business Park, WinCo Distribution Center, and O'Reilly Hotel and Convention Center for ad valorem rebates. This is the final year of the ten-year Chapter 380 Agreement with Mayday Manufacturing. TeamOfDefenders received an expansion grant paymentvin 2024. O'Reilly Hotel and Convention Center also receives hotel occupancy tax payments.

Additional information on all of the tax abatement and Chapter 380 agreements may be found in Appendix B – Excerpts from the City of Denton, Texas Annual Comprehensive Financial Report, Notes to Basic Financial Statements, V. Other Information, F Tax Abatements.

TABLE 1 - VALUATION, EXEMPTIONS AND GENERAL OBLIGATION DEBT

2023/24 Market Valuation Established by Denton Central Appraisal District		$ 22,953,024,865
Less Exemptions/Reductions at 100% Market Value:		
Residence Homestead Exemptions	$ 104,527,247	
Over 65 Exemptions	436,302,366	
Disabled Persons Exemptions	11,582,689	
Disabled Veterans Exemptions	173,485,586	
Agricultural Land Use Productivity	571,312,834	
Historical/Other Exemptions	6,525,337	
Freeport Exemptions	408,838,881	
Abatement Exemptions	23,819,579	
Pollution Exemptions	23,595,885	
Homestead Cap Adjustment	1,317,825,807	3,077,816,211
2023/24 Taxable Assessed Valuation (as of 7-22-2023)		$ 19,875,208,654
2023/24 Incremental Taxable Assessed Value of Real Property within Reinvestment Zones		(655,364,707)
2023/24 Net Taxable Assessed Valuation available for General Obligations and Debt of City (as of 7-22-2023)		$ 19,219,843,947
City Funded Debt Payable from Ad Valorem Taxes (1)		
General Obligation Bonds (as of 4-1-24)	$ 332,515,000 (2)	
Certificates of Obligation (as of 4-1-24)	619,480,000 (2)	
The Bonds	135,175,000 (3)	
The Certificates	240,610,000 (3)	
Funded Debt Payable from Ad Valorem Taxes		$ 1,327,780,000
Less Self-Supporting General Obligation Debt (4)		
Solid Waste System General Obligation Debt	$ 40,185,000 (5)	
Utility System General Obligation Debt	770,125,000 (5)	810,310,000
Net Tax Supported Debt Payable from Ad Valorem Taxes		$ 517,470,000
Interest and Sinking Fund as of 4-1-24 (estimated)		$ 9,646,753
Ratio Total Funded Debt to Net Taxable Assessed Valuation		6.91%
Ratio Net Funded Debt to Net Taxable Assessed Valuation		2.69%

2024 Estimated Population - 150,624

Per Capita Net Taxable Assessed Valuation - $127,601

Per Capita Total Funded Debt - $8,815

Per Capita Net Funded Debt - $3,436

(1) The above statement of indebtedness does not include $172,900,000 Utility System Revenue Bonds, $134,715,000 Utility System Revenue Refunding Bonds or $300,000,000 Utility System Revenue Extendable Commercial Paper Notes, Series A as these bonds and notes are payable solely from the net revenues of the Utility System (the "System"), as defined in the ordinances authorizing such bonds and notes.

(2) Excludes the Refunded Obligations. Preliminary, subject to change.

(3) Preliminary, subject to change.

(4) As a matter of policy, the City pays debt service on its general obligation debt issued to fund improvements to its Utility System and Solid Waste System from surplus revenues of these Systems (see "Table 7 – General Obligation Debt Service Requirements" and "Table 9 – Computation of Self-Supporting Debt"). This policy may be subject to change in the future.

The City's Utility System is comprised of the City's entire existing electric, light and power system and the waterworks and sewer system. Drainage is managed under the waterworks and wastewater system. The City's Utility System General Obligation Debt has been issued to finance or refinance Utility System improvements and contractual obligations and is paid, or is expected to be paid, from Utility System revenues. In addition, the City has $172,900,000 Utility System Revenue Bonds, $134,715,000 Utility System Revenue Refunding Bonds outstanding payable from a pledge of Utility System revenues.

The City's Solid Waste System General Obligation Debt has been issued to finance or refinance Solid Waste System improvements and is paid, or is expected to be paid, from Solid Waste System revenues. The City has no outstanding Solid Waste System Revenue Bonds.

(5) Includes a portion of the Obligations. Preliminary, subject to change.

TABLE 2 - TAXABLE ASSESSED VALUATIONS BY CATEGORY [1]

	Taxable Appraised Value for Fiscal Year Ended September 30,					
	2024		2023		2022	
Category	Amount	% of Total	Amount	% of Total	Amount	% of Total
Real, Residential, Single Family	$ 12,640,265,177	55.07%	$ 10,290,861,945	53.71%	$ 8,179,274,977	51.07%
Real, Residential, Multi-Family	3,010,316,741	13.12%	2,581,359,659	13.47%	2,192,401,019	13.69%
Real, Vacant Lots/Tracts	382,596,204	1.67%	423,344,124	2.21%	314,300,099	1.96%
Real, Acreage (Land Only)	576,294,402	2.51%	429,021,486	2.24%	361,523,875	2.26%
Real, Farm and Ranch Improvements	215,962,158	0.94%	182,206,679	0.95%	157,873,244	0.99%
Real, Commercial and Industrial	3,803,222,853	16.57%	3,299,538,286	17.22%	3,032,461,538	18.93%
Real, Oil, Gas, and Other Mineral Reserves	120,209,519	0.52%	87,640,017	0.46%	48,516,939	0.30%
Real and Tangible Personal, Utilities	178,025,520	0.78%	152,340,178	0.80%	142,991,907	0.89%
Tangible Personal, Commercial and Industrial	1,703,709,612	7.42%	1,507,941,787	7.87%	1,425,520,232	8.90%
Tangible Personal, Other	23,932,876	0.10%	23,831,628	0.12%	23,969,949	0.15%
Real and Special Property, Inventory	298,489,803	1.30%	181,149,319	0.95%	137,388,170	0.86%
Total Appraised Value Before Exemptions	$ 22,953,024,865	100.00%	$ 19,159,235,108	100.00%	$ 16,016,221,949	100.00%
Less: Total Exemptions/Reductions	(3,077,816,211)		(2,177,190,370)		(1,376,450,603)	
Less: Tax Increment Value	(655,364,707)		(260,921,114)		(236,666,283)	
Net Taxable Assessed Value	$ 19,219,843,947		$ 16,721,123,624		$ 14,403,105,063	

	Taxable Appraised Value for Fiscal Year Ended September 30,			
	2021		2020	
Category	Amount	% of Total	Amount	% of Total
Real, Residential, Single Family	$ 7,448,956,811	49.84%	$ 7,010,158,815	36.59%
Real, Residential, Multi-Family	2,079,085,736	13.91%	1,778,847,172	9.28%
Real, Vacant Lots/Tracts	281,625,453	1.88%	263,786,761	1.38%
Real, Acreage (Land Only)	365,649,752	2.45%	374,863,507	1.96%
Real, Farm and Ranch Improvements	119,135,103	0.80%	123,803,396	0.65%
Real, Commercial and Industrial	2,965,114,413	19.84%	2,780,957,817	14.51%
Real, Oil, Gas, and Other Mineral Reserves	32,916,830	0.22%	70,254,568	0.37%
Real and Tangible Personal, Utilities	133,632,949	0.89%	124,940,388	0.65%
Tangible Personal, Commercial and Industrial	1,393,035,792	9.32%	1,519,412,977	7.93%
Tangible Personal, Other	24,210,105	0.16%	24,514,962	0.13%
Real Property, Inventory	101,288,806	0.68%	115,151,665	0.60%
Total Appraised Value Before Exemptions	$ 14,944,651,750	100.00%	$ 14,186,692,028	74.05%
Less: Total Exemptions/Reductions	(1,377,732,859)		(1,397,304,969)	
Less: Tax Increment Value	14,729,380		(168,826,531)	
Net Taxable Assessed Value	$ 13,581,648,271		$ 12,620,560,528	

(1) Valuations shown are certified taxable assessed values reported by the Denton Central Appraisal District to the State Comptroller of Public Accounts. Certified values are subject to change throughout the year as contested values are resolved and the Appraisal District updates records. For the Fiscal Year ended 2024, the values were reported on July 22, 2023 based on information as of January 1, 2023.

TABLE 3 - VALUATION AND GENERAL OBLIGATION DEBT HISTORY

Fiscal Year Ended 9/30	Estimated Population [1]	Net Taxable Assessed Valuation [2]	Net Taxable Assessed Valuation Per Capita	Net Tax Debt Outstanding at End of Year [8]	Ratio Net Tax Debt to Net Taxable Assessed Valuation	Net Funded Tax Debt Per Capita
2020	140,956	$ 12,620,560,528 [3]	$ 89,535	$ 249,482,532	1.98%	$ 1,770
2021	143,775	13,581,648,271 [4]	94,465	308,521,854	2.27%	2,146
2022	146,950	14,403,105,063 [5]	98,014	354,343,240	2.46%	2,411
2023	150,624	16,721,123,624 [6]	111,012	392,635,000	2.35%	2,607
2024	150,842	19,219,843,947 [7]	127,417	517,470,000 [9]	2.69%	3,431

(1) Source: City Officials.
(2) Valuations shown are certified taxable assessed values reported by the Denton Central Appraisal District to the State Comptroller of Public Accounts. Certified values are subject to change throughout the year as contested values are resolved and the Appraisal District updates records. Source: Denton Central Appraisal District as of July 22, 2023.
(3) Includes tax incremental value of approximately $168,826,531 that is not available for the City's general obligations and debt of City.
(4) Includes tax incremental value of approximately $198,541,948 that is not available for the City's general obligations and debt of City.
(5) Includes tax incremental value of approximately $236,666,283 that is not available for the City's general obligations and debt of City.
(6) Includes tax incremental value of approximately $260,921,114 that is not available for the City's general obligations and debt of City.
(7) Includes tax incremental value of approximately $655,364,707 that is not available for the City's general obligations and debt of City.
(8) Excludes self-supported general obligation debt.
(9) Projected. Includes a portion of the Obligations. Excludes the Refunded Obligations. Preliminary, subject to change.

TABLE 4 - TAX RATE, LEVY AND COLLECTION HISTORY

Fiscal Year Ended 9/30	Tax Rate	Distribution: General Fund	Distribution: Interest and Sinking Fund	Tax Levy [1]	% Current Collections	% Total Collections
2020	$ 0.59045	$ 0.38536	$ 0.20509	$ 74,970,911	99.65%	99.65%
2021	0.59045	0.38036	0.21009	77,744,137	99.74%	99.74%
2022	0.56582	0.35044	0.21538	79,382,757	99.68%	99.68%
2023	0.56068	0.35643	0.20425	91,758,521	99.44%	99.44%
2024	0.56068	0.35478	0.20590	107,734,580	97.86% [2]	97.86% [2]

(1) Tax levy for the year 2024 is based on the adjusted certified value. Prior years represent adjusted values that include all supplements through July 22, 2023. Includes tax incremental reinvestment zone revenues.
(2) Collections through April 1, 2024 (partial year).

TABLE 5 - TEN LARGEST TAXPAYERS [1]

Name of Taxpayer	Nature of Property	2023/24 Taxable Assessed Valuation	% of Total Taxable Assessed Valuation
Paccar Inc.	Diesel Truck Manufacturing	$113,169,010	0.57%
Columbia Medical Center of Denton	Hospital/Professional Building	87,500,889	0.44%
TRDWind Timberlinks Borrower LLC	Apartments	81,000,000	0.41%
32Hundred Windsor Gardens LP & JRM Windsor LLC	Apartments	73,750,000	0.37%
NREA Gardens, DST	Retail	70,150,000	0.35%
Winco Foods LLC	Food Distribution	70,000,000	0.35%
Exeter Denton Land LP	Distribution	67,975,309	0.34%
North Texas Development PFC	Apartments	67,538,470	0.34%
RR Town Center Associates LLC	Retail	66,256,402	0.33%
Westdale Carriage Square Ltd	Apartments	64,179,000	0.32%
		$ 761,519,080	3.83%

(1) Source: Denton Central Appraisal District.

GENERAL OBLIGATION DEBT LIMITATION . . . No general obligation debt limitation is imposed on the City under current State law or the City's Home Rule Charter (see "The Obligations – Tax Rate Limitation" for a description of the limitations on ad valorem tax rates).

TABLE 6 - ESTIMATED OVERLAPPING TAX DEBT

Expenditures of the various taxing entities within the territory of the City are paid out of ad valorem taxes levied by such entities on properties within the City. Such entities are independent of the City and may incur borrowings to finance their expenditures. This statement of direct and estimated overlapping ad valorem tax debt ("Tax Debt") was developed from information contained in "Texas Municipal Reports" published by the Municipal Advisory Council of Texas. Except for the amounts relating to the City, the City has not independently verified the accuracy or completeness of such information, and no person should rely upon such information as being accurate or complete. Furthermore, certain entities listed may have issued additional Tax Debt since the date hereof, and such entities may have programs requiring the issuance of substantial amounts of additional Tax Debt, the amount of which cannot be determined. The following table reflects the estimated share of overlapping Tax Debt of the City.

Taxing Jurisdiction	2023/24 Taxable Assessed Value	2023/24 Tax Rate	Total Funded Debt	Estimated % Applicable	City's Overlapping Funded Debt As of 4-1-24	Authorized But Unissued Debt As Of 4-1-24
City of Denton	$ 19,219,843,947 (1)	$ 0.56068	$ 517,470,000 (2)	100.00%	$ 517,470,000 (2)	$ 260,138,000 (3)
Denton Independent School District	31,791,626,154	1.15920	2,142,646,665	55.44%	1,187,883,311	381,996,928
Denton County	177,207,953,929	0.18949	624,655,000	11.13%	69,524,102	549,690,625
Argyle Independent School District	5,029,248,334	1.21220	408,721,443	6.46%	26,403,405	54,980,000
Aubrey Independent School District	2,762,317,378	1.25750	309,196,976	0.07%	216,438	159,385,000
Krum Independent School District	1,894,059,010	1.23210	132,758,314	4.75%	6,306,020	136,200,000
Lake Dallas Independent School District	3,111,782,774	1.25750	169,696,798	0.09%	152,727	-
Pilot Point Independent School District	1,333,495,415	1.15676	44,855,000	0.13%	58,312	-
Ponder Independent School District	1,316,828,255	1.24230	69,430,000	6.11%	4,242,173	-
Sanger Independent School District	2,251,671,262	1.14740	141,456,760	0.24%	339,496	-
Total Direct and Overlapping Funded Debt					$ 1,812,595,983	
Ratio of Direct and Overlapping Funded Debt to Taxable Assessed Valuation					9.43%	
Per Capita Overlapping Funded Debt					$ 5,738.76	

(1) Excludes tax incremental value of approximately $655,364,707 that is not available for the City's general obligations and debt of City.
(2) Includes a portion of the Obligations. Excludes self-supporting. See Tables 1 and 9 herein for more detailed information on the City's general obligation self-supporting debt. Preliminary, subject to change.
(3) Reflects remaining authorization after the issuance of the Bonds. Preliminary, subject to change.

TABLE 7 – PRO FORMA GENERAL OBLIGATION DEBT SERVICE REQUIREMENTS

Fiscal Year Ended 9/30	Outstanding Debt Service [1]			The Bonds [2]		The Certificates [3]		Total Outstanding Debt	Less: Self-Supporting Solid Waste Debt Service [4]	Less: Self-Supporting Utility Debt Service [4]	Total Debt Service Requirements	% of Principal Retired
	Principal	Interest	Total	Principal	Interest	Principal	Interest					
2024	$ 62,885,000	$ 42,089,506	$ 104,974,506	$ -	$ -	$ -	$ -	$ 104,974,506	$ 4,765,800	$ 59,481,734	$ 40,726,973	
2025	58,630,000	37,552,638	96,182,638	4,100,000	7,271,367	7,655,000	12,757,653	127,966,657	5,279,418	70,095,042	52,592,197	
2026	52,610,000	34,995,400	87,605,400	4,875,000	6,485,669	9,065,000	11,352,688	119,383,756	5,064,244	63,151,531	51,167,981	
2027	52,885,000	32,532,750	85,417,750	5,155,000	6,222,381	9,545,000	10,864,175	117,204,306	4,672,363	62,859,713	49,672,231	
2028	50,725,000	30,056,244	80,781,244	5,445,000	5,944,131	10,055,000	10,349,675	112,575,050	4,173,113	61,564,644	46,837,294	23.99%
2029	48,610,000	27,669,338	76,279,338	5,755,000	5,650,131	10,595,000	9,807,613	108,087,081	3,859,394	60,322,881	43,904,806	
2030	50,865,000	25,319,087	76,184,087	6,105,000	5,338,806	9,065,000	9,291,538	105,984,431	3,384,031	60,435,863	42,164,537	
2031	47,315,000	23,103,319	70,418,319	6,475,000	5,008,581	9,560,000	8,802,631	100,264,531	3,188,600	55,231,538	41,844,394	
2032	47,725,000	21,078,500	68,803,500	6,840,000	4,659,063	10,070,000	8,287,344	98,659,906	2,979,494	54,146,388	41,534,025	
2033	46,565,000	19,112,866	65,677,866	7,245,000	4,289,331	10,610,000	7,744,494	95,566,691	2,934,331	51,636,988	40,995,372	47.25%
2034	43,745,000	17,311,347	61,056,347	7,630,000	3,898,863	11,185,000	7,172,375	90,942,584	2,812,344	48,630,131	39,500,109	
2035	45,405,000	15,660,091	61,065,091	5,860,000	3,544,750	9,135,000	6,638,975	86,243,816	2,481,850	47,054,856	36,707,109	
2036	44,310,000	14,025,534	58,335,534	6,195,000	3,228,306	9,640,000	6,146,131	83,544,972	2,231,094	46,413,175	34,900,703	
2037	43,425,000	12,404,641	55,829,641	6,555,000	2,893,619	10,150,000	5,626,644	81,054,903	1,763,750	45,719,088	33,572,066	
2038	43,260,000	10,786,591	54,046,591	6,935,000	2,539,506	10,695,000	5,079,463	79,295,559	1,696,319	45,749,384	31,849,856	69.11%
2039	41,290,000	9,224,497	50,514,497	7,330,000	2,165,050	11,275,000	4,502,750	75,787,297	1,691,925	45,760,472	28,334,900	
2040	40,400,000	7,790,053	48,190,053	7,740,000	1,769,463	11,885,000	3,894,800	73,479,316	1,691,094	44,955,913	26,832,309	
2041	38,180,000	6,431,688	44,611,688	8,155,000	1,352,219	12,525,000	3,254,038	69,897,944	1,694,094	44,378,888	23,824,963	
2042	32,340,000	5,119,422	37,459,422	8,555,000	956,356	13,135,000	2,646,138	62,751,916	1,695,050	42,145,466	18,911,400	
2043	23,540,000	4,030,400	27,570,400	8,930,000	584,800	13,705,000	2,075,788	52,865,988	1,189,319	37,494,438	14,182,231	89.18%
2044	16,515,000	3,283,716	19,798,716	9,295,000	197,519	14,295,000	1,480,788	45,067,022	142,975	34,813,672	10,110,375	
2045	17,115,000	2,684,103	19,799,103	-	-	2,185,000	1,130,588	23,114,691	-	23,114,691	-	
2046	13,790,000	2,139,897	15,929,897	-	-	2,275,000	1,035,813	19,240,709	-	19,240,709	-	
2047	11,230,000	1,700,897	12,930,897	-	-	2,380,000	935,406	16,246,303	-	16,246,303	-	
2048	8,025,000	1,364,384	9,389,384	-	-	2,485,000	828,984	12,703,369	-	12,703,369	-	96.34%
2049	8,305,000	1,086,381	9,391,381	-	-	2,595,000	717,859	12,704,240	-	12,704,241	-	
2050	8,205,000	802,869	9,007,869	-	-	2,710,000	601,813	12,319,681	-	12,319,681	-	
2051	7,325,000	526,331	7,851,331	-	-	2,835,000	480,516	11,166,847	-	11,166,847	-	
2052	5,720,000	274,419	5,994,419	-	-	2,960,000	351,900	9,306,319	-	9,306,319	-	
2053	3,940,000	78,800	4,018,800	-	-	3,100,000	215,550	7,334,350	-	7,334,350	-	99.77%
2054	-	-	-	-	-	3,240,000	72,900	3,312,900	-	3,312,900	-	100.00%
	$ 1,014,880,000	$ 410,235,707	$ 1,425,115,707	$ 135,175,000	$ 73,999,911	$ 240,610,000	$ 144,147,025	$ 2,019,047,641	$ 59,390,599	$ 1,209,491,211	$ 750,165,832	

(1) "Outstanding Debt" does not include lease/purchase obligations, however, it does include self-supporting debt. Preliminary, subject to change.
(2) Average life of the issue - 11.118 years. Interest on the Bonds has been calculated at the rate of 3.77% for purposes of illustration. Preliminary, subject to change.
(3) Average life of the issue - 12.472 years. Interest on the Certificates has been calculated at the rate of 3.93% for purposes of illustration. Preliminary, subject to change.
(4) Includes a portion of the Obligations. Excludes the Refunded Obligations Preliminary, subject to change.

TABLE 8 - INTEREST AND SINKING FUND BUDGET PROJECTION (1)

Budgeted Tax Supported Debt Service Requirements and Fiscal Charges, Fiscal Year Ending 9/30/2024		$ 106,221,238
Interest and Sinking Fund Balance as of 9/30/23	$ 1,138,403	
Interest and Sinking Fund Tax Levy	39,047,851	
From Revenue Supported Sources	67,173,387	107,359,641
Estimated Balance, 9/30/23		$ 1,138,403

(1) Source: City's Annual Budget for Fiscal Year 2023/24.

TABLE 9 - COMPUTATION OF SELF-SUPPORTING DEBT

Net Revenue from Solid Waste System, Fiscal Year Ended 9-30-23	$ 13,496,643 (1)
Less: Solid Waste System Revenue Bond Requirements, 2024 Fiscal Year	-
Balance Available for Other Purposes	$ 13,496,643
Solid Waste System General Obligation Bond Requirements, 2024 Fiscal Year	(4,765,800)
Balance	$ 8,730,843
Net Revenue from Utility System, Fiscal Year Ended 9-30-23	$ 121,502,695 (1)
Less: Utility System Revenue Bond Requirements, 2024 Fiscal Year	(25,300,313)
Balance Available for Other Purposes	$ 96,202,382
Utility System General Obligation Bond Requirements, 2024 Fiscal Year	(59,481,734)
Balance	$ 36,720,649

(1) Does not deduct franchise fees and/or return on investment paid to the General Fund.

TABLE 10 - AUTHORIZED BUT UNISSUED GENERAL OBLIGATION REFUNDING AND IMPROVEMENT BONDS

Purpose	Date Authorized	Amount Authorized	Amount Heretofore Issued	Amount Being Issued (1)	Unissued Balance
Street & Drainage	11/5/2019	$ 154,000,000	$ 99,500,000	$ 35,600,000	$ 18,900,000
Street	11/7/2023	45,125,000	-	5,000,000	40,125,000
Drainage & Flood Control	11/7/2023	58,860,000	-	10,000,000	48,860,000
Parks	11/7/2023	33,450,000	-	9,450,000	24,000,000
Public Safety Facilities	11/7/2023	42,015,000	-	23,167,000	18,848,000
Affordable Housing	11/7/2023	15,000,000	-	-	15,000,000
Active Adult Center	11/7/2023	47,360,000	-	-	47,360,000
Library	11/7/2023	49,545,000	-	2,500,000	47,045,000
		$ 445,355,000	$ 99,500,000	$ 85,717,000	$ 260,138,000

(1) Includes premium on the Bonds. Preliminary, subject to change.

ANTICIPATED ISSUANCE OF ADDITIONAL GENERAL OBLIGATION DEBT . . . As shown in Table 10 above, after the issuance of the Bonds, the City will have $18,900,000 voted but unissued debt remaining from the November 5, 2019 authorization and $241,238,000 voted but unissued debt remaining from the November 7, 2023 authorization. In June of 2020, the City established a commercial paper note program which allows for the issuance, at one time, or from time to time, of up to $100,000,000 aggregate principal amount of commercial paper notes (the "*CP Notes*") in order to finance public improvements authorized in the November 5, 2019 bond election and the November 7, 2023 bond election. The CP Notes are secured by ad valorem taxes and proceeds from "rolls" of CP Notes and from bonds issued under the November 5, 2019 authorization and the November 7, 2023 authorization. As of April 1, 2024, no CP Notes are outstanding. The City may also issue tax-supported debt other than voter approved general obligation bonds to fund public improvements, such as certificates of obligation or tax anticipation notes, without submitting a measure to the voters, but in certain instances, subject to voter petition rights for a referendum. Further, the City may issue tax-supported debt other than voter approved general obligation bonds to refund bonds or other obligations not currently payable from or supported by ad valorem taxes, such as the City's Utility System revenue bonds. The City anticipates the issuance of approximately $79.013 million in tax supported debt in fiscal year 2025.

TABLE 11 - OTHER OBLIGATIONS

The City is a lessor in various noncancelable leases of land, building, and equipment. During fiscal year 2023, the City recognized $197,884 in lease revenue and $53,136 in interest revenue.

As of September 30, 2023, the City's lease receivable balance of $3,330,780 was comprised of the following:

Governmental Activities	
One building lease with rents received totaling $16,659 during the fiscal year 2023, at an interest rate of 1.20%, with a remaining lease term of 7 years	$ 123,492
One equipment lease with rents received totaling $44,201 during the fiscal year 2023, at an interest rate of 0.58%, with a remaining lease term of 3 years	318,440
One land lease with rents received totaling $18,186 during the fiscal year 2023, at an interest rate of 1.88%, with a remaining lease term of 45 years	859,162
Business-type Activities	
Various land leases with rents received totaling $137,010 during the fiscal year 2023, at an interest rate of 1.47%, with remaining lease terms ranging from 12 to 25 years	2,029,686
	$ 3,330,780

The lease receivables are expected to be received in subsequent years as follows:

	Governmental Activities		Business-Type Activities	
Fiscal Year	Principal	Interest	Principal	Interest
2024	$ 95,352	$ 18,932	$ 124,351	$ 31,670
2025	96,195	18,269	126,281	29,740
2026	96,864	17,600	128,241	27,780
2027	50,625	16,995	130,232	25,789
2028	17,425	16,735	682,128	97,975
2029 - 2033	55,491	80,589	491,547	46,757
2034 - 2038	31,424	77,841	150,226	25,377
2039 - 2043	51,692	73,963	164,782	10,822
2044 - 2048	76,533	67,970	31,898	296
2049 - 2053	106,786	59,393	-	-
2054 - 2058	143,427	47,678	-	-
2059 - 2063	187,597	32,174	-	-
2064 - 2068	240,627	12,110	-	-
2069	51,056	7	-	-
	$ 1,301,094	$ 540,256	$ 2,029,686	$ 296,206

The City has various aeronautical leasing agreements for land leases (54 agreements, 5 Licenses, 72 buildings) and hangar space (27) at Denton Enterprise Airport. These qualify as regulated leases and are not included in the measurement of lease receivables, in accordance with the requirements of GASB Statement No. 87. The City recognized $777,020 (Land Lease) and $157,544 (Hangar Lease) in lease revenue during fiscal year 2023 for these leases, which have CPR increases that range from 1-5 years, dependent on the lease terms ranging from 1-30 years, with some leases having additional options that range from 5-20 years. As of October 1, 2023, the minimum payments expected to be received over the next five years is shown in the table below:

Fiscal Year	
2024	$ 877,754
2025	990,761
2026	1,015,491
2027	1,050,948
2028	1,077,185

Additionally, on January 1, 2023, City of Denton, TX entered into a 48-month lease as Lessee for the use of Employee Health Clinic. An initial lease liability was recorded in the amount of $300,845. As of September 30, 2023, the value of the lease liability is $247,072. The City of Denton, TX is required to make monthly fixed payments of $6,018. The lease has an interest rate of 0.2130%. The value of the right to use asset as of September 30, 2023 of $300,845 with accumulated amortization of $56,408. The City has one extension option(s), each for 12 months.

PENSION FUND . . . The City of Denton participates as one of 901 plans in the defined benefit cash-balance plan administered by the Texas Municipal Retirement System (TMRS). TMRS is statewide public retirement plan created by the State of Texas and administered in accordance with the TMRS Act, Subtitle G, Title 8, Texas Government Code (the TMRS Act) as an agent multiple-employer retirement system for employees of Texas participating cities. The TMRS Act places the general administration and management of the System with a six-member, Governor-appointed board of trustees; however, TMRS is not fiscally dependent on the State of Texas. TMRS issues a publicly-available annual comprehensive financial report obtainable at www.tmrs.com.

All eligible employees of the city are required to participate in TMRS.

Benefits Provided . . . TMRS provides retirement, disability, and death benefits. Benefit provisions are adopted by the governing body of the City, within the options available in the state statutes governing TMRS.

At retirement, the employee's benefit is calculated based on the sum of the employee's contributions with interest, and the city-financed monetary credits with interest. Employees may choose to receive their retirement benefit in one of seven payments options. Employees may also choose to receive a portion of their benefit as a Partial Lump Sum Distribution in an amount equal to 12, 24, or 36 monthly payments, which cannot exceed 75% of the employee's deposits and interest.

Upon retirement, the employee's retirement benefits are calculated based on the sum of the employee's contributions, with interest, and the City-financed monetary credits, with interest. City-financed monetary credits are composed of three sources: prior service credits, current service credits, and updated service credits.

- Prior service credit, granted by each city joining TMRS, is a monetary credit equal to the accumulated value of the percentage of prior service credit selected by the City, multiplied by an employee's contributions that would have been made, based on the average salary prior to TMRS participation, for the number of months the employee was employed by the City before joining TMRS, accruing 3% annual interest and including the matching ratio adopted by the City.
- Current Service Credit is a monetary credit for service performed by an employee after the City joined TMRS and is based on a percent (200%) of the employee's total contributions and interest credits (commonly referred to as the City's matching ratio). Each participating city designates the rate the employee contributions (7% for the City) and interest is credited on contribution balances annually at a guaranteed minimum 5% rate. Any change in the matching ratio would be applied prospectively.
- Updated Service Credits (USC) is an optional monetary credit granted on an annually repeated basis by the City, and it may increase an employee's monthly retirement benefit. In calculating USC, TMRS looks at the changes in the employee's salary over their career and any changes the City has made to its TMRS plan, such as the employee contribution rate or the City's matching ratio. Although USC may increase the employee's retirement benefit, USC does not affect the amount of contributions in an employee's account or the amount an employee will receive if they refund.

The plan provisions also include an annually repeating basis cost of living adjustments for retires equal to 70% of the change in the consumer price index. If an employee terminates employment and refunds their account, the employee will receive their total contributions, plus credited interest. The employee will not receive any of the city-financed monetary credits. An employee can retire at ages 60 and above with 5 or more years of service or with 20 years of service regardless of age. A member is vested after five years.

Employees covered by benefit terms . . . At the December 31, 2022 valuation and measurement date, the following employees were covered by the benefit terms:

Inactive Employees or Beneficiaries Currently Receiving Benefits	884
Inactive Employees Entitled to But Not Yet Receiving Benefits	851
Active Employees	1,355
	3,090

Contributions . . . The contribution rates for employees in TMRS are either 5%, 6%, or 7% of employee gross earnings, and the city matching percentages are either 100%, 150%, or 200%, both as adopted by the City Council. Under the state law governing TMRS, the contribution rate for each city is determined annually by the actuary, using the Entry Age Normal (EAN) actuarial cost method. The City's contribution rate is based on the liabilities created from the benefit plan options selected by the City and any changes in benefits or actual experience over time.

Employees for the City were required to contribute 7% of their annual gross earnings during the fiscal year. The contribution rates for the City were 17.87% and 18.15% in calendar years 2022 and 2023, respectively. The City's contributions to TMRS for the year ended September 30, 2023 were $21,104,072 and were equal to the required contributions.

Net Pension Liability . . . The City's Net Pension Liability ("NPL") was measured as of December 31, 2022, and the Total Pension Liability ("TPL") used to calculate the NPL was determined by an actuarial valuation as of that date.

Actuarial Assumptions . . . The TPL in the December 31, 2022 actuarial valuation was determined using the following actuarial assumptions:

Inflation	2.50% per year
Overall payroll growth	3.50% per year
Investment Rate of Return	6.75%, net of pension plan investment expense, including inflation

Salary increases were based on a service-related table. Mortality rates for active members are based on the PUB(10) mortality tables with the Public Safety table used for males and the General Employee table used for females. Mortality rates for healthy retirees and beneficiaries are based on the gender-distinct 2019 Municipal Retirees of Texas mortality tables. The rates for actives, healthy retirees and beneficiaries are projected on a fully generational basis by Scale UMP to account for future mortality improvements. For disabled annuitants, the same mortality tables for healthy retirees are used with a 4-year set-forward for males and a 3-year set-forward for females. In addition, a 3.5% and 3.0% minimum mortality rate is applied, for males and females respectively, to reflect the impairment for younger members who become disabled. The rates are projected on a fully generational basis by Scale UMP to account for future mortality improvements subject to the floor.

The actuarial assumptions were developed primarily from the actuarial investigation of the experience of TMRS over the four-year period from December 31, 2014 to December 31, 2018. They were adopted in 2019 and first used in the December 31, 2019 actuarial valuation. The post-retirement mortality assumption for healthy annuitants and Annuity Purchase Rate (APRs) are based on the Mortality Experience Investigation Study covering 2009 through 2011 and dated December 31, 2013. Plan assets are managed on a total return basis with an emphasis on both capital appreciation as well as the production of income in order to satisfy the short-term and long-term funding needs of TMRS.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target allocation and best estimates of real rates of return for each major asset class in fiscal year 2023 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (Arithmetic)
Global Equity	35.0%	7.70%
Core Fixed Income	6.0%	4.90%
None-Core Fixed Income	20.0%	8.70%
Real Return	12.0%	8.10%
Real Estate	12.0%	5.80%
Absolute Return	5.0%	6.90%
Private Equity	10.0%	11.80%
Total	100.0%	

Discount Rate . . . The discount rate used to measure the Total Pension Liability was 6.75%. The projection of cash flows used to determine the discount rate assumed that employee and employer contributions will be made at the rates specified in statute. Based on that assumption, the pension plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current active and inactive employees. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability.

Changes in the Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balance at 12/31/2021	$ 600,289,185	$ 560,080,718	$ 40,208,467
Changes for the year:			
Service cost	19,111,021	-	19,111,021
Interest	40,284,903	-	40,284,903
Difference between expected and actual experience	8,678,564	-	8,678,564
Changes of assumptions	-	-	-
Contributions - employer	-	19,140,875	(19,140,875)
Contributions - employee	-	7,670,708	(7,670,708)
Net investment income	-	(40,913,118)	40,913,118
Benefit payments, including refunds of employee contributions	(26,062,628)	(26,062,628)	-
Administrative expense	-	(353,785)	353,785
Other changes	-	422,171	(422,171)
Net changes	42,011,860	(40,095,777)	82,107,637
Balance at 12/31/2022	$ 642,301,045	$ 519,984,941	$ 122,316,104

Sensitivity of the Net Pension Liability to changes in the Discount Rate . . . The following presents the net pension liability of the City, calculated using the discount rate of 6.75%, as well as what the City's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (5.75%) or 1-percentage-point higher (7.75%) than the current rate:

	1% Decrease in Discount Rate (5.75%)	Current Discount Rate (6.75%)	1% Increase in Discount Rate (7.75%)
City's Net Pension Liability	$216,545,504	$122,316,104	$ 45,501,845

Pension Plan Fiduciary Net Position . . . Detailed information about the pension plan's Fiduciary Net Position is available in a separately-issued TMRS financial report. That report may be obtained on the Internet at www.tmrs.com.

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions . . . For the year ended September 30, 2023, the City recognized pension expense of $7,836,233. This amount is included as part of personal services expenses.

At September 30, 2023, the City reported deferred outflows of resources and deferred inflows of resources related to TMRS pension from the following sources:

	Deferred Outflow of Resources	Deferred Inflows of Resources
Differences between projected and actual investment earnings	$ 35,798,004	$ -
Contributions subsequent to the measurement date	15,417,601	-
Differences between expected and actual economic experience	12,641,610	-
Difference in assumption changes	184,942	-
Total	$ 64,042,157	$ -

$15,417,601 reported as deferred outflows of resources related to pensions resulting from contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability for the City's fiscal year ending September 30, 2024. Other amounts reported as deferred outflows and inflows of resources related to pensions will be recognized in pension expense as follows:

For the Year Ended September 30,	
2023	$ 6,707,832
2024	12,989,176
2025	12,449,041
2026	16,478,507
2027	-
Total	$ 48,624,556

FIREMEN'S RELIEF AND RETIREMENT FUND

Plan Description . . . The City contributes to the retirement plan for firefighters in the Denton Fire Department known as the Denton Firemen's Relief and Retirement Fund (the Fund). The Fund is a single employer, contributory, defined benefit plan. The benefit provisions of the Fund are authorized by the Texas Local Fire Fighters' Retirement Act (TLFFRA). TLFFRA provides the authority and procedure to amend benefit provisions. The plan is administered by the Board of Trustees of the Denton Firemen's Relief and Retirement Fund. The City does not have access to nor can it utilize assets within the retirement plan trust. The Fund issues a stand-alone report pursuant to GASB Statement No. 67, which may be obtained by writing the Denton Firemen's Relief and Retirement Fund at P.O. Box 2375, Denton, Texas 76202. See that report for all information about the plan fiduciary net position.

Benefits Provided . . . Firefighters in the Denton Fire Department are covered by the Denton Firemen's Relief and Retirement Fund which provides service retirement, death, disability, and withdrawal benefits. These benefits fully vest after 20 years of credited service. Firefighters may retire at age 50 with 20 years of service. A partially-vested benefit is provided for firefighters who terminate employment with at least 10 but less than 20 years of service. If a terminated firefighter has a partially vested benefit, the firefighter may retire starting on the date they would have both completed 20 years of service if they had remained a Denton firefighter and attained age 50. The present plan effective January 1, 2011 provides a monthly normal service retirement benefit, payable in a Joint and Two-Thirds to Spouse form of annuity, equal to 2.59% of Highest 36-Month Average Salary for each year of service.

A retiring firefighter who is at least age 52 with at least 22 years of service has the option to elect the Retroactive Deferred Retirement Option Plan (RETRO DROP) which will provide a lump sum benefit and a reduced monthly benefit. The reduced monthly benefit is based on the service and Highest 36-Month Average Salary as if the firefighter had terminated employment on their selected RETRO DROP benefit calculation date, which is no earlier than the later of the date the firefighter meets the age 52 and 22 years of service requirements and the date four years prior to the date the firefighter actually retires. Upon retirement, the employee will receive, in addition to the monthly retirement benefit, a lump sum equal to the sum of (1) the amount of monthly contributions the member has made to the Fund after the RETRO DROP benefit calculation date plus (2) the total of the monthly retirement benefits the member would have received between the RETRO DROP benefit calculation date and the date retired under the plan. There are no account balances. The lump sum is calculated at the time of retirement and distributed as soon as administratively possible.

There is no provision for automatic postretirement benefit increases. The Fund has the authority to provide, and has periodically in the past provided, ad hoc postretirement benefit increases.

Employees Covered by Benefit Terms . . . In the December 31, 2021 actuarial valuation, the following numbers of members were covered by the Fund:

Inactive Employees or Beneficiaries Currently Receiving Benefits	92
Inactive Employees Entitled to But Not Yet Receiving Benefits	7
Active Employees	211
	310

Contributions . . . The contribution provisions of the Fund are authorized by TLFFRA. TLFFRA provides the authority and procedure to change the amount of contributions determined as a percentage of pay by each firefighter and a percentage of payroll by the City.

The contribution policy of the Denton Firemen's Relief and Retirement Fund requires contributions equal to 12.6% of pay by the firefighters, the rate elected by the firefighters according to TLFFRA. The City began contributing in December 2017 according to a new City funding policy. The ordinance defining it includes an actuarially determined contribution rate over a closed 25-year amortization period, a contribution rate of 18.5% for several years, a minimum rate standard, and City review and approval of each actuarial valuation. The December 31, 2022 actuarial valuation includes the assumption the City contribution rate will be 18.5% over the unfunded liability amortization period. The costs of administering the plan are paid from the Fund assets. The City's contributions to the Fund for the year ended September 30, 2023 were $4,804,198.

Ultimately, the funding policy also depends upon the total return of the Fund's assets, which varies from year to year. Investment policy decisions are established and maintained by the board of trustees. For the calendar year ending December 31, 2022, the money-weighted rate of return on pension plan investments was 17.93%. This measurement of the investment performance is net of investment-related expenses, reflecting the effect of the timing of the contributions received and the benefits paid during the year.

While the contribution requirements are not actuarially determined, state law requires that each change in plan benefits adopted by the Fund must first be approved by an eligible actuary, certifying the contribution commitment by the firefighters and the assumed city contribution rate together provide an adequate contribution arrangement. Using the entry age actuarial cost method, the plan's normal cost contribution rate is determined as a percentage of payroll. The excess of the total contribution rate over the normal cost contribution rate is used to amortize the plan's unfunded actuarial accrued liability (UAAL). The number of years needed to amortize the plan's UAAL is actuarially determined using an open, level percentage of payroll method.

Net Pension Liability . . . The City of Denton's net pension liability was measured as of December 31, 2022, and the total pension liability used to calculate the net pension liability was determined based on the actuarial valuation as of December 31, 2022.

Total Pension Liability	$ 152,376,252
Plan fiduciary net position	136,802,800
City's net pension liability	15,573,452
Plan fiduciary net position as a percentage of the total pension liability	89.8%

Actuarial Assumptions . . . The total pension liability in the December 31, 2021 actuarial valuation was determined using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.50% per year
Overall payroll growth	3.00% per year, plus promotion, step and longevity increases that vary by service
Investment Rate of Return	6.75%, net of pension plan investment expense, including inflation

Mortality rates were based on the PubS-2010 (public safety) total dataset mortality tables employees and for retirees (sex distinct), projected for mortality improvement generationally using the projection scale MP-2019.

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The long-term expected rate of return on pension plan investments is reviewed for each biennial actuarial valuation and was determined using a building-block method in which expected future net real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These components are combined to produce the long-term expected rate of return by weighting the expected future net real rates of return by the target asset allocation percentage (currently resulting in 4.96%) and by adding expected inflation (2.5%). In addition, the final 6.75% assumption was selected by "rounding down" and thereby reflects a reduction of 0.71% for adverse deviation. The target allocation and expected arithmetic net real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (Arithmetic)
Equities		
Large Cap Domestic	40.0%	6.00%
Small/Mid Cap Domestic	10.0%	6.50%
International Developed	10.0%	6.50%
Alternatives		
Master Limited Partnerships	8.0%	6.50%
Real Estate	15.0%	4.50%
Fixed Income	15.0%	1.00%
Cash	2.0%	0.00%
Total	100.0%	
Weighted Average		4.96%

Discount Rate . . . The discount rate used to measure the total pension liability was 6.75%. No projection of cash flows was used to determine the discount rate because the December 31, 2022 actuarial valuation showed expected contributions would pay the normal cost and amortize the unfunded actuarial accrued liability (UAAL) in nine years. Because of the nine-year amortization period of the UAAL, the pension plan's fiduciary net position is expected to be available to make all projected future benefit payments of current active and inactive members. Therefore, the long-term expected rate of return on pension plan investments of 6.75% was applied to all periods of projected benefit payments as the discount rate to determine the total pension liability.

Changes in Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
Balance at 12/31/2021	$ 142,439,646	$ 140,537,577	$ 1,902,069
Changes for the year:			
Service cost	4,965,768	-	4,965,768
Interest	9,787,310	-	9,787,310
Change of benefit terms	-	-	-
Difference between expected and actual experience	-	-	-
Contributions - employer	-	4,545,905	(4,545,905)
Contributions - employee	-	3,096,130	(3,096,130)
Net investment income	-	(6,446,061)	6,446,061
Benefit payments, including refunds of employee contributions	(4,816,472)	(4,816,472)	-
Administrative expense	-	(114,279)	114,279
Net changes	14,106,818	(3,734,777)	(9,232,620)
Balance at 12/31/2022	$ 142,439,646	$ 136,802,800	$ (7,330,551)

Sensitivity of the Net Pension Liability to Changes in the Discount Rate . . . The following presents the net pension liability of the City of Denton, calculated using the discount rate of 6.75%, as well as what the city's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (5.75%) or 1-percentage-point higher (7.75%) than the current rate:

	1% Decrease in Discount Rate (5.75%)	Current Discount Rate (6.75%)	1% Increase in Discount Rate (7.75%)
City's Net Pension Liability	$35,273,538	$15,573,452	$ (884,561)

Pension Plan Fiduciary Net Position . . . The plan fiduciary net position reported above is the same as reported by the Fund. Detailed information about the plan fiduciary net position is available in the Fund's separately issued audited financial statements, which are reported using the economic resources measurement focus and the accrual basis of accounting in conformity with accounting principles generally accepted in the United States of America. Revenues are recorded when earned, and expenses are recorded when a liability is incurred, regardless of the timing of the related cash flows. Investments are reported at fair value, the price that would be recognized to sell an asset in an orderly transaction between market participants at the measurement date.

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions . . . For the year ended September 30, 2023, the City recognized negative pension expense of $2,336,612. Amounts recognized in the fiscal year represent changes between the current and prior year measurement dates. This amount is included as part of personnel services expenses.

At September 30, 2023, the City reported deferred outflows of resources and deferred inflows of resources related to the Fund from the following sources:

	Deferred Outflow of Resources	Deferred Inflows of Resources
Differences between projected and actual investment earnings	$ 933,280	$ -
Contributions subsequent to the measurement date	3,506,747	-
Differences between expected and actual economic experience	5,407,801.00	(375,549)
Difference in assumption changes	2,417,951	-
Total	$ 12,265,779	$ (375,549)

Deferred outflows of resources related to pensions resulting from contributions subsequent to the measurement date of $3,506,747 will be recognized as a reduction of the net pension liability for the measurement year ending December 31, 2023 and the City's fiscal year ending September 30, 2024. Other amounts reported as deferred outflows and inflows of resources related to pensions will be recognized in pension expense (income) as follows:

For the Year Ended September 30,	
2024	$ (1,057,188)
2025	780,350
2026	1,812,996
2027	4,392,413
2028	1,042,326
Thereafter	1,412,586
Total	$ 8,383,483

OTHER POST EMPLOYMENT BENEFITS . . . The City of Denton provides for two post-employment benefit (OPEB) plans; one provides for postemployment medical care through a single-employer defined benefit medical plan (Medical OPEB), and the other is the Texas Municipal Retirement System Supplemental Death Benefits Fund (TMRS SDBF), a single-employer defined benefit OPEB plan. Both plans are described in detail following.

Aggregate amounts for the two OPEB plans are as follows:

	Medical OPEB	TMRS SDBF	Total
Total OPEB Liability	$ 41,482,438	$ 3,732,019	$ 45,214,457
Deferred outflows of resources	$ 5,630,418	$ 1,014,418	6,644,836
Deferred inflows of resources	12,622,440	1,895,755	14,518,195
OPEB expense	3,228,576	265,055	3,493,631

Plan Description . . . The City of Denton provides post-employment medical care (OPEB) for retired employees through a single-employer defined benefit medical plan. The plan provides medical benefits for eligible retirees, their spouses and dependents though the City's group health insurance plans, which covers both active and retired members. The benefits, benefit levels, and contribution rates are recommended annually by the City management as part of the budget process. Any changes in rate subsidies for retirees are approved by the City Council. Since an irrevocable trust has not been established, the plan is not accounted for as a trust fund. The plan does not issue a separate financial report.

Benefits Provided . . . The City provides post-employment medical, dental, and vision care benefits to its retirees. To be eligible for benefits, an employee must qualify for retirement under the Texas Municipal Retirement System or the Denton Firemen's Relief and Retirement Plan. Retirees must make a one-time irrevocable decision to choose benefits at the time of retirement, after that their eligibility for the benefits ceases. However, retirees can move between plans and can add and drop dependents based on qualifying events.

All medical care benefits are provided through the City's self-insured health plan. The benefit levels are the same as those afforded to active employees.

In the December 31, 2022 actuarial valuation, the following number of employees were covered by the benefit terms:

Inactive Employees or Beneficiaries Currently Receiving Benefits	249
Active Employees	1,540
	1,789

Funding Policy . . . The plan premium rates are recommended annually by City management and approved by the City Council as part of the annual budget. The retiree's contribution is the full amount of the actuarially determined blended premium rate less a subsidy dependent upon years of service at retirement. By providing retirees with access to the City's healthcare plans based on the same rates it charges to active employees, the City is in effect providing a subsidy to retirees. This implied subsidy exists because, on average, retiree health care costs are higher than active employee healthcare costs. By the City not contributing anything toward this plan in advance, the City employs a pay-as-you-go method through paying the higher rate for active employees each year. The City contributes $40 per month for each five-year increment of service, up to $200 per month, toward the cost of retiree coverage. The full cost for dental and vision is paid by the retiree. Retirees are required to enroll in Medicare Part B once eligible (age 65) and are moved into a fully-insured Medicare Supplement plan at that time. The same City contribution level applies to the supplement.

Medical OPEB Liability. . . The City's medical OPEB liability of $41,482,438 was measured as of December 31, 2022, the same date as the actuarial valuation.

The medical OPEB liability in the December 31, 2022 actuarial valuation was determined using the following actuarial assumptions and other inputs, applied to all periods included in the measurement, unless otherwise specified.

Significant method and assumptions used for this fiscal year valuation were as follows:

Valuation Date	December 31, 2021
Actuarial cost method	Individual Entry-Age Normal Method
Discount Rate	2.75% as of December 31, 2019 1.84% as of December 31, 2021 4.05% as of December 31, 2022
Inflation Rate	2.50% per annum
Projected salary increases	3.50% to 11.50% for TMRS, including inflation 3.00% to 9.18% for Fire, including inflation
Healthcare trend rates	Initial rate of 7.00% declining to an ultimate rate of 4.15% after 13 years
Mortality	**TMRS:** For healthy retirees, the gender-distinct 2019 Municipal Retirees of Texas mortality tables are used. The rates are projected on a fully generational basis using the ultimate mortality improvement rates in the MP tables to account for future mortality improvements. **Firefighters**: The gender-distinct PubS-2010 (safety employees) total data set mortality are used. The rates are projected on a fully generational basis using the projection scale of MP-2019.
Participation Rates	65% for employees retiring at age 65 or older: 45% for employees retiring between the ages 50 and 64; 5% for employees retiring between the ages of 45 and 49; 0% for retirees under the age 50 at retirement

Changes in the Medical OPEB Liability

	Total Medical OPEB Liability
Balance at 12/31/2021	$ 49,266,518
Changes for the year:	
Service cost	3,282,530
Interest	921,256
Difference between expected and actual experience	(42,650)
Changes of assumptions	(10,266,201)
Benefit payments	(1,679,015)
Net Changes	(7,784,080)
Balance at 12/31/2022	$ 41,482,438

Total OPEB liability as a percentage of covered payroll was 30.13%.

Sensitivity of the Medical OPEB Liability to Changes in the Discount Rate

The following schedule shows the impact of the medical OPEB liability if the discount rate used was 1% less than (3.05%) and 1% greater than (4.05%) the discount rate that was used (5.05%) in measuring the medical OPEB liability:

	1% Decrease (3.05%)	Current Discount Rate (4.05%)	1% Increase (5.05%)
Total medical OPEB Liability	$45,753,482	$ 41,482,438	$37,735,595

Sensitivity of the Medical OPEB Liability to Changes in the Healthcare Cost Trend Rate Assumption

The following schedule shows the impact of the medical OPEB liability if the healthcare trend cost rate used was 1% less than (6.00%) and 1% more than (8.00%) the healthcare cost trend rate that was used (7.00%) in measuring the medical OPEB liability:

	1% Decrease (6.00%)	Current Healthcare Cost Trend Rate (8.00%)	1% Increase (7.00%)
Total medical OPEB Liability	$38,111,505	$ 41,482,438	$45,474,336

Medical OPEB Expense and Deferred outflows of Resources and Deferred Inflows of Resources Related to Medical OPEB

For the year ended September 30, 2023, the City recognized medical OPEB expense of $265,055. At September 30, 2023, the City reported deferred outflows of resources and deferred inflows of resources related to medical OPEB from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual economic experience	$ 217,802	$ 1,914,043
Changes in actuarial assumptions	3,890,791	10,708,397
Contribution subsequent to the measurement date	1,521,825	-
Totals	$ 5,630,418	$ 12,622,440

Deferred outflows of resources related to OPEB contributions subsequent to the measurement date of $1,521,825 will be recognized as a reduction of the medical OPEB liability for the City's fiscal year ending September 30, 2024. Other amounts reported as deferred outflows of resources related to the medical OPEB will be recognized in OPEB expense as follows:

Year Ending September 30,	
2024	$ (975,210)
2025	(975,210)
2026	(983,003)
2027	(1,198,753)
2028	(994,385)
Thereafter	(3,387,286)
Total	$ (8,513,847)

Supplemental Death Benefit Fund . . . The City of Denton voluntarily participates in the Texas Municipal Retirement System Supplemental Death Benefits Fund (TMRS SDBF). The SDBF is a defined benefit group-term life insurance Other Postemployment Benefit (OPEB) plan as defined by GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. No assets are accumulated in a trust that meets the criteria in paragraph 4 of GASB Statement No. 75. It is established and administered in accordance with the TMRS Act identically to the City's pension plan.

Benefits provided . . . The SDBF provides group-term life insurance to City employees who are active members in TMRS, including or not including retirees. The City Council opted into this system via an ordinance, and may terminate coverage under, and discontinue participation in, the SDBF by adopting an ordinance before November 1st of any year to be effective the following January 1st.

Payments from this fund are similar to group-term life insurance benefits and are paid to the designated beneficiaries upon the receipt of an approved application for payment. The death benefit for active employees provides a lump-sum payment approximately equal to the employee's annual salary (calculated based on the employee's actual earnings for the 12-month period preceding the month of death). The death benefit for retirees is considered an "other postemployment benefit" (OPEB) and is a fixed amount of $7,500. As the SDBF covers both active and retiree participants with no segregation of assets, the SDBF is considered to be an unfunded OPEB plan.

In the December 31, 2022 actuarial valuation, the following number of employees were covered by the benefit terms:

Inactive Employees or Beneficiaries Currently Receiving Benefits	647
Inactive Employees entitled to but not yet receiving benefits	217
Active Employees	1,323
	2,187

The City contributes to the SDBF at a contractually required rate as determined by an annual actuarial valuation, which was 0.28% for 2023 and 0.18% for 2022, of which 0.10% for 2023 and 0.09% for 2022, represented the retiree-only portion for each year, as a percentage of annual covered payroll. The rate is equal to the cost of providing one-year term life insurance. The funding policy for the SDBF program is to assure that adequate resources are available to meet all the death benefit payments for the upcoming year; the intent is not to prefund retiree term life insurance during employees' entire careers. The City's contribution to the SDBF for two years ended September 30, 2023 and 2022 were $300,164 and $190,063 respectively, representing contributions for both active and retiree coverage, which equaled the required contribution each year.

FINANCIAL INFORMATION

TABLE 12 - CHANGES IN NET POSITION OF GOVERNMENTAL ACTIVITIES

	Fiscal Year Ended September 30,				
Revenues:	2023	2022	2021	2020	2019
Program Revenue:					
Charges for Services	$ 23,704,503	$ 25,203,727	$ 18,751,972	$ 17,442,268	$ 20,276,028
Operating Grants and Contributions	10,623,546	9,545,392	8,607,304	8,991,320	4,092,532
Capital Grants and Contributions	27,351,806	34,406,757	23,945,640	34,911,879	28,085,591
General Revenue:					
Property Tax	92,185,668	79,552,638	78,243,553	75,431,860	71,351,314
Sales Tax	55,906,340	53,264,724	45,404,857	39,337,834	38,330,825
Other Taxes/Fees	43,582,046	42,503,178	35,648,023	32,100,345	29,873,654
Miscellaneous	17,283,086	7,125,797	5,876,421	7,111,569	10,119,145
Total Revenue	$ 270,636,995	$ 251,602,213	$ 216,477,770	$ 215,327,075	$ 202,129,089
Expenditures:					
General Government	$ 53,383,319	$ 40,369,454	$ 37,401,990	$ 37,921,928	$ 39,051,942
Public Safety	104,695,335	87,970,791	93,415,418	82,119,480	77,883,435
Public Works	39,086,849	25,489,369	14,063,366	26,049,847	24,502,864
Parks and Recreation	28,096,065	22,787,282	19,295,206	15,759,371	17,710,634
Interest on Long-Term Debt	10,198,425	8,571,877	7,380,293	6,757,736	6,750,917
Total Expenses	$ 235,459,993	$ 185,188,773	$ 171,556,273	$ 168,608,362	$ 165,899,792
Increase in Net Position before Transfers	$ 35,177,002	$ 66,413,440	$ 44,921,497	$ 46,718,713	$ 36,229,297
Transfers	4,017,015	2,913,731	1,975,432	1,296,624	1,018,664
Increase (Decrease) in Net Position	$ 39,194,017	$ 69,327,171	$ 46,896,929	$ 48,015,337	$ 37,247,961
Prior Period Adjustment	-	9,072,792 (2)	-	-	-
Net Position at Beginning of Year	407,093,261	328,693,298	281,796,369	233,781,032	196,533,071
Net Position at End of Year	$ 446,287,278 (1)	$ 407,093,261	$ 328,693,298	$ 281,796,369	$ 233,781,032

(1) Unrestricted net position, that part of the net position that may be used to meet the City's ongoing obligations, was ($9,172,313) as of September 30, 2023. This table refers to governmental activities only and does not include enterprise funds such as solid waste or utility activities.
(2) An adjustment has been recorded to account for the recognition of intergovernmental revenues received in advance and held as an unearned revenue liability.

TABLE 12A - GENERAL FUND REVENUES AND EXPENDITURE HISTORY

	Fiscal Year Ended September 30,				
Revenues:	2023	2022	2021	2020	2019
Taxes	$ 113,955,253	$ 102,491,584	$ 95,276,289	$ 88,273,338	$ 85,149,284
Licenses and Permits	6,049,752	9,058,717	5,939,320	5,225,128	3,889,820
Franchise Fee	22,851,663	19,910,133	17,961,984	16,196,987	13,443,408
Fines and Forfeitures	1,961,982	1,875,399	1,572,587	2,279,771	3,651,697
Fees for Service	9,662,872	9,630,662	9,354,890	6,803,459	6,981,182
Interest Revenue	2,587,602	(127,267)	160,094	793,413	1,114,348
Intergovernmental	2,961,572	2,508,006	4,166,856	5,075,506	1,339,188
Miscellaneous	342,941	322,173	385,998	313,541	470,502
Total Revenues	$ 160,373,637	$ 145,669,407	$ 134,818,018	$ 124,961,143	$ 116,039,429
Expenditures:					
General Government	$ 33,498,179	$ 26,563,210	$ 26,460,924	$ 26,969,064	$ 29,967,473
Public Safety	96,317,917	86,682,395	80,847,727	75,985,961	68,174,782
Public Works	3,454,541	2,956,465	2,919,114	3,021,395	3,035,748
Parks and Recreation	15,781,789	13,308,304	11,259,612	8,872,556	9,786,783
Capital Outlay	475,410	540,289	476,296	442,932	737,271
Debt Service: Principal Retirement	-	-	-	-	4,171
Total Expenditures	$ 149,527,836	$ 130,050,663	$ 121,963,673	$ 115,291,908	$ 111,706,228
Excess (Deficiency) of Revenues Over Expenditures	$ 10,845,801	$ 15,618,744	$ 12,854,345	$ 9,669,235	$ 4,333,201
Other Financing Sources (Uses):					
Transfers In	$ 25,750	$ 2,728	$ 33,964	$ -	$ -
Sale of Capital Assets	198,474	568,128	326,682	112,824	17,033
Transfers (Out)	(11,929,049)	(9,230,186)	(8,497,210)	(6,738,692)	(3,928,775)
Total Other Financing Sources (Uses)	$ (11,704,825)	$ (8,659,330)	$ (8,136,564)	$ (6,625,868)	$ (3,911,742)
Net Changes in Fund Balance	$ (859,024)	$ 6,959,414	$ 4,717,781	$ 3,043,367	$ 421,459
Fund Balance at Beginning of Year	45,459,406	38,499,992	33,782,211	30,738,844	30,317,385
Fund Balance at End of Year	$ 44,600,382	$ 45,459,406	$ 38,499,992	$ 33,782,211	$ 30,738,844

TABLE 13 - MUNICIPAL SALES TAX HISTORY

The City has adopted the Municipal Sales and Use Tax Act, Texas Tax Code, Chapter 321, which grants the City the power to impose and levy a 1% Local Sales and Use Tax within the City; the proceeds are credited to the General Fund and are not pledged to the payment of the Obligations. Collections and enforcements are effected through the offices of the Comptroller of Public Accounts, State of Texas, who remits the proceeds of the tax, after deduction of a 2% service fee, to the City monthly. In January 1994, the voters of the City approved the imposition of an additional one-half of one percent (½ of 1%) for property tax reduction. In September 2003, the voters of the City approved the imposition of an additional one-half of one percent (½ of 1%) for the Denton County Transportation Authority. The implementation of this tax began January 2004, and is allocated directly to the Denton County Transportation Authority.

Fiscal Year Ended 9/30	Total Collected [1]	% of Ad Valorem Tax Levy	Equivalent of Ad Valorem Tax Rate	Per Capita
2020	$ 39,337,834	52.47%	$ 0.3117	$ 279
2021	45,404,857	58.40%	0.3343	316
2022	53,264,724	67.10%	0.3698	362
2023	55,906,340	60.93%	0.3343	371
2024 [2]	27,466,355	25.49%	0.1429	182

(1) Source: City of Denton Annual Program of Services.
(2) Collections through April 1, 2024.

The sales tax breakdown for the City is as follows:

Property Tax Relief	0.50¢
Denton County Transportation Authority	0.50¢
City Sales & Use Tax	1.00¢
State Sales & Use Tax	6.25¢
Total	8.25¢

FINANCIAL POLICIES

Basis of Accounting . . . The accounting policies of the City conform to generally accepted accounting principles of the Governmental Accounting Standards Board and program standards adopted by the Government Finance Officers Association of the United States and Canada. The GFOA has awarded a Certificate of Achievement for Excellence in Financial Reporting to the City of Denton for each fiscal year since 1983. The City's current report will be submitted to GFOA to determine its eligibility for another Certificate.

The City has also received the GFOA's award for Distinguished Budget Presentation each year since 1986.

The measurement focuses for the Enterprise Funds, Internal Service Funds and Nonexpendable Trust Funds are income determination and cost of service, respectively. Accordingly, the accrual basis, whereby revenues and expenses are identified in the accounting period in which they are earned and incurred and net income, is utilized for these funds. The modified accrual basis, whereby revenues are recognized when they become both measurable and available for use during the year and expenditures are recognized when the related fund liability is incurred, is used for all other funds.

Fund Balance Policy . . .The City strives to achieve and maintain and unassigned fund balance in the General Fund equal to 20% of budgeted expenditures. An additional 5% resiliency reserve (25% combined total) may be maintained to safeguard against unusual financial circumstances or economic downturns.

Budgetary Procedures . . . As prescribed by City Charter, the City Manager, within the time period required by law, submits to the City Council a proposed budget for the fiscal year beginning the following October 1. The budget includes proposed expenditures and revenues required to fund the expenditures. Following Council considerations, amendments and refinements, a public hearing is ordered and conducted for the purpose of obtaining taxpayer comments. The budget is finally approved and adopted by passage of an ordinance by the City Council prior to the beginning of the fiscal year. The budget is adopted on a basis consistent with generally accepted accounting principles. It is the goal of the City to achieve and maintain an unassigned fund balance in the general fund equal to 20% of budgeted expenditures. An additional 5% resiliency reserve (25% combined total) may be maintained to safeguard against unusual financial circumstances and/or economic downturns.

INVESTMENTS

The City invests its investable funds in investments authorized by Texas law in accordance with investment policies approved by the City Council. Both Texas law and the City's investment policies are subject to change.

LEGAL INVESTMENTS . . . Under State law, the City is authorized to invest in: (1) obligations, including letters of credit, of the United States or its agencies and instrumentalities, including the Federal Home Loan Banks; (2) direct obligations of the State or its agencies and instrumentalities; (3) collateralized mortgage obligations issued by a federal agency or instrumentality of the United States, the underlying security for which is guaranteed by an agency or instrumentality of the United States; (4) other obligations, the principal and interest of which are unconditionally guaranteed or insured by, or backed by the full faith and credit of, the State or the United States or their respective agencies and instrumentalities, including obligations that are fully guaranteed or insured by the Federal Deposit Insurance Corporation (the "FDIC") or by the explicit full faith and credit of the United States; (5) obligations of states, agencies, counties, cities, and other political subdivisions of any state rated as to investment quality by a nationally recognized investment rating firm not less than A or its equivalent; (6) bonds issued, assumed, or guaranteed by the State of Israel; (7) interest-bearing banking deposits that are guaranteed or insured by the FDIC or the National Credit Union Share Insurance Fund (the "NCUSIF") or their respective successors; (8) interest-bearing banking deposits, other than those described in clause (7), that (i) are invested through a broker or institution with a main office or branch office in this state and selected by the City in compliance with the PFIA, (ii) the broker or institution arranges for the deposit of the funds in one or more federally insured depository institutions, wherever located, for the City's account, (iii) the full amount of the principal and accrued interest of the banking deposits is insured by the United States or an instrumentality of the United States, and (iv) the City appoints as its custodian of the banking deposits, in compliance with the PFIA, the institution in clause (8)(i) above, a bank, or a broker-dealer; (9) certificates of deposit and share certificates meeting the requirements of the PFIA (i) that are issued by an institution that has its main office or a branch office in the State and are guaranteed or insured by the FDIC or the NCUSIF, or their respective successors, or are secured as to principal by obligations described in clauses (1) through (8), above, or secured in accordance with Chapter 2257, Texas Government Code, or in any other manner and amount provided by law for City deposits, or (ii) where (a) the funds are invested by the City through a broker or institution that has a main office or branch office in the State and selected by the City in compliance with the PFIA, (b) the broker or institution arranges for the deposit of the funds in one or more federally insured depository institutions, wherever located, for the account of the City, (c) the full amount of the principal and accrued interest of each of the certificates of deposit is insured by the United States or an instrumentality of the United States; and (d) the City appoints, in compliance with the PFIA, the institution in clause (9)(ii)(a) above, a bank, or broker-dealer as custodian for the City with respect to the certificates of deposit; (10) fully collateralized repurchase agreements that have a defined termination date, are secured by a combination of cash and obligations described by clauses (1) or (12), which are pledged to the City, held in the City's name, and deposited at the time the investment is made with the City or with a third party selected and approved by the City, and are placed through a primary government securities dealer, as defined by the Federal Reserve, or a financial institution doing business in the State; (11) certain bankers' acceptances with a stated maturity of 270 days or less, if the short-term obligations of the accepting bank, or of the holding company of which the bank is the largest subsidiary, are rated not less than A-1 or P-1 or the equivalent by at least one nationally recognized credit rating agency; (12) commercial paper with a stated maturity of 365 days or less that is rated at least A-1 or P-1 or an equivalent by either (i) two nationally recognized credit rating agencies, or (ii) one nationally recognized credit rating agency if the commercial paper is fully secured by an irrevocable letter of credit issued by a United States or state bank; (13) no-load money market mutual funds registered with and regulated by the Securities and Exchange Commission and complies with Securities and Exchange Commission Rule 2a-7; (14) no-load mutual funds that are registered and regulated by the Securities and Exchange Commission that have a weighted maturity of less than two years and either (i) have a duration of one year or more and are invested exclusively in obligations approved in this paragraph, or (ii) have a duration of less than one year and the investment portfolio is limited to investment grade securities, excluding asset backed securities; (15) guaranteed investment contracts that have a defined termination date and are secured by obligations described in clause (1), excluding obligations which the City is explicitly prohibited from investing in, and in an amount at least equal to the amount of bond proceeds invested under such contract; and (16) securities lending programs if (i) the securities loaned under the program are 100% collateralized, including accrued income, (ii) a loan made under the program allows for termination at any time, (iii) a loan made under the program is either secured by (a) obligations described in clauses (1) through (8) above, (b) irrevocable letters of credit issued by a state or national bank that is continuously rated by a nationally recognized investment rating firm at not less than A or its equivalent, or (c) cash invested in obligations described in clauses (1) through (8) above, clauses (12) through (14) above, or an authorized investment pool, (iv) the terms of a loan made under the program require that the securities being held as collateral be pledged to the City, held in the City's name, and deposited at the time the investment is made with the City or with a third party designated by the City, (v) a loan made under the program is placed through either a primary government securities dealer or a financial institution doing business in the State, and (vi) the agreement to lend securities has a term of one year or less.

The City may invest in such obligations directly or through government investment pools that invest solely in such obligations provided that the pools are rated no lower than "AAA" or "AAA-m" or an equivalent by at least one nationally recognized rating service. The City may also contract with an investment management firm registered under the Investment Advisers Act of 1940 (15 U.S.C. Section 80b-1 et seq.) or with the State Securities Board to provide for the investment and management of its public funds or other funds under its control for a term up to two years, but the City retains ultimate responsibility as fiduciary of its assets. In order to renew or extend such a contract, the City must do so by order, ordinance, or resolution.

The City if specifically prohibited from investing in (1) obligations whose payment represents the coupon payments on the outstanding principal balance of the underlying mortgage-backed security collateral and pays no principal (2) obligations whose payment represents the principal stream of cash flow from the underlying mortgage-backed security and bears no interest (3) collateralized mortgage obligations that have a stated final maturity of greater than 10 years and (4) collateralized mortgage obligations the interest rate of which is determined by an index that adjusts opposite to the changes in a market index.

INVESTMENT POLICIES . . . Under Texas law, the City is required to invest its funds under written investment policies that primarily emphasize safety of principal and liquidity; that address investment diversification, yield, maturity, and the quality and capability of investment management; and that includes a list of authorized investments for City funds, maximum allowable stated maturity of any individual investment, the maximum average dollar-weighted maturity allowed for pooled fund groups, methods to monitor the market price of investments acquired with public funds, a requirement for settlement of all transactions, except investment pool funds and mutual funds, on a delivery versus payment basis, and procedures to monitor rating changes in investments acquired with public funds and the liquidation of such investments consistent with the Public Funds Investment Act. All City funds must be invested consistent with a formally adopted "Investment Strategy Statement" that specifically addresses each funds' investment. Each Investment Strategy Statement will describe its objectives concerning: (1) suitability of investment type, (2) preservation and safety of principal, (3) liquidity, (4) marketability of each investment, (5) diversification of the portfolio, and (6) yield.

Under Texas law, City investments must be made "with judgment and care, under prevailing circumstances, that a person of prudence, discretion, and intelligence would exercise in the management of the person's own affairs, not for speculation, but for investment, considering the probable safety of capital and the probable income to be derived." At least quarterly the investment officers of the City shall submit an investment report detailing: (1) the investment position of the City, (2) that all investment officers jointly prepared and signed the report, (3) the beginning market value, the ending market value and the fully accrued interest during the reporting period of each pooled fund group, (4) the book value and market value of each separately listed asset at the end of the reporting period, (5) the maturity date of each separately invested asset, (6) the account or fund or pooled fund group for which each individual investment was acquired, and (7) the compliance of the investment portfolio as it relates to: (a) adopted investment strategy statements and (b) state law. No person may invest City funds without express written authority from the City Council.

Effective September 1, 2019, the investment officer of a local government is allowed to invest bond proceeds or pledged revenue only to the extent permitted by the PFIA and in accordance with (i) statutory provisions governing the debt issuance (or lease, installment sale, or other agreement) and (ii) the local government's investment policy regarding the debt issuance or the agreement.

ADDITIONAL PROVISIONS . . Under Texas law the City is additionally required to: (1) annually review its adopted policies and strategies; (2) adopt a rule, order, ordinance or resolution stating that it has reviewed its investment policy and investment strategies and records any changes made to either its investment policy or investment strategy in the respective rule, order, ordinance or resolution; (3) require any investment officers with personal business relationships or relatives with firms seeking to sell securities to the City to disclose the relationship and file a statement with the Texas Ethics Commission and the City Council; (4) require the registered principal of firms seeking to sell securities to the City to: (a) receive and review the City's investment policy, (b) acknowledge that reasonable controls and procedures have been implemented to preclude investment transactions conducted between the City and the business organization that are not authorized by the City's investment policy (except to the extent that this authorization is dependent on an analysis of the makeup of the City's entire portfolio or requires an interpretation of subjective investment standards), and (c) deliver a written statement attesting to these requirements; (5) perform an annual audit of the management controls on investments and adherence to the City's investment policy; (6) provide specific investment training for the Treasurer, Chief Financial Officer and investment officers; (7) restrict reverse repurchase agreements to not more than 90 days and restrict the investment of reverse repurchase agreement funds to no greater than the term of the reverse repurchase agreement; (8) restrict the investment in no-load mutual funds in the aggregate to no more than 15% of the entity's monthly average fund balance, excluding bond proceeds and reserves and other funds held for debt service; (9) require local government investment pools to conform to the new disclosure, rating, net asset value, yield calculation, and advisory board requirements; and (10) at least annually review, revise, and adopt a list of qualified brokers that are authorized to engage in investment transactions with the City.

TABLE 14- CURRENT INVESTMENTS [1]

As of April 1, 2024, the City's available funds were invested as follows:

Description	Market Value Percent	Market Value	Book Value
Treasury Securities	35.18%	$ 241,055,000	$ 241,645,572
Federal Agency Issues - Coupon	20.85%	142,879,823	143,038,519
Federal Agency Issues - Callable	7.20%	49,360,370	49,346,554
Commercial Paper	10.04%	68,800,700	68,823,839
Local Government Inv. Pool- TexSTAR	6.41%	43,935,217	43,935,217
Local Government Inv. Pool- TexPool	14.60%	100,000,000	100,000,000
Demand Deposits/Wells Fargo [2]	5.05%	34,572,609	34,572,609
Municipal Bonds-Coupon	0.66%	4,542,021	4,553,036
	100.00%	$ 685,145,740	$ 685,915,346

(1) There are no City funds invested in derivative securities, i.e., securities whose rate of return is determined by reference to some other instrument, index or commodity.
(2) Insured up to the FDIC limit with uninsured amounts collateralized by U.S. federal agency securities at a minimum of 102% of principal plus accrued interest.

TexSTAR is a local government investment pool for whom Hilltop Securities Asset Management, Inc. provides customer service and marketing for the pool. TexSTAR currently maintains a "AAAm" rating from Standard & Poor's and has an investment objective of achieving and maintaining a stable net asset value of $1.00 per share. Daily investments or redemptions of funds is allowed by the participants.

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TAX MATTERS

OPINIONS

The Certificates . . . On the date of initial delivery of the Certificates, McCall, Parkhurst and Horton L.L.P., Dallas, Texas, Bond Counsel to the City, will render its opinion that, in accordance with Existing Law, (1) interest on the Certificates for federal income tax purposes will be excludable from the "gross income" of the holders thereof and (2) the Certificates will not be treated as "specified private activity bonds" the interest on which would be included as an alternative minimum tax preference item under section 57(a)(5) of the Code. Except as stated above, Bond Counsel to the City will express no opinion as to any other federal, state or local tax consequences of the purchase, ownership or disposition of the Certificates. See Appendix C – Forms of Bond Counsel's Opinions.

The Bonds . . . On the date of initial delivery of the Bonds, Bond Counsel to the City, will render its opinion that, in accordance with statutes, regulations, published rulings and court decisions existing on the date thereof ("Existing Law"), (1) interest on the Bonds for federal income tax purposes will be excludable from the "gross income" of the holders thereof and (2) the Bonds will not be treated as "specified private activity bonds" the interest on which would be included as an alternative minimum tax preference item under section 57(a)(5) of the Internal Revenue Code of 1986 (the "Code"). Except as stated above, Bond Counsel to the City will express no opinion as to any other federal, state or local tax consequences of the purchase, ownership or disposition of the Bonds. See Appendix C – Forms of Bond Counsel's Opinions.

In rendering each of the foregoing opinions, Bond Counsel to the City will rely upon (a) certain information and representations of the City, including information and representations contained in the City's federal tax certificate with respect to each Obligation issue, and (b) covenants of the City contained in the Obligation documents relating to certain matters, including arbitrage and the use of the proceeds of the Obligations and the property financed or refinanced therewith. Failure by the City to observe the aforementioned representations or covenants could cause the interest on the Obligations to become taxable retroactively to the date of issuance.

The Code and the regulations promulgated thereunder contain a number of requirements that must be satisfied subsequent to the issuance of the Obligations in order for interest on the Obligations to be, and to remain, excludable from gross income for federal income tax purposes. Failure to comply with such requirements may cause interest on the Obligations to be included in gross income retroactively to the date of issuance of the Obligations. The opinion of Bond Counsel to the City is conditioned on compliance by the City with the covenants and other requirements described in the preceding paragraph, and Bond Counsel to the City has not been retained to monitor compliance with these requirements subsequent to the issuance of the Obligations.

Bond Counsel's opinion represents its legal judgment based upon its review of Existing Law and the reliance on the aforementioned information, representations and covenants. Bond Counsel's opinion is not a guarantee of a result. The Existing Law is subject to change by the Congress and to subsequent judicial and administrative interpretation by the courts and the Department of the Treasury. There can be no assurance that such Existing Law or the interpretation thereof will not be changed in a manner which would adversely affect the tax treatment of the purchase, ownership or disposition of the Obligations.

A ruling was not sought from the Internal Revenue Service by the City with respect to the Obligations or the projects being financed or refinanced therewith. Bond Counsel's opinion represents its legal judgment based upon its review of Existing Law and the representations of the City that it deems relevant to render such opinion and is not a guarantee of a result. No assurances can be given as to whether or not the Internal Revenue Service will commence an audit of the Obligations, or as to whether the Internal Revenue Service would agree with the opinion of Bond Counsel. If an audit is commenced, under current procedures the Internal Revenue Service is likely to treat the City as the taxpayer and the holders of the Obligations may have no right to participate in such procedure. No additional interest will be paid upon any determination of taxability.

FEDERAL INCOME TAX ACCOUNTING TREATMENT OF ORIGINAL ISSUE DISCOUNT

The initial public offering price to be paid for one or more maturities of the Obligations may be less than the principal amount thereof or one or more periods for the payment of interest on the Obligations may not be equal to the accrual period or be in excess of one year (the "Original Issue Discount Bonds"). In such event, the difference between (i) the "stated redemption price at maturity" of each Original Issue Discount Bond, and (ii) the initial offering price to the public of such Original Issue Discount Bond would constitute original issue discount. The "stated redemption price at maturity" means the sum of all payments to be made on the Obligations less the amount of all periodic interest payments. Periodic interest payments are payments which are made during equal accrual periods (or during any unequal period if it is the initial or final period) and which are made during accrual periods which do not exceed one year.

Under Existing Law, any owner who has purchased such Original Issue Discount Bond in the initial public offering is entitled to exclude from gross income (as defined in section 61 of the Code) an amount of income with respect to such Original Issue Discount Bond equal to that portion of the amount of such original issue discount allocable to the accrual period. For a discussion of certain collateral federal tax consequences, see discussion set forth below.

In the event of the redemption, sale or other taxable disposition of such Original Issue Discount Bond prior to stated maturity, however, the amount realized by such owner in excess of the basis of such Original Issue Discount Bond in the hands of such owner (adjusted upward by the portion of the original issue discount allocable to the period for which such Original Issue Discount Bond was held by such initial owner) is includable in gross income.

Under Existing Law, the original issue discount on each Original Issue Discount Bond is accrued daily to the stated maturity thereof (in amounts calculated as described below for each six-month period ending on the date before the semiannual anniversary dates of the date of the Obligations and ratably within each such six-month period) and the accrued amount is added to an initial owner's basis for such Original Issue Discount Bond for purposes of determining the amount of gain or loss recognized by such owner upon the redemption, sale or other disposition thereof. The amount to be added to basis for each accrual period is equal to (a) the sum of the issue price and the amount of original issue discount accrued in prior periods multiplied by the yield to stated maturity (determined on the basis of compounding at the close of each accrual period and properly adjusted for the length of the accrual period) less (b) the amounts payable as current interest during such accrual period on such Original Issue Discount Bond.

The federal income tax consequences of the purchase, ownership, redemption, sale or other disposition of Original Issue Discount Bonds which are not purchased in the initial offering at the initial offering price may be determined according to rules which differ from those described above. All owners of Original Issue Discount Bonds should consult their own tax advisors with respect to the determination for federal, state and local income tax purposes of the treatment of interest accrued upon redemption, sale or other disposition of such Original Issue Discount Bonds and with respect to the federal, state, local and foreign tax consequences of the purchase, ownership, redemption, sale or other disposition of such Original Issue Discount Bonds.

COLLATERAL FEDERAL INCOME TAX CONSEQUENCES

The following discussion is a summary of certain collateral federal income tax consequences resulting from the purchase, ownership or disposition of the Obligations. This discussion is based on Existing Law, all of which are subject to change or modification, retroactively.

The following discussion is applicable to investors, other than those who are subject to special provisions of the Code, such as financial institutions, property and casualty insurance companies, life insurance companies, individual recipients of Social Security or Railroad Retirement benefits, individuals allowed an earned income credit, certain S corporations with subchapter C earnings and profits, foreign corporations subject to the branch profits tax, taxpayers qualifying for the health insurance premium assistance credit, and taxpayers who may be deemed to have incurred or continued indebtedness to purchase tax-exempt obligations.

THE DISCUSSION CONTAINED HEREIN MAY NOT BE EXHAUSTIVE. INVESTORS, INCLUDING THOSE WHO ARE SUBJECT TO SPECIAL PROVISIONS OF THE CODE, SHOULD CONSULT THEIR OWN TAX ADVISORS AS TO THE TAX TREATMENT WHICH MAY BE ANTICIPATED TO RESULT FROM THE PURCHASE, OWNERSHIP AND DISPOSITION OF TAX-EXEMPT OBLIGATIONS BEFORE DETERMINING WHETHER TO PURCHASE THE OBLGATIONS.

Interest on the Obligations may be includable in certain corporation's "adjusted financial statement income" determined under section 56A of the Code to calculate the alternative minimum tax imposed by section 55 of the Code.

Under section 6012 of the Code, holders of tax-exempt obligations, such as the Obligations, may be required to disclose interest received or accrued during each taxable year on their returns of federal income taxation.

Section 1276 of the Code provides for ordinary income tax treatment of gain recognized upon the disposition of a tax-exempt obligation, such as the Obligations, if such obligation was acquired at a "market discount" and if the fixed maturity of such obligation is equal to, or exceeds, one year from the date of issue. Such treatment applies to "market discount bonds" to the extent such gain does not exceed the accrued market discount of such bonds; although for this purpose, a de minimis amount of market discount is ignored. A "market discount bond" is one which is acquired by the holder at a purchase price which is less than the stated redemption price at maturity or, in the case of a bond issued at an original issue discount, the "revised issue price" (i.e., the issue price plus accrued original issue discount). The "accrued market discount" is the amount which bears the same ratio to the market discount as the number of days during which the holder holds the obligation bears to the number of days between the acquisition date and the final maturity date.

STATE, LOCAL AND FOREIGN TAXES

Investors should consult their own tax advisors concerning the tax implications of the purchase, ownership or disposition of the Obligations under applicable state or local laws. Foreign investors should also consult their own tax advisors regarding the tax consequences unique to investors who are not United States persons.

INFORMATION REPORTING AND BACKUP WITHHOLDING

Subject to certain exceptions, information reports describing interest income, including original issue discount, with respect to the Obligations will be sent to each registered holder and to the Internal Revenue Service. Payments of interest and principal may be subject to backup withholding under section 3406 of the Code if a recipient of the payments fails to furnish to the payor such owner's social security number or other taxpayer identification number ("TIN"), furnishes an incorrect TIN, or otherwise fails to establish an exemption from the backup withholding tax. Any amounts so withheld would be allowed as a credit against the recipient's federal income tax. Special rules apply to partnerships, estates and trusts, and in certain circumstances, and in respect of Non-U.S. Holders, certifications as to foreign status and other matters may be required to be provided by partners and beneficiaries thereof.

FUTURE AND PROPOSED LEGISLATION

Tax legislation, administrative actions taken by tax authorities, or court decisions, whether at the Federal or state level, may adversely affect the tax-exempt status of interest on the Obligations under Federal or state law and could affect the market price or marketability of the Obligations. Any such proposal could limit the value of certain deductions and exclusions, including the exclusion for tax-exempt interest. The likelihood of any such proposal being enacted cannot be predicted. Prospective purchasers of the Obligations should consult their own tax advisors regarding the foregoing matters.

CONTINUING DISCLOSURE OF INFORMATION

In each of the Ordinances, the City has made the following agreement for the benefit of the holders and beneficial owners of the respective series of Obligations. The City is required to observe each agreement while it remains obligated to advance funds to pay such Obligations. Under each agreement, the City will be obligated to provide certain updated financial information and operating data annually, and the timely notice of specified events to the Municipal Securities Rulemaking Board ("MSRB"). This information will be available free of charge from the MSRB via the Electronic Municipal Market Access ("EMMA") system at www.emma.msrb.org.

ANNUAL REPORTS . . . The City shall provide annually to the MSRB, in the electronic format prescribed by the MSRB, financial information and operating data (the "Annual Operating Report") with respect to the City of the general type included in this Official Statement under Tables numbered 1 through 5 and 7 through 14. The City will additionally provide financial statements of the City (the "Financial Statements"), that will be (i) prepared in accordance with the accounting principles described in the City's annual audited financial statements or such other accounting principles as the City may be required to employ from time to time pursuant to State law or regulation and shall be in substantially the form included in this Official Statement and (ii) audited, if the City commissions an audit of such Financial Statements and the audit is completed within the period during which they must be provided. The City will update and provide the Annual Operating Report within six months after the end of each fiscal year and the Financial Statements within 12 months of the end of each fiscal year, in each case beginning with the fiscal year ending in and after 2024. The City may provide the Financial Statements earlier, including at the time it provides its Annual Operating Report, but if the audit of such Financial Statements is not complete within 12 months after any such fiscal year end, then the City shall file unaudited Financial Statements within such 12-month period and audited Financial Statements for the applicable fiscal year, when and if the audit report on such Financial Statements becomes available.

The financial information and operating data to be provided may be set forth in full in one or more documents or may be included by specific reference to any document available to the public on the MSRB's Internet Web site or filed with the United States Securities and Exchange Commission (the "SEC"), as permitted by SEC Rule 15c2-12 (the "Rule").

The City's current fiscal year end is September 30. Accordingly, it must provide the Annual Operating Report by March 31 in each year, unless the City changes its fiscal year. If the City changes its fiscal year, it will notify the MSRB of the change.

NOTICE OF CERTAIN EVENTS . . . The City will also provide timely notices of certain events to the MSRB. The City will provide notice of any of the following events with respect to the Obligations to the MSRB in a timely manner (but not in excess of ten business days after the occurrence of the event): (1) principal and interest payment delinquencies; (2) non-payment related defaults, if material; (3) unscheduled draws on debt service reserves reflecting financial difficulties; (4) unscheduled draws on credit enhancements reflecting financial difficulties; (5) substitution of credit or liquidity providers, or their failure to perform; (6) adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determinations of taxability, Notices of Proposed Issue (IRS Form 5701-TEB), or other material notices or determinations with respect to the tax status of the Obligations, or other material events affecting the tax status of the Obligations; (7) modifications to rights of holders of the Obligations, if material; (8) Obligation calls, if material, and tender offers; (9) defeasances; (10) release, substitution, or sale of property securing repayment of the Obligations, if material; (11) rating changes; (12) bankruptcy, insolvency, receivership, or similar event of the City, which shall occur as described below; (13) the consummation of a merger, consolidation, or acquisition involving the City or the sale of all or substantially all of its assets, other than in the ordinary course of business, the entry into of a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms, if material; (14) appointment of a successor or additional trustee or the change of name of a trustee, if material; (15) incurrence of a Financial Obligation, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of any Financial Obligation of the City, any of which affect security holders, if material; and (16) default, event of acceleration, termination event, modification of terms, or other similar events under the terms of any Financial

Obligation of the City, any of which reflect financial difficulties. In addition, the City will provide timely notice of any failure by the City to provide annual financial information in accordance with their agreement described above under "Annual Reports". For purposes of clauses (15) and (16) above, "Financial Obligation" means (i) a debt obligation, (ii) a derivative instrument entered into in connection with, or pledged as security or a source of payment for, an existing or planned debt obligation, or (iii) guarantee of (i) or (ii). The term Financial Obligation shall not include municipal securities as to which a final official statement has been provided to the MSRB consistent with the Rule.

For these purposes, any event described in (12) in the immediately preceding paragraph is considered to occur when any of the following occur: the appointment of a receiver, fiscal agent, or similar officer for the City in a proceeding under the United States Bankruptcy Code or in any other proceeding under state or federal law in which a court or governmental authority has assumed jurisdiction over substantially all of the assets or business of the City, or if such jurisdiction has been assumed by leaving the existing governing body and officials or officers in possession but subject to the supervision and orders of a court or governmental authority, or the entry of an order confirming a plan of reorganization, arrangement, or liquidation by a court or governmental authority having supervision or jurisdiction over substantially all of the assets or business of the City.

LIMITATIONS AND AMENDMENTS . . . The City has agreed to update information and to provide notices of specified events only as described above. The City has not agreed to provide other information that may be relevant or material to a complete presentation of its financial results of operations, condition, or prospects or agreed to update any information that is provided, except as described above. The City makes no representation or warranty concerning such information or concerning its usefulness to a decision to invest in or sell Obligations at any future date. The City disclaims any contractual or tort liability for damages resulting in whole or in part from any breach of its continuing disclosure agreement or from any statement made pursuant to its agreement, although holders of Obligations may seek a writ of mandamus to compel the City to comply with its agreement.

The City may amend its continuing disclosure agreement for either or both of the Bonds and Certificates from time to time to adapt to changed circumstances that arise from a change in legal requirements, a change in law, or a change in the identity, nature, status, or type of operations of the City, if (i) the agreement, as amended, would have permitted an underwriter to purchase or sell Bonds or Certificates, as the case may be, in the offering described herein in compliance with the Rule, taking into account any amendments or interpretations of the Rule to the date of such amendment, as well as such changed circumstances, and (ii) either (a) the holders of a majority in aggregate principal amount of the outstanding Bonds or Certificates, as the case may be, consent to the amendment or (b) any person unaffiliated with the City (such as nationally recognized bond counsel) determines that the amendment will not materially impair the interests of the holders and beneficial owners of the Bonds or Certificates, as the case may be. The City may also amend or repeal the provisions of this continuing disclosure agreement if the SEC amends or repeals the applicable provisions of the Rule or a court of final jurisdiction enters judgment that such provisions of the Rule are invalid, but only if and to the extent that the provisions of this sentence would not prevent an underwriter from lawfully purchasing or selling Obligations in the primary offering of the Obligations. If the City so amends the agreement, it has agreed to include with the next financial information and operating data provided in accordance with its agreement described above under "Annual Reports" an explanation, in narrative form, of the reasons for the amendment and of the impact of any change in the type of financial information and operating data so provided.

COMPLIANCE WITH PRIOR UNDERTAKINGS . . . During the last five years, the City believes it has complied in all material respects with all continuing disclosure agreements made by it in accordance with SEC Rule 15c2-12.

OTHER INFORMATION

RATINGS

The Obligations and the presently outstanding tax supported debt of the City are rated "___" by Fitch and "___" by S&P. An explanation of the significance of such ratings may be obtained from the company furnishing the rating. The ratings reflect only the respective views of such organizations and the City makes no representation as to the appropriateness of the ratings. There is no assurance that such ratings will continue for any given period of time or that they will not be revised downward or withdrawn entirely by either or both of such rating companies, if in the judgment of either or both companies, circumstances so warrant. Any such downward revision or withdrawal of such ratings, or either of them, may have an adverse effect on the market price of the Obligations.

LITIGATION

Various claims and lawsuits are pending against the City. In accordance with Generally Accepted Accounting Principles, those judgments considered "probable" are accrued by the City, while those claims and judgments considered "reasonably possible" are disclosed but not accrued. In the opinion of City management and the City Attorney, the maximum amount of all significant claims considered reasonably possible, excluding condemnation proceedings, is approximately $500,000 as of the date of this Official Statement. It is the opinion of the City Attorney and City management that potential losses after insurance coverage on all probable claims and lawsuits will not have a material adverse financial impact upon the City or its operations, see Appendix B, Notes to Basic Financial Statements G., page 86.

At the time of the initial delivery of the Bonds, the City will provide the Initial Purchasers with a certificate to the effect that, except as disclosed herein, no litigation of any nature has been filed or is then pending challenging the issuance of the Bonds or that affects the payment and security of the Bonds or in any other manner questioning the issuance, sale or delivery of the Bonds.

REGISTRATION AND QUALIFICATION OF OBLIGATIONS FOR SALE

The sale of the Obligations has not been registered under the Federal Securities Act of 1933, as amended, in reliance upon the exemption provided thereunder by Section 3(a)(2); and the Obligations have not been qualified under the Securities Act of Texas in reliance upon various exemptions contained therein; nor have the Bonds or Certificates been qualified under the securities acts of any jurisdiction. The City assumes no responsibility for qualification of the Bonds or Certificates under the securities laws of any jurisdiction in which the Obligations may be sold, assigned, pledged, hypothecated or otherwise transferred. This disclaimer of responsibility for qualification for sale or other disposition of the Obligations shall not be construed as an interpretation of any kind with regard to the availability of any exemption from securities registration provisions.

LEGAL INVESTMENTS AND ELIGIBILITY TO SECURE PUBLIC FUNDS IN TEXAS

The Obligations. Section 1201.041 of the Public Security Procedures Act (Chapter 1201, Texas Government Code) provides that the Obligations are negotiable instruments, investment securities governed by Chapter 8, Texas Business and Commerce Code, and are legal and authorized investments for insurance companies, fiduciaries, and trustees, and for the sinking funds of municipalities or other political subdivisions or public agencies of the State of Texas. In addition, various provisions of the Texas Finance Code provide that, subject to a prudent investor standard, the Obligations are legal investments for state banks, savings banks, trust companies with at least $1 million of capital, and savings and loan associations.

The Certificates. Section 271.051, Texas Local Government Code, provides that the Certificates are legal and authorized investments for banks, savings banks, trust companies, savings and loan associations, insurance companies, fiduciaries, trustees and guardians, and for the sinking funds of municipalities, school districts, and other political subdivisions or public agencies of the State of Texas. The Certificates are eligible to secure deposits of any public funds of the State, municipalities, school districts, and other political subdivisions of the State, and are legal security for those deposits to the extent of their market value.

General Considerations. For political subdivisions in Texas that have adopted investment policies and guidelines in accordance with the Public Funds Investment Act (Texas Government Code, Chapter 2256), the Obligations may have to be assigned a rating of at least "A" or its equivalent as to investment quality by a national rating agency before such obligations are eligible investments for sinking funds and other public funds. The City has made no investigation of other laws, rules, regulations, or investment criteria which might apply to such institutions or entities or which might limit the suitability of the Obligations for any of the foregoing purposes or limit the authority of such institutions or entities to purchase or invest in the Obligations for such purposes. The City has made no review of laws in other states to determine whether the Obligations are legal investments for various institutions in those states.

LEGAL OPINIONS AND NO-LITIGATION CERTIFICATE

The City will furnish a complete transcript of proceedings had incident to the authorization and issuance of the Bonds and of the Certificates, including the unqualified approving legal opinions of the Attorney General of Texas approving the Initial Bond and the Initial Certificate and to the effect that the Bonds and the Certificates are valid and legally binding obligations of the City, and based upon examination of such transcript of proceedings, the approving legal opinions of Bond Counsel, to like effect and to the effect that the interest on the Bonds and the Certificates will be excludable from gross income for federal income tax purposes under Section 103(a) of the Code, subject to the matters described under "Tax Matters" herein. The customary closing papers, including a certificate to the effect that no litigation of any nature has been filed or is then pending to restrain the issuance and delivery of the Obligations, or which would affect the provision made for their payment or security or in any manner questioning the validity of said Obligations will also be furnished. Though it represents the Financial Advisor and purchasers of debt from governmental issuers from time to time in matters unrelated to the issuance of the Obligations, Bond Counsel has been engaged by and only represents the City in connection with the issuance of the Obligations. Bond Counsel was not requested to participate, and did not take part, in the preparation of the Notice of Sale and Bidding Instructions, the Official Bid Form and the Official Statement, and such firm has not assumed any responsibility with respect thereto or undertaken independently to verify any of the information contained therein, except that, in its capacity as Bond Counsel, such firm has reviewed the information describing the Obligations in the Official Statement to verify that such description conforms to the provisions of the Bond Ordinance and the Certificate Ordinance. The legal fee to be paid Bond Counsel for services rendered in connection with the issuance of the Obligations is contingent on the sale and delivery of the Obligations. The legal opinion will accompany the Obligations deposited with DTC or will be printed on the Obligations in the event of the discontinuance of the Book-Entry-Only System.

The legal opinions to be delivered concurrently with the delivery of the Obligations express the professional judgment of the attorneys rendering the opinions as to the legal issues explicitly addressed therein. In rendering a legal opinion, the attorney does not become an insurer or guarantor of that expression of professional judgment, of the transaction opined upon, or of the future performance of the parties to the transaction. Nor does the rendering of an opinion guarantee the outcome of any legal dispute that may arise out of the transaction.

VERIFICATION OF ARITHMETICAL AND MATHEMATICAL COMPUTATIONS

Public Finance Partners LLC, will deliver to the City, on or before the settlement date of the Bonds, its verification report indicating that it has verified the mathematical accuracy of the mathematical computations of the adequacy of the cash, if any, and the maturing principal of and interest on the Escrowed Securities, to pay, when due, the maturing principal of, interest on and related call premium requirements, if any, of the Refunded Obligations.

Public Finance Partners LLC relied on the accuracy, completeness and reliability of all information provided to it by, and on all decisions and approvals of, the City. In addition, Public Finance Partners LLC has relied on any information provided to it by the City's retained advisors, consultants or legal counsel.

The report will be relied upon by Bond Counsel in rendering its opinion with respect to the defeasance of the Refunded Obligations.

AUTHENTICITY OF FINANCIAL DATA AND OTHER INFORMATION

The financial data and other information contained herein have been obtained from City records, audited financial statements, and other sources which are believed to be reliable. There is no guarantee that any of the assumptions or estimates contained herein will be realized. All of the summaries of the statutes, documents, and ordinances contained in this Official Statement are made subject to all of the provisions of such statutes, documents, and ordinances. These summaries do not purport to be complete statements of such provisions and reference is made to such documents for further information. Reference is made to original documents in all respects.

FINANCIAL ADVISOR

Hilltop Securities Inc., ("HilltopSecurities") is employed as Financial Advisor to the City in connection with the issuance of the Obligations. The Financial Advisor's fee for services rendered with respect to the sale of the Obligations is contingent upon the issuance and delivery of the Obligations. HilltopSecurities, in its capacity as Financial Advisor, has relied on the opinion of Bond Counsel and has not verified and does not assume any responsibility for the information, covenants, and representations contained in any of the legal documents with respect to the federal income tax status of the Obligations, or the possible impact of any present, pending, or future actions taken by any legislative or judicial bodies.

The Financial Advisor to the City has provided the following sentence for inclusion in this Official Statement. The Financial Advisor has reviewed the information in this Official Statement in accordance with, and as part of, its responsibilities to the City and, as applicable, to investors under the federal securities laws as applied to the facts and circumstances of this transaction, but the Financial Advisor does not guarantee the accuracy or completeness of such information.

INITIAL PURCHASER OF THE CERTIFICATES

After requesting competitive bids for the Certificates, the City accepted the bid of _____ (the "Initial Purchaser of the Certificates") to purchase the Certificates at the interest rates shown on page 2 of the Official Statement at a price of par plus a cash premium of $_____. The Initial Purchaser of the Certificates can give no assurance that any trading market will be developed for the Certificates after their sale by the City to the Initial Purchaser of the Certificates. The City has no control over the price at which the Certificates are subsequently sold and the initial yield at which the Certificates will be priced and reoffered will be established by and will be the sole responsibility of the Initial Purchaser of the Certificates.

INITIAL PURCHASER OF THE BONDS

After requesting competitive bids for the Bonds, the City accepted the bid of _____ (the "Initial Purchaser of the Bonds") to purchase the Bonds at the interest rates shown on page 4 of the Official Statement at a price of par plus a cash premium of $_____. The Initial Purchaser of the Bonds can give no assurance that any trading market will be developed for the Bonds after their sale by the City to the Initial Purchaser of the Bonds. The City has no control over the price at which the Bonds are subsequently sold and the initial yield at which the Bonds will be priced and reoffered will be established by and will be the sole responsibility of the Initial Purchaser of the Bonds.

The Initial Purchaser of the Bonds and the Initial Purchaser of the Certificates are herein collectively referred to as the "Initial Purchasers".

CERTIFICATION OF THE OFFICIAL STATEMENT

At the time of payment for and delivery of the Obligations, the City will furnish to the Initial Purchasers a certificate, executed by a proper City officer, acting in such officer's official capacity, to the effect that to the best of such officer's knowledge and belief: (a) the descriptions and statements of or pertaining to the City contained in the Official Statement, and any addenda, supplement, or amendment thereto, on the date of the Official Statement, on the date of sale of the Obligations, and the acceptance of the best bid therefor, and on the date of the delivery, were and are true and correct in all material respects; (b) insofar as the City and its affairs, including its financial affairs, are concerned, the Official Statement did not and does not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading; (c) insofar as the descriptions and statements, including financial data, of or pertaining to entities, other than the City, and their activities contained in the Official Statement are concerned, such statements and data have been obtained from sources which the City believes to be reliable and the City has no reason to believe that they are untrue in any material respect; and (d) there has been no material adverse change in the financial condition of the City since the date of the last audited financial statements of the City.

CYBERSECURITY

The unauthorized access, use, disclosure, disruption, modification, or destruction of the City's information or information systems could negatively impact the operations of the City and its ability to provide services to its citizens. The City uses a risk-based approach and "best practices" to protect the confidentiality, integrity and availability of the information and information systems that it is entrusted with. Employees are required to take annual security training which is re-enforced with continuous phishing email tests. The City uses the NIST-CSF framework to assure compliance with multiple standards, regulations, and other obligations. In addition, to help protect the City against claims and expenses due to a cybersecurity incident, the City maintains cyber insurance.

FORWARD LOOKING STATEMENTS DISCLAIMER

The statements contained in this Official Statement, and in any other information provided by the City, that are not purely historical, are forward-looking statements, including statements regarding the City's expectations, hopes, intentions, or strategies regarding the future. Readers should not place undue reliance on forward-looking statements. All forward-looking statements included in this Official Statement are based on information available to the City on the date hereof, and the City assumes no obligation to update any such forward-looking statements. The City's actual results could differ materially from those discussed in such forward-looking statements.

The forward-looking statements included herein are necessarily based on various assumptions and estimates and are inherently subject to various risks and uncertainties, including risks and uncertainties relating to the possible invalidity of the underlying assumptions and estimates and possible changes or developments in social, economic, business, industry, market, legal, and regulatory circumstances and conditions and actions taken or omitted to be taken by third parties, including customers, suppliers, business partners and competitors, and legislative, judicial, and other governmental authorities and officials. Assumptions related to the foregoing involve judgments with respect to, among other things, future economic, competitive, and market conditions and future business decisions, all of which are difficult or impossible to predict accurately and many of which are beyond the control of the City. Any of such assumptions could be inaccurate and, therefore, there can be no assurance that the forward-looking statements included in this Official Statement will prove to be accurate.

LINKS TO WEBSITES

The City has provided links to websites in this Official Statement to allow investors independent access to information or expertise that may be of value. INFORMATION ON SUCH WEBSITES IS NOT INCORPORATED INTO THIS OFFICIAL STATEMENT BY REFERENCE OR OTHERWISE. The inclusion of any links does not imply a recommendation or endorsement of the information or views expressed within a website. The City has not participated in the preparation, compilation or selection of information or views in any website referenced in this Official Statement, and assumes no responsibility or liability for the information or views, or accuracy or completeness thereof, in any website referenced herein.

MISCELLANEOUS

The Ordinances authorizing the issuance of the Obligations will approve the form and content of this Official Statement, and any addenda, supplement or amendment thereto, and will authorize its further use in the reoffering of the Obligations by the Initial Purchasers.

PRICING OFFICER
City of Denton, Texas

Schedule I

SCHEDULE OF REFUNDED OBLIGATIONS*

Certificates of Obligation, Series 2014

Original Dated Date	Maturity Date	Interest Rate	Principal Amount Outstanding	Principal Amount Refunded
4/15/2014	2/15/2025	5.000%	$ 2,735,000	$ 2,735,000
	2/15/2026	3.000%	2,835,000	2,835,000
	2/15/2027	4.000%	2,950,000	2,950,000
	2/15/2028	3.250%	3,065,000	3,065,000
	2/15/2029	3.500%	3,195,000	3,195,000
	2/15/2030	3.500%	3,355,000	3,355,000
	2/15/2031	4.000%	3,510,000	3,510,000
	2/15/2032	4.000%	3,670,000	3,670,000
	2/15/2033	3.750%	3,840,000	3,840,000
	2/15/2034	3.750%	3,990,000	3,990,000
	2/15/2035	4.000%	2,200,000	2,200,000
	2/15/2036	4.000%	2,315,000	2,315,000
	2/15/2037	4.000%	2,435,000	2,435,000
	2/15/2038	4.000%	2,560,000	2,560,000
	2/15/2039	4.000%	2,690,000	2,690,000
	2/15/2040 (1)	4.000%	2,815,000	2,815,000
	2/15/2041 (1)	4.000%	2,930,000	2,930,000
	2/15/2042 (1)	4.000%	3,050,000	3,050,000
	2/15/2043 (1)	4.000%	3,175,000	3,175,000
	2/15/2044 (1)	4.000%	3,300,000	3,300,000
			$ 60,615,000	$ 60,615,000

The 2025 – 2044 maturities will be redeemed prior to original maturity on _____, 2024* at par.

(1) Represents a Term Bond with a final maturity of February 15, 2044

General Obligation Refunding and Improvement Bonds, Series 2014

Original Dated Date	Maturity Date	Interest Rate	Principal Amount Outstanding	Principal Amount Refunded
4/15/2014	2/15/2025	3.000%	$ 195,000	$ 195,000
	2/15/2026	3.000%	205,000	205,000
	2/15/2027	3.000%	210,000	210,000
	2/15/2028	3.000%	220,000	220,000
	2/15/2029	3.125%	225,000	225,000
	2/15/2030	3.250%	235,000	235,000
	2/15/2031	3.375%	245,000	245,000
	2/15/2032	3.375%	250,000	250,000
	2/15/2033	3.500%	265,000	265,000
	2/15/2034	3.500%	275,000	275,000
			$ 2,325,000	$ 2,325,000

The 2025 – 2034 maturities will be redeemed prior to original maturity on _____, 2024* at par.

_____

* Preliminary, subject to change.

APPENDIX A

GENERAL INFORMATION REGARDING THE CITY

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Finance Department
215 E. McKinney St., Denton, TX 76201 • (940) 349-8531

March 12, 2024

The Honorable Mayor, Members of the City Council and Citizens
City of Denton
Denton, Texas

It is with great pleasure that we present to you a copy of the Annual Comprehensive Financial Report (ACFR) of the City of Denton (the City) for the fiscal year ended September 30, 2023. The purpose of the report is to provide the City Council, management, citizens, and other interested parties with detailed information concerning the City's financial condition.

THE REPORT

The Texas Local Government Code (§ 103.001) requires an annual audit for municipalities. In addition, the City Charter (Section 2.13) requires a Certified Public Accountant who, as of the end of the fiscal year, shall make an "independent audit of accounts" and prepare a report to the City Council and the City Manager. This document fulfills the above-mentioned requirements, and the independent auditor's opinion is included in the report for the fiscal year ended September 30, 2023.

The ACFR is presented in three main sections: Introductory, Financial, and Statistical. The Introductory Section includes this transmittal letter, the City's organizational chart, and a list of principal officials. The Financial Section includes the Management's Discussion and Analysis (MD&A), Basic Financial Statements, Required Supplementary Information, Combining and Individual Fund Financial Statements, along with the independent auditors' report. The Statistical Section and Other Supplementary Information include selected financial and demographic information, generally presented on a multi-year basis.

The responsibility for both the accuracy of the presented information and the completeness and fairness of the presentation of the data, including all disclosures, rests with the City, and is based upon a comprehensive framework of internal control established for this purpose. Because the cost of internal control should not exceed anticipated benefits, the objective is to provide reasonable, rather than absolute, assurance the financial statements are free of any material misstatements. To the best of our knowledge and belief, the enclosed data is accurate in all material respects and is reported in a manner designed to fairly present the results of our operations in each of the various funds reported by the City. All disclosures necessary to enable the reader to gain an understanding of the City's financial activities have been included.

The accounting firm of Weaver and Tidwell, LLP. has issued an unmodified opinion on the City of Denton's financial statements for the period ended September 30, 2023. As a recipient of federal and state grant awards, a separate audit is prepared to meet the requirements of the Single Audit Act Amendments of 1996 and related Uniform Guidance. As a part of the City's single audit, tests are conducted to determine that the City has complied with applicable laws and regulations related to federal awards.

Management's Discussion and Analysis (MD&A) immediately follows the independent auditors' report and provides a narrative introduction, overview, and analysis of the basic financial statements. The MD&A complements this letter of transmittal and should be read in conjunction with it.

CITY OF DENTON PROFILE

Denton distinguishes itself from other cities in North Texas through its vibrant arts and culture scene, robust university partnerships, dynamic community collaborations, and commitment to 100% renewable energy. Originally incorporated on September 26, 1866, Denton has evolved from a serene college town on the outskirts of the Dallas-Fort Worth metroplex into one of the fastest-growing cities in the United States, with a current

population of approximately 150,000. This figure is projected to reach 229,192 by 2040, according to U.S. Census Bureau forecasts. Denton combines a reverence for its history with an eagerness to innovate. The City of Denton is in the northern portion of the Dallas/Fort Worth Consolidated Metropolitan Statistical Area (CMSA). The City is a part of the Dallas/Fort Worth Metroplex and is situated at the apex of a triangle based by Dallas (37 miles to the southeast) and Fort Worth (35 miles to the southwest) providing excellent access to and from all parts of the area. The heart of the city's urban core is anchored by a vibrant cultural arts district within Downtown Denton as well as three university campuses. The community is also recognized for its commitment to sustainability and environmental stewardship, in addition to its focus on health and wellness, highlighted by over 5,000 acres of parkland, more than 60 hiking trails, and numerous recreational facilities.

CITY SERVICES AND ORGANIZATION OF THE GOVERNMENT

The City is a home rule city and operates under the Council-Manager form of government. The elected seven-member council consists of a Mayor and six Council Members. The Mayor and two Council Members are elected at large, while the remaining representatives are elected from single member districts. The City Council enacts local laws, determines policy, and adopts the annual budget, and the City Manager is the chief executive officer for the City.

The City provides a full range of general government services to its citizens including: public safety (police and fire protection); public works (construction and maintenance of highways, streets and infrastructure); parks and recreation; library; planning and zoning; economic development; and general administrative services. The City's enterprise fund operations consist of a utility system, solid waste, and airport operations. The City's utility system provides electric, water, and wastewater services.

The internal service operations consist of Materials Management, Fleet Services, Risk Retention, Health Insurance, Engineering Services, Technology Services, Customer Service, and Facilities funds. The Materials Management Fund accounts for the financing of Warehouse and Purchasing services which are provided to other City departments. The Fleet Services Fund accounts for the financing of goods and services provided by the municipal garage to other departments within the City. The Risk Retention Fund accounts for the accumulation of resources for the payment of workers' compensation, general liability claims, and insurance policies. The Health Insurance Fund accounts for administration of the self-insurance program for health coverage in the City. The Engineering Services Fund accounts for the provision of internal engineering services to various City operations and capital projects. The Technology Services Fund provides support for the various information and computer systems within the City. The Customer Service Fund accounts for the financing of customer service activities provided to the residents and businesses of the City on behalf of other departments within the City. The Facilities Management Fund is responsible for maintaining all city-owned facilities and vertical construction projects. The financial statements presented include all government activities, organizations, and functions for which the City is financially accountable as defined by the Governmental Accounting Standards Board (GASB).

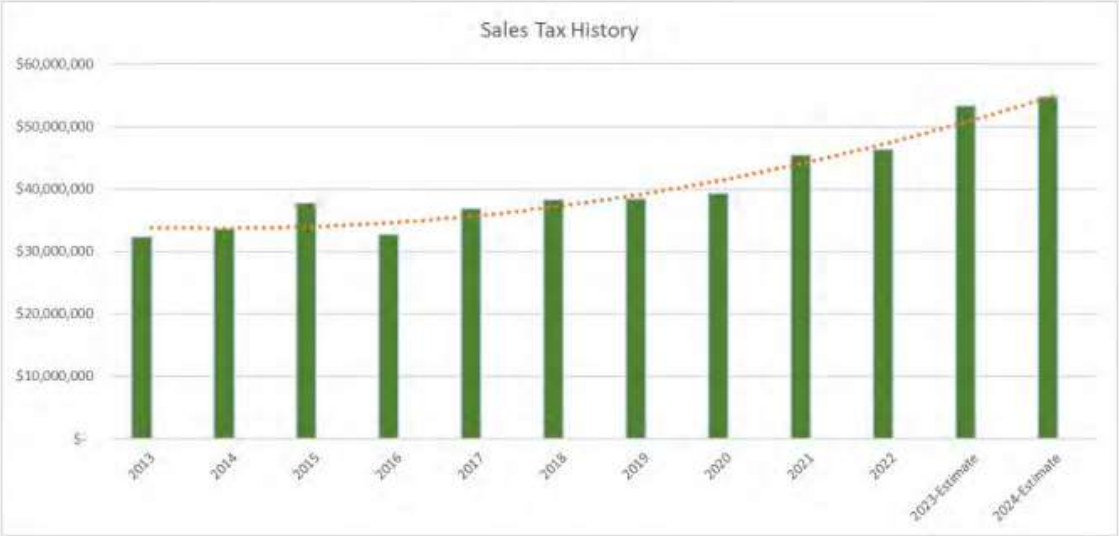
LOCAL ECONOMY

As the Dallas Ft. Worth Metroplex continues to grow, the City of Denton is seeing increased growth. In Fiscal year 2022-23, the City continued to see an increase in development and economic activity, resulting in strong property tax collection, sales tax collection, and an increase in return on investment (ROI) revenue from city utilities. Greater than one-third of the total General Fund revenue is generated from ad valorem taxes. As shown below, the 2023 certified value increased by 15.05% or $2,522,956,725 (excluding TIRZ) from the 2022 certified value. Analysis of the increase shows there was approximately $1.02 billion in new value added to the appraisal roll due to new growth and construction. The City received a certified total from the Denton County Appraisal District (DCAD) with only 1.3% of properties still under protest. The low amount of protested value helps create more certainty in the revenue forecast. Below is a chart with a detailed breakdown of certified values:

	2022 Certified Total AV	2023 Certified Total AV	Increase (Decrease)	Percent Change	New Value
General Government	$16,764,866,572	$19,287,823,297	$2,522,956,725	15.05%	$1,023,634,611
Downtown TIRZ[1]	$154,545,050	$164,000,321	$9,455,271	6.12%	$838,845
Westpark TIRZ[2]	$109,275,972	$157,617,172	$48,341,200	44.24%	$28,435,571
Total	$17,028,687,594	$19,609,440,790	$2,580,753,196	15.16%	$1,052,909,027

[1] Downtown TIRZ – Reflects 90% of incremental value which changed in FY 2023 per Ordinance No. 2010-316.
[2] Westpark TIRZ – Reflects 40% of incremental value through FY 2037 per Ordinance No. 2013-033.

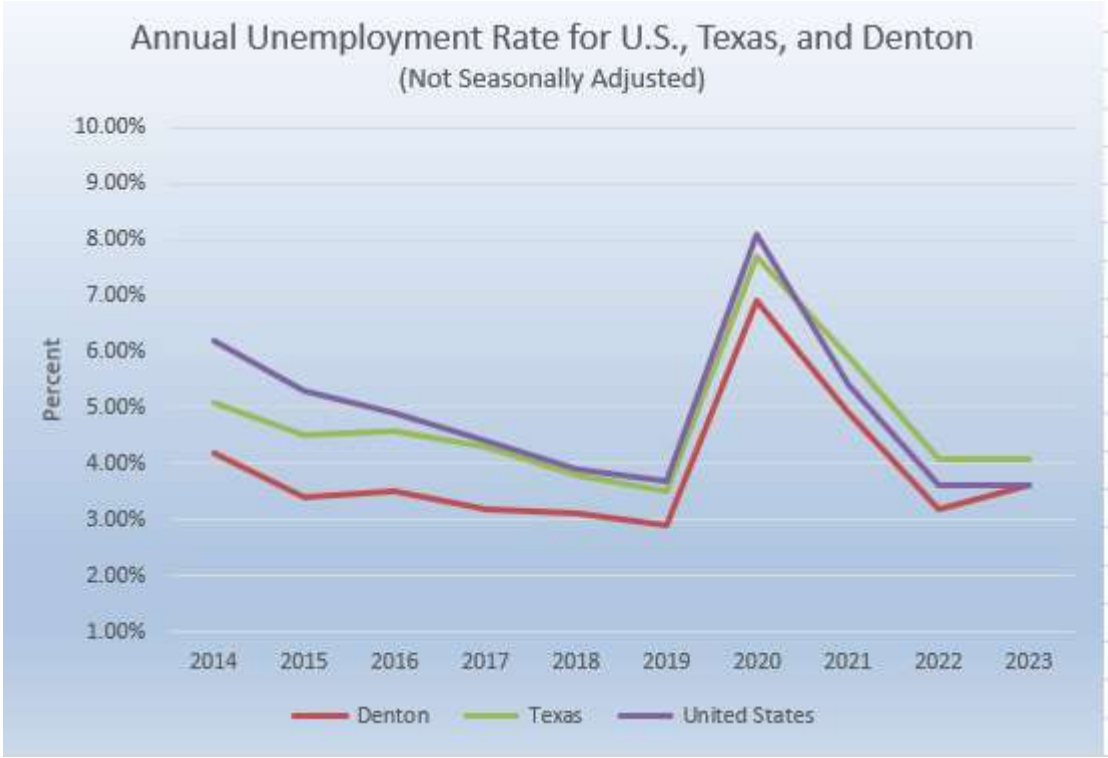
Sales tax represents approximately 34.86% of overall revenue in the General Fund, sales tax is a significant revenue source that is dependent upon a variety of economic factors. For FY 2022-23, total sales tax revenues equaled $55,906,340 which is $2,641,616 or 5.0%, more than the prior year collections of $53,264,724. The anticipated FY 2023-24 collections total $57,545,000 which is 1.50% above the FY 2022-23 estimated collection. The chart below illustrates collections over the prior ten-year period with an estimate of collection in FY 2023-24.

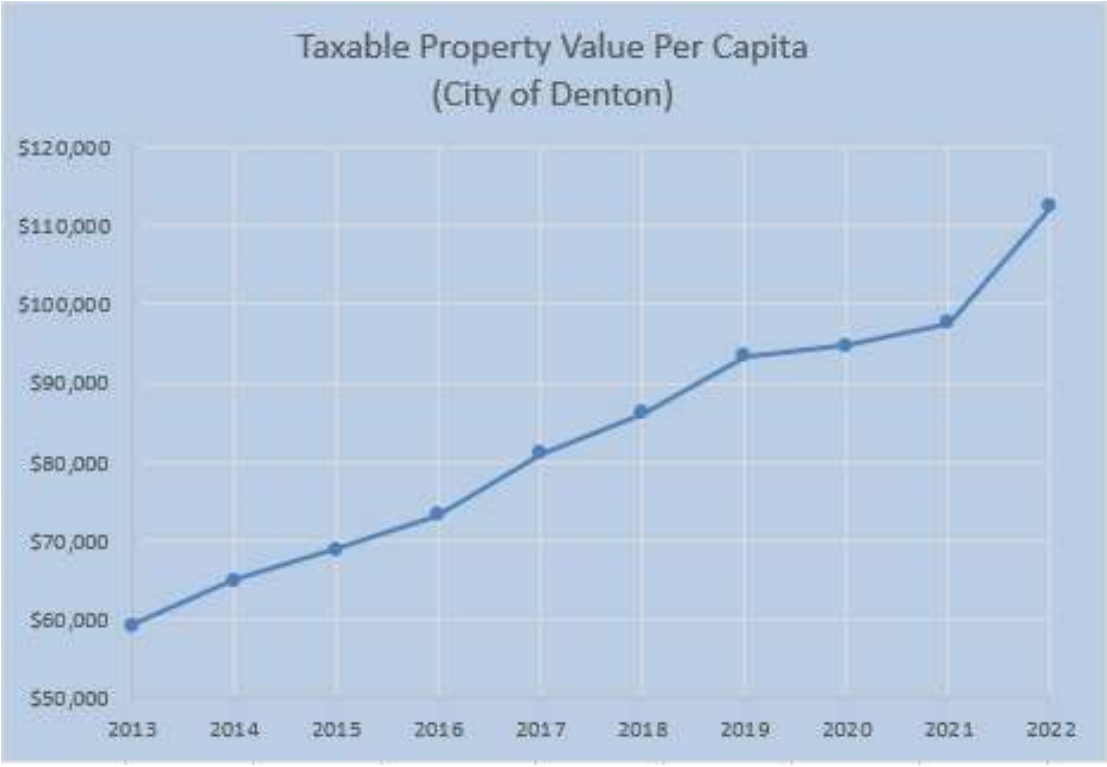


From a budgetary basis, the General Fund received $173.7 million in revenue and incurred $174.4 million in expenses resulting in a change in fund balance of $0.7 million.

The City of Denton's not seasonally adjusted annual unemployment average rate remains below state and on par with national levels at an average 3.6 percent in 2023 which has slightly increased compared to 3.2 percent average in FY2021-2022. The City of Denton issued 2,203 residential, commercial, multi-family building permits for FY2022-23, with an estimated value of $1,352 million (excluding City building, County buildings, schools, and churches). This compares to a total of 2,818 issued for FY2021-22 with an estimated value of $1,392 million. The overall permit numbers were down; primarily in single family residential, however values remain consistent due to an increase in multifamily housing.

The following two charts highlight the strength of the local economy over the last ten years by displaying the City of Denton's unemployment rate compared to Texas and the United States and the taxable property values per capita in the City of Denton.





https://data.bls.gov/timeseries/LNS14000000
https://texaslmi.com/
Accessed 2-15-24

Fiscal year 2022-23 the City continued to see indicators of a strong economic and development activity. Listed below are just a few of the highlights:

- The Rayzor Ranch mixed-use development is located on both the north and south sides of US Highway 380 in Denton. Rayzor Ranch Marketplace, on the north side of the development, has constructed over 500,000 square feet of retail and commercial space. Sam's Club and Wal-Mart anchor the development that includes Ulta Beauty, Starwood Cafe and Hanasato Sushi, as recent tenant additions. Home Depot is also under construction in the Marketplace. The Town Center also includes the Embassy Suites Hotel and Convention Center described in more detail below. In addition, a new 300-unit multifamily project, the Village at Rayzor Ranch, opened in late 2019, and construction began in 2020 and opened in 2021, on the Residences at Rayzor Ranch, a 40-acre site that will include 215 town homes,65 single family homes and 31 single-family homes. They began leasing three and four bedroom town homes this past summer. Cava Mezze Grill and Growler Bar are new restaurant tenants at the Town Center. Recent developments include an At Home and a future 148,000 square foot and $22.7 million Target store.
- O'Reilly Hotel Partners Denton (OHPD) opened the 70,000-square-foot Convention Center, 318-room LEED Gold Certified Embassy Suites Hotel and Houlihan's restaurant project in January 2018. The property was designated as a "2019 AAA Inspector's Best of Housekeeping Hotel," which ranks the hotel in the top 25% of 27,000 inspected hotels. In 2019, Hilton Worldwide recognized the Embassy Suites Denton Hotel and Convention Center as the #1 in Brand 2019 Connie Award winner, the highest distinction across all 17 Hilton Worldwide brands and the 258 eligible properties. As a major anchor for the Rayzor Ranch Town Center, the project capitalizes on the shopping, entertainment, and restaurants located nearby. The privately managed convention center is also expected to expand the City's convention business and overall tourism industry.
- Denton continued to see positive growth in the tech industry in FY 2022-23. Denton's coworking space and entrepreneur center, Stoke Denton, continues to serve as a training and mentorship hub. Stoke and Texas Woman's University (TWU) Center for Women Entrepreneurs (CWE) launched an incubator program, AccelerateHER. They accepted 8 entrepreneurs into the fourth round of the program who will participate in 5 months of workshops, mentorship and coaching to help support and grow their businesses. Twenty-six new members joined toke in 2022-2023 including 8 from the AccelerateHER cohort. Stoke hosted a Startup Crawl; Big Ideas Creative Mixer; the second and expanded Denton Pitch Competition and Expo; and the Flint Conference at Sunago Bell.
- Infill development in the downtown core includes a 60-80-unit multi-family development located in the current parking lot at 216 W. Mulberry Street. The project will utilize part of the former DATCU drive through. Lang Partners is developing the Railyard mixed-use Transit Oriented Development (TOD) near the Denton County Transit Authority (DCTA) station and former Trinity Industries site. The Railyard will include over 700 multi-family units that will occur over three phases of development. These projects will act as catalysts for future infill and TOD in Downtown Denton.
- A number of projects, which will total over 3 million square feet, are currently underway in the Westpark Tax Increment Reinvestment Zone (TIRZ) and industrial area.
  - Ironwood Realty Partners and Scannell Properties have partnered on an industrial project, Denton Crossing @ I-35, which will house approximately 1.2 million square feet of industrial speculative space along Western Boulevard. There will be a total of four buildings upon completion. Buildings 1 and 2 will have just under 700,000 square feet. Building 2 has completed construction. Building 3 is currently under construction and will comprise up to 398,000. Building 4 has been constructed and has 127,000 square feet of warehouse space. Elite Materials Logistics plans to occupy a building in phase 2 of the development.
  - Cowboy Distribution, a warehouse/distribution center facility on 10 acres north of Jim Christal Road and east of N. Western Boulevard, is in the platting stage.
  - Exeter has completed a building comprising 649,000 square feet, where W. Oak Street and Jim Christal meet, that will be the newest distribution center for Lowe's Home Improvement. Exeter is also constructing three buildings at the northeast corner of Western Blvd. and Jim Christal.

Construction has been competed for Building 3. The square footage of these buildings are 324,000 square feet, 421,000 square feet, and 1,076,000 square feet.

- Hunt Southwest is developing 23-acre site on S. Western Boulevard at Jim Christal Road at the I-35 Convergence. It is planned to have 250,080 square feet of warehouse space with a proposed build-to-suit on seven of the acres, for a 227,420 square foot building.
- Westpark Industrial, a 16-acre parcel, will include two speculative buildings at just over 100,000 square feet each. 251 N Western.
- Denton Point is comprised of two buildings totaling 242,320 square feet. Building 2 is a 130,000 SF facility located along Western Boulevard. Denton Point is a rail-served development for manufacturing and supply chain uses. Westcore, based in San Diego, purchased Denton Point for $32 million. Denton 1 is occupied by a shipping and logistics operation, DHL.Westpark Industrial is located on a 15-acre parcel on S. Western Boulevard, south of the Tyson plat, that is divided into two sites that each have speculative buildings at totaling 242,378 square feet.

FINANCIAL INFORMATION AND FINANCIAL POLICY

The City's financial direction begins with the City's Charter, which is the basis for all financial policies the City implements. The City maintains financial policies for general operations, which include policies for financial management and fund balances, budget compliance, debt issuance and management, accounts payable, water service, and purchasing, among others.

The City's accounting records for general governmental operations are maintained on a modified accrual basis, with revenues being recorded when available and measurable, and expenditures being recorded when the liability is incurred. Proprietary (including Internal Service Funds) operations are maintained on a full accrual basis.

The City's Annual Operating Budget is proposed by the City Manager and approved by the City Council following public discussion. The City's Charter requires adoption of the City's budget by no later than September 30th. The budget structure is organized by funds. Normally, funds are segregated for the purpose of carrying on specific activities or attaining certain objectives in accordance with special regulations, restrictions, or limitations. The two types of funds utilized in the budget are Governmental and Proprietary (including Internal Service Funds). Budgetary control is maintained at the fund level by the Finance Department. All legally required funds are budgeted annually. The specific funds that make up the Governmental Fund type are General Fund, General Debt Service Fund, Street Improvement Fund, Tourist and Convention Fund, Police Confiscation Fund, Catalyst Fund (formerly Economic Development Investment Fund)*, Parks Gas Well Fund, Roadway Impact Fee Fund, Tree Mitigation Fund, Public Education Government (PEG) Fund, McKenna Trust Fund, Park Land Dedication and Development Trust Funds, Downtown Tax Increment Reinvestment Zone (TIRZ) Fund, Westpark Tax Increment Reinvestment Zone (TIRZ) Fund, Miscellaneous Special Revenue Funds, and Sustainability Framework Fund. The Proprietary Fund types are Electric Fund, Water Fund, Wastewater Fund, Solid Waste Fund, Customer Service Fund, Airport Fund, Technology Services Fund, Materials Management Fund, Fleet Management Fund, Health Insurance Fund, Risk Retention Fund, Engineering Services Fund and Facilities Management.

LONG-TERM FINANCIAL PLANNING

In conjunction with this document, interested parties are encouraged to read the City of Denton's FY 2023-24 Annual Budget document. This document details the City's strategic plan, long-term financial policies, program accomplishments, and other key initiatives. The document also includes the long-term financial forecasts for each of the major funds, and a summary of the assumptions that are included in these plans. In addition, the budget document provides an overview of the adopted Capital Improvement Program and planned future debt issuances. The Annual Budget can be accessed through the City's web site at www.cityofdenton.com and selecting Financial Transparency under the "Open Government" link.

RELEVANT FINANCIAL POLICIES

The City of Denton maintains reserve balances for emergencies. In the General Fund, the target reserve level is a minimum of 20% of budgeted expenditures with an additional 5% resiliency reserve for a combined total of 25% to provide stability and flexibility for the organization. As described in the accompanying ACFR document, the unassigned fund balance is $44.6 million, or 24.2%, of the budgeted General Fund expenditures for the fiscal year ended September 30, 2023.

Beginning in FY 2011-12, the City adopted a policy which requires a minimum ending working capital balance (current assets minus current liabilities) of at least 8% of budgeted expenditures for the Electric, Water, Wastewater and Solid Waste Funds. If the working capital level should fall below the desired minimum, the City will implement necessary corrective action with a five-year plan to restore the working capital balance to 8% of budgeted expenditures.

Additionally, rate reserve levels were established for the Electric, Water, Wastewater, and Solid Waste Funds in FY 2011-12 according to the unique operational aspects of each utility. The rate reserve levels were most recently revised in FY 2020-21 based on the factors of revenue stability, expense and demand volatility, infrastructure age, debt levels and management plans for the use of these reserves. The rate reserve level is established at a range of 38% to 61% of expenses for the Electric Fund, at a range of 20% to 31% of expenses for the Wastewater Fund, at a range of 25% to 42% of expenses for the Water Fund, and at a range of 6% to 10% of expenses for the Solid Waste Fund. If the rate reserve level falls below the range, the City will implement the necessary corrective action within a five-year plan to restore the balances to the levels outlined above.

The City of Denton has adopted an Investment Policy which guides the investment of all City funds. In accordance with State law, the policy is reviewed annually by the City Council to ensure that public funds are being invested in a conservative and prudent fashion. In addition, the City also annually reviews and approves a Debt Management policy. The purpose of this policy is to provide general guidelines regarding the issuance of City debt and the use and limitation of such debt. The City complied with all aspects of the Investment and Debt Management policies during FY 2022-23.

MAJOR INITIATIVES

The City's Strategic Plan and Council specifically identified improving facility infrastructure as a major goal. In response to this goal, the FY 2023-24 Budget includes additional issuance of General Obligation Bonds. This increase in funding shows the City's continued commitment to facility infrastructure and equipment funding.

The combination of increased operating funding along with the issuance of debt shows the strong commitment to improving our infrastructure. In the future, the City staff will continue efforts to identify additional funding for facility infrastructure and equipment funding activities along with potential future debt issuances for street reconstruction to continue to improve the condition of the City's streets over the long term.

AWARDS AND ACKOWLEDGEMENTS

The Government Finance Officers' Association (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the City for its Annual Comprehensive Financial Report for the fiscal year ended September 30, 2022, for the thirty-seventh consecutive year. To be awarded the Certificate of Achievement in Financial Reporting, the City must publish an easily readable and efficiently organized Annual Comprehensive Financial Report. This report satisfies both generally accepted accounting principles and applicable legal requirements. The Certificate of Achievement is held for a period of one year only. We believe our current Annual Comprehensive Financial Report continues to meet the Certificate of Achievement requirements, and we are submitting it to GFOA to determine its eligibility for another certificate.

The City also received the GFOA award for Distinguished Budget Presentation for its fiscal year 2022-23 Annual Budget for the thirty-sixth consecutive year. To qualify for the Distinguished Budget Presentation Award, the City's budget document was judged according to its compliance with specific guidelines established by GFOA. These guidelines help ensure that Denton's budget is distinguished as an operations guide, financial plan, policy document, and communications device. The City has submitted its fiscal year 2023-24 Annual Budget to GFOA to determine its eligibility for another certificate. We believe it continues to meet the Distinguished Budget Presentation Award criteria.

The City received a Certificate of Distinction from the Government Treasurers of Texas (GTOT). The distinction was received for developing an investment policy that meets the requirements of the Public Funds Investment Act and the standards for prudent public investing as established by the GTOT. The GTOT awards an estimated 38 distinctions annually, which the City has received seven times since 1999.

In 2023, City of Denton was awarded the Five Transparency Stars by the Texas Comptroller, which recognizes cities, counties, special purpose districts and school districts to provide easy online access to important financial data. The City of Denton is only one of 14 local government in Texas to receive all five transparency stars. Transparency Stars are granted and maintained on an ongoing basis.

We would like to thank the City Council for their strong leadership and support that helped make the presentation of this report possible. We would also like to thank the City Manager, Finance staff, department directors, division heads and especially the Accounting Division staff for their diligent efforts in the preparation of the annual financial report.

Cassandra Ogden
Assistant City Manager

Jessica Williams
Chief Financial Officer, MPA, CPFO

APPENDIX B

EXCERPTS FROM THE

CITY OF DENTON, TEXAS

ANNUAL COMPREHENSIVE FINANCIAL REPORT

For the Year Ended September 30, 2023

The information contained in this Appendix consists of excerpts from the City of Denton, Texas Annual Comprehensive Financial Report for the Year Ended September 30, 2023, and is not intended to be a complete statement of the City's financial condition. Reference is made to the complete Report for further information.

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Independent Auditor's Report

To the Honorable Mayor
and Members of the City Council of the
City of Denton, Texas

Report on the Audit of the Financial Statements

Opinions

We have audited the financial statements of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of the City of Denton, Texas (City), as of and for the year ended September 30, 2023, and the related notes to the financial statements, which collectively comprise the City's basic financial statements as listed in the table of contents.

In our opinion, the accompanying financial statements present fairly, in all material respects, the respective financial position of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of the City, as of September 30, 2023, and the respective changes in financial position and, where applicable, cash flows thereof and the respective budgetary comparison for the General Fund for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS) and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States (*Government Auditing Standards*). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the City and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Emphasis of Matter

As discussed in Note I(18) to the basic financial statements, during the year ended September 30, 2023, the City implemented Governmental Accounting Standards Board (GASB) Statement No. 96, *Subscription-Based Information Technology Arrangements*. Our opinions are not modified with respect to this matter.

Responsibilities of Management for the Financial Statements

The City's management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the City's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Weaver and Tidwell, L.L.P.
2300 North Field Street, Suite 1000 | Dallas, Texas 75201
Main: 972.490.1970

CPAs AND ADVISORS | WEAVER.COM

The Honorable Mayor and
Members of the City Council of the
City of Denton, Texas

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the City's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the City's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control–related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and the required supplementary information, as listed in the table of contents, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with GAAS, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

The Honorable Mayor and
Members of the City Council of the
City of Denton, Texas

Supplementary Information

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the City's basic financial statements. The combining and individual fund financial statements and schedules, as listed in the table of contents, are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The combining and individual fund financial statements and schedules are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with GAAS. In our opinion, the other supplementary information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Other Information Included in the Annual Comprehensive Financial Report (ACFR)

Management is responsible for the other information included in the ACFR. The other information comprises the introductory and statistical sections but does not include the basic financial statements and our auditor's report thereon. Our opinions on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated March 12, 2024 on our consideration of the City's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the City's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the City's internal control over financial reporting and compliance.

Weaver and Tidwell, L.L.P.

WEAVER AND TIDWELL, L.L.P.

Dallas, Texas
March 12, 2024

CITY OF DENTON

Introduction

The Management's Discussion and Analysis is designed to (a) assist the reader in focusing on significant financial issues, (b) provide an overview of the City's financial activity, (c) identify changes in the City's financial position (its ability to address the next and subsequent years' challenges), (d) identify any material deviations from the financial plan (the approved budget), and (e) identify individual fund issues or concerns.

This narrative should be read in conjunction with the transmittal letter at the beginning of the report and the financial statements following this section.

Financial Highlights

- The assets and deferred outflows of the City exceeded its liabilities and deferred inflows at the close of the fiscal year ended September 30, 2023 by $1,549,081,740 (net position), an increase of 5.16 percent from prior year net position. Of this amount, $195,199,155 (unrestricted net position) may be used to meet the government's ongoing obligations to citizens and creditors.
- Net Pension Liability of the City is $137,889,556, as compared to $42,110,536 for the year ended September 30, 2022. Governmental Accounting Standards Board Statement No. 68, *Accounting and Financial Reporting for Pensions,* requires the City to report its net pension liability for participation in Texas Municipal Retirement System (TMRS) of the total Net Pensions Liability reported by the TMRS. As a result of recording the increase in the City's portion of net pension liability of $95,779,020, a decrease in deferred pension inflows of $49,630,391, and an increase in deferred pension outflows of $40,721,220.
- Governmental activities general and transfer revenues were $212,974,156 as compared to $185,360,068 for the year ended September 30, 2022. The increase of $27,614,088 is primarily driven by an increase in investment income, sales tax revenues, property tax, and franchise fees. Business-type activity general revenues and transfers were positive $13,372,331 compared to negative $3,268,523 for the year ended September 30, 2022. The increase is primarily driven by investment revenue.
- Governmental funds reported combined ending fund balances of $253,289,181 as of September 30, 2023 which is an increase of $15,228,014 from fiscal year 2021-2022 ending fund balance total of $238,061,167.
- The City's primary General Fund resources are property taxes, sales tax, and franchise fees. These combined resources account for 88.3 percent of total General Fund revenues which decreased 3.93 percent compared to last year's results.
- The City's long-term liabilities outstanding increased by $218,536,143 in fiscal year 2022-2023. The increase is primarily attributable to an increase of $109,886,602 of Certificates of Obligation and General Obligations Bonds Payable and the increase in net pension liability described above.

OVERVIEW OF THE FINANCIAL STATEMENTS

The Management's Discussion and Analysis is intended to serve as an introduction to the City of Denton's basic financial statements. The City's basic financial statements are comprised of three components: (1) government-wide financial statements, (2) fund financial statements and (3) notes to the financial statements. This report also contains other supplementary information in addition to the basic financial statements themselves.

Government-wide Financial Statements. The government-wide financial statements are designed to provide readers with a broad overview of the City's finances in a manner similar to a private-sector business.

The statement of net position presents information on all of the City's assets, liabilities, deferred inflows, and deferred outflows with the difference reported as net position. Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position of the City is improving or deteriorating.

The statement of activities presents information showing how the City's net position changed during the most recent fiscal year. All of the current year's revenues and expenses are considered regardless of when cash is received or paid. Thus, revenues and expenses are reported in this statement for some items that will only result in cash flows in future fiscal periods (e.g., uncollected taxes and earned but not used vacation leave). Both the statement of net position and the statement of activities are prepared using the accrual basis of accounting as opposed to the modified accrual basis.

In the Statement of Net Position and the Statement of Activities, the City is divided between two kinds of activities:

- **Governmental activities**. Most of the City's basic services are reported here, including police, fire, libraries, development, public services and operations, public works, building inspection, technology services and general administration. Property taxes, sales taxes, and franchise fees finance most of these activities.
- **Business-type activities**. The City charges a fee to customers to cover the cost of services it provides. The City's utility systems (electric, water and wastewater), solid waste, and airport activities are reported here.

Fund Financial Statements. A fund is a grouping of related accounts used to maintain control over resources that have been segregated for specific activities or objectives. Fund financial statements provide detailed information about the most significant funds, not the City as a whole. Some funds are required to be established by state law or bond covenants. However, the City Council establishes many other funds to help control and manage money for particular purposes or to show that it is meeting legal responsibilities for using certain taxes, grants and other monies. The following illustration summarizes the major features the City's financial statements. The City of Denton's funds are categorized as governmental, proprietary funds or fiduciary funds.

- **Governmental funds**. The majority of the City's basic services are reported in governmental funds, which focus on how money flows into and out of those funds and the balances left at year-end that are available for spending. These funds are reported using an accounting method identified as the modified accrual basis of accounting, which measures cash and all other financial assets that can readily be converted to cash. The governmental fund statements provide a detailed short-term view of the City's general government operations and the basic services it provides. Governmental fund information helps the reader determine whether there are more or fewer financial resources that can be spent in the near future to finance the City's programs. By comparing information presented for governmental funds with similar information presented for governmental activities in the government-wide financial statements, readers may better understand the long-term impact of the government's near-term financing decisions. The relationship or differences between governmental activities (reported in the Statement of Net Position and the Statement of Activities) and governmental funds are detailed in a reconciliation following the fund financial statements.

  The City of Denton maintains thirteen governmental funds. Information is presented separately in the governmental funds balance sheet and in the governmental funds statement of revenues, expenditures and changes in fund balances for the general fund, debt service fund, capital projects fund, and ARPA fund, all of which are considered to be major funds. Data from the other nine governmental funds are combined into a single, aggregated presentation. Individual fund data for eight of these non-major governmental funds, along with an aggregate of all other governmental funds, is provided in the form of combining statements elsewhere in this report.

- **Proprietary funds**. The City charges customers for certain services it provides, whether to outside customers or to other units within the City. These services are generally reported in proprietary funds. Proprietary funds are reported in the same manner that all activities are reported in the Statement of Net Position and the Statement of Activities. The City's enterprise funds are similar to the business-type activities that are reported in the government-wide statements but provide more detail and additional information, such as cash flows. The City's internal service funds are used to accumulate and allocate costs internally among the City of Denton's various functions. Both enterprise funds and internal service funds are components of proprietary funds.

The City of Denton maintains five enterprise funds. The City uses enterprise funds to account for its electric, water, wastewater, solid waste, and airport operations. The individual funds provide the same type of information as the government-wide financial statements only in more detail. The City considers all enterprise funds to be major funds.

The City of Denton maintains eight internal service funds. The City uses internal service funds to account for materials management, fleet services, health insurance, risk retention, technology services, engineering services, customer service, and facilities management. Because these services benefit both governmental and business-type functions, they have been included in both the governmental and business-type activities in the government-wide financial statements. Individual fund data for the internal service funds are provided in the form of combining statements in the combining and individual fund statements and schedules section of this report.

Notes to the financial statements.
The notes provide additional information that is essential to a full understanding of the data provided in the government-wide and fund financial statements.

Other Information.
The combining nonmajor fund statements and individual fund schedules are presented immediately following the notes to the financial statements.

GOVERNMENT-WIDE FINANCIAL ANALYSIS

As of September 30, 2023, the City's combined net position was $1,549,081,740 of which $446,287,278 can be attributed to governmental activities and $1,102,794,462 attributed to business-type activities. This analysis focuses on the net position (Table 1) and changes in net position (Table 2) of the City's governmental and business-type activities.

The largest portion of the City's net position (78.5%) reflects its investment in capital assets (e.g., land, building, machinery and equipment), less any related debt used to acquire those assets that is still outstanding. The City uses these capital assets to provide services to citizens; consequently, these assets are not available for future spending. Although the City's investment in its capital assets is reported net of related debt, it should be noted that the resources needed to repay this debt must be provided from other sources, since the capital assets themselves cannot be used to liquidate these liabilities.

Table 1
Net Position
(in thousands)

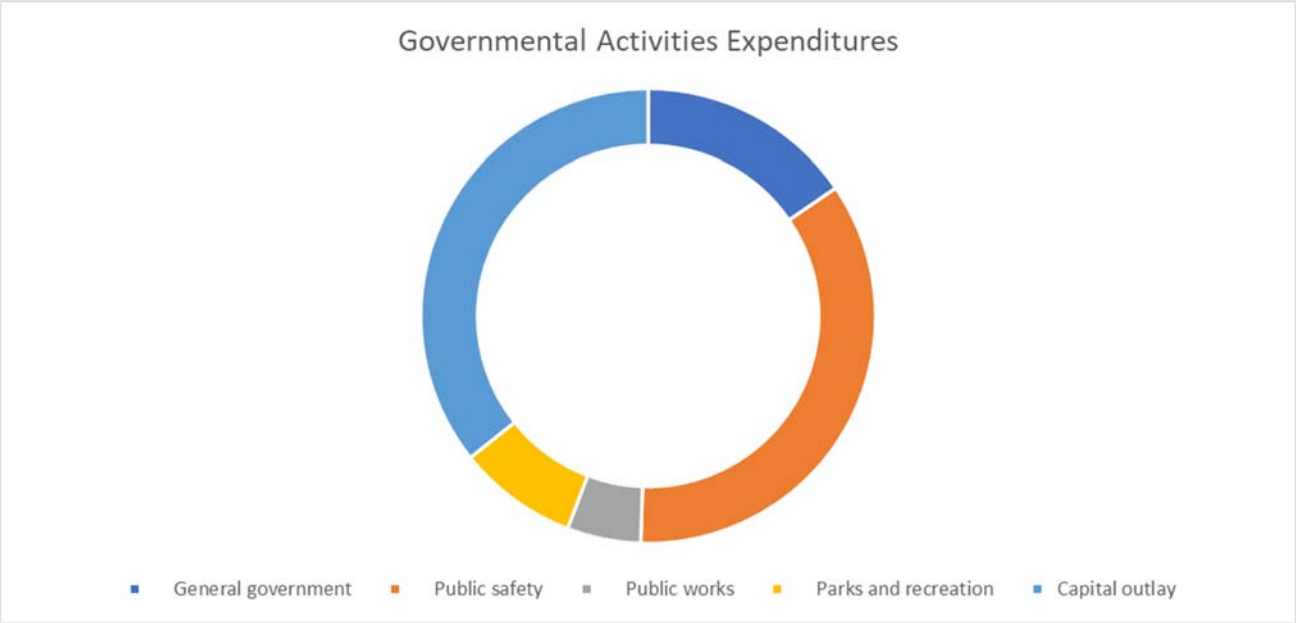
	Governmental Activities		Business-type Activities		Total	
	2023	2022	2023	2022	2023	2022
Current and other assets	$ 359,378	$ 362,233	$ 719,477	$ 709,978	$ 1,078,855	$ 1,072,211
Capital assets, net of accumulated depreciation/amortization	706,397	624,510	1,567,873	1,441,274	2,274,269	2,065,784
Total assets	1,065,775	986,743	2,287,350	2,151,252	3,353,124	3,137,995
Deferred outflows of resources	59,533	33,111	24,657	11,800	84,190	44,911
Long-term liabilities outstanding	579,628	465,067	1,152,527	1,048,553	1,732,155	1,513,620
Other liabilities	87,896	104,658	48,810	32,694	136,706	137,352
Total liabilities	667,524	569,725	1,201,337	1,081,247	1,868,861	1,650,972
Deferred inflows of resources	11,497	43,036	7,874	15,892	19,371	58,928
Net position:						
Net investment in capital assets	394,899	368,485	820,951	773,134	1,215,850	1,141,619
Restricted	42,216	35,793	95,817	73,714	138,033	109,507
Unrestricted	9,172	2,815	186,027	219,065	195,199	221,880
Total net position	$ 446,287	$ 407,093	$ 1,102,795	$ 1,065,913	$ 1,549,082	$ 1,473,006

Governmental activities increased the City's net position by $39,194,017. Business-type activities increased the City's net position by $36,881,172. The key elements of these increases are contained in Table 2.

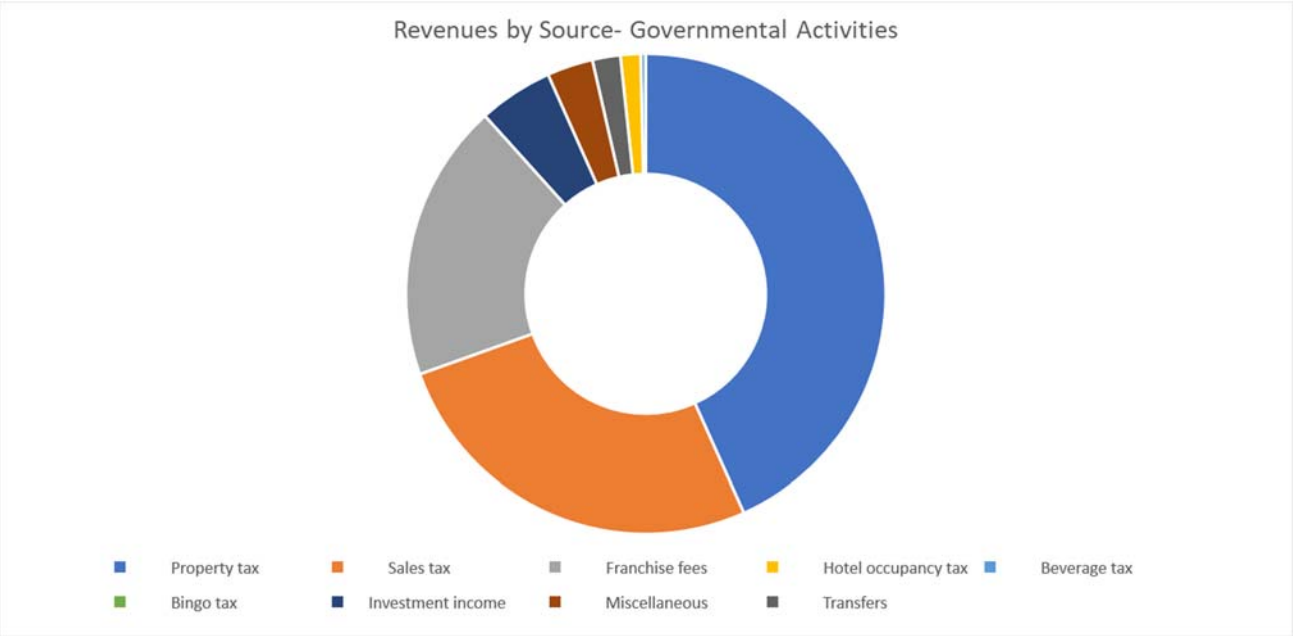
Table 2
Changes in Net Position
(in thousands)

	Governmental Activities		Business-type Activities		Total	
	2023	2022	2023	2022	2023	2022
Revenues:						
Program Revenues:						
Charges for services	$ 23,704	$ 25,204	$ 483,377	$ 449,116	$ 507,081	$ 474,320
Operating grants and contributions	10,624	9,545	-	-	10,624	9,545
Capital grants and contributions	27,352	34,407	28,043	52,663	55,395	87,070
General Revenues:						-
Property tax	92,186	79,553	-	-	92,186	79,553
Sales tax	55,906	53,265	-	-	55,906	53,265
Franchise tax	39,963	38,132	-	-	39,963	38,132
Hotel occupancy tax	2,895	3,684	-	-	2,895	3,684
Beverage tax	707	671	-	-	707	671
Bingo tax	17	15	-	-	17	15
Investment income (loss)	11,030	(973)	17,370	(647)	28,400	(1,620)
Gain on sale of capital assets	-	565	19	292	19	857
Miscellaneous	6,252	7,534	-	-	6,252	7,534
Total revenues	270,636	251,602	528,809	501,424	799,445	753,026
Expenses:						
General government	53,383	40,370	-	-	53,383	40,370
Public safety	104,695	87,971	-	-	104,695	87,971
Public works	39,087	25,489	-	-	39,087	25,489
Parks and recreation	28,096	22,787	-	-	28,096	22,787
Interest on long-term debt	10,198	8,572	-	-	10,198	8,572
Electric	-	-	364,624	270,422	364,624	270,422
Water	-	-	41,006	35,892	41,006	35,892
Wastewater	-	-	41,810	36,814	41,810	36,814
Solid waste	-	-	38,049	34,117	38,049	34,117
Airport	-	-	2,421	2,437	2,421	2,437
Total expenses	235,459	185,189	487,910	379,682	723,369	564,871
Increase in net position before transfers	35,177	66,413	40,899	121,742	76,076	188,155
Transfers	4,017	2,914	(4,017)	(2,914)	-	-
Increase in net position	39,194	69,327	36,882	118,828	76,076	188,155
Net position at beginning of year	407,093	337,766	1,065,913	947,085	1,473,006	1,284,851
Net position at end of year	$ 446,287	$ 407,093	$ 1,102,795	$ 1,065,913	$ 1,549,082	$ 1,473,006

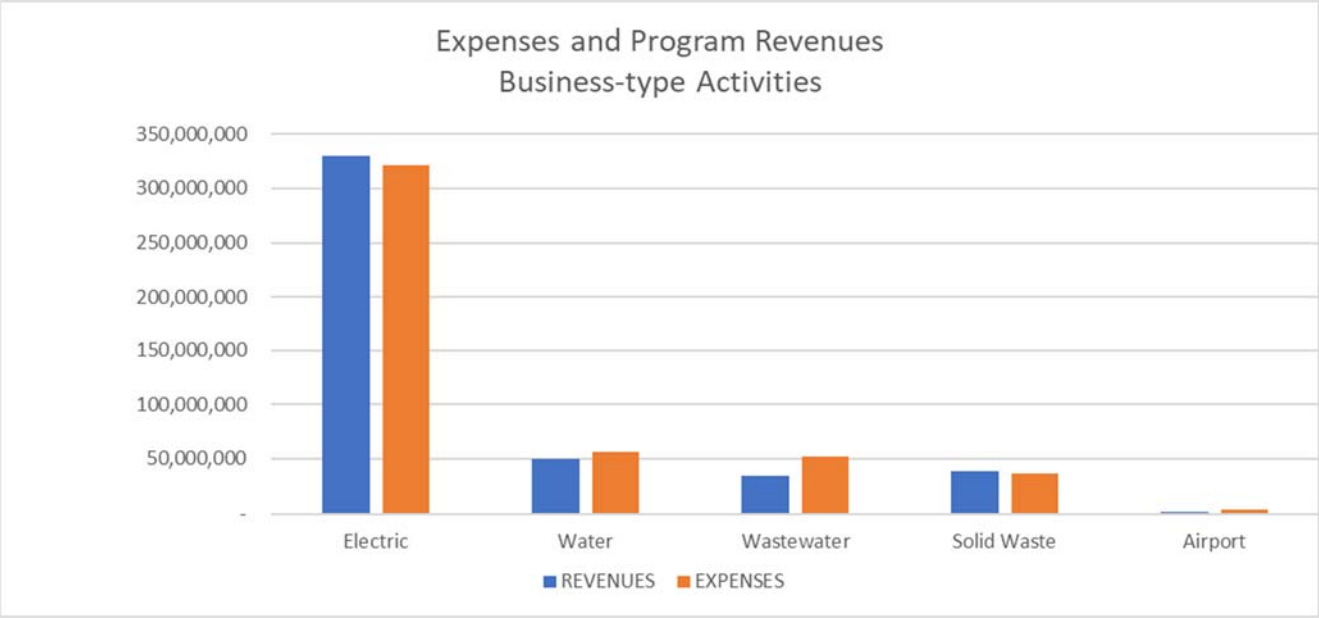
Governmental activities. Expenses for governmental activities reflect an increase of $50.3 million over the prior year. Increases include $13.0 million in General Government, $16.7 million for Public Safety, $13.6 million in Public Works, and $5.3 million for Parks and Recreation. The most significant governmental activities expense was in providing public safety, which incurred expenses of $104,695,335. The largest expense for public safety is the cost of personnel, which totaled $80,687,030. Last year the City added 32.0 new positions in public safety including 15.0 in the police department and 15.0 in the fire department.



Governmental expenses were funded by revenues collected from a variety of sources, with the largest being from property taxes, which are $92,185,668 for the fiscal year ended September 30, 2023. Governmental activities program revenues decreased $7.5 million over the prior year. Charges for Services decreased $1.5 million from general government and parks and recreation. Capital grants and contributions decreased $7.1 million from contributed asset revenues and American Rescue Plan Act (ARPA) funding for public works transportation and general government projects were completed. Operating grants and contributions increased $1.1 million from funding for public safety and parks and recreation. Governmental activities general revenues included an increase of $12.6 million for property tax due to rising values and new construction. Sales tax increased $2.6 million due to population and business growth. Investment income increased $12.0 million due to rising interest rates. Transfers reflect a net $4.0 million transfer in for governmental activities for the current year.



Business-type activities. Business-type activities increased the City's net position by $36,881,172. This accounts for 48.67% of the growth in the entity-wide net position. Total utility service revenues increased by $39.7 million. Electric charges for services increased by $39.0 million mainly due to an increase in Core Scientific revenues. No rate adjustments for electric, however there were various increases in water, wastewater, and solid waste rates through existing rates and additions of new rates in FY22-23. Water charges for services increased by $0.8 million as compared to the service charges from prior year. Wastewater charges increased $1.2 million compared to the prior year. Solid Waste charges for service provided a decreased of $1.5 million compared to the prior year. Airport charges for goods and services increased by $0.3 million. Water and Wastewater collected $15.8 million and $12.5 million in impact fees, respectively, reflecting a $1.5 million decrease over the prior year. Capital contributions reflected a decrease of $24.6 million from the prior year, 65.6% of this decrease relates to a year over year change in Wastewater utilities. The Airport gas well revenues contributed an additional $0.4 million revenue, a decrease of $0.6 million from the prior year. Gas well revenues continue to decline as many wells in the City are being systematically plugged. Total enterprise funds operating costs, before depreciation, increased $86.3 million. Electric operating costs, before depreciation, account for 78.4 percent of total enterprise fund expenses. Cost increases include purchase power costs of $69.4 million from the prior year. Expenses for personnel services and administrative costs increased by $4.0 million. Water expenses increased $4.3 million from the prior year, due to an increase in materials and supplies by 27 percent and administrative costs by 17 percent from prior year. Wastewater expenses increased $4.6 million, due to an increase in personnel and administrative costs. Solid Waste expenses increased $3.7 million from the prior year, due to increased personnel services of $2.3 million.



FINANCIAL ANALYSIS OF THE GOVERNMENT'S FUNDS

As noted earlier, the City uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements.

Governmental funds. The focus of the City's governmental funds is to provide information on near-term inflows, outflows, and balances of resources available to spend. Such information is useful in assessing the City's financing requirements. In particular, unassigned fund balance may serve as a useful measure of a government's net resources available for spending at the end of the fiscal year.

As of the end of the current fiscal year, the City's governmental funds reported a combined ending fund balance of $253.3 million, an increase of $15.2 million in comparison with the prior year. $44.2 million constitutes unassigned fund balance, which is available for spending at the government's discretion. The remainder of the

fund balance has been classified to indicate that it is not available for new spending because it has already been classified as restricted ($152.7 million), committed ($30.3 million), and assigned ($26.1 million).

The General Fund is the chief operating fund of the City. At September 30, 2023, the unassigned fund balance of the General Fund was $44.6 million, or 24.2% of budgeted general fund expenditures. Revenues were $14.7 million higher compared to the previous year primarily due to increases in taxes of $11.5 million, investment revenues of $2.7 million, and franchise fees of $2.9 million. Licenses and permits decreased $3.0 million. The net change in General Fund expenditures was $19.5 million higher compared to the previous year primarily due to increased costs related to personnel services and operations. Personnel costs increased $11.1 million over the prior year which includes a 4% cost of living adjustment (COLA). Public safety increased $9.6 million over the prior year due to the addition of 15.0 in the police department and 15.0 in the fire department.

At the end of the fiscal year, the Capital Projects Fund has a total fund balance of $160.8 million, an increase of $12.2 million. The total fund balance is made up of $125.9 million in restricted funds, $8.9 million in committed funds, and $26.1 million in assigned funds, all for capital construction and acquisition. In 2023, the City received $60.1 million of proceeds from the issuance of debt and recognized $14.0 million current year of regional toll revenues from the Texas Department of Transportation, while expending $96.5 million on construction and acquisition. In addition, the capital projects fund received $21.8 million of transfers from other funding sources. The City also received approximately $8.5 million in developer's contributed capital recorded in the government-wide financial statements. This is $12.9 million less than in the prior year.

The Debt Service Fund has a total fund balance of $1.1 million, all of which is restricted for the payment of debt service. As compared with the prior year results, the overall decrease in the debt service fund balance of $1.3 million. An increase of $3.0 million in tax revenue was offset by an increase of $2.9 million in principal and interest costs.

Proprietary funds. The City's proprietary funds provide the same type of information found in the government-wide financial statements, but in more detail.

Unrestricted net position at September 30, 2023 in proprietary funds are $83.4 million for Electric, $52.7 million for Water, $35.5 million for Wastewater, $10.6 million for Solid Waste, and $2.8 million for the Airport fund. The results reflect decreases of the unrestricted net position in the Electric Fund of $34.9 million, Wastewater of $4.1 million, partially offset by increases in the Water fund of $5.4 million, Solid Waste fund of $3.4 million, and Airport fund of $0.1 million. Other factors concerning the finances of these funds have already been addressed in the discussion of the City of Denton's business-type activities.

GENERAL FUND BUDGETARY HIGHLIGHTS

During fiscal year 2023, one formal amendment to adjust the City of Denton's Annual Program of Services was approved by Council. Council approved funding to provide for additional improvements and other administrative expenses. The additional funds increased the General Fund by $1.1 million for an additional 10 FTEs for police and planning departments.

GENERAL FUND BUDGET TO ACTUAL HIGHLIGHT

For fiscal year 2023, General Fund actual expenditures (including transfers) on a budgetary basis were $174.4 million compared to the final budget of $184.0 million. The $9.6 million favorable variance was primarily due to a one-time expense transfer savings of $13.9 million which partially offset increased costs of personnel services of $1.6 million and interfund-transfers and $4.7 million.

Actual revenues for the General Fund (including transfers and sale of capital asset) on a budgetary basis were $173.7 million compared to the final budget of $182.9 million. Included in the $9.2 million unfavorable revenue

variance was $14.5 million of transfers, $2.8 million of decreases in license and permits, $0.4 million of decreases in fines and forfeitures, and $1.5 million of decreases in intergovernmental revenue. These unfavorable variances were offset by increases of $5.2 million in franchise fees, $2.4 million in investment revenue, and $1.0 million in taxes.

The City of Denton's General Fund unassigned fund balance at September 30, 2023 is $44.6 million, or 24.2% of budgeted expenditures. Below is a listing of the ending unassigned balances for the prior year, as well as the fiscal year 2023 unassigned fund balance.

	Actual 9/30/2023	Actual 9/30/2022
Unassigned balance	$44,600,382	$45,459,406
% of final budgeted expenditures	24.2%	29.7%
Policy level	20% plus up to a 5% resiliency reserve	20% plus up to a 5% resiliency reserve

The largest revenue source of the General Fund's budget was the ad valorem tax. Denton's ad valorem tax rate is comprised of two components. The first is the operations and maintenance component that is used to calculate revenue for the City's General Fund operations. The second component is the debt portion that is used to calculate revenue to pay the City's general debt service obligations. The Denton Central Appraisal District's certified appraisal roll shows an increase of 15.0% compared to the prior year certified value, which showed an increase of 7.9%. The current property tax year included $1.0 billion of new growth and construction that was added to the tax rolls in Tax year 2022 as compared to Tax year 2021. The fiscal year 2023 ad valorem tax rate remained the same compared to fiscal year 2022 at $0.560682 per $100 of valuation.

CAPITAL ASSET AND DEBT ADMINISTRATION

Capital assets. At the end of fiscal year 2023, the City had $2.3 billion invested in a broad range of capital assets, including police and fire equipment, buildings, park facilities, roads, bridges, electrical infrastructure, water and sewer lines, SBITA assets and lease assets (see Table 3 below). This amount represents a net increase (including additions and deductions) of $208.5 million or 10.1% over the prior fiscal year.

Table 3
Capital Assets at Year-end
(Net of Accumulated Depreciation/Amortization, in Thousands)

	Governmental Activities		Business-type Activities		Totals	
	2023	2022	2023	2022	2023	2022
Land	$ 47,479	$ 30,865	$ 88,227	$ 76,044	$ 135,706	$ 106,909
Landfill improvements	-	-	2,358	3,855	2,358	3,855
Building and improvements	77,722	65,785	26,674	27,478	104,395	93,263
Plant, machinery and equipment	57,142	50,169	602,846	601,460	659,988	651,629
Water rights	-	-	45,957	46,653	45,957	46,653
Infrastructure	192,063	147,420	488,876	460,293	680,939	607,713
SBITA assets	8,950	-	3,032	-	11,982	-
Lease assets	244	-	-	-	244	-
Construction in progress	322,796	330,271	309,904	225,491	632,700	555,762
Total capital assets	$ 706,396	$ 624,510	$ 1,567,873	$ 1,441,274	$ 2,274,269	$ 2,065,784

This year's major asset additions included:

Description	Amount
Mayhill Phase 3	58,135,305
Police Substation & Firing Range	24,543,987
Locust-Hickory Transmission Line	15,822,787
Pecan Creek Tributary 4 at Locust & Highland	4,948,127
40 Acre Land Purchase	4,381,219
Magnolia Drainage Phase 2	4,256,602
Eagle Substation	3,831,801
Hickory Creek Lift	3,763,210
Gas Header Perimeter Road	3,695,794
Athletic Field Lighting	2,912,469
Pecan Creek Tributary 4	4,994,353
Stuart Ridge Phase 2	2,439,923
Laney Property Addition	2,410,560
Eagle Drive Drainage Phase 2	2,329,008
Country Lakes North Phase 6	2,034,705
	140,499,850

Additional information on the City's capital assets can be found in note IV. D. of this report.

Debt. At year-end, the City had $1,398.3 million in bonds and notes outstanding as compared to $1,293.3 million at the end of the prior fiscal year, an increase of 8.1%, as shown in Table 4.

Table 4
Outstanding Debt at Year-end
(in thousands)

	Governmental Activities		Business-type Activities		Totals	
	2023	2022	2023	2022	2023	2022
General obligation bonds	$ 258,005	$ 236,288	$ 111,900	$ 99,072	$ 369,905	$ 335,360
Certificates of obligation	134,630	118,055	573,285	506,945	707,915	625,000
Revenue bonds	-	-	320,520	332,955	320,520	332,955
Total	$ 392,635	$ 354,343	$1,005,705	$ 938,972	$ 1,398,340	$1,293,315

These amounts do not include net unamortized premiums/(discounts) of $87,550,894 nor net deferred gain/(loss) on refunding of $23,732.

During the fiscal year, the City issued two types of debt, both in July 2023. The first debt issuance included $72.6 million in general obligation refunding bonds of which $32.1 million was for business-type activities. Of this amount, $31.2 million was issued to pay the costs of bond election capital improvements for streets in the Capital Projects fund. The remaining $41.4 million was issued to refund outstanding debt obligations. The second debt issuance included $149.1 million ($118.0 million of which is included as part of business-type activities) in certificates of obligation. The debt was issued to pay the costs of various capital improvements in the Capital Projects Fund $29.8 million, the Electric Fund $68.3 million, the Water Fund $19.6 million, the Wastewater Fund $15.3 million, the Solid Waste Fund $14.8 million, the Fleet Fund $1.2 million and the Technology Fund $150 thousand.

Standard and Poor's Corporation has given both the City's General Obligation Bonds and Certificates of Obligation an "AA+" rating. Standard and Poor's Corporation has given the City's Utility System Revenue Bonds a rating of "A+". Fitch has given the City's General Obligation Bonds and the Certificates of Obligation a rating of "AA+." Fitch has given the City's Utility System Revenue Bonds a rating of "A". The City is permitted by Article XI, Section 5 of the State of Texas Constitution to levy taxes up to $2.50 per $100 of assessed valuation for general governmental services including the payment of principal and interest on general obligation long-term debt. The current ratio of tax-supported debt to certified assessed value of all taxable property is 2.9%.

Other long-term liabilities. The City maintains a self-insurance program for property, excess flood (for specific properties), general liability and excess general liability, aviation ground operations liability, auto liability and physical damage, public officials' liability, professional liability for EMT operations, employment practices liability, law enforcement professional liability, cyber, commercial crime, and workers' compensation. Private insurance companies cover claims for property loss on a per occurrence basis, except for specific perils, with deductibles that vary depending on location and property values, for workers' compensation losses over $1,000,000 per occurrence, and general liability over $500,000 per occurrence. The Risk Retention Fund has a reserve for claims and judgments of $4.9 million outstanding at year-end. Other obligations include pension liabilities, accrued vacation pay, and sick leave. More detailed information about the City's long-term liabilities is presented in Note IV. F.

The City's Electric Fund has a liability set up for claims and judgements of $2.7 million outstanding at year-end. More detailed information on this long-term liability can be found in note V.G. of this report.

ECONOMIC FACTORS AND NEXT YEAR'S BUDGETS AND RATES

While growth for the Denton community is expected to be moderate in the short term, demand for city services are expected to remain strong over the long term. As a result, the Budget had no tax rate increase, maintaining the City's current rate of $0.560682 per $100 valuation. While sales tax collections increased $2.6 million compared to the prior fiscal year $7.9 million increase, 2024 Budget projects an increase of 1.5% from actual fiscal year 2023 sales tax revenue. Budgeted funding enhancements for fiscal year 2024 include $4.9 million for general fund departments. The fiscal year 2024 Budget included 27 approved supplements for additional staff, increase in operating contracts and capital.

The unemployment rate for the City was 4.0 percent on September 30, 2023 compared to 3.2 percent as of September 30, 2022.

The fiscal year 2024 budget includes no rate changes for water, solid waste, or electric. Wastewater rates are to increase 11% to fund critical infrastructure required by growth and development.

REQUESTS FOR INFORMATION

This financial report is designed to provide a general overview of the City's finances for all those with an interest in the City's finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the City of Denton Finance Department, 215 E. McKinney, Denton, Texas 76201.

CITY OF DENTON, TEXAS **Exhibit I**
STATEMENT OF NET POSITION
AS OF SEPTEMBER 30, 2023

	Primary Government		
	Governmental Activities	Business-type Activities	Total
ASSETS:			
Cash, cash equivalents and investments, at fair value	$ 120,335,984	$ 151,209,900	$ 271,545,884
Receivables, net of allowances:			
Taxes	10,670,310	-	10,670,310
Accounts	-	22,067,176	22,067,176
Unbilled utility service	-	17,917,273	17,917,273
Interest	610,849	768,685	1,379,534
Other	3,488,134	10,125,949	13,614,083
Internal balances	(17,810,876)	17,926,309	115,433
Due from other governments	4,908,666	-	4,908,666
Inventory	17,995,493	-	17,995,493
Prepaid items	3,064	62,852,670	62,855,734
Other assets	-	142,260,039	142,260,039
Restricted assets:			
Cash, cash equivalents and investments, at fair value	217,139,479	292,379,571	509,519,050
Escrow deposits	204,000	-	204,000
Taxes	682,480	-	682,480
Accrued interest	1,058,651	1,486,335	2,544,986
Other receivables	91,991	13,180	105,171
Debt issuance costs - insurance	-	470,345	470,345
SBITA assets, net of accumulated amortization	8,950,445	3,031,667	11,982,112
Lease assets, net of accumulated amortization	244,437	-	244,437
Capital assets not being depreciated	370,274,508	398,131,010	768,405,518
Capital assets, net of accumulated depreciation	326,927,311	1,166,710,105	1,493,637,416
Total assets	1,065,774,926	2,287,350,214	3,353,125,140
DEFERRED OUTFLOWS OF RESOURCES:			
Deferred loss on refundings	228,768	1,007,830	1,236,598
Deferred pension balances	54,831,948	21,475,988	76,307,936
Deferred other post-employment benefit balances	4,472,057	2,172,779	6,644,836
Total deferred outflows of resources	59,532,773	24,656,597	84,189,370
LIABILITIES:			
Accounts payable	14,181,377	11,894,681	26,076,058
Retainage payable	96,204	391,488	487,692
Deposits	549,917	11,028,685	11,578,602
Accrued interest	87,445	-	87,445
Due to other governments	-	-	-
Other liabilities	923,925	-	923,925
Unearned revenue	45,856,762	-	45,856,762
Payable from restricted assets:			
Accounts payable	14,339,252	12,069,094	26,408,346
Retainage payable	9,766,769	5,253,861	15,020,630
Accrued interest	2,094,552	8,171,889	10,266,441
Noncurrent liabilities:			
Noncurrent liabilities due within one year	42,140,422	60,021,713	102,162,135
Noncurrent liabilities due in more than one year	537,487,278	1,092,506,726	1,629,994,004
Total liabilities	667,523,903	1,201,338,137	1,868,862,040
DEFERRED INFLOWS OF RESOURCES:			
Deferred lease revenues	1,214,933	2,001,723	3,216,656
Deferred gain on refundings	-	1,260,330	1,260,330
Deferred pension balances	375,549	-	375,549
Deferred other post-employment benefit balances	9,906,036	4,612,159	14,518,195
Total deferred inflows of resources	11,496,518	7,874,212	19,370,730
NET POSITION:			
Net investment in capital assets	394,899,297	820,950,533	1,215,849,830
Restricted for:			
Debt service	-	15,734,523	15,734,523
Parks and recreation	11,845,587	-	11,845,587
Capital acquisition	25,373,436	80,082,564	105,456,000
Other grants and purposes	4,996,645	-	4,996,645
Unrestricted	9,172,313	186,026,842	195,199,155
Total net position	$ 446,287,278	$ 1,102,794,462	$ 1,549,081,740

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON, TEXAS
STATEMENT OF ACTIVITIES
FOR THE YEAR ENDED SEPTEMBER 30, 2023

Exhibit II

		Program Revenues		
Functions/Programs	**Expenses**	**Charges for Services**	**Operating Grants and Contributions**	**Capital Grants and Contributions**
Primary government:				
Governmental activities:				
General government	53,383,319	9,008,753	5,299,256	2,420,321
Public safety	104,695,335	6,364,307	4,290,490	477,616
Public works	39,086,849	784,136	-	24,576,372
Parks and recreation	28,096,065	7,547,307	1,033,800	(122,503)
Interest expense	10,198,425	-	-	-
Total governmental activities	235,459,993	23,704,503	10,623,546	27,351,806
Business-type activities:				
Electric system	364,624,498	329,513,796	-	495,060
Water system	41,005,645	65,514,614	-	7,311,818
Wastewater system	41,810,385	47,276,024	-	19,257,307
Solid waste	38,049,052	39,176,607	-	-
Airport	2,421,380	1,896,148	-	978,427
Total business-type activities	487,910,960	483,377,189	-	28,042,612
Total primary government	723,370,953	507,081,692	10,623,546	55,394,418

(continued on the following page)

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON, TEXAS
STATEMENT OF ACTIVITIES (concluded)
FOR THE YEAR ENDED SEPTEMBER 30, 2023

Exhibit II

	Net (Expense) Revenue and Changes in Net Position		
	Primary Government		
Functions/Programs	Governmental Activities	Business-type Activities	Total
Primary government:			
Governmental activities:			
General government	(36,654,989)	-	(36,654,989)
Public safety	(93,562,922)	-	(93,562,922)
Public works	(13,726,341)	-	(13,726,341)
Parks and recreation	(19,637,461)	-	(19,637,461)
Interest expense	(10,198,425)	-	(10,198,425)
Total governmental activities	(173,780,138)	-	(173,780,138)
Business-type activities:			
Electric system	-	(34,615,642)	(34,615,642)
Water system	-	31,820,787	31,820,787
Wastewater system	-	24,722,946	24,722,946
Solid waste	-	1,127,555	1,127,555
Airport	-	453,195	453,195
Total business-type activities	-	23,508,841	23,508,841
Total primary government	(173,780,138)	23,508,841	(150,271,297)
General revenues:			
Taxes:			
Property tax	92,185,668	-	92,185,668
Sales tax	55,906,340	-	55,906,340
Franchise fees	39,963,334	-	39,963,334
Hotel occupancy tax	2,894,816	-	2,894,816
Beverage tax	707,315	-	707,315
Bingo tax	16,581	-	16,581
Investment income	11,029,848	17,370,180	28,400,028
Gain on sale of capital assets	-	19,166	19,166
Miscellaneous	6,253,238	-	6,253,238
Transfers	4,017,015	(4,017,015)	-
Total general revenues and transfers	212,974,155	13,372,331	226,346,486
Change in net position	39,194,017	36,881,172	76,075,189
Net position at beginning of year	407,093,261	1,065,913,290	1,473,006,551
Net position at end of year	446,287,278	1,102,794,462	1,549,081,740

The notes to the basic financial statements are an integral part of this statement. (concluded)

CITY OF DENTON, TEXAS
BALANCE SHEET
GOVERNMENTAL FUNDS
AS OF SEPTEMBER 30, 2023

Exhibit III

	General Fund	Debt Service Fund	Capital Projects Fund	ARPA Fund	Other Governmental Funds	Total Governmental Funds
ASSETS:						
Cash, cash equivalents and investments, at fair value	$ 38,643,912	$ 1,097,793	$ 219,094,055	$ 10,794,790	$ 46,392,296	$ 316,022,846
Receivables, net of allowances for uncollectibles:						
Taxes	10,670,310	375,834	-	-	306,646	11,352,790
Accrued interest	198,376	5,581	1,113,782	9,744	234,947	1,562,430
Other	1,923,866	-	-	-	118,250	2,042,116
Interfund receivables	1,913,464	-	-	-	-	1,913,464
Due from other governments	2,121,889	-	667,315	-	2,119,462	4,908,666
Total assets	$ 55,471,817	$ 1,479,208	$ 220,875,152	$ 10,804,534	$ 49,171,601	$ 337,802,312
LIABILITIES:						
Accounts payable	6,858,050	-	14,616,336	95,464	983,679	22,553,529
Retainage payable	-	-	9,111,448	500,000	14,877	9,626,325
Interfund payables	-	-	-	-	988,306	988,306
Due to other governments	-	-	-	-	-	-
Other liabilities	923,925	-	-	-	-	923,925
Unearned revenues	-	-	35,635,491	10,209,070	12,201	45,856,762
Total liabilities	7,781,975	-	59,363,275	10,804,534	1,999,063	79,948,847
DEFERRED INFLOWS OF RESOURCES:						
Unavailable revenue - property taxes	623,276	340,805	-	-	-	964,081
Unavailable revenue - general services	1,310,217	-	-	-	-	1,310,217
Unavailable revenue - intergovernmental	1,033,801	-	667,314	-	466,705	2,167,820
Deferred inflows - leases	122,166	-	-	-	-	122,166
Total deferred inflows of resources	3,089,460	340,805	667,314	-	466,705	4,564,284
FUND BALANCES:						
Restricted for:						
Debt service	-	1,138,403	-	-	-	1,138,403
Parks and recreation	-	-	1,937,630	-	11,711,557	13,649,187
Streets and drainage projects	-	-	39,266,339	-	9,040,059	48,306,398
Other capital projects	-	-	84,667,842	-	-	84,667,842
Other grants and purposes	-	-	-	-	4,955,475	4,955,475
Committed to:						
Streets	-	-	8,809,621	-	8,994,528	17,804,149
Parks and recreation	-	-	60,000	-	-	60,000
Other purposes	-	-	43,628	-	12,410,978	12,454,606
Assigned to:						
Streets and drainage projects	-	-	16,382,349	-	-	16,382,349
Capital projects	-	-	9,677,154	-	-	9,677,154
Other purposes		-	-	-	750	750
Unassigned	44,600,382	-	-	-	(407,514)	44,192,868
Total fund balances	44,600,382	1,138,403	160,844,563	-	46,705,833	253,289,181
Total liabilities, deferred inflows of resources and fund balances	$ 55,471,817	$ 1,479,208	$ 220,875,152	$ 10,804,534	$ 49,171,601	$ 337,802,312

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON, TEXAS
RECONCILIATION OF THE BALANCE SHEET
OF GOVERNMENTAL FUNDS TO THE
STATEMENT OF NET POSITION
AS OF SEPTEMBER 30, 2023

Exhibit IV

Total fund balances - governmental funds (Exhibit III)		$	253,289,181
Amounts reported for governmental activities in the statement of net position are different because:			
Capital assets used in governmental activities are not financial resources and therefore are not reported as assets in governmental funds. Includes capital assets of internal service funds.			706,396,701
Certain receivables will be collected next year but are not available soon enough to pay for the current period's expenditures and therefore are reported as deferred inflows of resources in the funds.			4,442,118
Deferred outflows of resources are not reported in the governmental funds. Includes deferred outflows of internal service funds:			
Deferred loss on refundings	$ 228,768		
Deferred pension balances	54,831,948		
Deferred other post-employment benefits contributions	4,472,057		59,532,773
An internal charge to business-type activities is not recorded at the fund level.			(1,036,034)
Several internal service funds are used by the City's management to charge the costs of certain activities, such as insurance and fleet management, to individual funds. The assets, liabilities, deferred outflows, and deferred inflows of the internal service funds are included with governmental activities. Internal service fund balances not included in other reconciling items listed above or below:			
Current and other assets	$ 41,300,253		
Liabilities	(33,259,932)		
Deferred inflows	(1,092,767)		6,947,554
Long-term balances, including bonds payable, are not due and payable in the current period and therefore are not reported as liabilities in the funds. Includes balances of internal service funds. Long-term liabilities and related balances at year-end consist of:			
General obligation bonds payable	$ (258,005,000)		
Certificates of obligation payable	(134,630,000)		
Bond (premiums)/discounts	(28,677,480)		
Accrued interest on the bonds	(2,181,997)		
Capital leases payable	(247,072)		
Capital leases payable	(8,255,975)		
Net Pension Liability	(93,457,989)		
Total other post-employment benefits liability	(30,188,938)		
Compensated absences	(17,358,979)		(573,003,430)
Deferred inflows of resources are not reported in the governmental funds. Includes deferred outflows of internal service funds:			
Deferred pension balances and			
Deferred other post-employment benefits contributions			(10,281,585)
Total net position of governmental activities (Exhibit I)		$	446,287,278

The notes to the basic financial statements are an integral part of this exhibit.

CITY OF DENTON, TEXAS **Exhibit V**
STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES
GOVERNMENTAL FUNDS
FOR THE YEAR ENDED SEPTEMBER 30, 2023

	General Fund	Debt Service Fund	Capital Projects Fund	ARPA Fund	Other Governmental Funds	Total Governmental Funds
REVENUES:						
Taxes	$ 113,955,253	$ 32,733,509	$ -	$ -	$ 4,741,503	$ 151,430,265
Licenses and permits	6,049,752	-	-	-	-	6,049,752
Franchise fees	22,851,663	-	-	-	17,111,671	39,963,334
Fines and forfeitures	1,961,982	-	-	-	456,971	2,418,953
Fees for services	9,662,872	-	-	-	5,698,489	15,361,361
Investment revenue	2,587,602	764,351	5,752,739	-	1,925,156	11,029,848
Intergovernmental	2,961,572	-	16,004,667	5,310,047	4,581,704	28,857,990
Miscellaneous	342,941	-	105,324	-	6,151,186	6,599,451
Total revenues	160,373,637	33,497,860	21,862,730	5,310,047	40,666,680	261,710,954
EXPENDITURES:						
Current:						
General government	33,498,180	-	127,035	2,696,843	7,082,626	43,404,684
Public safety	96,317,917	-	59,168	208,172	2,018,239	98,603,496
Public works	3,454,541	-	-	-	11,300,388	14,754,929
Parks and recreation	15,781,789	-	189,747	-	7,989,514	23,961,050
Capital outlay	475,410	-	96,501,790	2,405,032	975,345	100,357,577
Debt service:						
Principal retirement	-	22,555,789	-	-	-	22,555,789
Bond refunding	-	178,390	-	-	-	178,390
Bond issuance costs	-	55,015	438,055	-	-	493,070
Interest and other charges	-	12,754,569	-	-	-	12,754,569
Total expenditures	149,527,837	35,543,763	97,315,795	5,310,047	29,366,112	317,063,554
Excess (deficiency) of revenues over (under) expenditures	10,845,800	(2,045,903)	(75,453,065)	-	11,300,568	(55,352,600)
OTHER FINANCING SOURCES (USES):						
Refunding bonds issued	-	9,300,000	-	-	-	9,300,000
Payment to refunded bond agent	-	(10,156,875)	-	-	-	(10,156,875)
Issuance of long-term debt	-	-	60,075,000	-	-	60,075,000
Premium on debt issuance	-	911,669	5,899,840	-	-	6,811,509
Proceeds from sale of capital assets	198,474	-	-	-	7,252	205,726
Transfers in	25,750	717,980	21,840,279	-	11,324,732	33,908,741
Transfers out	(11,929,048)	-	(125,725)	-	(17,508,714)	(29,563,487)
Total other financing sources (uses)	(11,704,824)	772,774	87,689,394	-	(6,176,730)	70,580,614
Net change in fund balances	(859,024)	(1,273,129)	12,236,329	-	5,123,838	15,228,014
Fund balance at beginning of year	45,459,406	2,411,532	148,608,234	-	41,581,995	238,061,167
Fund balances at end of year	$ 44,600,382	$ 1,138,403	$ 160,844,563	$ -	$ 46,705,833	$ 253,289,181

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON, TEXAS **Exhibit VI**

RECONCILIATION OF THE STATEMENT OF REVENUES, EXPENDITURES, AND CHANGES IN FUND BALANCES OF GOVERNMENTAL FUNDS TO THE STATEMENT OF ACTIVITIES

FOR THE YEAR ENDED SEPTEMBER 30, 2023

Net change in fund balances - total governmental funds (Exhibit V)	**$ 15,228,014**
Amounts reported for governmental activities in the statement of activities are different because:	
Governmental funds report capital outlays as expenditures. However, in the statement of activities the cost of those assets is allocated over their estimated useful lives and reported as depreciation expense. This amount represents the difference between capital outlay of $101,868,370 and depreciation of $27,363,415 (which is the net of overall governmental activities depreciation of $32,005,311 less internal service fund depreciation of $4,641,896).	**74,504,955**
Revenues in the statement of activities that do not provide current financial resources are not reported as revenues in the funds. Such amounts are recorded in the funds when considered available.	**773,488**
The net effect of various miscellaneous transactions involving capital assets (i.e., SBITA, leases, sales, trade-ins and donations) is to decrease net position.	**(5,250,530)**
Bond proceeds provide current financial resources to governmental funds, but issuing debt increases long-term liabilities in the statement of net position. Repayment of bond principal is an expenditure in the governmental funds, but the repayment reduces long-term liabilities in the statement of net position. This is the amount by which proceeds exceeded payments.	**(37,564,497)**
Fund-level financials report costs related to bonds as expenditures; however, these are deferred and amortized on the government-wide financials.	**(3,876,627)**
Certain expenses reported in the statement of activities do not require the use of current financial resources and therefore are not reported as expenditures in governmental funds.	**(2,894,878)**
Internal service funds are used by management to charge the costs of certain activities, such as insurance and technology services, to individual funds. A portion of the net revenue (expense) of certain internal service funds is reported with governmental activities. The amount reported with business-type activities is ($3,011,695).	**(1,725,908)**
Change in net position of governmental activities (Exhibit II)	**$ 39,194,017**

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON

CITY OF DENTON, TEXAS
STATEMENT OF REVENUES, EXPENDITURES AND
CHANGES IN FUND BALANCE - BUDGET TO ACTUAL
GENERAL FUND
FOR THE YEAR ENDED SEPTEMBER 30, 2023

Exhibit VII

	Budgeted Amounts		Actual	Adjustments - Budgetary	Actual on a Budgetary	Variance with Final Budget - Positive
	Original	Final	Amounts	Basis	Basis	(Negative)
REVENUES:						
Taxes	$ 112,957,687	$ 112,957,687	$ 113,955,253	$ -	$ 113,955,253	$ 997,566
Licenses and permits	8,806,895	8,858,784	6,049,752	-	6,049,752	(2,809,032)
Franchise fees	17,660,041	17,660,041	22,851,663	-	22,851,663	5,191,622
Fines and forfeitures	2,396,756	2,396,756	1,961,982	-	1,961,982	(434,774)
Fees for services	8,827,339	8,345,643	9,662,872	-	9,662,872	1,317,229
Investment revenue	150,000	150,000	2,587,602	-	2,587,602	2,437,602
Intergovernmental	3,594,259	4,475,289	2,961,572	-	2,961,572	(1,513,717)
Miscellaneous	392,749	250,526	342,941	-	342,941	92,415
Total revenues	154,785,726	155,094,726	160,373,637	-	160,373,637	5,278,911
EXPENDITURES:						
Current:						
General government	54,604,776	54,657,704	33,498,180	4,663,099	38,161,279	16,496,425
Public safety	87,130,085	88,023,221	96,317,917	(5,571,790)	90,746,127	(2,722,906)
Public works	3,099,512	3,099,512	3,454,541	(405,206)	3,049,335	50,177
Parks and recreation	15,770,631	15,617,719	15,781,789	(601,943)	15,179,846	437,873
Capital outlay	588,567	539,186	475,410	-	475,410	63,776
Total expenditures	161,193,571	161,937,342	149,527,837	(1,915,840)	147,611,997	14,325,345
Excess (deficiency) of revenues over (under) expenditures	(6,407,845)	(6,842,616)	10,845,800	1,915,840	12,761,640	19,604,256
OTHER FINANCING SOURCES (USES):						
Proceeds from sale of capital assets	500,000	191,000	198,474	-	198,474	7,474
Transfer in	27,573,659	27,573,659	25,750	13,074,286	13,100,036	(14,473,623)
Transfers out	(21,659,276)	(22,023,060)	(11,929,048)	(14,839,310)	(26,768,358)	(4,745,298)
Total other financing sources (uses)	6,414,383	5,741,599	(11,704,824)	(1,765,024)	(13,469,848)	(19,211,447)
Net change in fund balance	6,538	(1,101,017)	(859,024)	150,816	(708,208)	392,809
Fund balances at beginning of year	45,459,406	45,459,406	45,459,406	-	45,459,406	-
Fund balance at end of year	$ 45,465,944	$ 44,358,389	$ 44,600,382	$ 150,816	$ 44,751,198	$ 392,809

Adjustments - Budgetary Basis are expenditures allocated to and reimbursed by other funds. These expenditures are recorded in the other funds' financials.

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON, TEXAS **Exhibit VIII**
STATEMENT OF NET POSITION
PROPRIETARY FUNDS
AS OF SEPTEMBER 30, 2023

	Business-type Activities - Enterprise Funds		
	Utility System		
	Electric Fund	Water Fund	Wastewater Fund
ASSETS:			
Current assets:			
Cash, cash equivalents and investments, at fair value	$ 36,132,024	$ 54,245,224	$ 41,215,104
Receivables, net of allowances:			
Accounts	14,329,661	3,973,144	1,960,753
Unbilled utility service	10,813,193	3,131,546	2,067,728
Accrued interest	183,680	275,758	209,520
Other	9,421,718	-	979
Interfund receivables	14,582,614	1,845,326	346,901
Merchandise inventory	-	-	-
Prepaid items	62,852,670	-	-
Other Assets	142,260,039	-	-
Total current assets	290,575,599	63,470,998	45,800,985
Noncurrent assets:			
Restricted assets:			
Cash, cash equivalents and investments, at fair value	96,038,223	78,857,977	79,692,149
Escrow deposit	-	-	-
Accrued interest	488,218	400,881	405,121
Other receivables	-	-	-
Total restricted assets	96,526,441	79,258,858	80,097,270
Unamortized debt issuance costs - insurance	470,345	-	-
Lease assets, net of accumulated amortization	-	-	-
SBITA assets, net of accumulated amortization	2,731,632	300,035	-
Capital assets, net of accumulated depreciation	730,958,477	393,014,222	360,140,870
Total noncurrent assets	830,686,895	472,573,115	440,238,140
Total assets	1,121,262,494	536,044,113	486,039,125
DEFERRED OUTFLOWS OF RESOURCES:			
Deferred charges on refunding	391,140	573,794	-
Deferred pension balances	10,059,343	3,533,709	3,056,491
Deferred other post employment benefit balances	776,170	420,259	440,549
Total deferred outflows of resources	11,226,653	4,527,762	3,497,040
LIABILITIES:			
Current liabilities:			
Accounts payable	7,895,455	1,748,235	1,176,111
Retainage payable	-	224,700	7,557
Claims payable	-	-	-
Compensated absences payable	1,377,459	409,066	327,106
Deposits	8,984,521	849,069	603,939
Accrued interest	-	-	-
Interfund payables	-	-	-
Payable from restricted assets:			
Accounts payable	3,510,373	5,921,770	2,636,951
Retainage payable	2,720,749	1,752,177	780,935
Accrued interest	6,722,680	581,511	598,336
Certificate, general obligation, and revenue bonds	39,757,051	8,870,673	5,259,050
Total current liabilities paid from restricted assets	52,710,853	17,126,131	9,275,272
Total current liabilities	70,968,288	20,357,201	11,389,985

(continued on the following page)

CITY OF DENTON, TEXAS
STATEMENT OF NET POSITION
PROPRIETARY FUNDS
AS OF SEPTEMBER 30, 2023

Exhibit VIII

	Business-type Activities - Enterprise Funds			Governmental Activities - Internal Service Funds
	Solid Waste Fund	Airport Fund	Total Enterprise Funds	
ASSETS:				
Current assets:				
Cash, cash equivalents and investments, at fair value	$ 16,400,058	$ 3,217,490	$ 151,209,900	$ 16,874,346
Receivables, net of allowances:				
Accounts	1,729,712	73,906	22,067,176	-
Unbilled utility service	1,904,806	-	17,917,273	-
Accrued interest	83,371	16,356	768,685	83,796
Other	703,252	-	10,125,949	1,538,009
Interfund receivables	-	-	16,774,841	-
Merchandise inventory	-	-	-	17,995,493
Prepaid items	-	-	62,852,670	3,064
Other Assets	-	-	142,260,039	-
Total current assets	20,821,199	3,307,752	423,976,533	36,494,708
Noncurrent assets:				
Restricted assets:				
Cash, cash equivalents and investments, at fair value	34,577,503	3,213,719	292,379,571	4,578,271
Escrow deposit	-	-	-	204,000
Accrued interest	175,778	16,337	1,486,335	23,274
Other receivables	-	128,614	128,614	-
Total restricted assets	34,753,281	3,358,670	293,994,520	4,805,545
Unamortized debt issuance costs - insurance	-	-	470,345	-
Lease assets, net of accumulated amortization	-	-	-	244,437
SBITA assets, net of accumulated amortization	-	-	3,031,667	5,401,047
Capital assets, net of accumulated depreciation	60,854,648	19,872,898	1,564,841,115	17,295,782
Total noncurrent assets	95,607,929	23,231,568	1,862,337,647	27,746,811
Total assets	116,429,128	26,539,320	2,286,314,180	64,241,519
DEFERRED OUTFLOWS OF RESOURCES:				
Deferred charges on refunding	42,896	-	1,007,830	-
Deferred pension balances	4,497,800	328,645	21,475,988	9,186,971
Deferred other post employment benefit balances	512,741	23,060	2,172,779	910,357
Total deferred outflows of resources	5,053,437	351,705	24,656,597	10,097,328
LIABILITIES:				
Current liabilities:				
Accounts payable	1,035,310	39,570	11,894,681	5,967,100
Retainage payable	159,231	-	391,488	-
Claims payable	-	-	-	4,773,339
Compensated absences payable	476,482	43,736	2,633,849	1,096,254
Deposits	573,359	17,797	11,028,685	549,917
Accrued interest	-	-	-	87,445
Interfund payables	-	-	-	17,700,000
Payable from restricted assets:				
Accounts payable	-	-	12,069,094	-
Retainage payable	-	-	5,253,861	236,648
Accrued interest	269,362	-	8,171,889	-
Certificate, general obligation, and revenue bonds	3,501,090	-	57,387,864	726,375
Total current liabilities paid from restricted assets	3,770,452	-	82,882,708	963,023
Total current liabilities	6,014,834	101,103	108,831,411	31,137,078

(continued on the following page)

CITY OF DENTON, TEXAS **Exhibit VIII**
STATEMENT OF NET POSITION
PROPRIETARY FUNDS
AS OF SEPTEMBER 30, 2023

	Business-type Activities - Enterprise Funds		
	Utility System		
	Electric Fund	Water Fund	Wastewater Fund
Noncurrent liabilities:			
General obligation bonds payable	$ 63,472,877	$ 23,855,385	$ 7,756,304
Certificates of obligation	377,974,492	74,184,018	98,081,920
Revenue bonds payable	322,283,491	-	-
Notes payable	7,500,000	-	-
Compensated absences payable	504,343	93,624	81,149
Claims and judgement payable	2,700,000	-	-
Lease liability	-	-	-
SBITA liability	2,670,421	-	-
Net pension liability	20,554,357	7,011,082	6,915,503
Total other post-employment benefits liability	5,393,320	2,888,277	3,248,856
Landfill closure/postclosure costs	-	-	-
Total noncurrent liabilities	803,053,301	108,032,386	116,083,732
Total liabilities	874,021,589	128,389,587	127,473,717
DEFERRED INFLOWS OF RESOURCES:			
Deferred inflows - leases	1,311,866	-	-
Deferred charges on refundings	815,186	200,196	171,219
Deferred pension balances	-	-	-
Deferred other post employment benefit balances	1,644,319	934,171	877,385
Total deferred inflows of resources	3,771,371	1,134,367	1,048,604
NET POSITION:			
Net investment in capital assets	155,519,365	311,885,499	295,125,869
Restricted for debt service	15,734,523	-	
Restricted for capital acquisition	-	46,426,615	30,425,893
Unrestricted	83,442,299	52,735,807	35,462,082
Total net position	$ 254,696,187	$ 411,047,921	$ 361,013,844

(continued on the following page)

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON, TEXAS **Exhibit VIII**
STATEMENT OF NET POSITION (concluded)
PROPRIETARY FUNDS
AS OF SEPTEMBER 30, 2023

	Business-type Activities - Enterprise Funds			Governmental Activities - Internal Service Funds
	Solid Waste Fund	Airport Fund	Total Enterprise Funds	
Noncurrent liabilities:				
General obligation bonds payable	$ 4,766,311	$ -	$ 99,850,877	$ -
Certificates of obligation	34,815,752	-	585,056,182	9,147,438
Revenue bonds payable	-	-	322,283,491	-
Notes payable	-	-	7,500,000	-
Compensated absences payable	216,478	28,337	923,931	231,577
Claims and judgement payable	-	-	2,700,000	4,032,928
Lease liability	-	-	-	247,072
SBITA liability	-	-	2,670,421	5,003,121
Net pension liability	9,283,642	666,983	44,431,567	16,781,884
Total other post-employment benefits liability	3,319,660	175,406	15,025,519	5,870,388
Landfill closure/postclosure costs	12,064,738	-	12,064,738	-
Total noncurrent liabilities	64,466,581	870,726	1,092,506,726	41,314,408
Total liabilities	70,481,415	971,829	1,201,338,137	72,451,486
DEFERRED INFLOWS OF RESOURCES:				
Deferred inflows - leases	689,857	-	2,001,723	1,092,767
Deferred charges on refundings	73,729	-	1,260,330	-
Deferred pension balances	-	-	-	-
Deferred other post employment benefit balances	1,100,279	56,005	4,612,159	2,045,195
Total deferred inflows of resources	1,863,865	56,005	7,874,212	3,137,962
NET POSITION:				
Net investment in capital assets	38,546,902	19,872,898	820,950,533	12,398,166
Restricted for debt service	-	-	15,734,523	-
Restricted for capital acquisition	-	3,230,056	80,082,564	-
Unrestricted	10,590,383	2,760,237	184,990,808	(13,648,767)
Total net position	$ 49,137,285	$ 25,863,191	$ 1,101,758,428	$ (1,250,601)
Adjustment to reflect inclusion of internal service fund activities related to enterprise funds.			1,036,034	
Net position of business-type activities (Exhibit I)			$ 1,102,794,462	

The notes to the basic financial statements are an integral part of this statement. **(concluded)**

CITY OF DENTON, TEXAS **Exhibit IX**
STATEMENT OF REVENUES, EXPENSES AND
CHANGES IN FUND NET POSITION
PROPRIETARY FUNDS
FOR THE YEAR ENDED SEPTEMBER 30, 2023

	Business-type Activities - Enterprise Funds		
	Utility System		
	Electric Fund	Water Fund	Wastewater Fund
OPERATING REVENUES:			
Utility services	$ 325,539,428	$ 48,493,256	$ 32,834,806
Charges for goods and services	-	-	-
Other fees	3,974,368	1,193,346	1,894,212
Miscellaneous	-	-	-
Total operating revenues	329,513,796	49,686,602	34,729,018
OPERATING EXPENSES:			
Operating expenses before depreciation and amortization	311,690,293	27,848,534	27,486,644
Depreciation and amortization	27,500,779	10,201,146	10,912,258
Total operating expenses	339,191,072	38,049,680	38,398,902
Operating income (loss)	(9,677,276)	11,636,922	(3,669,884)
NON-OPERATING REVENUES (EXPENSES):			
Investment revenue	5,831,510	5,086,788	4,675,751
Interest expense and fiscal charges	(22,140,363)	(2,741,192)	(3,066,478)
Impact fee revenue	-	15,828,012	12,547,006
Gain on disposal of capital assets	(4,806,647)	6,815	12,351
Gas well revenues	-	-	-
Other non-operating revenues (expenses)	3,219,121	165,658	840
Total non-operating revenues (expenses)	(17,896,379)	18,346,081	14,169,470
Income (loss) before contributions and transfers	(27,573,655)	29,983,003	10,499,586
CONTRIBUTIONS AND TRANSFERS:			
Capital contributions	495,060	7,311,818	19,257,307
Transfers in	280	158	235,210
Transfers out	(898,330)	(1,241,640)	(1,166,030)
Total contributions and transfers	(402,990)	6,070,336	18,326,487
Change in net position	(27,976,645)	36,053,339	28,826,073
Net position at beginning of year	282,672,832	374,994,582	332,187,771
Total net position at end of year	$ 254,696,187	$ 411,047,921	$ 361,013,844

(continued on the following page)

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON, TEXAS **Exhibit IX**
STATEMENT OF REVENUES, EXPENSES AND
CHANGES IN FUND NET POSITION (concluded)
PROPRIETARY FUNDS
FOR THE YEAR ENDED SEPTEMBER 30, 2023

	Business-type Activities - Enterprise Funds			Governmental Activities -
	Solid Waste Fund	Airport Fund	Total Enterprise Funds	Internal Service Funds
OPERATING REVENUES:				
Utility services	$ 38,775,920	$ 1,491,409	$ 447,134,819	$ -
Charges for goods and services	-	-	-	111,112,099
Other fees	400,687	-	7,462,613	-
Miscellaneous	-	24,300	24,300	3,820,268
Total operating revenues	39,176,607	1,515,709	454,621,732	114,932,367
OPERATING EXPENSES:				
Operating expenses before depreciation and amortization	29,216,319	1,469,952	397,711,742	115,285,585
Depreciation and amortization	7,135,414	1,113,881	56,863,478	4,641,896
Total operating expenses	36,351,733	2,583,833	454,575,220	119,927,481
Operating income (loss)	2,824,874	(1,068,124)	46,512	(4,995,114)
NON-OPERATING REVENUES (EXPENSES):				
Investment revenue	1,434,635	341,496	17,370,180	1,044,283
Interest expense and fiscal charges	(974,635)	35,298	(28,887,370)	(468,129)
Impact fee revenue	-	-	28,375,018	-
Gain on disposal of capital assets	(175,852)	-	(4,963,333)	5,227
Gas well revenues	-	380,439	380,439	-
Other non-operating revenues (expenses)	12,205	148,000	3,545,824	715
Total non-operating revenues (expenses)	296,353	905,233	15,820,758	582,096
Income (loss) before contributions and transfers	3,121,227	(162,891)	15,867,270	(4,413,018)
CONTRIBUTIONS AND TRANSFERS:				
Capital contributions	-	978,427	28,042,612	3,654
Transfers in	56,317	-	291,965	102,207
Transfers out	(235,000)	(767,980)	(4,308,980)	(430,446)
Total contributions and transfers	(178,683)	210,447	24,025,597	(324,585)
Change in net position	2,942,544	47,556	39,892,867	(4,737,603)
Net position at beginning of year	46,194,741	25,815,635	1,061,865,561	3,487,002
Total net position at end of year	$ 49,137,285	$ 25,863,191	$ 1,101,758,428	$ (1,250,601)

Change in fund net position of proprietary funds	39,892,867
Adjustment to reflect inclusion of internal service fund activities related to enterprise funds.	(3,011,695)
Change in net position of business-type activities (Exhibit II)	$ 36,881,172

The notes to the basic financial statements are an integral part of this statement. (concluded)

CITY OF DENTON, TEXAS
STATEMENT OF CASH FLOWS
PROPRIETARY FUNDS
FOR THE YEAR ENDED SEPTEMBER 30, 2023

Exhibit X

	Business-type Activities - Enterprise Funds		
	Utility System		
	Electric Fund	Water Fund	Wastewater Fund
CASH FLOWS FROM OPERATING ACTIVITIES:			
Cash received from customers	$ 330,209,746	$ 47,775,516	$ 34,349,222
Cash paid to employees for services	(22,214,059)	(9,286,092)	(8,388,593)
Cash paid to suppliers	(311,947,442)	(11,566,974)	(17,346,876)
Net cash provided (used) by operating activities	(3,951,755)	26,922,450	8,613,753
CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES:			
Transfers out	(898,330)	(1,241,640)	(1,166,030)
Transfers in	280	158	235,210
Proceeds from issuance of non-capital debt	7,500,000	-	-
Principal payments on non-capital debt	(7,040,000)	-	-
Interest and fiscal charges on non-capital debt	(729,625)	-	-
Net cash provided (used) by noncapital financing activities:	(1,167,675)	(1,241,482)	(930,820)
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES:			
Proceeds from issuance of debt	98,656,702	22,775,264	40,983,448
Principal payments on capital debt	(55,329,654)	(8,171,352)	(29,067,893)
Principal payments under capital lease obligation	-	-	-
Interest and fiscal charges	(26,486,476)	(3,649,243)	(8,220,540)
Acquisition of lease assets	-	-	-
Lease liability	-	-	-
Acquisition of SBITA assets	(3,652,376)	(347,936)	-
SBITA liability	2,670,421	-	-
Proceeds from gas wells	-	-	-
Proceeds from impact fees	-	15,828,012	16,817,006
Proceeds from lease financing	-	-	-
Proceeds from capital contributions and transfers in	-	-	-
Proceeds from sale or reimbursement of capital assets	75,637	6,815	12,390
Acquisition and construction of capital assets	(59,005,069)	(50,157,408)	(38,813,049)
Net cash provided (used) by capital financing activities	(43,070,815)	(23,715,848)	(18,288,638)
CASH FLOWS FROM INVESTING ACTIVITIES:			
Proceeds from sale and maturities of investment securities	106,302,712	67,015,691	69,846,567
Purchase of investment securities	(88,486,843)	(80,953,683)	(74,485,065)
Interest received on investments	5,151,141	4,290,275	4,422,326
Proceeds from ownership investment	3,219,121	-	-
Net cash provided (used) by investing activities	26,186,131	(9,647,717)	(216,172)
Net increase (decrease) in cash and cash equivalents	(22,004,114)	(7,682,597)	(10,821,877)
Cash and cash equivalents at beginning of year	53,579,687	39,481,318	39,706,711
Cash and cash equivalents at end of year	31,575,573	31,798,721	28,884,834
Investments, at fair value (Note IV.A.)	100,594,674	101,304,480	92,022,419
Cash, cash equivalents and investments, at fair value	$ 132,170,247	$ 133,103,201	$ 120,907,253
RECONCILIATION OF OPERATING INCOME (LOSS) TO NET CASH PROVIDED (USED) BY OPERATING ACTIVITIES:			
Operating income (loss)	$ (9,677,276)	$ 11,636,922	$ (3,669,884)
Adjustments:			
Depreciation and amortization expense	27,500,779	10,201,146	10,912,258
Decrease (Increase) in receivables	2,369,416	(1,429,579)	(364,835)
Decrease (Increase) in interfund receivables	(4,679,779)	(481,507)	(14,961)
Decrease (Increase) in inventories	-	-	-
Decrease (Increase) in customer deposits	3,115,636	-	-
Decrease (Increase) in prepaid items	(38,248,308)	-	-
Decrease (Increase) in other assets	8,807,096	-	-
Increase in escrow deposits	-	6,432,041	-
Increase (Decrease) in accounts payable	5,744,024	-	1,231,693
Decrease in unearned revenue	-	-	-
Increase (Decrease) in compensated absences payable	185,990	43,486	40,510
Increase (Decrease) in net municipal pension balances	1,250,820	436,887	393,769
Increase (Decrease) in other post-employment benefit balances	159,699	83,054	85,203
Increase (Decrease) in closure/postclosure liability	-	-	-
Increase (Decrease) in interfund payables	(370,529)	-	-
Increase (Decrease) in lease deferred inflows	(109,323)	-	-
Total adjustments	5,725,521	15,285,528	12,283,637
Net cash provided (used) by operating activities	$ (3,951,755)	$ 26,922,450	$ 8,613,753
NONCASH CAPITAL, INVESTING AND FINANCING ACTIVITIES:			
Decrease in fair value of investments	778,386	419,326	477,681
Increase (Decrease) in equity due to non-cash transfers	280	-	-
Capital asset contributions	495,060	7,311,818	19,257,307

The notes to the basic financial statements are an integral part of this statement.

(continued on the following page)

CITY OF DENTON, TEXAS
STATEMENT OF CASH FLOWS (concluded)
PROPRIETARY FUNDS
FOR THE YEAR ENDED SEPTEMBER 30, 2023

Exhibit X

	Business-type Activities - Enterprise Funds			Governmental Activities
	Solid Waste Fund	Airport Fund	Total Enterprise Funds	Internal Service Funds
CASH FLOWS FROM OPERATING ACTIVITIES:				
Cash received from customers	$ 38,988,630	$ 1,513,197	$ 452,836,311	$ 115,048,949
Cash paid to employees for services	(12,118,726)	(759,247)	(52,766,717)	(23,549,281)
Cash paid to suppliers	(16,181,786)	(636,680)	(357,679,758)	(85,865,980)
Net cash provided (used) by operating activities	10,688,118	117,270	42,389,836	5,633,688
CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES:				
Transfers out	(235,000)	(767,980)	(4,308,980)	(430,446)
Transfers in	56,317	-	291,965	102,207
Proceeds from issuance of non-capital debt	-	-	7,500,000	-
Principal payments on non-capital debt	-	-	(7,040,000)	-
Interest and fiscal charges on non-capital debt	-	-	(729,625)	-
Net cash provided (used) by noncapital financing activities:	(178,683)	(767,980)	(4,286,640)	(328,239)
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES:				
Proceeds from issuance of debt	7,357,088	-	169,772,502	4,048,014
Principal payments on capital debt	5,258,606	-	(87,310,293)	(3,230,889)
Principal payments under capital lease obligation	-	-	-	(1,243)
Interest and fiscal charges	(555,086)	-	(38,911,345)	(479,599)
Acquisition of lease assets	-	-	-	244,437
Lease liability	-	-	-	(247,073)
Acquisition of SBITA assets	-	-	(4,000,312)	(7,160,374)
SBITA liability	-	-	2,670,421	5,003,121
Proceeds from gas wells	-	553,971	553,971	-
Proceeds from impact fees	-	-	32,645,018	-
Proceeds from lease financing	-	-	-	2,636
Proceeds from capital contributions and transfers in	-	1,004,341	1,004,341	3,654
Proceeds from sale or reimbursement of capital assets	-	-	94,842	2,961
Acquisition and construction of capital assets	(9,263,149)	83,229	(157,155,446)	(6,554,770)
Net cash provided (used) by capital financing activities	2,797,459	1,641,541	(80,636,301)	(8,369,125)
CASH FLOWS FROM INVESTING ACTIVITIES:				
Proceeds from sale and maturities of investment securities	9,287,391	1,948,105	254,400,466	10,583,911
Purchase of investment securities	(22,959,398)	(3,313,470)	(270,198,459)	(10,557,694)
Interest received on investments	1,187,932	323,246	15,374,920	939,531
Proceeds from ownership investment	-	-	3,219,121	-
Net cash provided (used) by investing activities	(12,484,075)	(1,042,119)	2,796,048	965,748
Net increase (decrease) in cash and cash equivalents	822,819	(51,288)	(39,737,057)	(2,097,928)
Cash and cash equivalents at beginning of year	11,355,759	1,587,709	145,711,184	7,520,137
Cash and cash equivalents at end of year	12,178,578	1,536,421	105,974,127	5,422,209
Investments, at fair value (Note IV.A.)	38,798,983	4,894,788	337,615,344	16,030,408
Cash, cash equivalents and investments, at fair value	$ 50,977,561	$ 6,431,209	$ 443,589,471	$ 21,452,617
RECONCILIATION OF OPERATING INCOME (LOSS) TO NET CASH PROVIDED (USED) BY OPERATING ACTIVITIES:				
Operating income (loss)	$ 2,824,874	$ (1,068,124)	$ 46,512	$ (4,995,114)
Adjustments:				
Depreciation and amortization expense	7,135,414	1,113,881	56,863,478	4,641,896
Decrease (Increase) in receivables	(38,235)	(2,512)	534,255	241,368
Decrease (Increase) in interfund receivables	-	-	(5,176,247)	-
Decrease (Increase) in inventories	-	-	-	(3,681,707)
Decrease (Increase) in customer deposits	(122,056)	-	2,993,580	-
Decrease (Increase) in prepaid items	-	-	(38,248,308)	13,759
Decrease (Increase) in other assets	-	-	8,807,096	-
Increase in escrow deposits	-	-	6,432,041	61,201
Increase (Decrease) in accounts payable	(734,325)	9,768	6,251,160	2,796,631
Decrease in unearned revenue	-	-	-	-
Increase (Decrease) in compensated absences payable	90,579	24,131	384,696	21,951
Increase (Decrease) in net municipal pension balances	(129,066)	35,566	1,987,976	1,485,748
Increase (Decrease) in other post-employment benefit balances	799,421	4,560	1,131,937	(83,911)
Increase (Decrease) in closure/postclosure liability	1,012,793	-	1,012,793	-
Increase (Decrease) in interfund payables	(123,595)	-	(494,124)	5,229,219
Increase (Decrease) in lease deferred inflows	(27,686)	-	(137,009)	(97,353)
Total adjustments	7,863,244	1,185,394	42,343,324	10,628,802
Net cash provided (used) by operating activities	$ 10,688,118	$ 117,270	$ 42,389,836	$ 5,633,688
NONCASH CAPITAL, INVESTING AND FINANCING ACTIVITIES:				
Decrease in fair value of investments	65,783	12,202	1,753,378	92,029
Increase (Decrease) in equity due to non-cash transfers	178,683	-	178,963	-
Capital asset contributions	-	978,427	28,042,612	3,654

The notes to the basic financial statements are an integral part of this statement.

(concluded)

2010

I. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The City of Denton is a municipal corporation governed by an elected seven-member council consisting of a mayor elected at large and six councilpersons, four representing specific geographical districts and two elected at large. The City receives funding from state and federal government sources and must comply with the requirements of these funding source entities. However, the City is not included in any other governmental "reporting entity," as defined in pronouncements by the Governmental Accounting Standards Board (GASB), as council members are elected by the public and have decision-making authority, the authority to levy taxes, the power to designate management, the ability to significantly influence operations, and primary accountability for fiscal matters.

The financial statements of the City have been prepared to conform to accounting principles generally accepted (GAAP) in the United States of America as applicable to state and local governments. Generally accepted accounting principles for local governments include principles prescribed by GASB, the accepted standard-setting body for establishing governmental accounting and financial reporting principles. The following is a summary of the more significant policies.

A. Reporting Entity

An elected seven-member council consisting of a mayor and six councilpersons govern the City. As required by accounting principles generally accepted in the United States of America, these financial statements present the City (the primary government) and its component units, which are entities for which the City is considered to be financially accountable. Blended component units, although legally separate entities, are, in substance, part of the City's operations, and so data from these units are combined with data of the primary government. A discretely presented component unit, on the other hand, is reported in a separate column in the government-wide financial statements to emphasize it is legally separate from the City. The City had no component units, discretely presented or blended, at September 30, 2023.

B. Government-wide and Fund Financial Statements

The basic financial statements include both government-wide (based on the City as a whole) and fund financial statements. The reporting focus is either the City as a whole (government-wide financial statements) or major individual funds (within the fund financial statements). The government-wide financial statements (i.e., the statement of net position and the statement of activities) report information on all non-fiduciary activities of the primary government. For the most part, the effect of inter-fund activity has been removed from these statements. Governmental activities, which normally are supported by taxes and intergovernmental revenues, are reported separately from business-type activities, which rely to a significant extent on fees and charges for support.

The government-wide statement of activities demonstrates the degree to which the direct expenses of a functional category (public safety, public works, etc.) or segment are offset by program revenues. Direct expenses are those that are clearly identifiable with a specific function or segment. Program revenues include (1) charges to customers or applicants who purchase, use or directly benefit from goods, services or privileges provided by a given function or segment; (2) grants and contributions that are restricted to meeting operational requirements of a particular function or segment; and (3) grants and contributions that are restricted to meeting the capital requirements of a particular function or segment. Taxes and other items not properly included among program revenues are reported instead as general revenues.

The net cost (by function or business-type activity) is normally covered by general revenue (property taxes, sales taxes, franchise fees, interest income, etc.).

Separate fund financial statements are provided for governmental funds and proprietary funds. Major governmental funds and major enterprise funds are reported as separate columns in the fund financial statements. GASB Statement No. 34 sets forth minimum criteria (percentage of assets, liabilities, revenues or expenditures/expenses of either fund category and for the governmental and enterprise funds combined) for the determination of major funds. Non-major funds are combined in a column in the fund financial statements.

Internal service funds, which traditionally provide services primarily to other funds of the government, are presented in summary form as part of the proprietary fund financial statements. The financial statements of internal service funds are allocated (based on the percentage of goods or services provided) between the governmental and business-type activities when presented at the government-wide level.

The government-wide focus is more on the sustainability of the City as an entity and the change in aggregate financial position resulting from the activities of the fiscal period. The focus of the fund financial statements is on the major individual funds of the governmental and business-type categories, as well as the fiduciary funds (by category). Each presentation provides valuable information that can be analyzed and compared to enhance the usefulness of the information.

C. Measurement Focus, Basis of Accounting and Financial Statement Presentation

The government-wide financial statements are reported using the economic resources measurement focus and the accrual basis of accounting, as are the proprietary fund statements. Revenues are recorded when earned, and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows. Property taxes are recognized as revenues in the year for which they are levied. Grants and similar items are recognized as revenue as soon as all eligibility requirements imposed by the provider have been met.

Governmental fund-level financial statements are reported using the current financial resources measurement focus and the modified accrual basis of accounting. Revenues are recognized, and susceptible to accrual, as soon as they are both measurable and available. Revenues are considered to be available when they are collectible within the current period or soon enough thereafter to pay liabilities of the current period. For this purpose, the government considers revenues to be available if they are collected within 60 days of the end of the current fiscal period. Any amounts collected beyond the 60 days are recorded as deferred inflows of resources. Expenditures generally are recorded when a liability is incurred, as under accrual accounting. However, debt service expenditures, as well as expenditures related to compensated absences and claims and judgments, are recorded only when payment is due.

The City reports the following major governmental funds:

The general fund is the City's primary operating fund. All general tax revenues and other receipts that are not allocated by law or contractual agreement to some other fund are accounted for in this fund. From the fund are paid general operating costs, fixed charges and capital improvement costs that are not paid through other funds.

The debt service fund accounts for the accumulation of financial resources for the payment of principal, interest and related costs on general long-term debt, paid primarily by taxes levied by the City. On a budgetary-basis, the debt service fund also accounts for pass-through debt service payments from the self-supporting proprietary funds.

The capital projects fund accounts for financial resources used for the acquisition or construction of capital other than those recorded in the enterprise funds and internal service funds.

The ARPA fund accounts for the federal resources received by the City from the American Rescue Plan Act of 2021 and used for the programs as outlined by the plan.

Other governmental funds are a summarization of all of the non-major governmental funds.

The City reports the following major proprietary funds:

The City utility system is made up of three separate funds as follows:

The electric fund accounts for electrical utility services to the residents and commercial establishments of the City. Activities necessary to provide such services are accounted for in the fund, including, but not limited to, administration, operations, maintenance, finance and related debt service.

The water fund accounts for water utility services to the residents and commercial establishments of the City. Activities necessary to provide such services are accounted for in the fund, including, but not limited to, administration, operations, maintenance, finance and related debt service.

The wastewater fund accounts for sewer and storm water services to the residents and commercial establishments of the City. Activities necessary to provide such services are accounted for in the fund, including, but not limited to, administration, operations, maintenance, finance and related debt service.

The City provides additional services through the following funds:

The solid waste fund accounts for the provision of solid waste services to the residents of the City. Activities necessary to provide such services are accounted for in the fund, including, but not limited to, administration, operations, maintenance, finance and related debt service.

The airport fund accounts for the airport services to the public and is funded through operational and gas well revenues. Activities necessary to provide such services are accounted for in the fund, including, but not limited to, administration, operations, maintenance, and finance.

The City additionally reports the following funds:

Internal service funds are used to account for the financing of materials and services provided by one department of the City to other departments of the City on a cost-reimbursement basis.

The materials management fund accounts for the financing of the goods and services of the purchasing department as well as the management and inventory of the City warehouse activities.

The fleet services fund accounts for the financing of goods and services provided by the activities of the City garage and machine shop to other departments.

The health insurance fund accounts for the accumulation of resources for the self-insurance activities of the City for employee medical insurance as well as other employee insurance benefits including long-term disability, short-term disability, and dental and vision insurances.

The risk retention fund accounts for the accumulation of resources for the payment of activities associated with providing general liability insurance coverage and self-funded activities for City departments.

The technology services fund accounts for financing and management of technology equipment, software, and services such as programming, support, training, maintenance, and office services to City departments.

The engineering services fund accounts for providing engineering, real estate, public works inspection, and development review services primarily to City departments although some services are provided to and paid by external entities.

The customer service fund accounts for providing customer service activities to residents and businesses for City departments. Services include bill pay, utility service requests, connect/disconnect services, maintenance of customer accounts, utility billing, operator calls, collections, accounts receivable, and cash handling.

The facilities fund accounts for the maintenance of all city-owned facilities and vertical construction projects.

The City does not have any fiduciary funds as of fiscal year ending September 30, 2023.

Proprietary funds distinguish operating revenues and expenses from non-operating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with a proprietary fund's principal ongoing operations. The principal operating revenues of the City's electric, water, wastewater, solid waste, and airport funds are charges to customers for services. Operating expenses for the enterprise funds and internal service funds include the cost of sales and services, administrative expenses and depreciation on capital assets. All revenues and expenses not meeting this definition are reported as non-operating revenues and expenses.

When both restricted and unrestricted resources are available for use, it is the City's policy to use restricted resources first, then unrestricted resources as they are needed.

D. Budgetary Information

The City Council follows these procedures, as prescribed by City Charter, in establishing the budgets reflected in the financial statements:

1. Within the time period required by law, the City Manager submits to the City Council a proposed budget for the fiscal year beginning on the following October 1. The operating budget includes proposed expenditures and the means of financing them.
2. Public hearings are conducted prior to the adoption of the budget in order to obtain taxpayer comments.
3. The annual budget adopted by the City Council covers the general fund, non-major special revenue funds (Recreation Fund, Police Confiscation Fund, Tourist and Convention Fund, Gas Well Revenues Fund, Street Improvement Fund, and the Citizens' Park Trusts), the debt service fund, the enterprise funds, and internal service funds. The budget is legally enacted by the City Council through passage of an ordinance prior to the beginning of the fiscal year. The basic financial statements reflect the legal level of control, (i.e. the level at which expenditures cannot legally exceed the appropriated amount) which is established at the total fund level as approved by City Council.
4. The City Charter provides for the City Manager to transfer any part of the unencumbered appropriation balance or the entire balance thereof between programs or general classifications of expenditures within an office, department, agency or organizational unit. (The City Council defines an organizational unit as set forth in Article VIII, Section 8.07 of the City Charter, to be a fund that has been appropriated by the City Council.) City Council approval is not required up to the fund level. The Charter also provides that at any time during the year, at the request of the City Manager, City Council may by resolution transfer any part of the unencumbered appropriation balance or the entire balance thereof from one office, department, agency, or organizational unit to another, as well as make any increases in fund appropriations.

Budgets are adopted on a basis for the governmental funds and the budgeted special revenue funds that is generally consistent with generally accepted accounting principles. Budgets for enterprise funds are prepared on the full accrual basis, except certain noncash transactions such as depreciation expense and amortization on debt issuance costs where it is not budgeted, and debt service payments where it is budgeted. Also, during the budgetary process, amounts are included in all fund budgets to recognize administrative transfers between funds for goods or services. These amounts are not included in the reporting of actual activity for the funds. For funds reporting required budget-to-actual comparisons, these administrative transfers are included as adjustments – budgetary basis.

Appropriations in all budgeted funds lapse at the end of the fiscal year even if they have related encumbrances. Encumbrances are commitments related to unperformed contracts for goods or services (i.e., purchase orders and contracts). While all appropriations and encumbrances lapse at year end, valid outstanding encumbrances are re-appropriated against the subsequent year's budget, reducing the available appropriations for additional expenditures.

E. Assets, Liabilities and Net Position or Equity

1. Cash, cash equivalents and investments

The City's cash and cash equivalents are considered to be cash on hand, demand deposits and short-term investments with original maturities of three months or less from the date of acquisition. Investments are carried at fair value, except for the position in local government investment pools. Fair value is determined as the price at which two willing parties would complete an exchange.

The City uses a pooled cash and investment fund to hold and account for all of the City's investments. For financial reporting purposes, the investment balances in the pooled fund are allocated back to the individual funds based on their respective share of the pooled total. Interest earned on investments is also allocated back and recorded directly to the individual funds on a monthly basis.

2. Receivables

Outstanding balances between funds are reported as "interfund receivables/payables." Any residual balances between governmental activities and business-type activities are reported in the government-wide statements as "internal balances."

Trade, property tax receivables, and municipal court receivables are shown net of an allowance for uncollectible accounts. The City accrues amounts for utility services provided in September, but not billed at September 30, 2023.

3. Inventories

Inventories of supplies are maintained at the City warehouse for use by all City funds and are accounted for by the consumption method. Cost is determined using a moving average method. No inventories exist in the governmental fund types.

4. Prepaid items

Certain costs applicable to future accounting periods are recorded as prepaid items. Most of these balances are due to payments into an account for energy settlements in the Electric Fund and health claims in the Employee Insurance Fund.

5. Other Assets

Certain costs applicable to future accounting periods are recorded as other assets. In a prior fiscal year the City fully impaired its TMPA prepaid purchase power due to a permanent closure in generation and subsequent sale of the plant. The impaired amount was recorded as an Other Asset (regulatory) to be amortized over 7.5 years in the electric fund, of which 2.5 years is remaining in the electric fund to be recovered through rate revenues. See note IV.F. for more information on Other Assets and V.E. *Agreement with TMPA* for further information regarding TMPA.

6. Restricted assets

Certain proceeds of the City's governmental and proprietary fund general obligation bonds and certificates of obligation, as well as certain resources set aside for their repayment, are classified as restricted assets on the balance sheet because their use is limited by applicable bond covenants. Assets collected from impact fees are limited by state statute in use and also shown as restricted on the balance sheet of the Water and Wastewater funds.

7. Capital assets

Capital assets, which include property, plant, equipment and infrastructure assets (e.g., roads, bridges, sidewalks and similar items) are reported in applicable governmental or business-type activities columns in the government-wide financial statements and in the proprietary fund financial statements. The City defines capital assets as assets with an initial, individual cost of more than $5,000 and an estimated useful life in excess of one year. Such assets are recorded at historical cost or estimated historical cost if

purchased or constructed. Donated capital assets are recorded at acquisition value, which is the price that would be paid to acquire an asset with equivalent service potential at the acquisition date. Major outlays for capital assets and improvements are capitalized as projects are constructed.

Capital assets are depreciated using the straight-line method over the following useful lives:

Assets	Years
Buildings	40
Infrastructure	20 – 40
General improvements	10
Machinery and equipment	10 – 20
Furniture and office equipment	10
Computer equipment/software	3 – 10
Plant and equipment	5
Underground pipe	40
Water storage rights	50 – 100
Water recreation rights	50
Communication equipment	5
Vehicles	3 – 10
Leases	1 – 100
Subscription-based IT agreement	1 – 5

Renewals and betterments of property and equipment are capitalized, whereas normal repair and maintenance are charged to expense as incurred.

8. Compensated absences

The City allows full-time employees to accumulate unused vacation time without a maximum balance. Upon termination, accumulated vacation time up to 320 hours (480 for civil service fire employees) will be paid to an employee. Generally, sick leave is not paid upon termination except for civil service fire fighters and police officers. Firefighters and police officers accumulate for payout unused sick leave up to a maximum of 1080 hours and 720 hours, respectively. All other employees are paid only upon illness or other valid sick leave uses while employed by the City. Accumulated vacation and sick leave is accrued when incurred in the government-wide and proprietary fund financial statements. A liability for these amounts is reported in governmental funds only if they have matured, for example, as a result of employee resignations and retirements but have not been paid this amount at the end of the fiscal year. The General Fund and Other Governmental Funds are used to record any payout expenditures of the governmental funds' employees and related liability, while proprietary fund payouts for their employees are recorded as reductions to the liabilities in those funds.

9. Arbitrage

Arbitrage involves the investment of the proceeds from the sale of tax-exempt bonds in taxable instruments and securities authorized by the Public Funds Investment Act (Texas Government Code, Chapter 2256) that yield a higher rate, resulting in interest revenue in excess of interest costs. Federal tax code requires that these excess earnings be rebated to the federal government. The Capital Projects Fund has been used in prior years to liquidate governmental funds' related liability. There were no arbitrage payments in the current fiscal year.

10. Pensions

For purposes of measuring the net pension liability, pension-related deferred outflows and inflows of resources, and pension expense, information about the Fiduciary Net Position of the Texas Municipal

Retirement System (TMRS) and the Firemen's Relief and Retirement Fund (FRRF) and additions to/deductions from TMRS's and the FRRF's Fiduciary Net Position have been determined on the same basis as they are reported by TMRS and the FRRF. For this purpose, plan contributions are recognized in the period that compensation is reported for the employee, which is when contributions are legally due. Benefit payments and refunds are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

11. Other post-employment benefits

The City participates in a single-employer, unfunded, defined benefit group-term life insurance plan operated by the Texas Municipal Retirement System (TMRS) known as the Supplemental Death Benefit Fund (SDBF). The City elected, by ordinance, to provide group-term life insurance coverage to both current and retired employees. The funding policy for the SDBF program is to assure that adequate resources are available to meet all death benefit payments for the upcoming year rather than prefunding. Benefit payments are treated as being equal to the City's yearly contribution for retirees. For purposes of measuring the total SDBF OPEB liability, related deferred outflows and inflows of resources, and expense, City specific information about its total SDBF liability and additions to/deductions from the City's total SDBF liability have been determined on the same basis as they are reported by TMRS. The SDBF expense and deferred (inflows)/outflows of resources related to SDBF, primarily result from changes in the components of the total SDBF liability. Most changes in the total SDBF liability will be included in SDBF expense in the period of the change. For example, changes in the total SDBF liability resulting from current-period service cost, interest on the Total OPEB Liability, and changes of benefit terms are required to be included in SDBF expense immediately. Changes in the total SDBF liability that have not been included in SDBF expense are required to be reported as deferred outflows of resources or deferred inflows of resources related to SDBF.

The City provides post-employment medical care (Medical OPEB) for retired employees through a single-employer defined benefit medical plan. The plan provides medical benefits for eligible retirees, their spouses, and their dependents through the City's group health insurance plans. By providing retirees with access to the City's healthcare plans based on the same rates it charges to active employees, the City is in effect providing a subsidy to retirees. This implied subsidy exists because, on average, retiree healthcare costs are higher than active employee healthcare costs. By the City not contributing anything toward the plan in advance, the City employs a pay-as-you-go method through paying the higher rate for active employees each year. The City also contributes up to $200 per month, based on years of service, toward the cost of retiree coverage. As an irrevocable trust has not been established, the plan is not accounted for as a trust fund. For this purpose, plan contributions are recognized in the period that the direct and indirect subsidies are paid by the City. Total OPEB liability, OPEB-related deferred outflows and inflows of resources, and OPEB expense is based on the actuarial measurement dates.

12. Long-term obligations

In the government-wide financial statements and proprietary fund types in the fund financial statements, long-term obligations are reported as liabilities. Bond premiums and discounts are deferred and amortized over the life of the bonds. Bonds payable are reported net of the applicable bond premium or discount. Gain/loss on refunding are reported as deferred outflow/inflow and recognized as a component of interest expense over the remaining life of the old debt or life of the new debt, whichever is shorter.

In the fund financial statements, governmental fund types recognize bond premiums and discounts, as well as bond issuance costs, during the current period. The face amount of debt issued is reported as other financing sources. Premiums received on debt issuances are reported as other financing sources while discounts on debt issuances are reported as other financing uses. Issuance costs, whether or not withheld from the actual debt proceeds received, are reported as debt service expenditures.

13. Fund equity

The City follows GASB Statement No. 54, "Fund Balance Reporting and Governmental Fund Type Definitions", and in accordance with the statement, the classifications of governmental fund balances are presented as follows:

*Nonspendable fund balance*s – includes amounts not in a spendable form or are legally or contractually required to be maintained intact. Examples include inventory or endowments.

Restricted fund balance – includes amounts that can be spent only for the specific purposes stipulated by external resource providers, creditors, grantors, and contributors or through enabling legislation.

Committed fund balance – includes amounts that can be used only for the specific purposes determined by the City Council through an ordinance and may only be changed or lifted through another ordinance. The ordinance must either adopt or rescind the commitment, as applicable, prior to the last day of the fiscal year for which the commitment is made. The amount subject to the constraint may be determined in the subsequent period.

Assigned fund balance - comprises amounts intended to be used for specific purposes. Intent can be expressed by the City Council, or per the policy adopted by an ordinance by the City Council, the City Manager or the City Manager's designee (assistant city manager) may also make an assignment. In governmental funds other than the general fund, assigned fund balance represents the amount that is not restricted or committed and, at a minimum, is intended for the purpose of that fund.

Unassigned fund balance – is the residual classification of the general fund and includes all amounts not constrained in the other classifications. Unassigned amounts are technically available for any purpose. The General Fund is the only fund to report a positive unassigned fund balance amount. However, other governmental funds may report a negative unassigned fund balance as necessary if expenditures incurred for specific purposes exceed the amounts restricted, committed, or assigned for those purposes.

When multiple categories of fund balance are available for expenditure and approved for use by the City Council, the City will start with the most restricted category and spend those funds first before moving down to the next category with available funds. Normally this would result in the use of restricted, then committed, then assigned, and lastly, unassigned fund balance.

14. Minimum fund balance policy

It is the goal of the City to achieve and maintain an unassigned fund balance in the General Fund equal to 20% of budgeted expenditures. An additional 5% resiliency reserve (25% combined total) may be maintained to safeguard against unusual financial circumstances or economic downturns.

15. Net position

Net position represents the difference between assets, deferred inflows, deferred outflows, and liabilities. Net investment in capital assets consists of capital assets net of accumulated depreciation and the outstanding balances of any borrowing spent for the acquisition, construction or improvements of those assets. Net position is reported as restricted when there are limitations imposed on their use either through the enabling legislation adopted by the City or through external restrictions imposed by creditors, grantors or laws or regulations of other governments.

16. Deferred outflows and inflows of resources

In addition to assets, the statement of net position and/or balance sheet will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, deferred outflows of resources, represents a consumption of net assets that applies to future periods and will not be

recognized as an outflow of resources, either expenses or expenditures, until that time. The City reports the following items qualifying for this category:

- Deferred loss on refunding reported in the statements of net position - A deferred charge on refunding results from the difference in the carrying value of refunded debt and its reacquisition price and is amortized over the shorter of the life of the refunded or refunding debt.
- Deferred pension actuarial losses reported in the statement of net position – A deferred charge is recorded for the difference between actual experience and expected experience during the period between two actuarial valuations and is amortized over future periods.
- Deferred pension and other postemployment benefit plan contributions reported in the statement of net position – A deferred charge is recorded for pension contribution amounts paid by the City after the current year's measurement date (December 2022) and will be fully recognized as a reduction of the respective liability in the next period on the next measurement date (December 2023).
- Deferred pension and other postemployment benefit plan actuarial assumption changes – A deferred charge is recorded for the difference due to assumption changes and amortized over future periods.

In addition to liabilities, the statement of net position and/or balance sheet will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, deferred inflows of resources, represents an acquisition of net assets that applies to future periods and will not be recognized as an inflow of resources, or revenues, until that time. The City reports the following items qualifying for reporting in this category:

- Deferred gain on refunding reported in the statements of net position - A deferred charge on refunding results from the difference in the carrying value of refunded debt and its reacquisition price and is amortized over the shorter of the life of the refunded or refunding debt.
- Deferred pension excess earnings reported in the statement of net position – A deferred charge is recorded for the difference between actual investment earnings and expected investment earnings during the period and is amortized over future periods.
- Deferred pension and other postemployment benefit plan actuarial gains reported in the statement of net position – A deferred charge is recorded for the difference between actual experience and expected experience during the period between two actuarial valuations and is amortized over future periods.
- Deferred pension and other postemployment benefit plan actuarial assumption changes – A deferred charge is recorded for the difference due to assumption changes and amortized over future periods.
- Deferred amounts related to leases are reported for leases in which the City is the lessor – A deferred amount recorded to initially offset the total lease receivable recorded at lease commencement and is subsequently amortized as lease revenue over the life of the lease term.
- Deferred unavailable revenues reported on the balance sheet of the governmental funds – A deferred amount is recorded for the billed revenues not yet collected or available. These amounts are deferred and recognized as inflow of resources in the period the amounts become available.

17. Leases

A lease is defined as a contract conveying control of the right to use another entity's nonfinancial asset as specified in the contract for a period of greater than one year, in an exchange or exchange-like transaction.

City as lessee

The City is currently a lessee for noncancelable leases of land, buildings, equipment, or other assets. The City recognized a lease liability and an intangible right-to-use leased asset (lease asset) in the Government-wide and Proprietary Fund financial statements. Reporting includes lease assets with

depreciable capital assets and lease liabilities with long-term liabilities. At the commencement of a lease, the City measured the lease liability at the present value of payments expected to be made over the course of the lease term. Subsequently, the lease liability is reduced by the principal portion of the lease payments. The lease asset is measured as the initial amount of the lease liability, adjusted for lease payments made at or before the lease commencement date, plus certain initial direct costs. Subsequently, the lease asset is amortized on a straight-line basis over the remaining lease term. Variable lease payments based on usage of the underlying assets are not included in the lease liability calculations but are recognized as outflows of resources in the period in which obligations are incurred.

Key estimates and judgements related to leases in which the City would be a lessee are as follows:

- The lease term includes the noncancelable period of the lease. Extension options are included in the lease term unless it is reasonably certain that they will not be exercised.
- The City uses the interest rate charged by the lessor as the discount rate. When the interest rate charged by the lessor is not provided, the City uses its estimated incremental borrowing rate as the discount rate for leases.
- Leases with payments depending on an index or rate, such as the Consumer Price Index or market rate, are initially measured using the index or rate as of the commencement of the lease term.
- Leases with periodic percentage payment increases or flat rate payment increases specified in the lease terms are included in the measurement of the lease liability.

The City monitors changes in the circumstances requiring remeasurement of its leases and will remeasure the lease assets and liabilities if certain changes occur that are expected to significantly affect the amount of the lease liabilities.

City as lessor

The City is a lessor for noncancelable leases of land, buildings, and equipment. The City recognizes a lease receivable and a deferred inflow of resources in the Government-wide, Governmental, and Proprietary Fund financial statements. At the commencement of a lease, the City measures the lease receivable at the present value of payments expected to be received over the life of the lease term. Subsequently, the lease receivable is reduced by the principal portion of lease payments received. The deferred inflow of resources is measured as the initial amount of the lease receivable, adjusted for lease payments received at or before the lease commencement date. Subsequently, the deferred inflow of resources is recognized as revenue over the lease term.

Key estimates and judgements related to leases in which the City is a lessor are as follows:

- The lease term includes the noncancelable period of the lease. Extension options are included in the lease term unless it is reasonably certain that they will not be exercised.
- The City uses its incremental borrowing rate as the discount rate for leases.
- Leases with payments depending on an index or rate, such as the Consumer Price Index or market rate, are initially measured using the index or rate as of the commencement of the lease term.
- Leases with periodic percentage payment increases or flat rate payment increases specified in the lease terms are included in the measurement of the lease receivable.

The City monitors changes in circumstances requiring a remeasurement of its leases and will remeasure the lease receivables and deferred inflows of resources if certain changes occur that are expected to significantly affect the amount of the lease receivables.

18. Subscription-Based Information Technology Agreements (SBITA)

GASB 96 defines a SBITA as a contract that conveys control of the right to use another party's information technology (IT) software, alone or in combination with tangible capital assets, as specified in the contract for a period in an exchange or exchange-like transaction. The City recognizes a subscription liability and an intangible subscription right-of-use asset at the beginning of the subscription term that have a term exceeding one year and the cumulative future payments on the contract exceed

$100,000 unless the contract is considered a short-term SBITA. A SBITA asset is measured based on the net present value of subscription payments expected to be made during the subscription term, using the incremental borrowing rate, and is amortized using the straight-line method over the shorter of the subscription term or the useful life of the underlying IT assets. Re-measurement of a subscription liability occurs when there is a change in the contract term and/or other changes that are likely to have a significant impact on the subscription liability.

F. Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses/expenditures during the reporting period. Actual results could differ from those estimates.

II. RECONCILIATION OF GOVERNMENT-WIDE AND FUND FINANCIAL STATEMENTS

Explanation of certain differences between the governmental fund statement of revenues, expenditures and changes in fund balances and the government-wide statement of activities

An element of that reconciliation states, "Bond proceeds provide current financial resources to governmental funds, but issuing debt increases long-term liabilities in the statement of net position. Repayment of bond principal is an expenditure in the governmental funds, but the repayment reduces long-term liabilities in the statement of net position. This is the amount by which proceeds exceeded payments." The details of this ($37,564,497) difference are as shown on the following page:

Debt issued or incurred:	
Issuance of general obligation debt	$ (40,485,000)
Issuance of certificates of obligation	(29,810,000)
Principal repayments:	
General obligation debt principal retirement	13,580,789
Certificates of obligation principal retirement	8,975,000
Refunded debt principal	10,174,714
Net adjustment to decrease net changes in fund balances - total governemental funds to arrive at changes in net position of governmental activities	$ (37,564,497)

Another element of that reconciliation states, "The net effect of various miscellaneous transactions involving capital assets (i.e., subscription-based IT agreements, leases, sales, trade-ins and donations) is to decrease net position." The details of this ($5,250,530) difference are as follows:

Net effect of transactions involving asset retirements/disposals	$(14,045,731)
Donations of capital assets increase net position in the statement of activities but do not appear in the governmental funds because they are not financial resources	8,795,201
Net adjustment to increase net changes in fund balances - total governmental funds	$ (5,250,530)

Another element of that reconciliation states, "Certain expenses reported in the statement of activities do not require the use of current financial resources and therefore are not reported as expenditures in governmental funds." The details of the ($2,894,878) difference are as follows:

Change in:		
Compensated absences	$	(242,695)
Net pension liability		(56,211,506)
Municipal pension deferred actuarial gains/losses		52,772,711
Municipal pension deferred contributions		1,374,743
Municipal pension deferred assumption changes		(751,392)
Municipal pension deferred economic differences		1,212,547
Total OPEB liability		5,083,946
OPEB deferred contributions		112,846
OPEB deferred assumption changes		(6,203,078)
OPEB deferred economic differences		190,028
Accrued interest		(233,028)
Net adjustment to decrease net changes in fund balances - total governmental funds to arrive at changes in net position of governmental activities	$	(2,894,878)

III. STEWARDSHIP, COMPLIANCE AND ACCOUNTABILITY

A. Deficit Fund Equity

The Materials Management, Risk Retention, Engineering Services, Customer Service, and Facilities Management internal service funds had deficit net positions of ($551,594), ($4,664,170), ($3,383,908), ($1,685,966), and ($92,440), respectively, due to the implementation of GASB Statement No. 68 "*Accounting and Financial Reporting for Pensions-an amendment of GASB Statement No. 27"* and GASB Statement No.75 *"Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions"(OPEB)* which resulted in an increase in the net pension liability and the total OPEB liability in the prior years during implementation.

IV. DETAILED NOTES ON ALL FUNDS

A. Deposits and Investments

In order to facilitate effective cash management practices, the operating cash of all funds is pooled into a common account for the purpose of increasing income through combined investment activities. At year-end, the City had $194,955,299 in cash and cash equivalents of which $13,018 is in petty cash.

The Public Funds Investment Act (Texas Government Code) authorizes the City to invest in obligations of the U.S. Treasury, U.S. agencies, fully collateralized repurchase agreements, public fund investment pools, SEC-registered no-load money market mutual funds, municipal securities of any state rated A or better, certificates of deposit (fully collateralized, insured, and standby letters of credit backed), and commercial paper rated not less than A-1 or P-1 with a stated maturity of no more than 365 days. The City's investment policy may further restrict those investment options. The investments reported on September 30, 2023 were similar to those held during the fiscal year.

The City reports all investments in the financial statements at fair value. At September 30, 2023, the City's investments carried a fair value of $763,544,853, of which $177,435,217 was in a local governmental

investment pool which the City classifies in the financial statements as cash equivalents, resulting in $586,109,636 of investment balances reported in the financial statements.

The City categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. GASB Statement No. 72, Fair Value Measurement and Application establishes an authoritative definition of fair value, sets a framework for measuring fair value, and requires additional disclosures about fair value measurements. The fair value hierarchy categorizes the inputs to valuation techniques used to measure fair value into three levels.

- Level 1 inputs are quoted prices (unadjusted) for identical assets or liabilities in active markets a government can access at the measurement date.
- Level 2 inputs are inputs, other than quoted prices included within Level 1, observable for an asset or liability, either directly or indirectly.
- Level 3 inputs are unobservable inputs for an asset or liability.

The fair value hierarchy gives the highest priority to Level 1 inputs and the lowest priority to Level 3 inputs. If a price for an identical asset or liability is not observable, a government should measure fair value using another valuation technique maximizing the use of relevant observable inputs and minimizing the use of unobservable inputs. If the fair value of an asset or a liability is measured using inputs from more than one level of the fair value hierarchy, the measurement is considered to be based on the lowest priority level input significant to the entire measurement.

At September 30, 2023, the City had the following recurring fair value investments:

		Fair Value Measurement Method			
	9/30/2023	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Percent of Total Investments	Weighted Average Maturity (Days)
Investments Measured at Amortization Cost:					
TexSTAR - Investment Pool	77,435,217			10.14%	1
TexPool - Investment Pool	100,000,000			13.10%	1
Investments by Fair Value Level:					
Debt Securities:					
U.S. Treasury Securities	231,087,093	-	231,087,093	30.27%	259
U.S. Treasury Securities - Discount	49,432,220	-	49,432,220	6.47%	78
U.S. Agency Securities	173,366,538	-	173,366,538	22.71%	269
U.S. Agency Securities - Callable	48,760,690	-	48,760,690	6.39%	571
Commercial Paper	83,463,095	-	83,463,095	10.93%	114
Municipal Bonds - Coupon	-	-	-	0.00%	0
Total Investments	763,544,853	-	586,109,636		
Total Cash and Investments	763,544,853	-	586,109,636		
Portfolio Weighted Average Maturity					194

Of the investments recorded at fair value, the U.S treasuries, the U.S. agency securities, commercial paper, and municipal bonds are valued based upon observable inputs, including but not limited to, model prices for similar assets, benchmark yield curves, and matrix pricing.

Interest rate risk. In accordance with its investment policy, the City manages its exposure to declines in fair values due to interest rate fluctuations by limiting the weighted average maturity of its investment portfolio to less than twenty-four months.

Credit risk. The City's investment policy limits investments to obligations of the United States of America and its agencies, investment quality obligations of the State of Texas (including agencies, municipalities, counties, and other political subdivisions) with a rating not less than AA, certificates of deposits and savings

deposits (fully insured, collateralized, or standby letter of credit backed), fully collateralized repurchase agreements, local public fund investment pools with a dollar weighted average maturity of 60 days or less, U.S. government money market mutual funds with a dollar weighted average maturity of 60 days or less and a stable net asset value of $1 for each share, and commercial paper that has a maturity of 270 days or less and a minimum rating of A-1, P-1, or an equivalent rating by at least two nationally recognized rating agencies. The City's investments in TexSTAR and TexPool were rated "AAAm" by Standard & Poor's, the highest rating a local government investment pool can achieve.

Custodial credit risk. This is the risk that in the event of a bank or counterparty failure, the City's deposits may not be returned. The policy states that all bank deposits of City funds shall be secured by pledged collateral with a market value equal to no less than 102 percent of the principal plus accrued interest less an amount insured by FDIC. As of September 30, 2023, the bank balance for deposits was $19,080,872 and was fully collateralized by the City's third-party custodian, BNY Mellon.

Concentration of Credit Risk. The City's investment policy minimizes the risk of potential loss by diversifying investment types according to the following limitations based on value: U.S. Treasury bills/notes/bonds (100%), U.S. Agencies and Instrumentalities (100%), State of Texas Obligations – including agencies and local governments (15%), local government investment pools (50% in government securities and 15% in prime securities), repurchase agreements (20%), certificates of deposit (35%), savings deposits (15%), U.S. Money Market Mutual Funds (50%), callable U.S. Agencies and Instrumentalities (20%), and commercial paper (20%).

Local Government Investment Pools. During the year, the City invested in two public fund investment pools, TexSTAR and TexPool. The fair value of the position of TexSTAR is measured at net asset value, and the fair value of the position of TexPool is measured at amortized cost. Each pool's governing body is comprised of individuals who are employees, officers, or elected officials of participants in the funds or who do not have a business relationship with the fund and are qualified to advise. Investment objective and strategies of the pools are to seek preservation of principal, liquidity and current income through investment in a diversified portfolio of short-term marketable securities. Pools offer same day access to investment funds, which may be redeemed daily. As the redemption period is only one day or less, the City classifies these balances in the financials as cash equivalent. The pools may only impose restrictions on redemptions in the event of a general suspension of trading on major securities markets, a general banking moratorium, or a national state of emergency affecting the pool's liquidity. The City has no unfunded commitments related to the investment pool.

Cash, cash equivalents and investments, at fair value are reported together on the financial statements. Investments, at fair value, by fund were as follows:

	General Fund	Debt Service	Capital Projects	Other Governmental Funds
Unrestricted investments	29,868,832	840,271	167,698,617	35,375,364
Change in fair value	(168,545)	(4,742)	(946,296)	(199,617)
Restricted investments	-	-	-	-
Change in fair value	-	-	-	-
Total	29,700,287	835,529	166,752,321	35,175,747

	Electric	Water	Wastewater	Solid Waste
Unrestricted investments	27,656,115	41,520,024	31,546,798	12,552,906
Change in fair value	(156,059)	(234,291)	(178,014)	(70,834)
Restricted investments	73,509,420	60,359,345	60,997,836	26,466,256
Change in fair value	(414,802)	(340,598)	(344,201)	(149,345)
Total	100,594,674	101,304,480	92,022,419	38,798,983

Unrestricted investments	Airport	Internal Service Funds	Total City Investments
Change in fair value	2,462,726	12,617,086	362,138,739
Restricted investments	(13,897)	(71,197)	(2,043,492)
Change in fair value	2,459,839	3,504,293	227,296,989
Total	(13,880)	(19,774)	(1,282,600)
	4,894,788	16,030,408	586,109,636

B. Property Tax Revenue

Property taxes attach as an enforceable lien on property as of January 1st. Taxes are levied on October 1st and are due and payable at that time; therefore, the legally enforceable claim arises on October 1st. A receivable is recorded at that time. All unpaid taxes levied October 1st become delinquent February 1st of the following year.

Property taxes at the fund level are recorded as receivables and revenue in the period they become available. Current-year revenues recognized are those Ad valorem taxes collected within the current period or soon enough thereafter to pay current liabilities, which is sixty days after year-end. All other outstanding receivables are adjusted from revenue and recognized as deferred inflows of resources for future collections. Current tax collections for the year ended September 30, 2023 were 99.44% of the tax levy. An allowance is provided for delinquent taxes not expected to be collected in the future.

At September 30, 2023, the City had a tax rate of $0.560682 per $100 valuation. Based upon the maximum Ad valorem tax of $2.50 per $100 valuation imposed by Texas Constitutional law, the City had a tax rate margin of $1.939318. Additional revenues up to $321,246,329 could be raised per year based on the current year's certified assessed value of $16,564,912,437 before the limit is reached.

On December 7, 2010, the City Council approved a Tax Increment Financing Reinvestment Zone (TIRZ #1) for the purpose of dedicating the increase in tax revenues generated within the TIRZ district for development in the downtown area of the City for a total of 30 years. The tax increment to be paid is 100% of the increment in years 1-5, 95% in years 6-10, 90% in years 11-20, and 85% in years 21-30. In fiscal year 2023, the total assessed value of $249,149,564 after supplemental adjustments for TIRZ #1 was an increase of $169,792,710

over the base fiscal year 2011 assessed value and resulted in $856,797 of property tax revenue recorded in the TIRZ Fund as part of All Other Special Revenue Funds.

On December 18, 2012, the City Council approved a Tax Increment Financing Reinvestment Zone (TIRZ #2) for the purpose of dedicating 40% of the increase in tax revenues generated within the TIRZ district for development in the Westpark Industrial District for a total of 25 years. In fiscal year 2023, the assessed value of $270,388,646 after supplemental adjustments was an increase of $270,269,188 over the base fiscal year 2014 assessed value and resulted in $606,140 of property tax revenue recorded in the TIRZ Fund as part of All Other Special Revenue Funds. Denton County participates in the zone and based on their tax rate and a participation contribution of 40% of the County's tax rate, $235,181 of property tax revenue was generated for Fiscal Year 2023.

The City created the Rayzor Ranch Public Improvement District No. 1 in 2014 for the undertaking and financing of public improvements authorized by Chapter 372 of the Texas Local Government Code. The project is located on the City's northern sector, east of Interstate 35, and encompasses approximately 229.693 contiguous acres. The estimated costs of the proposed public improvements total $40 million. The authorized improvement costs will be apportioned 100% to the District. The method of assessment will impose equal shares of the costs of the proposed public improvements on parcels that are similarly benefited. No City property will be assessed, and the City will not be obligated to pay any assessments.

C. Receivables

Receivables at September 30, 2023 for the City's individual major funds and other funds (non-major funds, internal service funds and fiduciary funds), including the applicable allowances for uncollectible accounts, are as follows:

	General	Debt Service	Capital Projects	ARPA	Other Governmental Funds	Electric
Receivables:						
Taxes	11,246,488	622,961	-	-	306,645	-
Accounts	312,373	-	-	-	72,363	15,236,531
Accrued interest	198,376	5,581	1,113,782	9,744	234,947	671,898
Unbilled utility service	-	-	-	-	-	10,813,193
Lease	123,492	-	-	-	-	1,329,065
Other	10,672,033	-	-	-	91,991	8,092,653
Gross receivables	22,552,762	628,542	1,113,782	9,744	705,946	36,143,340
Less: Allowance for uncollectibles	(9,760,211)	(247,128)	-	-	(46,104)	(906,871)
Net Total receivables	$ 12,792,551	$ 381,414	$ 1,113,782	$ 9,744	$ 659,842	$ 35,236,469

	Water	Wastewater	Solid Waste	Airport	Internal Service Funds	Total
Receivables:						
Taxes	-	-	-	-	-	12,176,094
Accounts	4,308,502	2,154,173	1,888,013	84,696	412,229	24,468,880
Accrued interest	676,639	614,641	259,149	32,693	107,070	3,924,520
Unbilled utility service	3,131,546	2,067,728	1,904,806	-	-	17,917,273
Lease	-	-	700,620	-	1,177,603	3,330,780
Other	-	979	2,632	13,181	-	18,873,469
Gross receivables	8,116,687	4,837,521	4,755,220	130,570	1,696,902	80,691,016
Less: Allowance for uncollectibles	(335,358)	(193,420)	(158,301)	(10,790)	(51,820)	(11,710,003)
Net Total receivables	$ 7,781,329	$ 4,644,101	$ 4,596,919	$ 119,780	$ 1,645,082	$ 68,981,013

D. Capital Assets

Capital asset balances and transactions for the year ended September 30, 2023 are summarized below and on the following page.

Governmental activities:	Balance at October 1, 2022	Transfers and Increases	Transfers and Decreases	Balance at September 30, 2023
Capital assets not being depreciated/amortized:				
Land	$ 30,864,802	$ 16,721,390	$ (107,348)	$ 47,478,844
Construction in progress	330,271,457	110,216,057	(117,691,850)	322,795,664
Total capital assets not being depreciated/amortized	361,136,259	126,937,447	(117,799,198)	370,274,508
Capital assets being depreciated/amortized:				
Buildings	102,555,355	14,504,360	-	117,059,715
Infrastructure	364,541,522	71,266,549	(10,969,103)	424,838,968
Machinery, equipment, and other improvements	151,522,783	17,914,798	(2,637,071)	166,800,510
SBITA assets	-	12,220,566	-	12,220,566
Lease Assets	-	300,845	-	300,845
Total capital assets being depreciated/amortized	618,619,660	116,207,118	(13,606,174)	721,220,604
Less accumulated depreciation/amortization for:				
Buildings	36,769,426	2,568,574	-	39,338,000
Infrastructure	217,122,431	15,771,228	(117,932)	232,775,727
Machinery, equipment, and other improvements	101,353,960	10,338,980	(2,034,785)	109,658,155
SBITA assets	-	3,270,121	-	3,270,121
Lease Assets	-	56,408	-	56,408
Total accumulated depreciation/amortization	355,245,817	32,005,311	(2,152,717)	385,098,411
Total capital assets, being depreciated/amortized, net	263,373,843	84,201,807	(11,453,457)	336,122,193
Governmental activities capital assets, net	$ 624,510,102	$ 211,139,254	$ (129,252,655)	$ 706,396,701

(continued)

Business-type activities:	Balance at October 1, 2022	Increases	Transfers and Decreases	Balance at September 30, 2023
Capital assets not being depreciated/amortized:				
Land	$ 76,043,810	$ 12,182,990	$ -	$ 88,226,800
Construction in progress	227,112,189	160,674,552	(77,882,531)	309,904,210
Total capital assets not being depreciated/amortized	303,155,999	172,857,542	(77,882,531)	398,131,010
Capital assets being depreciated/amortized:				
Buildings	40,462,722	273,763	(388,582)	40,347,903
Landfill improvements	32,574,421	135,575	-	32,709,996
Water rights	69,883,098	-	-	69,883,098
Infrastructure	689,000,039	47,306,324	-	736,306,363
Plant, machinery, equipment, and other improvements	902,991,747	40,904,977	(26,433,366)	917,463,358
SBITA assets	-	4,000,312	-	4,000,312
Total capital assets being depreciated/amortized	1,734,912,027	92,620,951	(26,821,948)	1,800,711,030
Less accumulated depreciation/amortization for:				
Buildings	12,984,804	1,078,123	(388,582)	13,674,345
Landfill improvements	28,719,279	1,632,696	-	30,351,975
Water rights	23,230,246	695,990	-	23,926,236
Infrastructure	228,706,937	18,609,020	114,830	247,430,787
Plant, machinery, equipment, and other improvements	301,532,014	33,879,007	- (20,793,751)	314,617,270
SBITA assets	-	968,645	-	968,645
Total accumulated depreciation/amortization	595,173,280	56,863,481	(21,067,503)	630,969,258
Total capital assets, being depreciated/amortized, net	1,139,738,747	35,757,470	(5,754,445)	1,169,741,772
Business-type activities capital assets, net	$ 1,442,894,746	$ 208,615,012	$ (83,636,976)	$ 1,567,872,782

Depreciation and amortization expense was charged to activities of funds/functions/programs as follows:

Governmental activities:	
General government	$ 7,704,676
Public Safety	4,985,900
Public Works	11,711,986
Parks & Recreation	2,960,853
Capital assets held by the internal service funds are charged to the various functions based upon usage	4,641,896
Total depreciation expense - governmental activities	$ 32,005,311
Business-type activities:	
Electric	$ 27,500,779
Water	10,201,146
Wastewater	10,912,258
Solid Waste	7,135,414
Airport	1,113,884
Total depreciation expense - business-type activities	$ 56,863,481

Construction commitments:

The City has several major construction/capital projects planned or in progress as of September 30, 2023. These projects are evidenced by contractual commitments with contractors and include:

Project	Spent-to-Date	Remaining Commitment
2019 Street Reconstruction	51,323,245.88	29,427,301.38
Bonnie Brae	60,095,762.75	24,770,844.31
I-35N 380 to Milam	4,256,060.10	18,805,628.10
Mayhill at DCTA Bridge	13,738,128.83	13,734,263.81
Hickory Substation Reconstruct	35,309,052.81	12,453,532.36
Northwest Water Transmission Line	4,687,175.43	10,313,855.83
Hickory Creek Road	42,097,564.98	9,443,151.27
TxDOT I-35N Wastewater Line Relocation	606,700.25	8,008,749.52
FY22/23 Transformers	4,624,481.32	7,389,440.81
Lake Lewisville Water Treatment Plant	119,082.35	6,091,198.42
Fire Station 9	7,642,565.13	4,413,509.31
Hickory Creek Interceptor	11,835,940.42	3,821,867.71
PSA-Power Engineers-Prg Mngmnt	197,601.86	3,607,861.99
Solids Handling Improvements	11,542,831.82	3,446,071.16
Robson Ranch Sewer	3,194,890.26	3,137,472.60
NBHD 1B - Water/Wastewater/Sidewalks/Streets	12,331.08	3,076,950.72
PSA - Teague, Nall & Perkins	85,353.17	3,015,549.58

E. Interfund Receivables, Payables and Transfers

A summary of interfund receivables and payables (in thousands) at September 30, 2023, is as follows:

	Interfund Receivables:				
	Governmental Major Funds	Business-Type Major Funds			
Interfund Payables:	General Fund	Electric	Water	Wastewater	Total
Non-Major Governmental Funds	$ 988	$ -	$ -	$ -	$ 988
Internal Service Funds	925	14,583	1,845	347	17,700
Total	$ 1,913	$ 14,583	$ 1,845	$ 347	$ 18,688

The more significant interfund receivables and payables include the following:

Interfund receivables	Interfund payables	Amount
Electric fund	Internal service funds-materials management	$ 14,582,614
Water fund	Internal service funds-materials management	$ 1,845,326
General fund	Internal service funds-materials management	$ 925,159
General fund	Non-Major Governmental Funds	$ 988,305
Wastewater fund	Internal service funds-materials management	$ 346,901

The outstanding balances between the Electric, Water, Wastewater, and General Fund related to the Materials Management Fund are a result of the cash position in the Materials Management Fund due to inventory purchases. The outstanding balance between the General Fund and the Non-Major Governmental Funds is due to reimbursement timing from outside sources.

Transfers between funds (in thousands) during the year were as follows:

	Transfers Out:									
	Governmental Major Funds			Business-Type Major Funds						
Transfers In:	General Fund	Capital Projects Fund	Non-Major Governmental Funds	Electric Fund	Water Fund	Wastewater Fund	Solid Waste	Airport Fund	Internal Service Funds	Total
Governmental Major Funds:										
General Fund	$ -	$ 16	$ 10	$ -	$ -	$ -	$ -	$ -	$ -	$ 26
Debt Service Fund	-	-	-	-	-	-	-	718	-	718
Capital Projects Fund	3,968	-	17,442	-	-	-	-	-	430	21,840
Non-Major Governmental Funds	7,961	7	-	898	1,242	1,166	-	50	-	11,324
Electric Fund	-	-	-	-	-	-	-	-	-	-
Wastewater Fund	-	-	-	-	-	-	235	-	-	235
Solid Waste Fund	-	-	56	-	-	-	-	-	-	56
Internal Service Funds	-	102	-	-	-	-	-	-	-	102
Total	$ 11,929	$ 125	$ 17,508	$ 898	$ 1,242	$ 1,166	$ 235	$ 768	$ 430	$34,301

The more significant transfers include the following:

Transfers from fund	Transfers to fund	Amount
Other - SRF	Capital Projects	10,986,003
General Fund	Non-Major Gov't – Recreation Fund	5,688,179
Non-Major Gov't – Street Improvement Fund	Capital Projects	5,581,500
General Fund	Capital Projects	4,537,024
Water, Wastewater and Debtservice	Other - SRF	4,273,127
Business-type Major Funds (Electric, Water, and Wastewater)	Non-Major Gov't – Street Improvement Fund	1,306,035
Business-type Major Funds - Airport	Debt Service Fund	717,980

Transfers from Other-Special Revenue Funds (SRF) were to fund road capital projects. Transfers from the General Fund to the Non-Major Governmental Fund – Recreation was an operating subsidy as part of centralizing Park recreation programs all within the Recreation Fund. Transfers from the Non-Major Governmental Fund – Street Improvement Fund and from the General Fund were to fund capital projects such as streets, building renovations, equipment, and park improvements. Transfers from the Business-type Major Funds (Electric, Water, and Wastewater) to the Non-Major Governmental Fund – Street Improvement Fund were for bond savings costs related to the issuance of certificates of obligation, which fund street maintenance operations in the Street Improvements Fund. Transfers from Business-type Major Funds – Airport to the Debt Service Fund were to pay for Airport-related debt payments previously paid by property taxes.

F. Other Assets

In March 2010, the City issued Combination Tax & Electric Utility System Revenue Refunding Bonds, Series 2010 with a maturity of 15 years for prepaying certain contractual obligations to TMPA. The principal amount of the bonds was $58,820,000 with a reoffering premium and other bond issuance costs of $3,835,015 for a total of $62,655,015. As the proceeds of this debt issuance were placed with Texas Municipal Power Agency (TMPA) and the City received an economic benefit over a period of years, an Other Asset was recorded in the Electric Fund Statement of Net Position in the amount of $62,655,015. The City is amortizing the Other Asset over a period of 15 years with a half year convention the first and last years. See footnote V.E. for more information on TMPA.

In August 2014, the City issued General Obligation Refunding Bonds, Series 2014A with a maturity of 10 years for prepaying certain contractual obligations to TMPA. The principal amount of the bonds was $11,570,000 with a reoffering premium and other bond issuance costs of $1,848,651 for a total of $13,418,651. As the proceeds of this debt issuance were placed with TMPA and the City received an economic benefit over a period of years, an Other Asset was recorded in the Electric Fund Statement of Net Position in the amount of $13,418,651. The City is amortizing the Other Asset over a period of 10 years.

In August 2015, the City issued General Obligation Refunding Bonds, Series 2015A with a maturity of 9 years for prepaying certain contractual obligations to TMPA. The principal amount of the bonds was $2,955,000 with a reoffering premium and other bond issuance costs of $462,133 for a total of $3,417,133. As the proceeds of this debt issuance were placed with TMPA and the City received an economic benefit over a period of years, an Other Asset was recorded in the Electric Fund Statement of Net Position in the amount of $3,417,133. The City is amortizing the Other Asset over a period of 9 years.

In September 2017, the City impaired 37.9% of the of these Other Assets, for a total of $26,930,415. This was due to TMPA closing its power generation operations to seasonal activities only. The impaired portion was recorded as a GASB 62 Regulatory Asset in Other Assets to be amortized over the existing timelines originally established, through mid-year of fiscal year 2025.

In June 2019, TMPA notified Electric Reliability Council of Texas (ERCOT) of the plan to move the generation plant, Gibbons Creek, to a status of decommissioned and retired. The official effective date was

October 2019. In September 2019, the City impaired the remaining portion of the Other Asset. The remaining impaired portion of the original Other Assets were recorded as a GASB 62 Regulatory Asset in Other Assets to also be amortized over the existing timelines originally established, through mid-year of fiscal year 2025.

In February 2021, the State of Texas experienced unprecedented freezing temperatures that put pressure on the availability of electric power (the "Weather Event"). The price for power increased dramatically during this period due to high demand and limited availability that resulted in Utilities, including the City of Denton Electric Fund, utilizing financial reserves to pay ERCOT for the cost of purchased power to service customers during this period. Due to the unparalleled dollar amount of the purchased power, the City of Denton issued $140 million of commercial paper to provide temporary funding for immediate cash flow needs. In September 2021, the City issued $141,990,000 of revenue refunding bonds to convert the outstanding commercial paper principal plus interest to debt to be paid over a period of 30 years. The Electric Fund recorded $140,000,000 of this purchased power expense as a regulatory asset in Other Assets to be amortized over the period of 30 years, starting with fiscal year ending September 30, 2023.

Capitalized Interest-GASB Statement No. 89, "Accounting for Interest Cost incurred before the end of a Construction Period", was implemented in FY 2022 to eliminate interest associated with the construction of capital assets. As these interest costs add to the full capitalized costs associated with the plant and infrastructure assets and provide an economic benefit over a period of years, a regulatory asset was established to continue capitalized interest for the Electric Fund. The regulatory asset recorded addition an addition of $1,621,039 in FY 2022 and $2,007,873 in FY 2023. These amounts will be amortized over the life of related assets to align with the recovery of costs through rates.

To qualify to utilize GASB 62, the following must apply:

- The regulated business-type activity's rate for regulated services provided to its customers are established by or are subject to approval of
- an independent, third-party regulator or by its own governing board empowered by statute or contract to establish rates that bind customers.
- The regulated rates are designed to recover the specific regulated business-type activity's costs of providing the regulated services.

In view of the demand for the regulated services or products and the level of competition, direct and indirect, it is reasonable to assume that rates set at levels that will recover the regulated business-type activity's costs can be charged to and collected from customers. This criterion requires consideration of anticipated changes in levels of demand or competition during the recovery period for any capitalized costs.

The City of Denton qualifies to utilize GASB 62 due to:

- State and local statues empower the City of Denton City Council to establish retail rates.
- The City of Denton specific costs are recovered through City of Denton retail rates.

Current and projected customer demand support the recovery of City of Denton cost of service.

	Balance at October 1, 2022	Increases	Amortization	Balance at September 30, 2023	Years Remaining
Regulatory Assets:					
2010 TMPA Obligation	$ 10,442,503	$ -	$ 4,177,001	$ 6,265,502	1.5
2014 TMPA Obligation	2,683,730	-	1,341,865	1,341,865	1
2015 TMPA Obligation	759,362	-	379,681	379,681	1
2021 Weather Event	135,560,501	-	4,776,063	130,784,438	28
Capitalized Interest	1,621,039	2,007,873	140,359	3,488,553	5-40
Total Other Assets	$ 151,067,135	$ 2,007,873	$10,814,969	$ 142,260,039	

G. Long-term Debt

Long-term liabilities transactions for the year ended September 30, 2023 are summarized as follows below and on the following pages:

	Balance at October 1, 2022	Increases / Transfer	Decreases / Transfers	Balance at September 30, 2023	Due Within One Year
Governmental Activities:					
General obligation bonds	$ 236,288,240	$ 40,485,000	$ 18,768,240	$ 258,005,000	$ 14,985,000
Certificates of obligation	118,055,000	31,160,000	14,585,000	134,630,000	10,590,000
Compensated absences payable	17,038,863	9,945,971	9,625,855	17,358,979	8,490,308
Claims and judgement payable	6,898,411	30,410,397	28,502,541	8,806,267	4,773,339
Net pension liability	25,220,055	68,237,934	-	93,457,989	-
Other post employment benefits	36,613,908	-	6,424,970	30,188,938	-
Leases payable	-	247,072	-	247,072	-
SBITA payable	-	8,255,975	-	8,255,975	-
Unamortized premium/(discounts)	24,952,600	7,013,914	3,289,034	28,677,480	3,301,775
Total governmental activities long-term liabilities	$ 465,067,077	$ 195,756,263	$ 81,195,640	$ 579,627,700	$ 42,140,422

	Balance at October 1, 2022	Increases	Decreases / Transfers	Balance at September 30, 2023	Due Within One Year
Business-type Activities:					
Revenue bonds	$ 332,955,000	$ -	$ 12,435,000	$ 320,520,000	$ 12,905,000
General obligation bonds	99,701,760	32,140,000	19,941,760	111,900,000	20,080,000
Certificates of obligation	506,945,000	117,980,000	51,640,000	573,285,000	17,230,000
Compensated absences payable	3,173,084	2,970,573	2,585,877	3,557,780	2,633,849
Claims and judgement payable	2,700,000	-	-	2,700,000	-
Net pension liability	16,890,481	27,541,086	-	44,431,567	-
Other post employment benefits	18,028,957	-	3,003,438	15,025,519	-
Notes payable	-	7,500,000	-	7,500,000	-
SBITA payable	-	2,670,421	-	2,670,421	-
Landfill closure/post-closure	11,051,945	1,012,793	-	12,064,738	-
Unamortized premium/(discounts)	57,106,692	10,225,185	8,458,463	58,873,414	7,172,864
Total business-type activities	1,048,552,919	202,040,058	98,064,538	1,152,528,439	60,021,713
Total long-term liabilities	$ 1,513,619,996	$ 397,796,321	$ 179,260,178	$ 1,732,156,139	$ 102,162,135

For Internal Service funds, long-term liabilities are included as part of the above totals for governmental activities. Compensated absences payables and net pension liability balances and payments are based on the assignment of an employee within a fund. Other postemployment benefits are liquidated from the Health Insurance internal service fund, with the retiree subsidy amounts paid predominantly by the General Fund. Claims payable represents an estimate of self-insured claims liability outstanding in the Health Insurance and

Risk Retention internal service funds as well as one possible litigation payable in the Electric Fund. Subscription-Based IT Arrangements (SBITA) and Lease liabilities represent GASB 96 and GASB 87 entries, respectively.

General Bonded Debt - General bonded debt at September 30, 2023, is comprised of the following:

General Obligation Bonds and Certificates of Obligation Debt	Interest Rate (%)	Issue Date	Final Maturity	Original Amount of Issue	Gross Amount Outstanding at September 30, 2023
General obligation refunding	2.0 to 3.5	2014	2034	$ 7,165,000	$ 2,515,000
General obligation refunding	3.0 to 5.0	2015	2035	36,110,000	21,215,000
General obligation refunding	3.0 to 5.0	2016	2036	27,635,000	17,940,000
General obligation refunding	3.0 to 5.0	2017	2037	27,825,000	12,840,000
General obligation	3.0 to 5.0	2018	2038	19,235,000	15,920,000
General obligation refunding	3.0 to 5.0	2019	2039	18,015,000	15,475,000
General obligation refunding	2.0 to 5.0	2020	2040	27,675,000	24,175,000
General obligation refunding	2.0 to 5.0	2020A	2031	1,415,000	1,155,000
General obligation	2.0 to 5.0	2021	2041	54,710,000	51,065,000
General obligation	4.0 to 5.0	2022	2042	57,805,000	55,220,000
General obligation	4.0 to 5.0	2023	2043	40,485,000	40,485,000
Total general obligation bonds				318,075,000	258,005,000
Certificates of obligation	2.0 to 5.0	2014	2034	8,635,000	4,645,000
Certificates of obligation	2.0 to 5.0	2015	2035	7,420,000	2,355,000
Certificates of obligation	3.0 to 5.0	2016	2036	7,190,000	2,895,000
Certificates of obligation	3.0 to 5.0	2017	2037	17,000,000	7,765,000
Certificates of obligation	3.0 to 5.0	2018	2038	9,555,000	4,990,000
Certificates of obligation	3.375 to 5.0	2018	2038	28,170,000	22,315,000
Certificates of obligation	3.0 to 5.0	2019	2039	9,390,000	4,980,000
Certificates of obligation	2.0 to 5.0	2020	2040	24,020,000	20,200,000
Certificates of obligation	2.0 to 5.0	2021	2041	24,735,000	21,825,000
Certificates of obligation	4.0 to 5.0	2022	2044	12,565,000	11,500,000
Certificates of obligation	4.0 to 5.0	2023	2044	31,160,000	31,160,000
Total certificates of obligation				179,840,000	134,630,000
Total general bonded debt				$497,915,000	$ 392,635,000

[These amounts do not include net unamortized premiums/ (discounts) of $28,677,480 nor net deferred gain/ (loss) on refunding of ($228,768).]

Proceeds of general obligation bonded debt are restricted to the uses for which they were approved in the bond elections or, in the case of a refunding issuance, to the uses for which the certificates of obligation were originally issued. The City Charter expressly prohibits the use of bond proceeds to fund operating expenses. The general obligations are collateralized by the full faith and credit of the City and, primarily, payable from property taxes.

In July 2023, the City issued $72,625,000 ($32,140,000 of which is included as part of business-type activities) in general obligation refunding bonds. Of this amount, $31,185,000 was issued to pay the costs of bond election capital improvements for streets in the Capital Projects fund. The remaining $41,440,000 was issued to refund outstanding debt obligations. The reacquisition price was below the net carrying amount of

the old debt by $675,562 ($609,268 of which is reported as a deferred gain in business-type activities). This amount is being amortized over the remaining life of the refunded debt, which is the same as the life of the new debt issued. The current refunding was undertaken to reduce total debt service payments over 10 years by $1,080,510 and resulted in a net present value savings of $952,653.

In July 2023, the City issued $149,140,000 ($117,980,000 of which is included as part of business-type activities) in certificates of obligation. The debt was issued to pay the costs of various capital improvements in the Capital Projects Fund ($29,810,000), the Electric Fund ($68,255,000), the Water Fund ($19,575,000), the Wastewater Fund ($15,330,000), the Solid Waste Fund ($14,820,000), the Fleet Fund ($1,200,000), and the Technology Fund ($150,000).

On September 30, 2023, the City had no general obligation bonds or certificates of obligation considered defeased but still outstanding.

Business-type Revenue Bonds – Revenue bond debt at September 30, 2023, is comprised of the following issues:

Revenue Bonds	Interest Rate (%)	Issue Date	Final Maturity	Original Amount of Issue	Gross Amount Outstanding at September 30, 2023
Utility system	3.25 to 5.0	2017	2037	$ 214,890,000	$ 182,160,000
Utility system Refunding	0.27 to 5.7	2021	2036	141,990,000	138,360,000
Total revenue bonds				$ 356,880,000	$ 320,520,000

[These amounts do not include net unamortized premiums/ (discounts) of $16,677,583.]

The revenue bonds are collateralized by the revenue of the Denton utility system funds (System) and the related interest and sinking fund. The ordinance provides that the revenue of the System is to be used first to pay operating and maintenance expenses of the System and second to establish and maintain the revenue bond funds. Any remaining revenues may then be used for any lawful purpose. The ordinance also contains provisions, which among other items restrict the issuance of additional revenue bonds unless certain financial ratios are met. Management believes the City is in compliance with all significant requirements. The interest and sinking fund had a net position balance of $15,734,523 as of September 30, 2023 and is restricted for debt service. On September 30, 2023, the City had no revenue bonds considered defeased but still outstanding.

Business-type General Obligation Bonds and Certificates of Obligation – General obligation bonds and certificates of obligation issued for electric, water, wastewater, and solid waste funds at September 30, 2023, is comprised of the following:

General Obligation Bonds and Certificates of Obligation Debt	Interest Rate (%)	Issue Date	Final Maturity	Original Amount of Issue	Gross Amount Outstanding at September 30, 2023
General obligation refunding	3.0 to 5.0	2014A	2025	$ 27,155,000	$ 5,795,000
General obligation refunding	3.0 to 5.0	2015	2035	1,530,000	385,000
General obligation refunding	4.0 to 5.0	2015A	2026	33,945,000	1,480,000
General obligation refunding	3.0 to 5.0	2016	2028	1,295,000	655,000
General obligation refunding	3.0 to 5.0	2016A	2030	38,425,000	21,300,000
General obligation refunding	3.0 to 5.0	2017	2022	1,280,000	-
General obligation refunding	3.0 to 5.0	2019	2039	26,325,000	9,665,000
General obligation refunding	2.0 to 5.0	2020	2040	34,405,000	20,120,000
General obligation refunding	2.0 to 5.0	2020A	2031	12,735,000	10,320,000
General obligation refunding	4.0 to 5.0	2022	2042	13,480,000	10,040,000
General obligation refunding	4.0 to 5.0	2023	2043	32,140,000	32,140,000
Total general obligation bonds				222,715,000	111,900,000
Certificates of obligation	2.0 to 5.0	2014	2044	80,545,000	58,875,000
Certificates of obligation	2.0 to 5.0	2015	2045	85,595,000	65,290,000
Certificates of obligation	3.0 to 5.0	2016	2046	76,115,000	59,150,000
Certificates of obligation	3.0 to 5.0	2017	2047	73,800,000	56,720,000
Certificates of obligation	3.375 to 5.0	2018	2028	1,375,000	760,000
Certificates of obligation	3.0 to 5.0	2019	2049	19,365,000	17,045,000
Certificates of obligation	2.0 to 5.0	2020	2050	34,060,000	31,590,000
Certificates of obligation	2.0 to 5.0	2021	2041	72,300,000	68,490,000
Certificates of obligation	4.0 to 5.0	2022	2044	99,590,000	97,385,000
Certificates of obligation	4.0 to 5.0	2022	2044	117,980,000	117,980,000
Total certificates of obligation				660,725,000	573,285,000
Total business-type G.O./C.O. bonds				$ 883,440,000	$ 685,185,000

[These amounts do not include net unamortized premiums/ (discounts) of $42,195,831 nor net deferred gain/ (loss) on refunding of $252,499.]

Schedule of Long-term Debt Maturities

Aggregate maturities of the long-term debt (principal and interest) for the years subsequent to September 30, 2023 are shown below:

Governmental Activities:

	General Obligation		Certificates of Obligation		Total	
Fiscal Year	Principal	Interest	Principal	Interest	Principal	Interest
2024	$ 14,985,000	$ 9,881,230	$ 10,590,000	$ 5,386,537	$ 25,575,000	$ 15,267,767
2025	14,875,000	9,115,393	10,015,000	4,829,856	24,890,000	13,945,249
2026	14,885,000	8,474,656	9,675,000	4,373,606	24,560,000	12,848,262
2027	14,935,000	7,832,156	9,205,000	3,923,456	24,140,000	11,755,612
2028	14,105,000	7,185,975	8,285,000	3,496,550	22,390,000	10,682,525
2029-2033	72,295,000	26,808,166	36,390,000	12,418,475	108,685,000	39,226,641
2034-2038	70,485,000	13,190,731	34,545,000	5,520,772	105,030,000	18,711,503
2039-2043	41,440,000	2,932,744	15,925,000	1,098,806	57,365,000	4,031,550
2044-2048	-	-	-	-	-	-
2049-2053	-	-	-	-	-	-
Total	$258,005,000	$ 85,421,051	$134,630,000	$ 41,048,058	$ 392,635,000	$ 126,469,109

Business-Type Activities:

	General Obligation		Certificates of Obligation		Revenue		Total	
Fiscal Year	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest
2024	$ 20,080,000	$ 4,838,289	$ 17,230,000	$ 23,195,182	$ 12,905,000	$ 12,395,313	$ 50,215,000	$ 40,428,784
2025	18,450,000	3,886,875	18,220,000	22,072,676	13,400,000	11,898,018	50,070,000	37,857,569
2026	12,190,000	3,169,725	18,900,000	21,212,676	13,900,000	11,395,282	44,990,000	35,777,683
2027	12,335,000	2,594,125	19,570,000	20,310,525	14,440,000	10,858,300	46,345,000	33,762,950
2028	11,500,000	2,034,350	20,120,000	19,354,625	15,045,000	10,255,530	46,665,000	31,644,505
2029-2033	37,345,000	3,431,275	113,840,000	81,767,204	66,950,000	34,246,510	218,135,000	119,444,989
2034-2038	-	-	128,890,000	56,313,525	101,970,000	24,519,626	230,860,000	80,833,151
2039-2043	-	-	133,045,000	30,738,709	25,290,000	10,831,062	158,335,000	41,569,771
2044-2048	-	-	69,975,000	11,238,997	29,470,000	6,642,486	99,445,000	17,881,483
2049-2053	-	-	33,495,000	2,768,800	27,150,000	1,740,676	60,645,000	4,509,476
Total	$111,900,000	$ 19,954,639	$573,285,000	$ 288,972,919	$ 320,520,000	$ 134,782,803	$ 1,005,705,000	$ 443,710,361

[These amounts do not include net unamortized premiums/ (discounts) of $87,550,894 nor net deferred gain/ (loss) on refunding of $23,731.]

Bonds Authorized and Unissued

General obligation bonds authorized but unissued as of September 30, 2023 amounted to $54,500,000. When issued, the proceeds will be allocated to the applicable street, drainage, police facilities, and parks projects.

All bonds were issued publicly through negotiated or competitive terms with no direct placements. There is no acceleration of maturity of the bonds in the event of default, and the City has never defaulted on the payment of bonds.

Claims and Judgements Payable

Claims and judgements payable include claims payables as part of the City's self-insurance plan, which can be found in note V.D. It also includes a judgement liability of $4,000,000 recorded in the electric fund. Based on the trial court's final reduced jury judgment by the application of statutory caps on damages, the City has accrued the $2.7 million as a long-term liability in the Electric fund. It is possible that the judgment may be reversed or modified on appeal. Additional information regarding the judgement can be found in note V.G. for further information.

H. Landfill Closure and Post-Closure Cost

State and federal laws and regulations require the City to place a final cover on its Mayhill Road landfill site upon closure and to perform certain maintenance and monitoring functions at the site for thirty years after closure. Although closure and post-closure care costs will be paid only upon anticipated closure, the City reports a portion of these costs as an operating expense in each period based on landfill capacity used as of each balance sheet date. Based on an updated model created by a 2022 engineering study, total landfill closure and post-closure cost as of September 30, 2023 was $55,649,845. The $12,064,738 reported as landfill closure and post-closure care liability as of September 30, 2023 is a $1,012,793 increase from the $11,051,945 liability reported on September 30, 2022. This liability represents the cumulative amount incurred to date based on the use of 21.68% of the estimated capacity of the entire landfill at September 30, 2023. The change in estimated capacity decreased due to the remaining life increasing from updated Permit 1590B approval in August 2021.

Based on this estimate, the remaining potential estimated liability for closure and post-closure care of the entire landfill $43,585,107. The City will recognize the remaining estimated cost of closure and post-closure care as the remaining capacity is filled. These amounts are based on what it would cost to perform closure and post-closure care in 2023. Actual cost may fluctuate due to inflation, changes in technology, or changes in regulations. The landfill has a remaining life of 33 years, and the City expects to close the landfill in fiscal year 2056.

The solid waste fund has provided for a reservation and designation of cash and investments of $13,947,040 at September 30, 2023 and anticipates increasing the reserve in future periods as the closure and post-closure activities are carried out.

I. Leases

The City is a lessor in various noncancelable leases of land, building, and equipment. During fiscal year 2023, the City recognized $197,884 in lease revenue and $53,136 in interest revenue.

As of September 30, 2023, the City's lease receivable balance of $3,330,780 was comprised of the following:

Governmental Activities	
One building lease with rents received totaling in $16,659 during the fiscal year 2023, at an interest rate of 1.20%, with a remaining lease term of 7 years	$ 123,492
One equipment lease with rents received totaling in $44,201 during the fiscal year 2023, at an interest rate of .58%, with a remaining lease term of 3 years	318,440
One land leases with rents received totaling $18,186 during the fiscal year 2023, at an interest rate of 1.88% with remaining lease terms of 45 years	859,162
Business-type Activities	
Various land leases with rents received totaling $137,010 during the fiscal year 2023, at an interest rate of 1.47 to 1.85% to with remaining lease terms ranging from 12 to 25 years	2,029,686
	$3,330,780

The lease receivables are expected to be received in subsequent years as follows:

	Governmental Activities		Business-Type Activities	
Fiscal Year	Principal	Interest	Principal	Interest
2024	$ 95,352	$ 18,932	$ 124,351	$ 31,670
2025	96,195	18,269	126,281	29,740
2026	96,864	17,600	128,241	27,780
2027	50,625	16,995	130,232	25,789
2028	17,425	16,735	682,128	97,975
2029 - 2033	55,491	80,589	491,547	46,757
2034 - 2038	31,424	77,841	150,226	25,377
2039 - 2043	51,692	73,963	164,782	10,822
2044 - 2048	76,533	67,970	31,898	296
2049 - 2053	106,786	59,393	-	-
2054 - 2058	143,427	47,678	-	-
2059 - 2063	187,597	32,174	-	-
2064 - 2068	240,627	12,110	-	-
2069	51,056	7	-	-
	$ 1,301,094	$ 540,256	$ 2,029,686	$ 296,206

The City has various aeronautical leasing agreements for land leases (54 agreements, 5 Licenses, 72 buildings) and hangar space (27) at Denton Enterprise Airport. These qualify as regulated leases and are not included in the measurement of lease receivables, in accordance with the requirements of GASB Statement No. 87. The City recognized $777,020 (Land Lease) and $157,544 (Hangar Lease) in lease revenue during fiscal year 2023 for these leases, which have CPI increases that range from 1-5 years, dependent on the lease terms ranging from 1-30 years, with some leases having additional options that range from 5-20 years. As of October 1, 2023, the minimum payments expected to be received over the next five years is shown in the table below:

Fiscal Year	
2024	$ 877,754
2025	990,761
2026	1,015,491
2027	1,050,948
2028	1,077,185

Additionally, on January 1, 2023, City of Denton, TX entered into a 48-month lease as Lessee for the use of Employee Health Clinic. An initial lease liability was recorded in the amount of $300,845. As of September 30, 2023, the value of the lease liability is $247,072. The City of Denton, TX is required to make monthly fixed payments of $6,018. The lease has an interest rate of 0.2130%. The value of the right to use asset as of September 30, 2023 of $300,845 with accumulated amortization of $56,408. The City has one extension option(s), each for 12 months.

J. Subscription-Based Information Technology Agreements (SBITA)

The City entered into SBITA contracts involving various desktop and server software, electronic workflows and document management software along with other departmental specific operations management systems to assist in operations. As of September 30, 2023, all SBITA have fixed, periodic, payments over

the subscription periods, which range from 1 to 5 years and expire no later than fiscal year 2028. In addition, some of these agreements are cancellable with a 30 or 60-day notice. There are no commitments or outflows of resources related to SBITA that are not yet effective.

The future subscription payments as of September 30, 2023, as follows:

	Governmental Activities		Business-Type Activities	
Fiscal Year	Principal	Interest	Principal	Interest
2025	$1,651,195	$ 38,668	$ 534,084	$ 11,422
2026	1,651,195	38,668	534,084	11,422
2027	1,651,195	38,667	534,084	11,421
2028	1,651,195	38,667	534,084	11,421
2029	1,651,195	38,667	534,085	11,421
	$8,255,975	$193,337	$2,670,421	$ 57,107

V. OTHER INFORMATION

A. Pension Plans

Employee Retirement Plans

The City of Denton participates in two pension plans; Texas Municipal Retirement System (TMRS), an agent-multiple employer traditional, joint contributory, hybrid defined benefit pension plan; and the Denton Firemen's Relief and Retirement Fund (FRRF), a single employer, contributory, defined benefit plan. Both plans are described in detail below. Aggregate amounts for the two pension plans are as follows:

	TMRS	FRRF	Total
Pension liability	$ 642,301,045	$ 152,376,252	$ 794,677,297
Pension assets	519,984,941	136,802,800	656,787,741
Net pension liability	$ 122,316,104	$ 15,573,452	$ 137,889,556
Deferred outflows of resources	$ 64,042,157	$ 12,265,779	$ 76,307,936
Deferred inflows of resources	-	(375,549)	(375,549)
Pension expense	28,999,071	2,336,612	31,335,683

Texas Municipal Retirement Plan

Plan Description

The City of Denton participates as one of 901 plans in the defined benefit cash-balance plan administered by the Texas Municipal Retirement System (TMRS). TMRS is statewide public retirement plan created by the State of Texas and administered in accordance with the TMRS Act, Subtitle G, Title 8, Texas Government Code (the TMRS Act) as an agent multiple-employer retirement system for employees of Texas participating cities. The TMRS Act places the general administration and management of the System with a six-member, Governor-appointed board of trustees; however, TMRS is not fiscally dependent on the State of Texas. TMRS issues a publicly-available annual comprehensive financial report obtainable at www.tmrs.com.

All eligible employees of the city are required to participate in TMRS.

Benefits Provided

TMRS provides retirement, disability, and death benefits. Benefit provisions are adopted by the governing body of the City, within the options available in the state statutes governing TMRS.

At retirement, the employee's benefit is calculated based on the sum of the employee's contributions with interest, and the city-financed monetary credits with interest. Employees may choose to receive their retirement benefit in one of seven payments options. Employees may also choose to receive a portion of their benefit as a Partial Lump Sum Distribution in an amount equal to 12, 24, or 36 monthly payments, which cannot exceed 75% of the employee's deposits and interest.

Upon retirement, the employee's retirement benefits are calculated based on the sum of the employee's contributions, with interest, and the City-financed monetary credits, with interest. City-financed monetary credits are composed of three sources: prior service credits, current service credits, and updated service credits.

- Prior service credit, granted by each city joining TMRS, is a monetary credit equal to the accumulated value of the percentage of prior service credit selected by the City, multiplied by an employee's contributions that would have been made, based on the average salary prior to TMRS participation, for the number of months the employee was employed by the City before joining TMRS, accruing 3% annual interest and including the matching ratio adopted by the City.
- Current Service Credit is a monetary credit for service performed by an employee after the City joined TMRS and is based on a percent (200%) of the employee's total contributions and interest credits (commonly referred to as the City's matching ratio). Each participating city designates the rate the employee contributions (7% for the City) and interest is credited on contribution balances annually at a guaranteed minimum 5% rate. Any change in the matching ratio would be applied prospectively.
- Updated Service Credits (USC) is an optional monetary credit granted on an annually repeated basis by the City, and it may increase an employee's monthly retirement benefit. In calculating USC, TMRS looks at the changes in the employee's salary over their career and any changes the City has made to its TMRS plan, such as the employee contribution rate or the City's matching ratio. Although USC may increase the employee's retirement benefit, USC does not affect the amount of contributions in an employee's account or the amount an employee will receive if they refund.

The plan provisions also include an annually repeating basis cost of living adjustments for retires equal to 70% of the change in the consumer price index. If an employee terminates employment and refunds their account, the employee will receive their total contributions, plus credited interest. The employee will not receive any of the city-financed monetary credits. An employee can retire at ages 60 and above with 5 or more years of service or with 20 years of service regardless of age. A member is vested after five years.

Employees Covered by Benefit Terms

At the December 31, 2022 valuation and measurement date, the following employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits	884
Inactvie employees entitled to but not yet receiving benefits	851
Active employees	1,355
Total	3,090

Contributions

The contribution rates for employees in TMRS are either 5%, 6%, or 7% of employee gross earnings, and the city matching percentages are either 100%, 150%, or 200%, both as adopted by the City Council. Under the state law governing TMRS, the contribution rate for each city is determined annually by the actuary, using the Entry Age Normal (EAN) actuarial cost method. The City's contribution rate is based on the liabilities

created from the benefit plan options selected by the City and any changes in benefits or actual experience over time.

Employees for the City were required to contribute 7% of their annual gross earnings during the fiscal year. The contribution rates for the City were 17.87% and 18.15% in calendar years 2022 and 2023, respectively. The City's contributions to TMRS for the year ended September 30, 2023 were $21,104,072 and were equal to the required contributions.

Net Pension Liability

The City's Net Pension Liability (NPL) was measured as of December 31, 2022, and the Total Pension Liability (TPL) used to calculate the Net Pension Liability was determined by an actuarial valuation as of that date.

Actuarial Assumptions

The Total Pension Liability in the December 31, 2022 actuarial valuation was determined using the following actuarial assumptions:

Inflation	2.50% per year
Overall payroll growth	3.50% per year
Investment Rate of Return	6.75%, net of pension plan investment expense, including inflation

Salary increases were based on a service-related table. Mortality rates for active members are based on the PUB(10) mortality tables with the Public Safety table used for males and the General Employee table used for females. Mortality rates for healthy retirees and beneficiaries are based on the gender-distinct 2019 Municipal Retirees of Texas mortality tables. The rates for actives, healthy retirees and beneficiaries are projected on a fully generational basis by Scale UMP to account for future mortality improvements. For disabled annuitants, the same mortality tables for healthy retirees are used with a 4-year set-forward for males and a 3-year set-forward for females. In addition, a 3.5% and 3.0% minimum mortality rate is applied, for males and females respectively, to reflect the impairment for younger members who become disabled. The rates are projected on a fully generational basis by Scale UMP to account for future mortality improvements subject to the floor.

The actuarial assumptions were developed primarily from the actuarial investigation of the experience of TMRS over the four-year period from December 31, 2014 to December 31, 2018. They were adopted in 2019 and first used in the December 31, 2019 actuarial valuation. The post-retirement mortality assumption for healthy annuitants and Annuity Purchase Rate (APRs) are based on the Mortality Experience Investigation Study covering 2009 through 2011 and dated December 31, 2013. Plan assets are managed on a total return basis with an emphasis on both capital appreciation as well as the production of income in order to satisfy the short-term and long-term funding needs of TMRS.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target allocation and best estimates of real rates of return for each major asset class in fiscal year 2023 are summarized in the following table:

Asset Class	Target Allocation	Long-Terrm Expected Real Rate of Return (Arithmetic)
Global Equity	35%	7.7%
core Fixed Income	6%	4.9%
Non-Core Fixed Income	20%	8.7%
Real Return	12%	8.1%
Real Estate	12%	5.8%
Absolute Return	5%	6.9%
Private Equity	10%	11.8%
Total	100%	

Discount Rate

The discount rate used to measure the Total Pension Liability was 6.75%. The projection of cash flows used to determine the discount rate assumed that employee and employer contributions will be made at the rates specified in statute. Based on that assumption, the pension plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current active and inactive employees. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability.

Changes in the Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balance at 12/31/2021	$ 600,289,185	$ 560,080,718	$ 40,208,467
Changes for the year:			
Service cost	19,111,021	-	19,111,021
Interest	40,284,903	-	40,284,903
Change of benefit terms	-	-	-
Difference between expected and actual experience	8,678,564	-	8,678,564
Changes of assumptions	-	-	-
Contributions - employer	-	19,140,875	(19,140,875)
Contributions - employee	-	7,670,708	(7,670,708)
Net investment income	-	(40,913,118)	40,913,118
Benefit payments, including refunds of employee contributions	(26,062,628)	(26,062,628)	-
Administrative expense	-	(353,785)	353,785
Other changes	-	422,171	(422,171)
Net changes	42,011,860	(40,095,777)	82,107,637
Balance at 12/31/2022	$ 642,301,045	$ 519,984,941	$ 122,316,104

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability of the City, calculated using the discount rate of 6.75%, as well as what the City's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (5.75%) or 1-percentage-point higher (7.75%) than the current rate:

	1% Decrease in Discount Rate (5.75%)	Current Discount Rate (6.75%)	1% Increase in Discount Rate (7.75%)
City's net pension liability	$ 216,545,504	$ 122,316,104	$ 45,501,845

Pension Plan Fiduciary Net Position

Detailed information about the pension plan's Fiduciary Net Position is available in the Schedule of Change in Fiduciary Net Position, by Participating City, separately-issued TMRS financial report. That report may be obtained on the Internet at *www.tmrs.com*.

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

For the year ended September 30, 2023, the City recognized pension expense of $7,836,233. This amount is included as part of personnel services expenses.

At September 30, 2023, the City reported deferred outflows of resources and deferred inflows of resources related to TMRS pension from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between projected and actual investment earnings	$ 35,798,004	$ -
Contributions subsequent to the measurement date	15,417,601	-
Differences between expected and actual economic experience	12,641,610	-
Difference in assumption changes	184,942	-
Total	$ 64,042,157	$ -

$15,417,601 reported as deferred outflows of resources related to pensions resulting from contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability for the City's fiscal year ending September 30, 2024. Other amounts reported as deferred outflows and inflows of resources related to pensions will be recognized in pension expense (income) as follows:

For the Year Ended September 30,	Net Deferred Outflows/(Inflows)
2023	$ 6,707,832
2024	12,989,176
2025	12,449,041
2026	16,478,507
2027	-
Total	$ 48,624,556

Denton Firemen's Relief and Retirement Plan

Plan Description

The City contributes to the retirement plan for firefighters in the Denton Fire Department known as the Denton Firemen's Relief and Retirement Fund (the Fund). The Fund is a single employer, contributory, defined benefit plan. The benefit provisions of the Fund are authorized by the Texas Local Fire Fighters' Retirement Act (TLFFRA). TLFFRA provides the authority and procedure to amend benefit provisions. The plan is administered by the Board of Trustees of the Denton Firemen's Relief and Retirement Fund. The City does not have access to nor can it utilize assets within the retirement plan trust. The Fund issues a stand-alone report pursuant to GASB Statement No. 67, which may be obtained by writing the Denton Firemen's Relief and Retirement Fund at P.O. Box 2375, Denton, Texas 76202. See that report for all information about the plan fiduciary net position.

Benefits Provided

Firefighters in the Denton Fire Department are covered by the Denton Firemen's Relief and Retirement Fund which provides service retirement, death, disability, and withdrawal benefits. These benefits fully vest after 20 years of credited service. Firefighters may retire at age 50 with 20 years of service. A partially vested benefit is provided for firefighters who terminate employment with at least 10 but less than 20 years of service. If a terminated firefighter has a partially vested benefit, the firefighter may retire starting on the date they would have both completed 20 years of service if they had remained a Denton firefighter and attained age 50. The present plan effective January 1, 2011 provides a monthly normal service retirement benefit, payable in a Joint and Two-Thirds to Spouse form of annuity, equal to 2.59% of Highest 36-Month Average Salary for each year of service.

A retiring firefighter who is at least age 52 with at least 22 years of service has the option to elect the Retroactive Deferred Retirement Option Plan (RETRO DROP) which will provide a lump sum benefit and a reduced monthly benefit. The reduced monthly benefit is based on the service and Highest 36-Month Average Salary as if the firefighter had terminated employment on their selected RETRO DROP benefit calculation date, which is no earlier than the later of the date the firefighter meets the age 52 and 22 years of service requirements and the date four years prior to the date the firefighter actually retires. Upon retirement, the employee will receive, in addition to the monthly retirement benefit, a lump sum equal to the sum of (1) the amount of monthly contributions the member has made to the Fund after the RETRO DROP benefit calculation date plus (2) the total of the monthly retirement benefits the member would have received between the RETRO DROP benefit calculation date and the date retired under the plan. There are no account balances. The lump sum is calculated at the time of retirement and distributed as soon as administratively possible.

There is no provision for automatic postretirement benefit increases. The Fund has the authority to provide, and has periodically in the past provided, ad hoc postretirement benefit increases.

Employees Covered by Benefit Terms

In the December 31, 2021 actuarial valuation, the following numbers of members were covered by the Fund:

Inactive employees or beneficiaries currently receiving benefits	92
Inactive employees entitled to but not yet receiving benefits	7
Active employees	211
Total	310

Contributions

The contribution provisions of the Fund are authorized by TLFFRA. TLFFRA provides the authority and procedure to change the amount of contributions determined as a percentage of pay by each firefighter and a percentage of payroll by the City.

The contribution policy of the Denton Firemen's Relief and Retirement Fund requires contributions equal to 12.6% of pay by the firefighters, the rate elected by the firefighters according to TLFFRA. The City began contributing in December 2017 according to a new City funding policy. The ordinance defining it includes an actuarially determined contribution rate over a closed 25-year amortization period, a contribution rate of 18.5% for several years, a minimum rate standard, and City review and approval of each actuarial valuation. The December 31, 2022 actuarial valuation includes the assumption the City contribution rate will be 18.5% over the unfunded liability amortization period. The costs of administering the plan are paid from the Fund assets. The City's contributions to the Fund for the year ended September 30, 2023 were $4,804,198.

Ultimately, the funding policy also depends upon the total return of the Fund's assets, which varies from year to year. Investment policy decisions are established and maintained by the board of trustees. For the calendar year ending December 31, 2022, the money-weighted rate of return on pension plan investments was 17.93%. This measurement of the investment performance is net of investment-related expenses, reflecting the effect of the timing of the contributions received and the benefits paid during the year.

While the contribution requirements are not actuarially determined, state law requires that each change in plan benefits adopted by the Fund must first be approved by an eligible actuary, certifying the contribution commitment by the firefighters and the assumed city contribution rate together provide an adequate contribution arrangement. Using the entry age actuarial cost method, the plan's normal cost contribution rate is determined as a percentage of payroll. The excess of the total contribution rate over the normal cost contribution rate is used to amortize the plan's unfunded actuarial accrued liability (UAAL). The number of years needed to amortize the plan's UAAL is actuarially determined using an open, level percentage of payroll method.

Net Pension Liability

The City of Denton's net pension liability was measured as of December 31, 2022, and the total pension liability used to calculate the net pension liability was determined based on the actuarial valuation as of December 31, 2022.

Total pension liability	$ 152,376,252
Plan fiduciary net position	136,802,800
City's net pension liability	$ 15,573,452
Plan fiduciary net position as a percentage of the total pension liability	89.8%

Actuarial Assumptions

The total pension liability in the December 31, 2021 actuarial valuation was determined using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.50% per year
Overall payroll growth	3.00% per year, plus promotion, step and longevity increases that vary by service
Investment Rate of Return	6.75%, net of pension plan investment expense, including inflation

Mortality rates were based on the PubS-2010 (public safety) total dataset mortality tables employees and for retirees (sex distinct), projected for mortality improvement generationally using the projection scale MP-2019.

The long-term expected rate of return on pension plan investments is reviewed for each biennial actuarial valuation and was determined using a building-block method in which expected future net real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These components are combined to produce the long-term expected rate of return by weighting the expected future net real rates of return by the target asset allocation percentage (currently resulting in 4.96%) and by adding expected inflation (2.5%). In addition, the final 6.75% assumption was selected by "rounding down" and thereby reflects a reduction of 0.71% for adverse deviation. The target allocation and expected arithmetic net real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (Arithmetic)
Equities		
Large Cap Domestic	40.0%	6.00%
Small/Mid Cap Domestic	10.0%	6.50%
International Developed	10.0%	6.50%
Alternatives		
Master Limited Partnerships	8.0%	6.50%
Real Estate	15.0%	4.50%
Fixed Income	15.0%	1.00%
Cash	2.0%	0.00%
Total	100.0%	
Weighted Average		4.96%

Discount Rate

The discount rate used to measure the total pension liability was 6.75%. No projection of cash flows was used to determine the discount rate because the December 31, 2022 actuarial valuation showed expected contributions would pay the normal cost and amortize the unfunded actuarial accrued liability (UAAL) in 9 years. Because of the 9-year amortization period of the UAAL, the pension plan's fiduciary net position is expected to be available to make all projected future benefit payments of current active and inactive members. Therefore, the long-term expected rate of return on pension plan investments of 6.75%was applied to all periods of projected benefit payments as the discount rate to determine the total pension liability.

Changes in the Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balance at 12/31/2021	$ 142,439,646	$ 140,537,577	$ 1,902,069
Changes for the year:			
Service cost	4,965,768	-	4,965,768
Interest	9,787,310	-	9,787,310
Change of benefit terms	-	-	-
Difference between expected and actual experience	-	-	-
Contributions - employer	-	4,545,905	(4,545,905)
Contributions - employee	-	3,096,130	(3,096,130)
Net investment income	-	(6,446,061)	6,446,061
Benefit payments, including refunds of employee contributions	(4,816,472)	(4,816,472)	-
Administrative expense	-	(114,279)	114,279
Net changes	9,936,606	(3,734,777)	13,671,383
Balance at 12/31/2022	$ 152,376,252	$ 136,802,800	$ 15,573,452

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability of the City of Denton, calculated using the discount rate of 6.75%, as well as what the city's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (5.75%) or 1-percentage-point higher (7.75%) than the current rate:

	1% Decrease in Discount Rate (5.75%)	Current Discount Rate (6.75%)	1% Increase in Discount Rate (7.75%)
City's net pension liability	$ 35,273,538	$ 15,573,452	$ (884,561)

Pension Plan Fiduciary Net Position

The plan fiduciary net position reported above is the same as reported by the Fund. Detailed information about the plan fiduciary net position is available in the Fund's separately issued audited financial statements, which are reported using the economic resources measurement focus and the accrual basis of accounting in conformity with accounting principles generally accepted in the United States of America. Revenues are recorded when earned, and expenses are recorded when a liability is incurred, regardless of the timing of the related cash flows. Investments are reported at fair value, the price that would be recognized to sell an asset in an orderly transaction between market participants at the measurement date.

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

For the year ended September 30, 2023, the City recognized negative pension expense of $2,336,612. Amounts recognized in the fiscal year represent changes between the current and prior year measurement dates. This amount is included as part of personnel services expenses.

At September 30, 2023, the City reported deferred outflows of resources and deferred inflows of resources related to the Fund from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between projected and actual investment earnings	$ 933,280	$ -
Contributions subsequent to the measurement date	3,506,747	-
Differences between expected and actual economic experience	5,407,801	(375,549)
Difference in assumption changes	2,417,951	-
Total	$ 12,265,779	$ (375,549)

Deferred outflows of resources related to pensions resulting from contributions subsequent to the measurement date of $3,506,747. will be recognized as a reduction of the net pension liability for the measurement year ending December 31, 2023, and the City's fiscal year ending September 30, 2024. Other amounts reported as deferred outflows and inflows of resources related to pensions will be recognized in pension expense (income) as follows:

For the Year Ended September 30,	Net Deferred Outflows/(Inflows)
2024	$ (1,057,188)
2025	780,350
2026	1,812,996
2027	4,392,413
2028	1,042,326
Thereafter	1,412,586
Total	$ 8,383,483

B. Post-employment Benefits Other than Pensions (OPEB)

The City of Denton provides for two post-employment benefit (OPEB) plans; one provides for post-employment medical care through a single-employer defined benefit medical plan (Medical OPEB), and the other is the Texas Municipal Retirement System Supplemental Death Benefits Fund (TMRS SDBF), a single-employer defined benefit OPEB plan. Both plans are described in detail following.

Aggregate amounts for the two OPEB plans are as follows:

	Medical OPEB	TMRS SDBF	Total
Total OPEB liability	$ 41,482,438	$ 3,732,019	$ 45,214,457
Deferred outflows of resources	$ 5,630,418	$ 1,014,418	$ 6,644,836
Deferred inflows of resources	12,622,440	1,895,755	14,518,195
OPEB expense	3,228,576	265,055	3,493,631

Medical Benefits

Plan Description

The City of Denton provides post-employment medical care (OPEB) for retired employees through a single-employer defined benefit medical plan. The plan provides medical benefits for eligible retirees, their spouses and dependents though the City's group health insurance plans, which covers both active and retired members. The benefits, benefit levels, and contribution rates are recommended annually by the City management as part of the budget process. Any changes in rate subsidies for retirees are approved by the City Council. Since an irrevocable trust has not been established, the plan is not accounted for as a trust fund. The plan does not issue a separate financial report.

Benefits Provided

The City provides post-employment medical, dental, and vision care benefits to its retirees. To be eligible for benefits, an employee must qualify for retirement under the Texas Municipal Retirement System or the Denton Firemen's Relief and Retirement Plan. Retirees must make a one-time irrevocable decision to choose benefits at the time of retirement, after that their eligibility for the benefits ceases. However, retirees can move between plans and can add and drop dependents based on qualifying events.

All medical care benefits are provided through the City's self-insured health plan. The benefit levels are the same as those afforded to active employees.

Employees Covered by the Benefit Terms

In the December 31, 2022, actuarial valuation, the following number of employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits	249
Active employees	1,540
Total	1,789

Funding Policy

The plan premium rates are recommended annually by City management and approved by the City Council as part of the annual budget. The retiree's contribution is the full amount of the actuarially determined blended premium rate less a subsidy dependent upon years of service at retirement. By providing retirees with access to the City's healthcare plans based on the same rates it charges to active employees, the City is in effect providing a subsidy to retirees. This implied subsidy exists because, on average, retiree health care costs are higher than active employee healthcare costs. By the City not contributing anything toward this plan in advance, the City employs a pay-as-you-go method through paying the higher rate for active employees each year. The City contributes $40 per month for each five-year increment of service, up to $200 per month, toward the cost of retiree coverage. The full cost for dental and vision is paid by the retiree. Retirees are required to enroll in Medicare Part B once eligible (age 65) and are moved into a fully-insured Medicare Supplement plan at that time. The same City contribution level applies to the supplement.

Medical OPEB Liability

The City's medical OPEB liability of $41,482,438 was measured as of December 31, 2022, the same date as the actuarial valuation.

Actuarial Methods and Assumptions

The medical OPEB liability in the December 31, 2022 actuarial valuation was determined using the following actuarial assumptions and other inputs, applied to all periods included in the measurement date, unless otherwise specified.

Significant method and assumptions used for this fiscal year valuation were as follows:

	Actuarial Assumptions
	12/31/2022
Valuation date	December 31,2021
Actuarial cost method	Individual Entry-Age Normal Method
Discount Rate	2.75% as of December 31, 2019 1.84% as of December 31, 2021 4.05% as of December 31, 2022
Inflation rate	2.50% per annum
Projected salary increases	3.50% to 11.50% for TMRS, including inflation 3.00% to 9.18% for Fire, including inflation
Healthcare trend rates	Initial rate of 7.00% declining to an ultimate rate of 4.15% after 13 years
Mortality	**TMRS:** For healthy retirees, the gender-distinct 2019 Municipal Retirees of Texas mortality tables are used. The rates are projected on a fully generational basis using the ultimate mortality improvement rates in the MP tables to account for future mortality improvements. **Firefighters:** The gender-distinct PubS-2010 (safety employees) total data set mortality are used. The rates are projected on a fully generational basis using the projection scale MP-2019.
Participation Rates	65% for employees retiring at age 65 or older; 45% for employees retiring between the ages of 50 and 64; 5% for employees retiring between the ages of 45 and 49; 0% for employees retiring before the age 45.

Changes in the Medical OPEB Liability

	Total Medical OPEB Liability
Balance at 12/31/2021	$ 49,266,518
Changes for the year:	
Service cost	3,282,530
Interest	921,256
Difference between expected and actual experience	(42,650)
Changes of assumptions	(10,266,201)
Benefit payments	(1,679,015)
Net changes	(7,784,080)
Balance at 12/31/2022	$ 41,482,438

Total OPEB liability as a percentage of covered payroll was 30.13%.

Sensitivity of the Medical OPEB Liability to Changes in the Discount Rate

The following schedule shows the impact of the medical OPEB liability if the discount rate used was 1% less than (3.05%) and 1% greater than (4.05%) the discount rate that was used (5.05%) in measuring the medical OPEB liability:

	1% Decrease (3.05%)	Current Discount Rate (4.05%)	1% Increase (5.05%)
Total SDBF OPEB liability	$ 45,753,482	$ 41,482,438	$ 37,735,595

Sensitivity of the Medical OPEB Liability to Changes in the Healthcare Cost Trend Rate Assumption

The following schedule shows the impact of the medical OPEB liability if the healthcare trend cost rate used was 1% less than (6.00%) and 1% more than (8.00%) the healthcare cost trend rate that was used (7.00%) in measuring the medical OPEB liability:

	1% Decrease (6.00%)	Current Healthcare Cost Trend Rate Assumption (8.00%)	1% Increase (7.00%)
Total SDBF OPEB liability	$ 38,111,505	$ 41,482,438	$ 45,474,336

Medical OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Medical OPEB

For the year ended September 30, 2023, the City recognized medical OPEB expense of $265,055. At September 30, 2023, the City reported deferred outflows of resources and deferred inflows of resources related to medical OPEB from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual economic experience	$ 217,802	$ 1,914,043
Changes in actuarial assumptions	3,890,791	10,708,397
Contributions subsequent to the measurement date	1,521,825	-
Totals	$ 5,630,418	$ 12,622,440

Deferred outflows of resources related to OPEB contributions subsequent to the measurement date of $1,521,825 will be recognized as a reduction of the medical OPEB liability for the City's fiscal year ending September 30, 2024. Other amounts reported as deferred outflows of resources related to the medical OPEB will be recognized in OPEB expense as follows:

Year Ending September 30,	Net Deferred Outflows/(Inflows)
2024	$ (975,210)
2025	(975,210)
2026	(983,003)
2027	(1,198,753)
2028	(994,385)
Thereafter	(3,387,286)
Total	$ (8,513,847)

TMRS Supplemental Death Benefit Fund

Plan Description

The City of Denton voluntarily participates in the Texas Municipal Retirement System Supplemental Death Benefits Fund (TMRS SDBF). The SDBF is a defined benefit group-term life insurance Other Postemployment Benefit (OPEB) plan as defined by GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. No assets are accumulated in a trust that meets the criteria in paragraph 4 of GASB Statement No. 75. It is established and administered in accordance with the TMRS Act identically to the City's pension plan.

Benefits Provided

The SDBF provides group-term life insurance to City employees who are active members in TMRS, including or not including retirees. The City Council opted into this system via an ordinance, and may terminate coverage under, and discontinue participation in, the SDBF by adopting an ordinance before November 1st of any year to be effective the following January 1st.

Payments from this fund are similar to group-term life insurance benefits and are paid to the designated beneficiaries upon the receipt of an approved application for payment. The death benefit for active employees provides a lump-sum payment approximately equal to the employee's annual salary (calculated based on the employee's actual earnings for the 12-month period preceding the month of death). The death benefit for retirees is considered an "other postemployment benefit" (OPEB) and is a fixed amount of $7,500. As the SDBF covers both active and retiree participants with no segregation of assets, the SDBF is considered to be an unfunded OPEB plan.

Employees Covered by the Benefit Terms

In the December 31, 2022 actuarial valuation, the following number of employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits	675
Inactive employees entitled to but not yet receiving benefits	251
Active employees	1,355
Total	2,281

Contributions

The City contributes to the SDBF at a contractually required rate as determined by an annual actuarial valuation, which was 0.28% for 2023 and 0.18% for 2022, of which 0.10% for 2023 and 0.09% for 2022, represented the retiree-only portion for each year, as a percentage of annual covered payroll. The rate is equal to the cost of providing one-year term life insurance. The funding policy for the SDBF program is to assure that adequate resources are available to meet all the death benefit payments for the upcoming year; the intent is not to prefund retiree term life insurance during employees' entire careers. The City's contribution to the SDBF for two years ended September 30, 2023 and 2022 were $300,164 and $190,063 respectively, representing contributions for both active and retiree coverage, which equaled the required contribution each year.

Actuarial Methods and Assumptions

The SDBF OPEB liability in the December 31, 2022 actuarial valuation was determined using the following actuarial assumptions:

	12/31/2022
Inflation rate	2.50% per annum
Discount rate	4.05%
Actuarial cost method	Entry Age Normal Method
Projected salary increases	3.50% to 11.5% including inflation

Salary increases were based on a service-related table. Mortality rates for active members, retirees, and beneficiaries were based on the following:

Mortality rates for active members, retirees, and beneficiaries were based on the gender-distinct 2019 Municipal Retirees of Texas mortality tables. The rates are projected on a fully generational basis by scale UMP to account for future mortality improvements. For disabled annuitants, the gender-distinct 2019 Municipal Retirees of Texas mortality tables are used with a 4-year set forward for males and a 3-year set forward for females. In addition, a 3.5% and 3% minimum mortality rate is applied to reflect the impairment for younger members who became disabled for males and females, respectively. The rates are projected on a fully generational basis by scale UMP BB to account for the future mortality improvements subject to the floor. Administrative expenses for the SDBF are paid through the TMRS Pension Trust Fund and are wholly accounted for under the provisions of GASB Statement No. 68.

Changes in assumptions reflect the annual change in the municipal bond rate. The actuarial assumptions used in the December 31, 2022 valuation were based on the results of an actuarial experience study for the period December 31, 2014 to December 31, 2018.

Discount Rate

The SDBF program is treated as an unfunded OPEB plan because the SDBF trust covers both actives and retirees and the assets are not segregated for these groups. As such, a single discount rate of 1.84% was used to measure the SDBF OPEB Liability. Because the plan is essentially a "pay-as-you-go" plan, the single

discount rate is equal to the prevailing municipal bond rate. The source of the municipal bond rate was fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-year Municipal GO AA Index" as of December 31, 2021.

Sensitivity of the SDBF OPEB Liability to Changes in the Discount Rate

The following schedule shows the impact of the SDBF OPEB liability if the discount rate used was 1% less than (3.05%) and 1% greater than 4.05%) the discount rate that was used (5.05%) in measuring the medical OPEB liability:

	1% Decrease (3.05%)	Current Discount Rate (4.05%)	1% Increase (5.05%)
Total SDBF OPEB liability	$ 4,485,461	$ 3,732,019	$ 3,149,220

OPEB Liabilities, OPEB Expense, and Deferred Outflows of Resources Related to OPEBs

At September 30, 2023 the City reported a liability of $3,732,019 for its Total SDBF OPEB liability. The total SDBF liability was determined by an actuarial valuation as of December 31, 2022. For the year ended September 30, 2023, the City recognized SDBF OPEB expense of $265,055. There were no changes of benefit terms that affected measurement of the Total SDBF Liability during the measurement period.

Changes in the SDBF OPEB Liability

	Total SDBF OPEB Liability
Balance at 12/31/2021	$ 5,376,347
Changes for the year:	
Service cost	284,912
Interest	100,639
Difference between expected and actual experience	46,933
Changes of assumptions	(1,978,189)
Benefit payments	(98,623)
Net changes	(1,644,328)
Balance at 12/31/2022	$ 3,732,019

Total OPEB liability as a percentage of covered payroll was 3.41%.

At September 30, 2023, the City reported deferred outflows of resources and deferred inflows of resources related to other SDBF post-employment benefits from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual economic experience	$ 66,833	$ 213,335
Changes in actuarial assumptions	706,011	1,682,420
Contributions subsequent to the measurement date	241,574	-
Totals	$ 1,014,418	$ 1,895,755

Other amounts reported as deferred outflows of resources related to SDBF OPEB will be recognized in OPEB expense as follows:

Year Ending September 30	Net Deferred Outflows/(Inflows)
2024	$ (160,412)
2025	(153,807)
2026	(215,944)
2027	(323,506)
2028	(269,241)
Thereafter	-
Total	$ (1,122,910)

C. Deferred Compensation Plan

The City offers its employees a deferred compensation plan created in accordance with Internal Revenue Code Section 457. For the calendar years 2022 and 2023 the plan, available to all permanent City employees, permitted them to defer, until future years, up to $20,500 and $22,500 respectively. Employees who are age 50 or older may contribute an additional amount of $7,500, the total not to exceed $30,000 in 2023. Employees who are within three years of retirement eligibility may elect to participate in a catch-up provision allowed by Section 457, which has an annual maximum contribution amount of $41,000 in 2022 and $46,000 in 2023. The withdrawal of deferred compensation funds is only available to employees by loan, termination, retirement, death, or unforeseeable emergency.

All amounts of compensation deferred under the plan, all property and rights purchased with those amounts, and all income attributable to those amounts, property or rights are, until paid or made available to the employee or other beneficiary, solely the property and rights of the employees. Accordingly, the assets and associated liability of the plan are not included in the City’s financial statements.

It is the opinion of the City's legal counsel that the City has no liability for losses under the plan.

D. Self-insurance Plan

The City has established a self-insurance plan for liability and workers' compensation claims in the Risk Retention Fund. Accrued claims payable include provisions for claims reported and claims incurred but not reported. The provision for reported claims is determined by estimating the amount which will ultimately be paid for each claimant. The provision for claims incurred but not yet reported is estimated based on actuarial studies.

It is the practice of the City of Denton not to purchase commercial insurance for workers' compensation claims or general liability. Commercial liability insurance coverage is purchased for general liability, aviation

ground operations liability, auto liability and physical damage, public officials' liability, professional liability for emergency medical service operations, employment practices liability, law enforcement professional liability, cyber, and commercial crime (employee theft and dishonesty).

Additionally, excess insurance is purchased for general liability, flood (for specific properties), and workers' compensation exposures. The City reports liabilities when it is probable that a loss has occurred and the amount of that loss can be reasonably estimated to meet the deductible for the policy. Liabilities include an amount for claims that have been incurred but not reported. Because actual claim liabilities depend on such complex factors as inflation, changes in legal doctrines, and damage awards, the process used in computing claims liability does not necessarily result in an exact amount.

In January 2008, the City started a self-insured group employee health insurance plan. Claims are paid from the Health Insurance Fund, which has an annually negotiated stop loss provision.

The City's costs associated with the self-insurance plans are interfund transactions. Accordingly, they are treated as operating revenues of the Internal Service Risk Retention Fund and Health Insurance Fund and operating expenditures (expenses) of the other funds and employee payroll deductions.

Claims liabilities are re-evaluated periodically to take into consideration settlement of claims, new claims and other factors. As of September 30, 2023, the estimated value of these liabilities was $8,806,267. Changes in balances of claims liabilities during fiscal years 2023 and 2022 were as shown as follows:

	Claims Liability Beginning of Fiscal Year	Claims and Change in Estimates	Claim Payments	Claims Liability End of Fiscal Year
Worker's Compensation				
2023	$ 2,877,836	$ 1,485,823	$ 1,311,546	$ 3,052,113
2022	$ 2,570,673	$ 1,460,256	$ 1,153,093	$ 2,877,836
General Liability				
2023	$ 1,506,465	$ 567,336	$ 271,641	$ 1,802,160
2022	$ 1,226,589	$ 550,502	$ 270,626	$ 1,506,465
Health Insurance				
2023	$ 2,514,110	$28,357,238	$26,919,354	$ 3,951,994
2022	$ 1,962,033	$25,052,103	$24,500,026	$ 2,514,110

On September 30, 2023, the City of Denton had a negative unrestricted net position of $4,664,170 the Risk Retention Fund and an additional positive net position of $1,832,461 in the Health Insurance Fund for payment of claims, both in addition to the liability balances recorded. There were no significant reductions in insurance coverage from coverage in the prior year, and the amount of settlements did not exceed insurance coverage in the current year or in any of the past three fiscal years.

E. Commitments and Contingencies

Agreement with TMPA

In 1976, the City, along with the cities of Bryan, Greenville, and Garland, Texas (the Cities) entered into a Power Sales Contract with the Texas Municipal Power Agency (TMPA). TMPA was created through concurrent ordinances of the Cities and is governed by a Board of Directors consisting of eight members, two appointed by the governing body of each city. Under the terms of the agreement, TMPA agreed to construct or acquire electric generating plants to supply energy and power to the Cities for a period of not less than 35

years. The Cities in turn agreed to purchase all future power and energy requirements in excess of the amounts generated by their systems from TMPA at prices intended to cover operating costs and retirement of debt. In the event that revenues were insufficient to cover all costs and retire the outstanding debt, each of the cities guaranteed a portion of the unpaid debt based, generally, upon the pro rata share.

TMPA, a municipal corporation, is governed by a Board of Directors consisting of eight members. The governing body of each of the four Cities appoints two members to the Board. An affirmative vote of five Directors, plus a weighted majority vote based on the respective energy usage of the Cities, is required for major decisions.

The City pays TMPA a pro-rated monthly charge based on the City's contractual portion of TMPA's annual fixed operating costs and debt service payments, which is currently 21.3%. As of September 30, 2023, total TMPA long-term debt outstanding was approximately $209,448,000, all of which was transmission debt and has no effect on the term of the contract. All outstanding generation debt was paid off on September 1, 2018.

Effective September 1, 2016, TMPA and the Member Cities entered into a Joint Operating Agreement (JOA). In general, the purposes of the JOA include: (i) funding TMPA operations such as mine reclamation, transmission service, and plant decommissioning following expiration of the Power Sales Contract (PSC); (ii) subject to certain exceptions, requiring Member City approval for the issuance of new debt, the execution of certain significant contracts, and the sale of property exceeding $10 million in value; (iii) specifying provisions for determining how costs of TMPA and proceeds from the sale of assets are to be allocated among the Member Cities; (iv) providing for the establishment by TMPA of reserve funds for the decommissioning of the plant and the indemnification of TMPA Board Members and Member City officials, employees, contractors, and agents; and (v) dividing the operations of TMPA into three business functions (mine, generation, and transmission) and requiring separate budgets and books for each business function.

The PSC provides upon dissolution of TMPA, the assets of TMPA automatically being transferred to the Member Cities, with each Member City receiving an undivided interest in the assets of TMPA in proportion to the amount paid by the Member City to TMPA. The JOA requires TMPA to periodically make this calculation for each business unit and sets out formulas for making these calculations. Under the JOA, these ownership calculations are relevant not only to the allocation of assets upon dissolution of TMPA, but also to the allocation of certain proceeds from the sale of assets, and in some cases, the allocation of TMPA costs.

At the request of a majority of the Member Cities, TMPA is required by the JOA to transfer a divided interest in the transmission system to each Member City. Under this partition process, the objective is for each City to receive ownership of transmission facilities in the vicinity of the Member City, and in proportion to the Member City's ownership interest in the transmission business. Any such transfer of transmission assets must be in compliance with relevant bond covenants, including those requiring defeasance of all or a portion of transmission debt.

The JOA included a reclamation plan for the mine, required the development of a decommissioning plan, and set out standards for environmental remediation. TMPA is required to comply with these plans and standards.

Under the JOA, in discharging its contractual obligations, including mine reclamation, decommissioning, transmission service, environmental remediation, indemnification, and other obligations, TMPA is rendering services to the Member Cities. The JOA obligates each Member City to pay the cost of these services, and to collect rates and charges for electric service sufficient to enable it to pay to TMPA all amounts due under the JOA for these services. The City's payment obligations under the JOA are payable exclusively from such electric utility revenues and constitute an operating expense of the electric system.

Unless terminated earlier through the mutual consent of all parties, the JOA remains in effect until the dissolution of TMPA and the winding up of its affairs.

Effective September 1, 2016, the JOA was amended (Amendment No. 1). The primary purposes of the amendment were to authorize the sale of Gibbons Creek and the sale of the Southern 345 kV Transmission System and to authorize the issuance of refunding bonds in connection with such sales. As the sale contemplated by Amendment No. 1 did not occur, by its own terms, Amendment No. 1 ceased to have any

force or effect. Effective September 22, 2017, the JOA was amended a second time (Amendment No. 2). The purposes of this amendment are to: continue TMPA's authority to issue mine reclamation bonds as had been contemplated in Amendment No. 1; revise the dates on which the separate budgets of the JOA become effective; authorize TMPA to sell certain mining and transmission assets, provided the sales do not exceed in value certain financial thresholds, and provided the sales comply with bond covenants; and allow for an extension to the term of the PSC, applicable only to the cities notifying TMPA of the extension, in order to complete a period of seasonal operation in 2018, or such other period of time as desired by the notifying cities. Pursuant to this provision, the City extended the PSC from September 1, 2018 to September 30, 2018, in order to complete the period of 2018 seasonal operation. As of September 30, 2018, the PSC had expired for all member cities.

On September 17, 2019, the JOA was amended (Amendment No. 3). The amendment defined portions specific to the generation business that had been tied to the expired PSC and clarified all board members may vote on matters involving decommissioning and the sale of the plant. It exempted financial commitments related to bonding from the requirement to obtain approval of all Member Cities relating to certain budget increases. This is to address concerns by the Attorney General of Texas that a potential situation could arise where a Member City could interfere with TMPA's existing bond deposit requirement obligations ("bond reserve equivalent") should that obligation require a 20% increase over the previous year's budget. The amendment also allows for the sale of mine tracts only after the completion of mine reclamation. This would permit the sale of a mine tract subject to bonding provided that the conveyance reserves easements, leases, or other property rights are reserved to enable TMPA to complete reclamation.

On June 28, 2021, the JOA was amended (Amendment No. 4). This amendment modified the agreement to make it unambiguous that in the event that all mining assets are sold, all Member Cities shall remain responsible for the costs of closing the mining operation according to each's percentage share and that these are included: "all obligations are discharged with respect to mine reclamation bonds, surety bonds, banking agreements, letters of credit, and other financial commitments related to providing financial security or assurance for TMPA's mine reclamation responsibilities." Additionally, it modified the agreement by removing the cap on sales of the mining assets and allowed for the sale of the mine as a whole.

Effective September 26, 2017, Gibbons Creek transitioned into a seasonal operations mode, operating during the summer months only (May-September). Due to the significant decline in service utility of the generation assets, such assets were deemed largely impaired as of September 30, 2017. On June 1, 2019, the TMPA Board of Directors voted to permanently retire the generation facility. The City also wholly impaired its TMPA prepaid purchase power due to the retirement and had a remaining balance recorded of $7,987,048 in Other Assets in the Electric fund to be amortized over the remaining 1.5 remaining years. See note IV.F. for more information.

In 2019, TMPA issued a request for proposal involving only the sale of generation assets. Proposals were received in August 2019, and TMPA entered into negotiations with one of the proposers. On December 10, 2020, the TMPA Board of Directors approved a fully negotiated Asset Purchase Agreement (APA) with Gibbons Creek Environmental Redevelopment Group LLC (GCERG). As required by the TMPA Joint Operating Agreement, each TMPA member city was required to approve the APA. On January 26, 2021, the City Council approved the APA with GCERG. On February 10, 2021, TMPA and GCERG closed on the sale of the Gibbons Creek Steam Generation Plant and property. Through the sale, GCERG acquired 6,200 acres including the plant, CCR (coal combustion residuals) units, and reservoir. GCERG must decommission the plant and remediate all CCR units to TCEQ/EPA standards. GCERG provides independent financial security to TMPA for remediation/decommissioning and post closure activities and certain land use limits imposed on CCR containing parcels. The City's Electric fund had a liability recorded for TMPA's decommissioning obligation of $21,167,124 as of September 30, 2020. As part of the sale of Gibbons Creek, the City paid $6,037,368 of this liability in February 2021. The remaining liability of $15,129,756 was recognized as a gain in other non-operating revenues. This sale to GCERG only includes the generation assets and TMPA retained the approximate 11,000 acres associated with the mine land and all transmission assets.

On July 15, 2021, the TMPA Board of Directors authorized the Gibbons Creek Lignite Mine with approximately 11,000 acres to be sold with the sale being finalized in December 2021. The City received its portion of the sale in the amount of $15,174,089 which was recorded as revenues in the Electric fund for the fiscal year ending September 30, 2022. Following the closing, TMPA will continue to conduct mine reclamation activities pursuant to a reclamation easement that will remain in effect until all bonded areas are released from bond.

Selected financial statement information of TMPA is as follows:

	September 30 (Unaudited)	
	2023	2022
	(000s)	(000s)
Operating revenues	$ 34,889	$ 34,281
Operating expenses	16,172	16,855
Operating income	18,717	17,426
Other non-operating sources (uses)	921	(108)
Current unrestricted assets	23,730	24,063
Total assets and deferred outflows	210,205	214,339
Long-term debt – Noncurrent	202,668	205,963
Total liabilities and deferred inflows	235,411	238,321
Total net position	(25,206)	(23,982)

Financial statements for TMPA are available from the TMPA website www.texasmpa.org.

Power Purchase Agreements

Following is a list of power purchase agreements in effect as of the publication date of these financial statements. The information provided is all that is allowed under the confidentiality provision(s) of the particular agreements.

NextEra - In 2009, the City entered into a power purchase agreement for firm energy and associated renewable energy credits with NextEra Energy Power Marketing, LLC.

Santa Rita, Wind - In 2016, the City entered into a 20-year power purchase agreement for wind energy, capacity, and environmental attributes with Santa Rita Wind Energy, LLC.

NextEra - In 2015, the City entered into a 20-year power purchase agreement with Bluebell Solar Energy, LLC, a subsidiary of NextEra Energy, Inc. Under the agreement, the City purchases solar energy, capacity, and environmental attributes commencing from the commercial operation date which was November 2018.

Engie - In 2018, the City entered into a 15-year power purchase agreement with Engie Long Draw Solar, LLC. Under the agreement, which is scheduled to end June 2035, the City will purchase 75 MW of solar generation and environmental attributes. The in-service date was December 29, 2020.

NextEra - In 2018, the City entered into a 15-year power purchase agreement with Bluebell Solar II Energy, LLC, a subsidiary of NextEra Energy, Inc. Under the agreement, the City will purchase 100 MW of solar generation and environmental attributes. Commercial operation was achieved on December 28, 2020.

Samson Solar - In 2018, City of Denton entered into a 15-year power purchase agreement with Samson Solar Energy, LLC. Under the agreement, which was scheduled to end in 2037, the city would purchase 75 MW of solar generation and environmental attributes. Samson Solar Energy LLC alleged various Force Majeure events that impacted the project and ultimately defaulted on the agreement. While the company was in default

of its obligations, the company sent notice to terminate the agreement to the City of Denton. The City is currently in legal proceedings to recover all of its damages.

Encumbrances

As discussed in note I.D., Budgetary information, encumbrances are utilized to the extent necessary to assure effective budgetary control and accountability and to facilitate effective cash planning and control. At year end the total amount encumbered in governmental funds expected to be honored upon performance by the vendor in the next year were as follows:

General Fund	$ 2,232,140
Capital Projects Fund	78,212,667
ARPA Fund	1,986,197
Nonmajor Governmental Funds	4,627,611
Total	$ 87,058,615

F. Tax Abatements

The City enters into economic development incentive agreements with entities to promote development and redevelopment within the City, stimulate commercial activity, generate additional sales tax, and enhance the property tax base and economic vitality of the City. Some agreements provide for an abatement of property taxes, while others provide for a rebate of a portion of sales and use tax or a portion of ad valorem (property) tax, as established per the agreements. The incentives are performance-based, and the City generally expects to receive increased revenue because of the agreements. These incentive agreements require approval by a City Council ordinance and are authorized under Chapter 312 (Property Redevelopment and Tax Abatement Act) of the Texas Tax Code and Chapter 380 of the Texas Local Government Code.

Property Tax Abatements

Tax abatements under Chapter 312 of the Texas Tax Code allow the City to designate tax reinvestment zones and negotiate tax abatement agreements with applicants. In 1990, the City Council adopted a resolution setting guidelines and criteria for granting abatements in the reinvestment zones which specifically notes incentives are limited to companies which create new wealth and do not adversely affect existing businesses operating within the City. The City is required to renew/adopt a Tax Abatement Policy every two years in accordance with Chapter 312 of the Texas Tax Code. The last policy was adopted in May of 2022. The abatement agreements authorize the appraisal districts to reduce the assessed value of the taxpayer's property by a percentage specified in the agreement, and the taxpayer will pay taxes on the lower assessed value during the term of the agreement. For the fiscal year ended September 30, 2023, the City abated property taxes totaling $31,318 under this program, as detailed in the following agreements:

- Peterbilt – In 2016, a 70% tax abatement agreement for a term of eight years was granted to Peterbilt Motors on new capital investments, including the construction of a new stand-alone 102,000 square foot building. In the event of a failure to meet the conditions of the agreement, an increased assessed value of real property of at least $18.5 million, the agreement provides for a full refund of all abatements previously granted plus interest. Peterbilt did not meet the $18,500,000 required threshold for tax year 2022.
- West Gate Business Park (WGBP) – In 2016, a 60% tax abatement agreement for a term of ten years was granted to WGBP on new capital investments only to include Buildings 2 and 3 in the business park. WGBP could receive an additional 10% abatement for the location of a supplier to an existing primary industry and/or an additional 5% for the location of a national headquarters for a total abatement of up to 75%. In the event of a failure to meet the conditions of the agreement, an increased assessed value of real property of at least $3 million, the agreement provides for a full refund of all

abatements previously granted plus interest. The abatement amount for the current fiscal year was $31,318.

The City has an additional abatement agreement not listed above for Tyson Sales and Distribution. The grantee has contracted their expansions in the current economic climate and has not met the timely completion requirements in the Agreement for the construction of the facility. The project will likely be terminated, or the Agreement amended.

Chapter 380 Agreements

The City Council has the authority under Chapter 380 of the Texas Local Government Code to grant or loan City funds to accomplish specific economic development goals. These incentives are considered on a case-by-case basis. The City has target industry sectors for recruitment that will be given priority consideration: aviation/aerospace, advanced manufacturing, renewable energy, research and development, information technology, supply chain for existing primary employers, and significant consumers of municipal utilities. Consideration may also be given for projects causing infill redevelopment or other desirable development objectives and/or any other activity which the City Council determines meets a specific public purpose for economic development.

Eight agreements are based on the contribution in sales, property, and/or hotel tax. For the fiscal year ended September 30, 2023, the City rebated sales taxes totaling $3,129,346 property taxes totaling $1,344,386 ($862,709 of which was paid out of the Westpark TIRZ No. Two), and hotel occupancy taxes totaling $972,652.

Two active agreements are based on Job-based and Expansion/Relocation Grants. For the fiscal year that ended September 30, 2023, the City provided cash grant reimbursements totaling $45,289 for Job-based Grants and Expansion/relocation Grants as detailed in the following agreements:

- Unicorn Lake – In 2004, an agreement was approved for Unicorn Lake, an urban-style mixed-use development. The grantee receives one-third of the City sales tax, or 0.5%, generated by the project for a maximum of fifteen years as reimbursement for public improvement costs related to the project not to exceed $6,664,901 plus accrued interest. The tax rebates initiated in 2010 and will terminate in 2025. The tax rebate amount for the current fiscal year was $85,782.

- Rayzor Ranch – In 2007, an agreement was approved for the Rayzor Ranch mixed-use development. The 410-acre project will have over one million square feet of retail and will be built in two phases. The agreement provides a sales tax reimbursement of one half of the City sales tax, or 0.75%, generated by the project for public improvement costs, which include the widening of a state highway bisecting the project. The grantee will receive a maximum of $20 million over a 15-year term for phase one and a maximum of $48 million over a term of 20 years for phase two. An additional 15% of the City sales tax, or 0.225%, was added to both phases to offset the hotel and convention center costs until $5 million is reached. In the current fiscal year, the tax rebate amount for phase one was $1,579,014 and the tax rebate amount for phase two was $1,048,175.

- Golden Triangle Mall – In 2011, an agreement was approved for a major renovation of the Golden Triangle Mall. A threshold of a minimum $45 to $65 million was required as an investment into the property to receive a one-half share of the sales tax resulting from the renovations, less a monthly mall baseline amount established at $95,898. The total grant payments may not exceed 15.83% of the required investment. GTM Development has invested $49.5 million in the development. Tenant investments in the property amounted to $8.8 million, for a total invest of $58.3 million. Based on this total investment the total grant payment should not exceed $9.2 million. The tax rebates initiated in 2016 and will terminate in 2035. The tax rebate amount for the current fiscal year was $37,963.

- Mayday Manufacturing – In 2012, an agreement was approved for Mayday Manufacturing/Tailwind Technologies for the relocation of the business and expansion of a manufacturing facility. The agreement provides a 75% tax rebate on the increment of property tax revenue generated above the base valuation for a period of ten years. In the event of a failure to meet the conditions of the agreement, an increased assessed value of real property of at least $3 million, the agreement provides for a 50% refund of all rebates previously granted. The tax rebate amount for the current fiscal year was $36,458.
- West Gate Business Park (WGBP) – In 2015, an agreement was approved for West Gate Business Park (WGBP) for industrial development and provided for a 70% rebate of increased City property tax revenue generated for a period of ten years. WGBP includes three multi-tenant buildings totaling 413,000 square feet of new industrial/manufacturing space in the City. In 2016 the agreement was amended to include a 70% rebate on Building 1 improvements and to add a one-time grant payment in the amount of $50,000. The tax rebate amount for the current fiscal year was $35,620.
- WinCo Foods – In 2015, an agreement was approved for WinCo Foods for a $135 million, 800,000 square foot distribution facility expected to create 165 jobs with an annual payroll of around $7.2 million. In the event of a failure to meet the conditions of the agreement, the agreement provides for a 20-50% refund of all rebates previously granted, depending on the timing of a failure. WinCo received reimbursement for infrastructure financing from Water and Wastewater funds and a local sales and use tax grant for the construction and equipping of the facility in prior fiscal years, completing those portions of the agreement. The active portion of the agreement provides for the following:
    - A grant equal to 100% of the incremental property tax generated by the property and paid into the Tax Increment Fund by both the City and the County, paid annually until the full reimbursement of the project costs for public improvements is reached. The tax rebate amount out of the Westpark TIRZ No. Two for the current fiscal year was $862,709 with $621,550 being the City portion of the tax rebate and $241,160 being the County portion of the tax rebate.
    - A grant equal to 60% of City property taxes attributable to improvements resulting in an increase of assessed value of real property improvements and tangible personal property, paid annually until full reimbursement of the project costs for public improvements is reached. Once this full reimbursement is reached, the 60% property tax rebate will continue for a period of four years as long as the increase in investment in improvements is $50 million excluding purchase price of the property. The tax rebate amount for the current fiscal year was $220,338.
- O'Reilly Hotel Partners Denton – In 2015, an agreement was approved for O'Reilly Hotel Partners Denton for a convention center with a hotel and restaurant located in the Rayzor Ranch Town Center. The agreement includes a 100% rebate of the property tax (excluding land, inventory, vehicles, and supplies), hotel occupancy tax, and sales tax generated by the project. The term is for a maximum of 25 years or a combined principal ($28 million) and interest ($26 million) amount of $54 million is reached, whichever comes first. The agreement also includes 100% rebate of the construction sales tax up to $850,000, then 50% thereafter. The construction sales tax rebate portion of the agreement was completed in fiscal year 2017-2018. In the event of a failure to meet the conditions of the agreement, the agreement provides for a 100% refund of all rebates granted in the previous year. The sales tax, property tax, and hotel occupancy tax rebate amounts for the current fiscal year were $71,236, $189.261, and $972,652.08, respectively.

- Buc-ee's Travel Center – In 2015, an agreement was approved for Buc-ee's Travel Center. The agreement provides a sales tax reimbursement of one half of the City sales tax, or 0.75%, generated from businesses located within the property boundaries for a five-year period. At the conclusion of the sales tax reimbursement term, the City has agreed to a one-time cash grant payment of $2 million minus the total sales tax previously reimbursed, only if the grantee has not received a full $2 million in sales tax reimbursements. In addition, at the conclusion of the sales tax reimbursement term, the agreement provides a sales tax reimbursement infrastructure grant of one half of the City sales tax, or 0.75%, generated by the Buc-ee's Travel Center and developed outparcels that contain sit-down restaurants or retail establishments for a period of twenty years. The City has also agreed to pay the grantee one quarter of the City sales tax, or 0.375%, generated by outparcels not included in the previously mentioned infrastructure grant, including fast food restaurants and drive-through uses. The tax rebate amount for the current fiscal year was $307,175.
- TeamOfDefenders– In 2020 an agreement was approved for TeamOfDefenders. The agreement consists of a performance-based five-year expansion grant up to $50,000 to be provided as a reimbursement of actual costs. In addition, the company was awarded a stratified Job-based Grant based on annual wages of new employees, not to exceed $29,500. They were awarded an additional $500 residency bonus for new employees, not to exceed $27,000. The total incentive package is not to exceed $106,500. The Job-based Grant initiated in 2020, but there were no new jobs added this fiscal year. The Expansion Grant payment made for the current fiscal year was $45,289.
- Safran– In 2021 an agreement was approved for Safran. The agreement consists of a performance-based five-year expansion grant up to $50,000 to be provided as a reimbursement of actual costs. In addition, the company was awarded a stratified Job-based Grant based on annual wages of new employees, not to exceed $101,500. They were awarded an additional $300 residency grant for new resident employees and $700 bonus for new established resident employees, not to exceed $23,625. The total incentive package is not to exceed $175,125.

The City has two additional Chapter 380 Expansion/relocation and Job-based Grants that will come online in future fiscal years for From the Future and DynaGrid. The City has one additional Chapter 380 abatement agreement for United States Cold Storage (USCS). The Agreement with USCS was terminated on February 20, 2023, as the grantee failed to meet conditions of the Agreement by not obtaining a Texas Direct Pay Permit and the City could not verify the sales taxes for the construction and equipping of the facility.

G. Litigation

Various claims and lawsuits are pending against the City. In accordance with GAAP, those judgments considered "probable" are accrued (see case below), while those claims and judgments considered "reasonably possible" are disclosed but not accrued. In the opinion of City management and legal counsel, the maximum amount of all significant claims considered reasonably possible, excluding condemnation proceedings and the item described following, is approximately $500,000 as of September 30, 2023. Potential losses after insurance coverage on all probable claims and lawsuits will not have a material effect on the City's financial position as of September 30, 2023.

Michael Grim and Jim Maynard v. City of Denton

This case is a whistleblower retaliation lawsuit that was tried before a Dallas County jury. After a lengthy trial, involving disputed issues of law that were properly preserved for appeal, the jury awarded roughly $4.0 million in damages to the two plaintiffs, and the City filed an appeal. Plaintiffs alleged that their terminations were in retaliation for their report to the City Attorney of an individual City Council member's release of proprietary vendor data to the press. The City's position was that Plaintiffs were fired at will for lying to management about their participation in hunting and fishing trips with the vendors who ultimately won the bids on a city project. Based on the trial court's final reduced jury judgment by the application of statutory

caps on damages, the City has accrued the $2.7 million as a long-term liability in the Electric fund. It is possible that the judgment may be reversed or modified on appeal.

H. Subsequent Events

The City has evaluated all events or transactions that occurred after September 30, 2023 up through March 12, 2024, the date the financial statements were issued.

The City called the 2023 Bond Program to an election and voters approved seven of the eight propositions totaling $291.0 million. Approved propositions include streets, drainage and flood control, parks, public safety, affordable housing, a new active adults center, and a new South Branch Library.

The City issued a request for proposal for a letter of credit to satisfy with ERCOT credit protocol changes. Wells Fargo was selected and is working with the City to finalize not to exceed $60.0 million line of credit.

I. New Accounting Pronouncements

The Governmental Accounting Standards Board (GASB) issued the following statement which became effective for the fiscal year ending September 30, 2023.

Statement No. 91 "*Conduit Debt Obligations*" - The statement provides a single method of reporting conduit debt obligations by issuers and eliminate diversity in practice associated with 1) commitments extended by issuers, 2) arrangements associated with conduit debt obligations, and 3) related note disclosures. The requirements of this statement were originally effective for reporting periods beginning after December 15, 2020; however, issuance of GASB Statement No. 95, Postponement of the Effective Dates of Certain Authoritative Guidance (GASB 95), extended the effective date of GASB 91 to reporting periods beginning after December 15, 2021, with earlier application encouraged. The City has implemented this Statement in fiscal year 2023. The requirements of this Statement have no impact on the City's financial statements.

Statement No. 94 "*Public-Private and Public-Public Partnerships and Availability Payment Arrangements*" – The primary objective of this Statement is to improve financial reporting by addressing issues related to public-private and public-public partnership arrangements (PPPs). As used in this Statement, a PPP is an arrangement in which a government (the transferor) contracts with an operator (a governmental or nongovernmental entity) to provide public services by conveying control of the right to operate or use a nonfinancial asset, such as infrastructure or other capital asset (the underlying PPP asset), for a period in an exchange or exchange-like transaction. This Statement also provides guidance for accounting and financial reporting for availability payment arrangements (APAs). As defined in this Statement, an APA is an arrangement in which a government compensates an operator for services that may include designing, constructing, financing, maintaining, or operating an underlying nonfinancial asset for a period in an exchange or exchange-like transaction. The requirements of this Statement are effective for fiscal years beginning after June 15, 2022 and was implemented by the City in fiscal year 2023.

Statement No. 96 "*Subscription-Based Information Technology Arrangements (SBITA)*" –
This Statement provides guidance on accounting and financial reporting for subscription-based information technology arrangements (SBITAs) for government end users (governments). This Statement (1) defines a SBITA; (2) establishes that a SBITA results in a right-to-use subscription asset—an intangible asset—and a corresponding subscription liability; (3) provides the capitalization criteria for outlays other than subscription payments, including implementation costs of a SBITA; and (4) requires note disclosures regarding a SBITA. To the extent relevant, the standards for SBITAs are based on the standards established

in Statement No. 87, Leases, as amended. The requirements of this Statement are effective for fiscal years beginning after June 15, 2022 and was implemented by the City in fiscal year 2023.

The following statements for the GASB are effective for future fiscal years ending as listed below. The City is in the process of reviewing and evaluating these statements and their potential impact on the City's financial statements.

Statement No. 99 "*Omnibus 2022*" - This Statement is intended to enhance comparability in accounting and financial reporting and improves the consistency of authoritative literature by addressing (1) practice issues that have been identified during implementation and application of certain GASB Statements and (2) accounting and financial reporting for financial guarantees. The requirements of this Statement related to extension of use of London Interbank Offered Rate (LIBOR), accounting for Supplemental Nutrition Assistance Program (SNAP) distributions, disclosures of nonmonetary transactions, pledges of future revenues by pledging governments, clarification of certain provisions in Statement No. 34, as amended and terminology updates related to Statements No. 53 and 63 are effective immediately and implemented in the prior fiscal year. All other requirements of this Statement have been implemented in fiscal year 2023.

Statement No. 100 "*Accounting Changes and Error Corrections - An Amendment of GASB Statement No. 62*" - This statement to enhance accounting and financial reporting requirements for accounting changes and error corrections to provide more understandable, reliable, relevant, consistent, and comparable information for making decisions or assessing accountability. The requirements of this Statement are effective for fiscal years beginning after June 15, 2023 and is effective for the City's fiscal year ending September 30, 2024.

Statement No. 101 "*Compensated Absences*" - This statement is intended to better meet the information needs of financial statement users by updating the recognition and measurement guidance for compensated absences. That objective is achieved by aligning the recognition and measurement guidance under a unified model and by amending certain previously required disclosures. The requirements of this Statement are effective for fiscal years beginning after December 31, 2023 and is effective for the City's fiscal year ending September 30, 2025.

Statement No. 102 "*Certain Risk Disclosures*" - This Statement requires a government to assess whether a concentration or constraint makes the primary government reporting unit or other reporting units that report a liability for revenue debt vulnerable to the risk of a substantial impact. Additionally, this Statement requires a government to assess whether an event or events associated with a concentration or constraint that could cause the substantial impact have occurred, have begun to occur, or are more likely than not to begin to occur within 12 months of the date the financial statements are issued. The requirements of this Statement are effective for fiscal years beginning after June 15, 2024.

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CITY OF DENTON

CITY OF DENTON, TEXAS
REQUIRED SUPPLEMENTARY INFORMATION
TEXAS MUNICIPAL RETIREMENT SYSTEM
SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS
LAST NINE FISCAL YEARS (PREVIOUS YEARS ARE NOT AVAILABLE)[1]

Exhibit XI

	Measurement Year 2014	Measurement Year 2015	Measurement Year 2016	Measurement Year 2017	Measurement Year 2018
Total pension liability:					
Service Cost	$ 10,667,694	$ 12,615,957	$ 13,925,238	$ 14,514,171	$ 14,990,529
Interest (on the total pension liability)	25,182,941	26,905,700	27,656,654	29,543,513	31,468,411
Difference between expected and actual experience	(171,241)	(1,525,911)	763,589	1,514,980	1,255,443
Change of assumptions	-	(428,789)	-	-	-
Benefit payments, including refunds of employee contributions	(11,387,617)	(12,697,735)	(13,023,330)	(16,349,644)	(18,238,039)
Net change in total pension liability	24,291,777	24,869,222	29,322,151	29,223,020	29,476,344
Total pension liability - beginning	360,116,261	384,408,038	409,277,260	438,599,411	467,822,431
Total pension liability - ending (a)	$ 384,408,038	$ 409,277,260	$ 438,599,411	$ 467,822,431	$ 497,298,775
Plan fiduciary net position:					
Contributions - employer	$ 13,065,763	$ 13,615,410	$ 14,046,860	$ 14,821,752	$ 15,107,443
Contributions - employee	4,991,415	5,365,231	5,712,464	6,014,227	6,175,407
Net investment income (loss)	16,867,596	469,530	21,947,635	48,954,660	(12,175,765)
Benefit payments, including refunds of employee contributions	(11,387,617)	(12,697,735)	(13,023,330)	(16,349,644)	(18,238,039)
Administrative expense	(176,083)	(285,957)	(247,766)	(253,578)	(235,169)
Other	(14,477)	(14,123)	(13,349)	(12,851)	(12,287)
Net change in plan fiduciary net position	23,346,597	6,452,356	28,422,514	53,174,566	(9,378,410)
Plan fiduciary net position - beginning	294,819,596	318,166,193	324,618,549	353,041,063	406,215,629
Plan fiduciary net position - ending (b)	$ 318,166,193	$ 324,618,549	$ 353,041,063	$ 406,215,629	$ 396,837,219
Net pension liability - ending (a) - (b)	$ 66,241,845	$ 84,658,711	$ 85,558,348	$ 61,606,802	$ 100,461,556
Plan fiduciary net position as a percentage of total pension liability	82.77%	79.32%	80.49%	86.83%	79.80%
Covered payroll	$ 71,025,494	$ 76,646,157	$ 81,481,789	$ 85,227,078	$ 88,179,581
Net pension liability as a percentage of covered payroll	93.26%	110.45%	105.00%	72.29%	113.93%

(continued on the following page)

[1]Schedule is intended to present information for ten years. Additional years of information will be presented as they become available.

CITY OF DENTON, TEXAS
REQUIRED SUPPLEMENTARY INFORMATION
TEXAS MUNICIPAL RETIREMENT SYSTEM
SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS
LAST NINE FISCAL YEARS (PREVIOUS YEARS ARE NOT AVAILABLE)1

Exhibit XI

	Measurement Year 2019	Measurement Year 2020	Measurement Year 2021	Measurement Year 2022
Total pension liability:				
Service Cost	$ 16,283,811	$ 18,685,981	$ 17,667,234	$ 19,111,021
Interest (on the total pension liability)	33,434,342	35,523,156	37,617,145	40,284,903
Difference between expected and actual experience	2,005,979	2,636,510	8,560,080	8,678,564
Change of assumptions	1,438,798	-	-	-
Benefit payments, including refunds of employee contributions	(20,234,184)	(26,603,058)	(24,025,384)	(26,062,628)
Net change in total pension liability	32,928,746	30,242,589	39,819,075	42,011,860
Total pension liability - beginning	497,298,775	530,227,521	560,470,110	600,289,185
Total pension liability - ending (a)	$ 530,227,521	$ 560,470,110	$ 600,289,185	$ 642,301,045
Plan fiduciary net position:				
Contributions - employer	$ 16,255,126	$ 18,613,464	$ 17,849,684	$ 19,140,875
Contributions - employee	6,693,287	7,536,737	7,095,275	7,670,708
Net investment income (loss)	61,399,432	34,987,709	64,564,009	(40,913,118)
Benefit payments, including refunds of employee contributions	(20,234,184)	(26,603,058)	(24,025,384)	(26,062,628)
Administrative expense	(346,657)	(226,230)	(298,515)	(353,785)
Other	(10,413)	(8,826)	2,046	422,171
Net change in plan fiduciary net position	63,756,591	34,299,796	65,187,115	(40,095,777)
Plan fiduciary net position - beginning	396,837,219	460,593,810	494,893,606	560,080,721
Plan fiduciary net position - ending (b)	$ 460,593,810	$ 494,893,606	$ 560,080,721	$ 519,984,944
Net pension liability - ending (a) - (b)	$ 69,633,711	$ 65,576,504	$ 40,208,464	$ 122,316,101
Plan fiduciary net position as a percentage of total pension liability	86.87%	88.30%	93.30%	80.96%
Covered payroll	$ 95,618,386	$ 107,576,172	$ 101,361,066	$ 109,581,543
Net pension liability as a percentage of covered payroll	72.82%	60.96%	39.67%	111.62%

(concluded)

[1]Schedule is intended to present information for ten years. Additional years of information will be presented as they become available.

CITY OF DENTON

CITY OF DENTON, TEXAS **Exhibit XII**
REQUIRED SUPPLEMENTARY INFORMATION
TEXAS MUNICIPAL RETIREMENT SYSTEM
SCHEDULE OF CONTRIBUTIONS
LAST TEN FISCAL YEARS (Unaudited)

Fiscal Year	(a) Actuarially Determined Contributions	(b) Contributions in Relation to the Actuarially Determined Contributions	(c) Contribution Excess (Deficiency) (b) - (a)	(d) Covered Payroll	Contributions as a Percentage of Covered Payroll (b)/(d)
2014	12,912,746	12,911,461	(1,285)	69,872,024	18.48%
2015	13,507,272	13,507,272	-	75,379,632	17.92%
2016	14,435,638	14,435,638	-	83,127,601	17.37%
2017	14,648,606	14,648,606	-	84,753,377	17.28%
2018	14,931,800	14,931,800	-	86,832,074	17.20%
2019	16,035,042	16,035,042	-	94,158,313	17.03%
2020	17,562,597	17,562,597	-	101,964,029	17.22%
2021	17,794,920	17,794,920	-	101,641,023	17.51%
2022	18,471,103	18,471,103	-	105,519,237	17.50%
2023	19,140,875	19,140,875	-	109,581,543	17.47%

Notes to Schedule:
Actuarial determined contribution rates are calculated as of December 31st and become effective in January, 13 months later.
Contributions above do not include contributions into the supplemental death benefit fund.

Methods and assumptions used to determine contribution rate for 2023:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	24 Years (Equivalent Single Amortization Period of 13.9 years)
Asset Valuation Method	10 Year Smoothed Market; 12% Soft Corridor
Inflation	2.50%
Salary Increases	3.50% to 11.50% including inflation
Investment Rate of Return	6.75%
Retirement Age	Experience-based table of rates that are specific to the City's plan of benefits. Last updated for the 2019 valuation pursuant to an experience study of the period 2014 - 2018.
Mortality	Post-retirement: 2019 Municipal Retiress of Texas Mortality Tables. The rates are projected on a fully generational basis with scale UMP. Pre-retirement: PUB(10) mortality tables, with the Public Safety table used for males and the General Employees table used for females. The rates are projected on a fully generational basis with scale UMP.
Other	There were not benefit changes during the year

CITY OF DENTON, TEXAS **Exhibit XIII**
REQUIRED SUPPLEMENTARY INFORMATION
DENTON FIREMEN'S RELIEF AND RETIREMENT FUND
SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS
LAST NINE FISCAL YEARS (PREVIOUS YEARS ARE NOT AVAILABLE)[1]

	Measurement Year 2014	Measurement Year 2015	Measurement Year 2016	Measurement Year 2017	Measurement Year 2018
Total pension liability:					
Service Cost	$ 2,747,253	$ 2,836,263	$ 3,089,911	$ 3,182,608	$ 3,615,495
Interest (on the total pension liability)	5,685,396	5,998,959	6,135,588	6,493,255	7,049,261
Changes of benefit terms	-	-	-	-	-
Difference between expected and actual experience	-	(2,063,421)	-	2,040,716	-
Change of assumptions	-	2,331,908	-	-	-
Benefit payments, including refunds of employee contributions	(4,036,009)	(4,048,358)	(4,270,006)	(3,768,829)	(4,055,856)
Net change in total pension liability	4,396,640	5,055,351	4,955,493	7,947,750	6,608,900
Total pension liability - beginning	80,490,694	84,887,334	89,942,685	94,898,178	102,845,928
Total pension liability - ending (a)	$ 84,887,334	$ 89,942,685	$ 94,898,178	$ 102,845,928	$ 109,454,828
Plan fiduciary net position:					
Contributions - employer	$ 2,566,875	$ 2,567,219	$ 2,759,844	$ 2,979,807	$ 3,434,007
Contributions - employee	1,745,419	1,803,064	1,997,155	2,142,990	2,338,837
Net investment income (loss)	4,411,066	(3,287,188)	6,935,215	8,793,234	(183,148)
Benefit payments, including refunds of employee contributions	(4,036,009)	(4,048,358)	(4,270,006)	(3,768,829)	(4,055,856)
Administrative expense	(81,005)	(76,538)	(94,175)	(63,669)	(87,899)
Net change in plan fiduciary net position	4,606,346	(3,041,801)	7,328,033	10,083,533	1,445,941
Plan fiduciary net position - beginning	66,412,172	71,018,518	67,976,717	75,304,750	85,388,283
Plan fiduciary net position - ending (b)	$ 71,018,518	$ 67,976,717	$ 75,304,750	$ 85,388,283	$ 86,834,224
Net pension liability - ending (a) - (b)	$ 13,868,816	$ 21,965,968	$ 19,593,428	$ 17,457,645	$ 22,620,604
Plan fiduciary net position as a percentage of total pension liability	83.66%	75.58%	79.35%	83.03%	79.33%
Covered payroll	$ 14,238,486	$ 14,310,032	$ 15,850,437	$ 17,007,857	$ 18,562,198
Net pension liability as a percentage of covered payroll	97.40%	153.50%	123.61%	102.64%	121.86%

(continued on the following page)

[1]Schedule is intended to present information for ten years. Additional years of information will be presented as they become available.

CITY OF DENTON, TEXAS
REQUIRED SUPPLEMENTARY INFORMATION
DENTON FIREMEN'S RELIEF AND RETIREMENT FUND
SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS
LAST NINE FISCAL YEARS (PREVIOUS YEARS ARE NOT AVAILABLE)1

Exhibit XIII

	Measurement Year 2019	Measurement Year 2020	Measurement Year 2021	Measurement Year 2022
Total pension liability:				
Service Cost	$ 3,723,960	$ 4,252,475	$ 4,380,049	$ 4,965,768
Interest (on the total pension liability)	7,497,583	8,293,527	8,791,959	9,787,310
Changes of benefit terms	-	-	1,074,140	-
Difference between expected and actual experience	1,526,958	-	4,783,943	-
Change of assumptions	3,446,011	-	-	-
Benefit payments, including refunds of employee contributions	(4,206,975)	(5,655,539)	(4,923,273)	(4,816,472)
Net change in total pension liability	11,987,537	6,890,463	14,106,818	9,936,606
Total pension liability - beginning	109,454,828	121,442,365	128,332,828	142,439,646
Total pension liability - ending (a)	$ 121,442,365	$ 128,332,828	$ 142,439,646	$ 152,376,252
Plan fiduciary net position:				
Contributions - employer	$ 3,639,740	$ 4,069,311	$ 4,249,769	$ 4,545,905
Contributions - employee	2,478,958	2,771,532	2,894,437	3,096,130
Net investment income (loss)	15,141,275	12,313,949	21,206,371	(6,446,061)
Benefit payments, including refunds of employee contributions	(4,206,975)	(5,655,539)	(4,923,273)	(4,816,472)
Administrative expense	(71,427)	(116,909)	(87,866)	(114,279)
Net change in plan fiduciary net position	16,981,571	13,382,344	23,339,438	(3,734,777)
Plan fiduciary net position - beginning	86,834,224	103,815,795	117,198,139	140,537,577
Plan fiduciary net position - ending (b)	$ 103,815,795	$ 117,198,139	$ 140,537,577	$ 136,802,800
Net pension liability - ending (a) - (b)	$ 17,626,570	$ 11,134,689	$ 1,902,069	$ 15,573,452
Plan fiduciary net position as a percentage of total pension liability	85.49%	91.32%	98.66%	89.78%
Covered payroll	$ 19,674,270	$ 21,996,287	$ 22,971,722	$ 24,572,460
Net pension liability as a percentage of covered payroll	89.59%	50.62%	8.28%	63.38%

(concluded)

[1]Schedule is intended to present information for ten years. Additional years of information will be presented as they become available.

CITY OF DENTON, TEXAS **Exhibit XIV**
REQUIRED SUPPLEMENTARY INFORMATION
FIREMEN'S RELIEF AND RETIREMENT FUND
SCHEDULE OF CONTRIBUTIONS
LAST TEN FISCAL YEARS (Unaudited)

Fiscal Year	(a) Annual Required Contributions	(b) Contributions in Relation to the Annual Required Contributions	(c) Contribution Excess (Deficiency) (b) - (a)	(d) Covered Payroll	Contributions as a Percentage of Covered Payroll (b)/(d)
2014	2,576,652	2,576,652	-	13,828,070	18.63%
2015	2,535,719	2,535,719	-	14,029,051	18.07%
2016	2,819,046	2,819,046	-	15,540,826	18.14%
2017	2,924,757	2,924,757	-	16,747,217	17.46%
2018	3,310,248	3,310,248	-	18,080,014	18.31%
2019	3,610,711	3,610,711	-	19,517,358	18.50%
2020	3,838,014	3,838,014	-	20,746,026	18.50%
2021	4,158,368	4,158,368	-	22,477,667	18.50%
2022	4,440,025	4,440,025	-	24,000,134	18.50%
2023	4,804,198	4,804,198	-	25,968,636	18.50%

Notes to Schedule:
Annual required contributions are not actuarially determined. In accordance with city ordinance since 2017, the City has contributed to the Firemen's Relief and Retirement Fund at the rate of 18.5%, the assumed actuarial valuation rate over the unfunded liability amortization period.

While the contribution requirements are not actuarially determined, state law requires an actuary certify the assumed City contribution rate is adequate. Methods and assumptions used to contribution adequacy in the December 31, 2021 actuarial valuation:

Actuarial Cost Method	**Entry Age**
Amortization Method	**Level Percentage of Payroll, Open**
Remaining Amortization Period	**9.1 Years**
Asset Valuation Method	**5-year smoothing**
Inflation	**2.50%**
Salary Increases	**3.00% annual general compensation increase plus promotion, step, and longevity increases which average 1.98% per year over a 30-year career**
Investment Rate of Return	**6.75%, net of pension plan investment expense, including inflation**
Retirement Age	**Average expected age at retirement of 57**
Mortality	**PubS-2010 (public safety) total dataset mortality tables for employees and for retirees (sec distinct), projected for morality improvement generationally using the projection scale MP-2019**

CITY OF DENTON, TEXAS **Exhibit XV**
REQUIRED SUPPLEMENTARY INFORMATION
MEDICAL OTHER POST-EMPLOYMENT BENEFITS
SCHEDULE OF CHANGES IN TOTAL OPEB LIABILITY AND RELATED RATIOS
LAST FIVE FISCAL YEARS (PREVIOUS YEARS ARE NOT AVAILABLE)[1,2]

	Measurement Year 2018	Measurement Year 2019	Measurement Year 2020	Measurement Year 2021	Measurement Year 2022
Total OPEB liability:					
Service Cost	$ 1,995,008	$ 2,052,606	$ 2,884,792	$ 3,554,317	$ 3,282,530
Interest (on the total OPEB liability)	1,329,949	1,507,925	1,186,428	995,640	921,256
Changes of benefit terms	-	-	-	-	-
Difference between expected and actual experience	(150,485)	(1,512,289)	329,072	(1,283,436)	(42,650)
Change of assumptions or other inputs	(1,724,923)	1,444,810	3,664,984	(1,091,668)	(10,266,201)
Benefit payments	(899,361)	(1,126,992)	(1,695,382)	(1,826,367)	(1,679,015)
Net change in total OPEB liability	550,188	2,366,060	6,369,894	348,486	(7,784,080)
Total OPEB liability - beginning	39,631,890	40,182,078	42,548,138	48,918,032	49,266,518
Total OPEB liability - ending	$ 40,182,078	$ 42,548,138	$ 48,918,032	$ 49,266,518	$ 41,482,438
Covered-employee payroll	$ 104,783,403	$ 109,480,718	$ 118,063,295	$ 130,944,182	$ 137,686,788
Net pension liability as a percentage of covered-employee payroll	38.35%	38.86%	41.43%	37.62%	30.13%

[1]Schedule is intended to present information for ten years. Additional years of information will be presented as they become available.

[2]There are no assets accumlated in a trust that meets the criteria in Paragraph 4 of GASB Statement No. 75 to pay related benefits.

Methods and assumptions used to determine contribution rate for 2023:

Actuarial cost method	Individual Entry-Age Normal
Discount rate	4.05% (Based on the Fidelity Index's "20-Year Municipal GO AA Index" rates as of December 31, 2022.) The prior year discount rate was 1.84%.
Inflation rate	2.50%
Projected salary increases	3.5% to 11.5% for TMRS and 3.00% to 9.18% for Fire, including inflation
Demographic assumptions	Based on the experience study covering the four-year period ending December 31, 2018 as conducted for the Texas Municipal Retirement System (TMRS) and the assumptions used in the December 31, 2021 actuarial valuation for the Denton Firemen's Relief and Retirement Fund.
Healthcare trend rates	Initial rate of 7.00% declining to an ultimate rate of 4.15% after 13 years.
Mortality	TMRS: For healthy retirees, the gender-distinct 2019 Municipal Retirees of Texas mortality tables are used. The rates are projected on a fully generational basis using the ultimate mortality improvement rates in the MP tables published through 2019 to account for future mortality improvements. Fire: For healthy retirees, the gender-distinct PubS-2010 (safety employees) total data set mortality tables are used. The rates are projected on a fully generational basis using the project scale MP-2019.
Participation rates	65% for employees retiring at age 65 or older; 45% for employees retiring between the ages of 50 and 64; 5% for employees retiring between the ages of 45 and 49; 0% for employees retiring before the ages of 45.

CITY OF DENTON, TEXAS

Exhibit XVI

REQUIRED SUPPLEMENTARY INFORMATION

TEXAS MUNICIPAL RETIREMENT SYSTEM - SUPPLEMENTAL DEATH BENEFIT FUND

SCHEDULE OF CHANGES IN TOTAL OPEB LIABILITY AND RELATED RATIOS

LAST FIVE FISCAL YEARS (PREVIOUS YEARS ARE NOT AVAILABLE)[1,2]

	Measurement Year 2018	Measurement Year 2019	Measurement Year 2020	Measurement Year 2021	Measurement Year 2022
Total OPEB liability:					
Service Cost	$ 176,359	$ 152,989	$ 236,668	$ 233,130	$ 284,912
Interest (on the total OPEB liability)	110,831	130,143	115,434	103,668	100,639
Difference between expected and actual experience	155,143	(284,991)	(28,782)	(158,830)	46,933
Change of assumptions or other inputs	(247,941)	680,198	720,927	172,092	(1,978,189)
Benefit payments	(17,636)	(28,686)	(32,273)	(81,089)	(98,623)
Net change in total OPEB liability	176,756	649,653	1,011,974	268,971	(1,644,328)
Total OPEB liability - beginning	3,268,993	3,445,749	4,095,402	5,107,376	5,376,347
Total OPEB liability - ending	$ 3,445,749	$ 4,095,402	$ 5,107,376	$ 5,376,347	$ 3,732,019
Covered-employee payroll	$ 85,227,078	$ 88,179,581	$ 95,618,386	$ 107,576,172	$ 137,686,788
Net pension liability as a percentage of covered-employee payroll	4.04%	4.64%	5.34%	5.00%	2.71%

[1]Schedule is intended to present information for ten years. Additional years of information will be presented as they become available.

[2]There are no assets accumlated in a trust that meets the criteria in Paragraph 4 of GASB Statement No. 75 to pay related benefits.

Methods and assumptions used to determine contribution rate for 2023:

Inflation rate	2.50% per annum
Discount rate	6.75% (Based on the Fidelity Index's "20-Year Municipal GO AA Index" rates as of December 31, 2021.) The prior year discount rate was 1.84%.
Actuarial cost method	Entry Age Normal
Projected salary increases	3.5% to 11.5% including inflation
Retirees' share of benefit-related	$0
Administrative expenses	All administrative expenses are paid through the Pension Trust and accounted for under reporting requirements under GASB No. 68.
Mortality rates - service retirees	2019 Municipal Retirees of Texas Mortality Tables. The rates are projected on a fully generational basis with scale UMP.
Mortality rates - disabled retirees	2019 Municipal Retirees of Texas Mortality Tables with a 4 year set-forward for males and a 3 year set-forward for females. In addition, a 3.5% and 3% minimum mortality rate will be applied to reflect the impairment for younger members who become disabled for males and females, respectively. The rates are projected on a fully generational basis by Scale UMP to account for future mortality improvements subject to the floor.

CITY OF DENTON, TEXAS **Exhibit XVII**
SCHEDULE OF REVENUES, EXPENDITURES AND
CHANGES IN FUND BALANCES - BUDGET TO ACTUAL
DEBT SERVICE FUND
FOR THE YEAR ENDED SEPTEMBER 30, 2023

	Budgeted Amounts		Actual	Adjustments - Budgetary	Actual on a Budgetary	Variance with Final Budget - Positive
	Original	Final	Amounts	Basis	Basis	(Negative)
REVENUES:						
Taxes	$ 32,605,476	$ 32,605,476	$ 32,733,509	$ -	$ 32,733,509	$ 128,033
Investment revenue (loss)	100,000	100,000	764,351	-	764,351	664,351
Total revenues	32,705,476	32,705,476	33,497,860	-	33,497,860	792,384
EXPENDITURES:						
Debt service:						
Principal, interest and fiscal charges	96,605,257	96,605,257	35,310,358	60,488,661	95,799,019	806,238
Bond refunding	-	-	178,390	(178,390)	-	-
Bond issuance costs	-	-	55,015	(55,015)	-	-
Total expenditures	96,605,257	96,605,257	35,543,763	60,255,256	95,799,019	806,238
Excess (deficiency) of revenues over (under) expenditures	(63,899,781)	(63,899,781)	(2,045,903)	(60,255,256)	(62,301,159)	1,598,622
OTHER FINANCING SOURCES (USES):						
Refunding bonds issued	-	-	9,300,000	(9,300,000)	-	-
Payment to refunded bond agent	-	-	(10,156,875)	10,156,875	-	-
Premium on debt issuance	-	-	911,669	(911,669)	-	-
Transfers in	61,829,824	61,829,824	717,980	60,488,661	61,206,641	(623,183)
Total other financing sources (uses)	61,829,824	61,829,824	772,774	60,433,867	61,206,641	(623,183)
Net change in fund balance	(2,069,957)	(2,069,957)	(1,273,129)	178,611	(1,094,518)	975,439
Fund balance at beginning of year	2,411,532	2,411,532	2,411,532	-	2,411,532	-
Fund balance at end of year	$ 341,575	$ 341,575	$ 1,138,403	$ 178,611	$ 1,317,014	$ 975,439

Adjustments - Budgetary Basis are pass-through debt service payments budgeted as transfers in from enterprise and internal service funds.
Other Financing Sources (Uses) related to refunding are adjusted out as they are non-budgeted items reducing future debt service payments.

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APPENDIX C

FORMS OF BOND COUNSEL'S OPINIONS

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Proposed Form of Opinion of Bond Counsel

An opinion in substantially the following form will be delivered by McCall, Parkhurst & Horton L.L.P., Bond Counsel, upon the delivery of the Certificates, assuming no material changes in facts or law.

[Issue Date]

CITY OF DENTON, TEXAS
CERTIFICATES OF OBLIGATION
SERIES 2024
DATED JUNE 1, 2024
IN THE AGGREGATE PRINCIPAL AMOUNT OF $_____

AS BOND COUNSEL FOR THE CITY OF DENTON, TEXAS (the "*Issuer*") in connection with the issuance of the Certificates of Obligation described above (the "*Certificates*"), we have examined into the legality and validity of the Certificates, which bear interest from the dates and mature on the dates, and are subject to redemption, in accordance with the terms and conditions stated in the text of the Certificates. Terms used herein and not otherwise defined shall have the meaning given in the Ordinance of the Issuer authorizing the issuance and sale of the Certificates (the "*Ordinance*").

WE HAVE EXAMINED the Constitution and laws of the State of Texas, certified copies of the proceedings of the City Council of the Issuer relating to the issuance of the Certificates, including the Ordinance and other documents authorizing and relating to the issuance of the Certificates; and we have examined various certificates and documents executed by officers and officials of the Issuer upon which certificates and documents we rely as to certain matters stated below. We have also examined one of the executed Certificates (Number T-1).

BASED ON SAID EXAMINATION, IT IS OUR OPINION that the Certificates have been duly authorized, issued and delivered, all in accordance with law; and that, except as may be limited by laws applicable to the Issuer relating to bankruptcy, reorganization, and other similar matters affecting creditors' rights generally, or by general principles of equity or governmental immunity of political subdivisions which permit the exercise of judicial discretion, the Certificates will constitute valid and legally binding obligations of the Issuer, and ad valorem taxes sufficient to provide for the payment of the interest on and principal of the Certificates have been levied and pledged for such purpose, within the limit prescribed by law, and that the Certificates are additionally secured by and payable from limited surplus revenues (not to exceed $1,000) of the Issuer's Utility System (consisting of the Issuer's combined waterworks system, sanitary sewer system, drainage system and electric light and power system), remaining after payment of all operation and maintenance expenses thereof, and all debt service, reserve, and other requirements in connection with all of the Issuer's revenue bonds or other obligations (now or hereafter outstanding), which are payable from all or any part of the Net Revenues of the Issuer's Utility System.

IT IS FURTHER OUR OPINION that, except as discussed below, under the statutes, regulations, published rulings, and court decisions existing on the date of this opinion, for federal income tax purposes, the interest on the Certificates (i) is excludable from the gross income of the owners thereof and (ii) the Certificates will not be treated as "specified private activity bonds" the interest on which would be included as an individual alternative minimum tax preference item under section 57(a)(5) of the Internal Revenue Code of 1986 (the "*Code*"). In expressing the aforementioned opinions, we have relied on certain representations, the accuracy of which we have not independently verified, and assume compliance with certain covenants regarding the use and investment of the proceeds of the Certificates and the use of the property financed

therewith. We call your attention to the fact that if such representations are determined to be inaccurate or if the Issuer fails to comply with such covenants, interest on the Certificates may become includable in gross income retroactively to the date of issuance of the Certificates.

EXCEPT AS STATED ABOVE, we express no opinion as to any other federal, state, or local tax consequences of acquiring, carrying, owning, or disposing of the Certificates, including the amount, accrual or receipt of interest on, the Certificates. Owners of the Certificates should consult their tax advisors regarding the applicability of any collateral tax consequences of owning the Certificates.

WE CALL YOUR ATTENTION TO THE FACT that the interest on tax-exempt obligations, such as the Certificates, may be includable in a corporation's adjusted financial statement income for purposes of determining the alternative minimum tax imposed on certain corporations by section 55 of the Code.

WE EXPRESS NO OPINION as to any insurance policies issued with respect to the payments due for the principal of and interest on the Certificates, nor as to any such insurance policies issued in the future.

OUR SOLE ENGAGEMENT in connection with the issuance of the Certificates is as Bond Counsel for the Issuer, and, in that capacity, we have been engaged by the Issuer for the sole purpose of rendering an opinion with respect to the legality and validity of the Certificates under the Constitution and laws of the State of Texas, and with respect to the exclusion from gross income of the interest on the Certificates for federal income tax purposes, and for no other reason or purpose. The foregoing opinions represent our legal judgment based upon a review of existing legal authorities that we deem relevant to render such opinions and are not a guarantee of a result. We have not been requested to investigate or verify, and have not independently investigated or verified any records, data, or other material relating to the financial condition or capabilities of the Issuer, or the disclosure thereof in connection with the sale of the Certificates, and have not assumed any responsibility with respect thereto. We express no opinion and make no comment with respect to the marketability of the Certificates and have relied solely on certificates executed by officials of the Issuer as to the current outstanding indebtedness of, and assessed valuation of taxable property within, and the sufficiency of the pledged surplus net revenues of, the Issuer. Our role in connection with the Issuer's Official Statement prepared for use in connection with the sale of the Certificates has been limited as described therein.

OUR OPINIONS ARE BASED ON EXISTING LAW, which is subject to change. Such opinions are further based on our knowledge of facts as of the date hereof. We assume no duty to update or supplement our opinions to reflect any facts or circumstances that may thereafter come to our attention or to reflect any changes in any law that may thereafter occur or become effective. Moreover, our opinions are not a guarantee of result and are not binding on the Internal Revenue Service (the "*Service*"); rather, such opinions represent our legal judgment based upon our review of existing law and in reliance upon the representations and covenants referenced above that we deem relevant to such opinions. The Service has an ongoing audit program to determine compliance with rules that relate to whether interest on state or local obligations is includable in gross income for federal income tax purposes. No assurance can be given whether or not the Service will commence an audit of the Certificates. If an audit is commenced, in accordance with its current published procedures the Service is likely to treat the Issuer as the taxpayer. We observe that the Issuer has covenanted not to take any action, or omit to take any action within its control, that if taken or omitted, respectively, may result in the treatment of interest on the Certificates as includable in gross income for federal income tax purposes.

Respectfully,

Proposed Form of Opinion of Bond Counsel

An opinion in substantially the following form will be delivered by McCall, Parkhurst & Horton L.L.P., Bond Counsel, upon the delivery of the Bonds, assuming no material changes in facts or law.

[Issue Date]

CITY OF DENTON, TEXAS
GENERAL OBLIGATION REFUNDING AND IMPROVEMENT BONDS
SERIES 2024
DATED JUNE 1, 2024
IN THE PRINCIPAL AMOUNT OF $_____

AS BOND COUNSEL FOR THE CITY OF DENTON, TEXAS (the "*Issuer*") in connection with the issuance of the bonds described above (the "*Bonds*"), we have examined into the legality and validity of the Bonds, which bear interest from the dates and mature on the dates, and are subject to redemption, in accordance with the terms and conditions stated in the text of the Bonds. Terms used herein and not otherwise defined shall have the meaning given in the Ordinance of the Issuer authorizing the issuance and sale of the Bonds (the "*Ordinance*").

WE HAVE EXAMINED the Constitution and laws of the State of Texas, certified copies of the proceedings of the City Council of the Issuer relating to the issuance of the Bonds, including the Ordinance and other documents authorizing and relating to the issuance of the Bonds; and we have examined various certificates and documents executed by officers and officials of the Issuer upon which certificates and documents we rely as to certain matters stated below. We have also examined one of the executed Bonds (Number T-1).

BASED ON SAID EXAMINATION, IT IS OUR OPINION that the Bonds have been duly authorized, issued and delivered, all in accordance with law; and that, except as may be limited by laws applicable to the Issuer relating to bankruptcy, reorganization and other similar matters affecting creditors' rights generally, or by general principles of equity or governmental immunity of political subdivisions which permit the exercise of judicial discretion, the Bonds will constitute valid and legally binding obligations of the Issuer, and ad valorem taxes sufficient to provide for the payment of the interest on and principal of the Bonds have been levied and pledged for such purpose, within the limit prescribed by law.

IT IS FURTHER OUR OPINION that, except as discussed below, under the statutes, regulations, published rulings, and court decisions existing on the date of this opinion, for federal income tax purposes, the interest on the Bonds (i) is excludable from the gross income of the owners thereof and (ii) the Bonds will not be treated as "specified private activity bonds" the interest on which would be included as an individual alternative minimum tax preference item under section 57(a)(5) of the Internal Revenue Code of 1986 (the "*Code*"). In expressing the aforementioned opinions, we have relied on certain representations, the accuracy of which we have not independently verified, and assume compliance with certain covenants regarding the use and investment of the proceeds of the Bonds and the use of the property financed and refinanced therewith. We call your attention to the fact that if such representations are determined to be inaccurate or if the Issuer fails to comply with such covenants, interest on the Bonds may become includable in gross income retroactively to the date of issuance of the Bonds.

EXCEPT AS STATED ABOVE, we express no opinion as to any other federal, state, or local tax consequences of acquiring, carrying, owning, or disposing of the Bonds, including the amount, accrual or receipt of interest on, the Bonds. Owners of the Bonds should consult their tax advisors regarding the applicability of any collateral tax consequences of owning the Bonds.

WE CALL YOUR ATTENTION TO THE FACT that the interest on tax-exempt obligations, such as the Bonds, may be includable in a corporation's adjusted financial statement income for purposes of determining the alternative minimum tax imposed on certain corporations by section 55 of the Code.

WE EXPRESS NO OPINION as to any insurance policies issued with respect to the payments due for the principal of and interest on the Bonds, nor as to any such insurance policies issued in the future.

OUR SOLE ENGAGEMENT in connection with the issuance of the Bonds is as Bond Counsel for the Issuer, and, in that capacity, we have been engaged by the Issuer for the sole purpose of rendering an opinion with respect to the legality and validity of the Bonds under the Constitution and laws of the State of Texas, and with respect to the exclusion from gross income of the interest on the Bonds for federal income tax purposes, and for no other reason or purpose. The foregoing opinions represent our legal judgment based upon a review of existing legal authorities that we deem relevant to render such opinions and are not a guarantee of a result. We have not been requested to investigate or verify, and have not independently investigated or verified any records, data, or other material relating to the financial condition or capabilities of the Issuer, or the disclosure thereof in connection with the sale of the Bonds, and have not assumed any responsibility with respect thereto. We express no opinion and make no comment with respect to the marketability of the Bonds and have relied solely on certificates executed by officials of the Issuer as to the current outstanding indebtedness of, and assessed valuation of taxable property within, the Issuer. Our role in connection with the Issuer's Official Statement prepared for use in connection with the sale of the Bonds has been limited as described therein.

OUR OPINIONS ARE BASED ON EXISTING LAW, which is subject to change. Such opinions are further based on our knowledge of facts as of the date hereof. We assume no duty to update or supplement our opinions to reflect any facts or circumstances that may thereafter come to our attention or to reflect any changes in any law that may thereafter occur or become effective. Moreover, our opinions are not a guarantee of result and are not binding on the Internal Revenue Service (the "*Service*"); rather, such opinions represent our legal judgment based upon our review of existing law and in reliance upon the representations and covenants referenced above that we deem relevant to such opinions. The Service has an ongoing audit program to determine compliance with rules that relate to whether interest on state or local obligations is includable in gross income for federal income tax purposes. No assurance can be given whether or not the Service will commence an audit of the Bonds. If an audit is commenced, in accordance with its current published procedures the Service is likely to treat the Issuer as the taxpayer. We observe that the Issuer has covenanted not to take any action, or omit to take any action within its control, that if taken or omitted, respectively, may result in the treatment of interest on the Bonds as includable in gross income for federal income tax purposes.

Respectfully,

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Municipal Advisory Services
Provided By

HilltopSecurities
Investment Banking Solutions

ORDINANCE NO. 24-___

AN ORDINANCE OF THE CITY OF DENTON CONSIDERING ALL MATTERS INCIDENT AND RELATED TO THE ISSUANCE, SALE AND DELIVERY OF UP TO $151,660,000 IN PRINCIPAL AMOUNT OF "CITY OF DENTON GENERAL OBLIGATION REFUNDING AND IMPROVEMENT BONDS, SERIES 2024"; AUTHORIZING THE ISSUANCE OF THE BONDS; DELEGATING THE AUTHORITY TO CERTAIN CITY OFFICIALS TO EXECUTE CERTAIN DOCUMENTS RELATING TO THE SALE OF THE BONDS; APPROVING AND AUTHORIZING INSTRUMENTS AND PROCEDURES RELATING TO SAID BONDS; ENACTING OTHER PROVISIONS RELATING TO THE SUBJECT; AND PROVIDING AN EFFECTIVE DATE

WHEREAS, by virtue of elections held within the City of Denton, Texas (the "Issuer") on November 5, 2019 and November 7, 2023, this City Council became authorized to issue, sell and deliver the general obligation bonds of the Issuer, of which there have been issued heretofore, are authorized to be issued by this Ordinance, and will remain authorized but unissued hereafter, as described in Schedule I attached hereto and incorporated herein; and

WHEREAS, this City Council finds and determines that it is necessary and proper to order the issuance, sale and delivery of such voted bonds; and

WHEREAS, the Issuer has previously issued and outstanding obligations described in Schedule II attached hereto and incorporated herein (collectively, the "Eligible Refunded Obligations") and the Issuer now desires to refund all or part of the Eligible Refunded Obligations, and those Eligible Refunded Obligations designated by the Pricing Officer in the Pricing Certificate, each as defined below, to be refunded are herein referred to as the "Refunded Obligations"; and

WHEREAS, Chapter 1207, Texas Government Code, as amended ("Chapter 1207") authorizes the Issuer to issue refunding bonds and to deposit the proceeds from the sale thereof, together with any other available funds or resources, directly with a paying agent for the Refunded Obligations or a trust company or commercial bank that does not act as a depository for the Issuer and is named in these proceedings, and such deposit, if made before the payment dates of the Refunded Obligations, shall constitute the making of firm banking and financial arrangements for the discharge and final payment of the Refunded Obligations; and

WHEREAS, Chapter 1207 further authorizes the Issuer to enter into an escrow or similar agreement with such paying agent for the Refunded Obligations or trust company or commercial bank with respect to the safekeeping, investment, reinvestment, administration and disposition of any such deposit, upon such terms and conditions as the Issuer and such paying agent or trust company or commercial bank may agree; and

WHEREAS, the City Council hereby finds and declares a public purpose and it is in the best interests of the Issuer to refund the Refunded Obligations in order to achieve a debt service savings, with such savings, among other information and terms to be included in a pricing certificate (the "Pricing Certificate") to be executed by the Pricing Officer (hereinafter designated) in connection with the initial issuance of each Series of Bonds, all in accordance with the provisions of Section 1207.007, Texas Government Code; and

WHEREAS, all the Refunded Obligations mature or are subject to redemption prior to maturity within 20 years of the date of the bonds hereinafter authorized; and

WHEREAS, the Issuer is an "issuer" within the meaning of Section 1371.001(4)(P), Texas Government Code, having (i) a principal amount of at least $100 million in outstanding long-term indebtedness, in long-term indebtedness proposed to be issued, or in a combination of outstanding or proposed long-term indebtedness and (ii) some amount of long-term indebtedness outstanding or proposed to be issued that is rated in one of the four highest rating categories for long-term debt instruments by a nationally recognized rating agency for municipal securities, without regard to the effect of any credit agreement or other form of credit enhancement entered into in connection with the obligation; and

WHEREAS, the bonds hereinafter authorized to be issued were voted and are to be issued, sold and delivered pursuant to the general laws of the State of Texas, including Texas Government Code Chapters 1207, 1331 and 1371, as amended, and the Issuer's Home Rule Charter; and

WHEREAS, it is officially found, determined, and declared that the meeting at which this Ordinance has been adopted was open to the public and public notice of the time, place and subject matter of the public business to be considered and acted upon at said meeting, including this Ordinance, was given, all as required by the applicable provisions of Texas Government Code Chapter 551; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. RECITALS, AMOUNT, PURPOSE AND DESIGNATION OF THE BONDS.

(a) The recitals set forth in the preamble hereof are incorporated herein and shall have the same force and effect as if set forth in this Section.

(b) The term "Bonds" as used in this Ordinance shall mean and include collectively all bonds initially issued and delivered pursuant to this Ordinance (the "Initial Bonds") and all substitute bonds exchanged therefor, as well as all other substitute bonds and replacement bonds issued pursuant hereto, and the term "Bond" shall mean any of the Bonds. "Series" or "Series of Bonds" means any designated series of Bonds issued pursuant to this Ordinance.

(c) The Bonds of the City of Denton, Texas (the "Issuer") are hereby authorized to be issued and delivered in one or more Series in the maximum aggregate principal amount of $151,660,000 (i) up to $62,940,000 for the public purpose of refunding the Refunded Obligations, (ii) for the purpose of the acquisition of property and making improvements for public purposes in said Issuer, to wit: (A) $40,600,000 for street improvements (including the reconstruction, restructuring and extension of Ryan Road, Hickory Creek Road, Mingo Road and Ruddell Drive), (B) $26,170,000 for fire and animal control public safety facilities, including Fire Station #5, Fire Station #6 and expansion of the Linda McNatt Animal Care & Adoption Center, (C) $10,000,000 for drainage and flood control improvements, including Oakland Drainage improvements, Upstream Detention improvements and Pecan Creek Tributary (PEC 4) Phases 3 & 4 Drainage improvements, (D) $9,450,000 for park system improvements, and (E) $2,500,000 for a new South Branch Library, all in accordance with and subject to the election propositions authorizing such bonds (the "Improvement Projects"), and (iii) to pay the costs associated with the issuance of the Bonds (collectively, the "Projects").

(d) Each bond issued pursuant to this Ordinance shall be designated: "CITY OF DENTON GENERAL OBLIGATION REFUNDING AND IMPROVEMENT BOND, SERIES 2024," with each Series of Bonds having a letter designation following the year, starting with “A”, and with such changes as designated by the Pricing Officer pursuant to Section 2. Initially there shall be issued, sold, and delivered hereunder fully registered bonds, without interest coupons, payable to the respective registered owners thereof (with the Initial Bond being made payable to the Purchaser as described in Section 10 hereof), or to the registered assignee or assignees of said Bonds or any portion or portions thereof (in each case, the

"Registered Owner"). The Bonds shall be in the respective principal amounts, shall be numbered, shall mature and be payable on the date or dates in each of the years and in the principal amounts, and shall bear interest to their respective dates of maturity or redemption prior to maturity at the rates per annum, as set forth in the Pricing Certificate.

SECTION 2. DELEGATION TO PRICING OFFICER.

(a) As authorized by Sections 1207.007 and 1371.053, Texas Government Code, as amended, the City Manager or the Chief Financial Officer (the "Pricing Officer") is hereby authorized to act on behalf of the Issuer in selling and delivering each Series of the Bonds, determining which of the Eligible Refunded Obligations shall be refunded and carrying out the other procedures specified in this Ordinance, including, determining the date of sale of the Bonds, the date of the Bonds, any additional or different designation or title by which the Bonds shall be known, the price at which the Bonds will be sold, the years in which the Bonds will mature, the principal amount to mature in each of such years, the rate of interest to be borne by each such maturity, the interest payment and record dates, the price and terms upon and at which the Bonds shall be subject to redemption prior to maturity at the option of the Issuer, as well as any mandatory sinking fund redemption provisions, and all other matters relating to the issuance, sale, and delivery of the Bonds and the refunding of the Refunded Obligations, including without limitation establishing the redemption date for and effecting the redemption of the Refunded Obligations and obtaining municipal bond insurance for all or any portion of the Bonds (including in connection therewith the execution of any commitment agreements, membership agreements in mutual insurance companies, and other similar agreements) and providing for the terms and provisions thereof applicable to the Bonds, all of which shall be specified in the Pricing Certificate; provided that:

(i) the aggregate original principal amount of the Bonds shall not exceed $151,660,000 with up to $62,940,000 of such amount issued for the purposes described in Section 1(c)(i) and (iii) hereof, $40,600,000 of such amount to be issued for the purposes described in Section 1(c)(ii)(A) and (iii) hereof, $26,170,000 of such amount to be issued for the purposes described in Section 1(c)(ii)(B) and (iii) hereof, $10,000,000 of such amount to be issued for the purposes described in Section 1(c)(ii)(C) and (iii) hereof, $9,450,000 of such amount to be issued for the purposes described in Section 1(c)(ii)(D) and (iii) hereof, and $2,500,000 of such amount to be issued for the purposes described in Section 1(c)(ii)(E) and (iii) hereof;

(ii) the maximum stated maturity of the Bonds shall not exceed February 15, 2044;

(iii) the Bonds shall bear interest at a fixed rate, and the net effective interest rate on the Bonds shall not exceed 5.000%;

(iv) the refunding of the Refunded Obligations must produce present value debt service savings of at least 1.000%, net of any Issuer contribution;

(v) the delegation made hereby shall expire if not exercised by the Pricing Officer through execution of the Pricing Certificate on or prior to December 4, 2024; and

(vi) on or prior to delivery, the Bonds shall be rated by a nationally recognized rating agency for municipal securities in one of the four highest categories for long-term obligations.

(b) In establishing the aggregate principal amount of a Series of Bonds, the Pricing Officer shall establish an amount not exceeding, in aggregate with any other Series of Bonds, the amount authorized in Subsection (a) hereof, which shall be sufficient in amount to provide for the purposes for which the Series

of Bonds are authorized and to pay costs of issuing the Bonds. Each Series of Bonds shall be sold with and subject to such terms as set forth in the Pricing Certificate for such Series.

SECTION 3. CHARACTERISTICS OF THE BONDS.

(a) Registration, Transfer, Conversion and Exchange; Authentication. The Issuer shall keep or cause to be kept at the principal corporate trust office of BOKF, NA, Dallas, Texas (the "Paying Agent/Registrar") books or records for the registration of the transfer, conversion and exchange of the Bonds (the "Registration Books"), and the Issuer hereby appoints the Paying Agent/Registrar as its registrar and transfer agent to keep such books or records and make such registrations of transfers, conversions and exchanges under such reasonable regulations as the Issuer and Paying Agent/Registrar may prescribe; and the Paying Agent/Registrar shall make such registrations, transfers, conversions and exchanges as herein provided. The Paying Agent/Registrar shall obtain and record in the Registration Books the address of the Registered Owner of each Bond to which payments with respect to the Bonds shall be mailed, as herein provided; but it shall be the duty of each Registered Owner to notify the Paying Agent/Registrar in writing of the address to which payments shall be mailed, and such interest payments shall not be mailed unless such notice has been given. The Issuer shall have the right to inspect the Registration Books during regular business hours of the Paying Agent/Registrar, but otherwise the Paying Agent/Registrar shall keep the Registration Books confidential and, unless otherwise required by law, shall not permit their inspection by any other entity. The Issuer shall pay the Paying Agent/Registrar's standard or customary fees and charges for making such registration, transfer, conversion, exchange and delivery of a substitute Bond or Bonds. Registration of assignments, transfers, conversions and exchanges of Bonds shall be made in the manner provided and with the effect stated in the FORM OF BOND set forth in this Ordinance. Each substitute Bond shall bear a letter and/or number to distinguish it from each other Bond.

Except as provided in Section 3(c) of this Ordinance, an authorized representative of the Paying Agent/Registrar shall, before the delivery of any such Bond, date and manually sign said Bond, and no such Bond shall be deemed to be issued or outstanding unless such Bond is so executed. The Paying Agent/Registrar promptly shall cancel all paid Bonds and Bonds surrendered for conversion and exchange. No additional ordinances, orders, or resolutions need be passed or adopted by the governing body of the Issuer or any other body or person so as to accomplish the foregoing conversion and exchange of any Bond or portion thereof, and the Paying Agent/Registrar shall provide for the printing, execution, and delivery of the substitute Bonds in the manner prescribed herein, and said Bonds shall be printed or typed on paper of customary weight and strength. Pursuant to Chapter 1201, Government Code, as amended, the duty of conversion and exchange of Bonds as aforesaid is hereby imposed upon the Paying Agent/Registrar, and, upon the execution of said Bond, the converted and exchanged Bond shall be valid, incontestable, and enforceable in the same manner and with the same effect as the Bonds that initially were issued and delivered pursuant to this Ordinance, approved by the Attorney General of the State of Texas (the "Attorney General") and registered by the Comptroller of Public Accounts of the State of Texas (the "Comptroller").

(b) Payment of Bonds and Interest. The Issuer hereby further appoints the Paying Agent/Registrar to act as the paying agent for paying the principal of and interest on the Bonds, all as provided in this Ordinance. The Paying Agent/Registrar shall keep proper records of all payments made by the Issuer and the Paying Agent/Registrar with respect to the Bonds, and of all conversions and exchanges of Bonds, and all replacements of Bonds, as provided in this Ordinance. However, in the event of a nonpayment of interest on a scheduled payment date, and for thirty (30) days thereafter, a new record date for such interest payment (a "Special Record Date") will be established by the Paying Agent/Registrar, if and when funds for the payment of such interest have been received from the Issuer. Notice of the past due interest shall be sent at least five (5) business days prior to the Special Record Date by United States mail, first-class postage prepaid, to the address of each Registered Owner appearing on the Registration Books at the close of business on the last business day next preceding the date of mailing of such notice.

(c) In General. The Bonds (i) shall be issued in fully registered form, without interest coupons, with the principal of and interest on such Bonds to be payable only to the Registered Owners thereof, (ii) may or shall be redeemed prior to their scheduled maturities (notice of which shall be given to the Paying Agent/Registrar by the Issuer at least 45 days prior to any such redemption date), (iii) may be converted and exchanged for other Bonds, (iv) may be transferred and assigned, (v) shall have the characteristics, (vi) shall be signed, sealed, executed and authenticated, (vii) the principal of and interest on the Bonds shall be payable, and (viii) shall be administered and the Paying Agent/Registrar and the Issuer shall have certain duties and responsibilities with respect to the Bonds, all as provided, and in the manner and to the effect as required or indicated, in the FORM OF BOND set forth in this Ordinance (as modified in the Pricing Certificate). The Initial Bonds are not required to be, and shall not be, authenticated by the Paying Agent/Registrar, but on each substitute Bond issued in conversion of and exchange for any Bond or Bonds issued under this Ordinance the Paying Agent/Registrar shall execute the Paying Agent/Registrar's Authentication Certificate, in the form set forth in the FORM OF BOND.

(d) Paying Agent/Registrar for the Bonds. The Issuer covenants with the Registered Owners of the Bonds that at all times while the Bonds are outstanding the Issuer will provide a competent and legally qualified bank, trust company, financial institution, or other entity to act as and perform the services of Paying Agent/Registrar for the Bonds under this Ordinance, and that the Paying Agent/Registrar will be a single entity. The Issuer reserves the right to, and may, at its option, change the Paying Agent/Registrar upon not less than 60 days written notice to the Paying Agent/Registrar, to be effective not later than 60 days prior to the next principal or interest payment date after such notice. In the event that the entity at any time acting as Paying Agent/Registrar (or its successor by merger, acquisition, or other method) should resign or otherwise cease to act as such, the Issuer covenants that promptly it will appoint a competent and legally qualified bank, trust company, financial institution, or other agency to act as Paying Agent/Registrar under this Ordinance. Upon any change in the Paying Agent/Registrar, the previous Paying Agent/Registrar promptly shall transfer and deliver the Registration Books (or a copy thereof), along with all other pertinent books and records relating to the Bonds, to the new Paying Agent/Registrar designated and appointed by the Issuer. Upon any change in the Paying Agent/Registrar, the Issuer promptly will cause a written notice thereof to be sent by the new Paying Agent/Registrar to each Registered Owner of the Bonds, by United States mail, first-class postage prepaid, which notice also shall give the address of the new Paying Agent/Registrar. By accepting the position and performing as such, each Paying Agent/Registrar shall be deemed to have agreed to the provisions of this Ordinance, and a certified copy of this Ordinance shall be delivered to each Paying Agent/Registrar.

(e) Authentication. Except as provided below, no Bond shall be valid or obligatory for any purpose or be entitled to any security or benefit of this Ordinance unless and until there appears thereon the Paying Agent/Registrar's Authentication Certificate substantially in the form provided in this Ordinance, duly authenticated by manual execution of the Paying Agent/Registrar. It shall not be required that the same authorized representative of the Paying Agent/Registrar sign the Paying Agent/Registrar's Authentication Certificate on all of the Bonds. In lieu of the executed Paying Agent/Registrar's Authentication Certificate described above, an Initial Bond delivered on the closing date shall have attached thereto the Comptroller's Registration Certificate substantially in the form provided in this Ordinance, manually executed by the Comptroller or by her duly authorized agent, which certificate shall be evidence that the Initial Bond has been duly approved by the Attorney General and that it is a valid and binding obligation of the Issuer, and has been registered by the Comptroller.

(f) Book-Entry-Only System. The Bonds issued in exchange for an Initial Bond shall be initially issued in the form of a separate single fully registered Bond for each of the maturities thereof. Upon initial issuance, the ownership of each such Bond shall be registered in the name of Cede & Co., as nominee of

The Depository Trust Company, New York, New York ("DTC"), and except as provided in subsection (g) hereof, all of the outstanding Bonds shall be registered in the name of Cede & Co., as nominee of DTC.

With respect to Bonds registered in the name of Cede & Co., as nominee of DTC, the Issuer and the Paying Agent/Registrar shall have no responsibility or obligation to any securities brokers and dealers, banks, trust companies, clearing corporations and certain other organizations on whose behalf DTC was created ("DTC Participant") to hold securities to facilitate the clearance and settlement of securities transactions among DTC Participants or to any person on behalf of whom such a DTC Participant holds an interest in the Bonds. Without limiting the immediately preceding sentence, the Issuer and the Paying Agent/Registrar shall have no responsibility or obligation with respect to (i) the accuracy of the records of DTC, Cede & Co. or any DTC Participant with respect to any ownership interest in the Bonds, (ii) the delivery to any DTC Participant or any other person, other than a Registered Owner of Bonds, as shown on the Registration Books, of any notice with respect to the Bonds, or (iii) the payment to any DTC Participant or any other person, other than a Registered Owner of Bonds, as shown in the Registration Books of any amount with respect to principal of or interest on the Bonds. Notwithstanding any other provision of this Ordinance to the contrary, the Issuer and the Paying Agent/Registrar shall be entitled to treat and consider the person in whose name each Bond is registered in the Registration Books as the absolute owner of such Bond for the purpose of payment of principal and interest with respect to such Bond, for the purpose of registering transfers with respect to such Bond, and for all other purposes whatsoever. The Paying Agent/Registrar shall pay all principal of and interest on the Bonds only to or upon the order of the Registered Owners, as shown in the Registration Books as provided in this Ordinance, or their respective attorneys duly authorized in writing, and all such payments shall be valid and effective to fully satisfy and discharge the Issuer's obligations with respect to payment of principal of and interest on the Bonds to the extent of the sum or sums so paid. No person other than a Registered Owner, as shown in the Registration Books, shall receive a Bond evidencing the obligation of the Issuer to make payments of principal and interest pursuant to this Ordinance. Upon delivery by DTC to the Paying Agent/Registrar of written notice to the effect that DTC has determined to substitute a new nominee in place of Cede & Co., and subject to the provisions in this Ordinance with respect to interest checks being mailed to the Registered Owner at the close of business on the Record Date, the words "Cede & Co." in this Ordinance shall refer to such new nominee of DTC.

The previous execution and delivery of the Blanket Issuer Letter of Representations with respect to obligations of the Issuer is hereby ratified and confirmed; and the provisions thereof shall be fully applicable to the Bonds.

(g) Successor Securities Depository; Transfers Outside Book-Entry-Only System. In the event that the Issuer determines that DTC is incapable of discharging its responsibilities described herein and in the Blanket Issuer Letter of Representations to DTC or that it is in the best interest of the beneficial owners of the Bonds that they be able to obtain certificated Bonds, the Issuer shall (i) appoint a successor securities depository, qualified to act as such under Section 17A of the Securities and Exchange Act of 1934, as amended, notify DTC and DTC Participants of the appointment of such successor securities depository and transfer one or more separate Bonds to such successor securities depository or (ii) notify DTC and DTC Participants of the availability through DTC of Bonds and transfer one or more separate certificated Bonds to DTC Participants having Bonds credited to their DTC accounts. In such event, the Bonds shall no longer be restricted to being registered in the Registration Books in the name of Cede & Co., as nominee of DTC, but may be registered in the name of the successor securities depository, or its nominee, or in whatever name or names Registered Owners transferring or exchanging Bonds shall designate, in accordance with the provisions of this Ordinance.

(h) Payments to Cede & Co. Notwithstanding any other provision of this Ordinance to the contrary, so long as any Bond is registered in the name of Cede & Co., as nominee of DTC, all payments with respect

to principal of and interest on such Bond and all notices with respect to such Bond shall be made and given, respectively, in the manner provided in the Blanket Issuer Letter of Representations to DTC.

(i) Cancellation of Initial Bonds. On the closing date, one Initial Bond, representing the entire principal amount of a Series of the Bonds, payable in stated installments to the purchaser designated in Section 10 or its designee, executed by manual or facsimile signature of the Mayor and City Secretary of the Issuer, approved by the Attorney General, and registered and manually signed by the Comptroller, will be delivered to such purchaser or its designee. Upon payment for such Initial Bond, the Paying Agent/Registrar shall cancel such Initial Bond and deliver to DTC on behalf of such purchaser one registered definitive Bond for each year of maturity of the Bonds, in the aggregate principal amount of all of the Bonds for such maturity. To the extent that the Paying Agent/Registrar is eligible to participate in DTC's FAST System, pursuant to an agreement between the Paying Agent/Registrar and DTC, the Paying Agent/Registrar shall hold the definitive Bonds in safekeeping for DTC.

(j) Conditional Notice of Redemption. With respect to any optional redemption of the Bonds, unless the prerequisites to such redemption required by this Ordinance have been met and moneys sufficient to pay the principal of and premium, if any, and interest on the Bonds to be redeemed shall have been received by the Paying Agent/Registrar prior to the giving of such notice of redemption, such notice shall state that said redemption may, at the option of the Issuer, be conditional upon the satisfaction of such prerequisites and receipt of such moneys by the Paying Agent/Registrar on or prior to the date fixed for such redemption, or upon any prerequisite set forth in such notice of redemption. If a conditional notice of redemption is given and such prerequisites to the redemption and sufficient moneys are not received, such notice shall be of no force and effect, the Issuer shall not redeem such Bonds and the Paying Agent/Registrar shall give notice, in the manner in which the notice of redemption was given, to the effect that the Bonds have not been redeemed.

SECTION 4. FORM OF BONDS. The form of the Bonds, including the form of Paying Agent/Registrar's Authentication Certificate, the form of Assignment and the form of Comptroller's Registration Certificate to be attached to the Bonds initially issued and delivered pursuant to this Ordinance, shall be, respectively, substantially as follows, with such appropriate variations, omissions or insertions as are permitted or required by this Ordinance, and with the Form of Bond to be modified pursuant to, and completed with information set forth in, the Pricing Certificate.

(a) [Form of Bond]

NO. R-	UNITED STATES OF AMERICA STATE OF TEXAS CITY OF DENTON GENERAL OBLIGATION REFUNDING AND IMPROVEMENT BOND SERIES 2024	PRINCIPAL AMOUNT $_____

Interest Rate	Dated Date	Maturity Date	CUSIP No.
	_____, 20__	February 15, ____	

REGISTERED OWNER:

PRINCIPAL AMOUNT: DOLLARS

ON THE MATURITY DATE specified above, the City of Denton, in Denton County, Texas (the "Issuer"), being a political subdivision and municipal corporation of the State of Texas, hereby promises to pay to the Registered Owner specified above, or registered assigns (hereinafter called the "Registered Owner"), on the Maturity Date specified above, the Principal Amount specified above. The Issuer promises to pay interest on the unpaid principal amount hereof (calculated on the basis of a 360-day year of twelve 30-day months) from the Delivery Date at the Interest Rate per annum specified above. Interest is payable on _____, 20__ and semiannually on each _____ and _____ thereafter to the Maturity Date specified above, or the date of redemption prior to maturity; except, if this Bond is required to be authenticated and the date of its authentication is later than the first Record Date (hereinafter defined), such Principal Amount shall bear interest from the interest payment date next preceding the date of authentication, unless such date of authentication is after any Record Date but on or before the next following interest payment date, in which case such principal amount shall bear interest from such next following interest payment date; provided, however, that if on the date of authentication hereof the interest on the Bond or Bonds, if any, for which this Bond is being exchanged is due but has not been paid, then this Bond shall bear interest from the date to which such interest has been paid in full.

THE PRINCIPAL OF AND INTEREST ON this Bond are payable in lawful money of the United States of America, without exchange or collection charges. The principal of this Bond shall be paid to the Registered Owner hereof upon presentation and surrender of this Bond at maturity, or upon the date fixed for its redemption prior to maturity, at the principal corporate trust office of BOKF, NA, Dallas, Texas, which is the "Paying Agent/Registrar" for this Bond. The payment of interest on this Bond shall be made by the Paying Agent/Registrar to the Registered Owner hereof on each interest payment date by check or draft, dated as of such interest payment date, drawn by the Paying Agent/Registrar on, and payable solely from, funds of the Issuer required by the ordinance authorizing the issuance of this Bond (the "Bond Ordinance") to be on deposit with the Paying Agent/Registrar for such purpose as hereinafter provided; and such check or draft shall be sent by the Paying Agent/Registrar by United States mail, first-class postage prepaid, on each such interest payment date, to the Registered Owner hereof, at its address as it appeared on the last business day of the month preceding each such date (the "Record Date") on the Registration Books kept by the Paying Agent/Registrar, as hereinafter described. In addition, interest may be paid by such other method, acceptable to the Paying Agent/Registrar, requested by, and at the risk and expense of, the Registered Owner. In the event of a non-payment of interest on a scheduled payment date, and for 30 days thereafter, a new record date for such interest payment (a "Special Record Date") will be established by the Paying Agent/Registrar, if and when funds for the payment of such interest have been received from the Issuer. Notice of the Special Record Date and of the scheduled payment date of the past due interest (which shall be 15 days after the Special Record Date) shall be sent at least five business days prior to the Special Record Date by United States mail, first-class postage prepaid, to the address of each Registered Owner of a Bond appearing on the Registration Books at the close of business on the last business day next preceding the date of mailing of such notice.

ANY ACCRUED INTEREST due at maturity or upon the redemption of this Bond prior to maturity as provided herein shall be paid to the Registered Owner upon presentation and surrender of this Bond for redemption and payment at the principal corporate trust office of the Paying Agent/Registrar. The Issuer covenants with the Registered Owner of this Bond that on or before each principal payment date, interest payment date, and accrued interest payment date for this Bond it will make available to the Paying Agent/Registrar, from the "Interest and Sinking Fund" created by the Bond Ordinance, the amounts required to provide for the payment, in immediately available funds, of all principal of and interest on the Bonds, when due.

IF THE DATE for the payment of the principal of or interest on this Bond shall be a Saturday, Sunday, a legal holiday or a day on which banking institutions in the city where the principal corporate trust office of the Paying Agent/Registrar is located are authorized by law or executive order to close, then the date for such payment shall be the next succeeding day that is not such a Saturday, Sunday, legal holiday or day on which banking institutions are authorized to close; and payment on such date shall have the same force and effect as if made on the original date payment was due.

THIS BOND is one of a series of Bonds dated _____, 20__, authorized in accordance with the Constitution and laws of the State of Texas in the principal amount of $151,660,000 (i) for the public purpose of refunding the Refunded Obligations, (ii) for the purpose of the acquisition of property and making improvements for public purposes in the Issuer, to wit: (A) street improvements, (B) fire and animal control public safety facilities, (C) drainage and flood control improvements, (D) park system improvements, and (E) a new South Branch Library, and (iii) to pay the costs associated with the issuance of the Bonds.

ON _____, 20__, or on any date thereafter, the Bonds of this series may be redeemed prior to their scheduled maturities, at the option of the Issuer, with funds derived from any available and lawful source, as a whole, or in part, and, if in part, the particular Bonds, or portions thereof, to be redeemed shall be selected and designated by the Issuer (provided that a portion of a Bond may be redeemed only in an integral multiple of $5,000), at a redemption price equal to the principal amount to be redeemed plus accrued interest to the date fixed for redemption.

[THE BONDS scheduled to mature on _____ in the years ____ and ____ (the "Term Bonds") are subject to scheduled mandatory redemption by the Paying Agent/Registrar by lot, or by any other customary method that results in a random selection, at a price equal to the principal amount thereof, plus accrued interest to the redemption date, out of moneys available for such purpose in the interest and sinking fund for the Bonds, on the dates and in the respective principal amounts, set forth in the following schedule:

Term Bond Maturity: February 15, 20__		Term Bond Maturity: February 15,20__	
Mandatory Redemption Date	Principal Amount	Mandatory Redemption Date	Principal Amount
February 15,20	$	February 15,20	$
February 15,20		February 15,20	
February 15,20__	_____	February 15,20__	_____
February 15,20__ (maturity)	_____	February 15,20__ (maturity)	_____

The principal amount of Term Bonds of a stated maturity required to be redeemed on any mandatory redemption date pursuant to the operation of the mandatory sinking fund redemption provisions shall be reduced, at the option of the Issuer, by the principal amount of any Term Bonds of the same maturity which, at least 50 days prior to a mandatory redemption date (1) shall have been acquired by the Issuer at a price not exceeding the principal amount of such Term Bonds plus accrued interest to the date of purchase thereof, and delivered to the Paying Agent/Registrar for cancellation, (2) shall have been purchased and canceled by the Paying Agent/Registrar at the request of the Issuer at a price not exceeding the principal amount of such Term Bonds plus accrued interest to the date of purchase, or (3) shall have been redeemed pursuant to the optional redemption provisions and not theretofore credited against a mandatory redemption requirement.]

AT LEAST 30 days prior to the date fixed for any redemption of Bonds or portions thereof prior to maturity a written notice of such redemption shall be sent by the Paying Agent/Registrar by United States mail, first-class postage prepaid, to the Registered Owner of each Bond to be redeemed at its address as it appeared on the 45th day prior to such redemption date; provided, however, that the failure of the Registered Owner to receive such notice, or any defect therein or in the sending or mailing thereof, shall not affect the validity or effectiveness of the proceedings for the redemption of any Bond. By the date fixed for any such redemption due provision shall be made with the Paying Agent/Registrar for the payment of the required redemption price for the Bonds or portions thereof that are to be so redeemed. If such written notice of redemption is sent and if due provision for such payment is made, all as provided above, the Bonds or portions thereof that are to be so redeemed thereby automatically shall be treated as redeemed prior to their scheduled maturities, and they shall not bear interest after the date fixed for redemption, and they shall not be regarded as being outstanding except for the right of the Registered Owner to receive the redemption price from the Paying Agent/Registrar out of the funds provided for such payment. If a portion of any Bond shall be redeemed, a substitute Bond or Bonds having the same maturity date, bearing interest at the same rate, in any denomination or denominations in any integral multiple of $5,000, at the written request of the Registered Owner, and in aggregate principal amount equal to the unredeemed portion thereof, will be issued to the Registered Owner upon the surrender thereof for cancellation, at the expense of the Issuer, all as provided in the Bond Ordinance.

IF AT THE TIME OF MAILING of notice of optional redemption there shall not have either been deposited with the Paying Agent/Registrar or legally authorized escrow agent immediately available funds sufficient to redeem all the Bonds called for redemption, such notice may state that it is conditional, and is subject to the deposit of the redemption moneys with the Paying Agent/Registrar or legally authorized escrow agent at or prior to the redemption date or any prerequisite set forth in such notice of redemption. If such redemption is not effectuated, the Paying Agent/Registrar shall, within five days thereafter, give notice in the manner in which the notice of redemption was given that such moneys were not so received or such prerequisites were not met and shall rescind the redemption.

ALL BONDS OF THIS SERIES are issuable solely as fully registered bonds, without interest coupons, in the denomination of any integral multiple of $5,000. As provided in the Bond Ordinance, this Bond may, at the request of the Registered Owner or the assignee or assignees hereof, be assigned, transferred, converted into and exchanged for a like aggregate principal amount of fully registered Bonds, without interest coupons, payable to the appropriate Registered Owner, assignee or assignees, as the case may be, having the same denomination or denominations in any integral multiple of $5,000 as requested in writing by the appropriate Registered Owner, assignee or assignees, as the case may be, upon surrender of this Bond to the Paying Agent/Registrar for cancellation, all in accordance with the form and procedures set forth in the Bond Ordinance. Among other requirements for such assignment and transfer, this Bond must be presented and surrendered to the Paying Agent/Registrar, together with proper instruments of assignment, in form and with guarantee of signatures satisfactory to the Paying Agent/Registrar, evidencing assignment of this Bond or any portion or portions hereof in any integral multiple of $5,000 to the assignee or assignees in whose name or names this Bond or any such portion or portions hereof is or are to be registered. The Form of Assignment printed or endorsed on this Bond may be executed by the Registered Owner to evidence the assignment hereof, but such method is not exclusive, and other instruments of assignment satisfactory to the Paying Agent/Registrar may be used to evidence the assignment of this Bond or any portion or portions hereof from time to time by the Registered Owner. The Paying Agent/Registrar's reasonable standard or customary fees and charges for assigning, transferring, converting and exchanging any Bond or portion thereof will be paid by the Issuer. In any circumstance, any taxes or governmental charges required to be paid with respect thereto shall be paid by the one requesting such assignment, transfer, conversion or exchange, as a condition precedent to the exercise of such privilege. The Paying Agent/Registrar shall not be required to make any such transfer, conversion, or exchange (i) during the period commencing with the close of business on any Record Date and ending with the opening of business

on the next following principal or interest payment date, or (ii) with respect to any Bond or any portion thereof called for redemption prior to maturity, within 45 days prior to its redemption date.

IN THE EVENT any Paying Agent/Registrar for the Bonds is changed by the Issuer, resigns, or otherwise ceases to act as such, the Issuer has covenanted in the Bond Ordinance that it promptly will appoint a competent and legally qualified substitute therefor, and cause written notice thereof to be mailed to the Registered Owners of the Bonds.

IT IS HEREBY certified, recited and covenanted that this Bond has been duly and validly authorized, issued and delivered; that all acts, conditions and things required or proper to be performed, exist and be done precedent to or in the authorization, issuance and delivery of this Bond have been performed, existed and been done in accordance with law; and that annual ad valorem taxes sufficient to provide for the payment of the interest on and principal of this Bond, as such interest comes due and such principal matures, have been levied and ordered to be levied against all taxable property in said Issuer, and have been pledged for such payment, within the limit prescribed by law.

THE ISSUER HAS RESERVED THE RIGHT to amend the Bond Ordinance as provided therein, and under some (but not all) circumstances amendments thereto must be approved by the Registered Owners of a majority in aggregate principal amount of the outstanding Bonds.

BY BECOMING the Registered Owner of this Bond, the Registered Owner thereby acknowledges all of the terms and provisions of the Bond Ordinance, agrees to be bound by such terms and provisions, acknowledges that the Bond Ordinance is duly recorded and available for inspection in the official minutes and records of the governing body of the Issuer, and agrees that the terms and provisions of this Bond and the Bond Ordinance constitute a contract between each Registered Owner hereof and the Issuer.

IN WITNESS WHEREOF, the Issuer has caused this Bond to be signed with the manual or facsimile signature of the Mayor of the Issuer (or in the Mayor's absence, of the Mayor Pro-Tem) and countersigned with the manual or facsimile signature of the City Secretary of said Issuer, and has caused the official seal of the Issuer to be duly impressed, or placed in facsimile, on this Bond.

(signature)	(signature)
City Secretary	Mayor

(SEAL)

[INSERT BOND INSURANCE LEGEND, IF ANY]

(b) [Form of Paying Agent/Registrar's Authentication Certificate]

PAYING AGENT/REGISTRAR'S AUTHENTICATION CERTIFICATE
(To be executed if this Bond is not accompanied by an executed Comptroller's Registration Certificate)

It is hereby certified that this Bond has been issued under the provisions of the Bond Ordinance described in the text of this Bond; and that this Bond has been issued in conversion or replacement of, or in exchange for, a bond, bonds, or a portion of a bond or bonds of a series that originally was approved by the Attorney General of the State of Texas and registered by the Comptroller of Public Accounts of the State of Texas.

Dated: _____

_____
BOKF, NA, Dallas, Texas
Paying Agent/Registrar

By:_____
Authorized Representative

(c) [Form of Assignment]

ASSIGNMENT

For value received, the undersigned hereby sells, assigns and transfers unto _____.

Please insert Social Security or Taxpayer Identification Number of Transferee

_____

(Please print or typewrite name and address, including zip code, of Transferee.)

_____

the within Bond and all rights thereunder, and hereby irrevocably constitutes and appoints _____, attorney, to register the transfer of the within Bond on the books kept for registration thereof, with full power of substitution in the premises.

Dated: _____

Signature Guaranteed:

NOTICE: Signature(s) must be guaranteed by an eligible guarantor institution participating in a securities transfer association recognized signature guarantee program.

NOTICE: The signature above must correspond with the name of the Registered Owner as it appears upon the front of this bond in every particular, without alteration or enlargement or any change whatsoever.

(d) [Form of Comptroller's Registration Certificate]

COMPTROLLER'S REGISTRATION CERTIFICATE: REGISTER NO. _____

I hereby certify that this Bond has been examined, certified as to validity and approved by the Attorney General of the State of Texas, and that this Bond has been registered by the Comptroller of Public Accounts of the State of Texas.

Witness my signature and seal this

_____
Comptroller of Public Accounts of the State of Texas

(COMPTROLLER'S SEAL)

(e) [Initial Bond Insertions]

(i) The Initial Bonds shall be in the form set forth in paragraph (a) of this Section, except that:

A. immediately under the name of the Bond, the headings "Interest Rate" and "Maturity Date" shall both be completed with the words "As shown below" and "CUSIP No. _____" shall be deleted.

B. the first paragraph shall be deleted and the following will be inserted:

"THE CITY OF DENTON, TEXAS, in Denton County, Texas (the "Issuer"), being a political subdivision and municipal corporation of the State of Texas, hereby promises to pay to the Registered Owner specified above, or registered assigns (hereinafter called the "Registered Owner"), on February 15 in each of the years, in the principal installments and bearing interest at the per annum rates set forth in the following schedule:

Years	Principal Installments ($)	Interest Rates (%)

(Information from Pricing Certificate to be inserted)

The Issuer promises to pay interest on the unpaid principal amount hereof (calculated on the basis of a 360-day year of twelve 30-day months) from the Delivery Date at the respective Interest Rate per annum specified above. Interest is payable on _____, 20__, and semiannually on each _____ and _____ thereafter to the date of payment of the principal installment specified above, or the date of redemption prior to maturity; except, that if this Bond is required to be authenticated and the date of its authentication is later than the first Record Date (hereinafter defined), such Principal Amount shall bear interest from the interest payment date next preceding the date of authentication, unless such date of authentication is after any Record Date but on or before the next following interest payment date, in which case such principal amount shall bear interest from such next following interest payment date; provided, however, that if on the date of authentication hereof the interest on the Bond or Bonds, if any, for which this Bond is being exchanged is due but has not been paid, then this Bond shall bear interest from the date to which such interest has been paid in full."

C. The Initial Bond shall be numbered "T-1."

SECTION 5. INTEREST AND SINKING FUND.

(a) A special Interest and Sinking Fund (the "Interest and Sinking Fund") is hereby created solely for the benefit of the Bonds, and the Interest and Sinking Fund shall be established and maintained by the Issuer at an official depository bank of the Issuer. The Interest and Sinking Fund shall be kept separate and apart from all other funds and accounts of the Issuer, and shall be used only for paying the interest on and principal of the Bonds. All ad valorem taxes levied and collected for and on account of the Bonds, together with any accrued interest received upon sale of the Bonds, shall be deposited, as collected, to the credit of the Interest and Sinking Fund. During each year while any of the Bonds or interest thereon are outstanding and unpaid, the governing body of the Issuer shall compute and ascertain a rate and amount of ad valorem tax which will be sufficient to raise and produce the money required to pay the interest on the Bonds as such interest becomes due, and to provide and maintain a sinking fund adequate to pay the principal of its Bonds as such principal matures or is scheduled for redemption (but never less than 2% of the original principal amount of the Bonds as a sinking fund each year). Said tax shall be based on the latest approval tax rolls of the Issuer, with full allowance being made for tax delinquencies and the cost of tax collection. Said rate and amount of ad valorem tax is hereby levied, and is hereby ordered to be levied, against all taxable property in the Issuer for each year while any of the Bonds or interest thereon are outstanding and unpaid; and said tax shall be assessed and collected each such year and deposited to the credit of the aforesaid Interest and Sinking Fund. Said ad valorem taxes sufficient to provide for the payment of the interest on and principal of the Bonds, as such interest comes due and such principal matures or is scheduled for redemption, are hereby pledged for such payment, within the limit prescribed by law. Notwithstanding the requirements of this Section, if Surplus Revenues or other lawfully available moneys of the Issuer are actually on deposit or budgeted and appropriated to be deposited in the Interest and Sinking Fund in advance of the time when ad valorem taxes are scheduled to be levied for any year, then the amount of taxes that otherwise would have been required to be levied pursuant to this Section may be reduced to the extent and by the amount of the Surplus Revenues or other lawfully available funds then on deposit or budgeted and appropriated to be deposited in the Interest and Sinking Fund. For purposes of this Section, "Surplus Revenues" means revenues derived by the Issuer from the ownership and operation of the Issuer's Utility System (consisting of its combined waterworks system, sanitary sewer system, and electric light and power system) that remain after the payment of all maintenance and operation expenses thereof, and all debt service, reserve and other requirements in connection with all of the Issuer's revenue obligations (now or hereafter outstanding) or contractual obligations (now or hereafter existing) which are payable from all or any part of the net revenues of the Issuer's Utility System. If Surplus Revenues are budgeted and appropriated for deposit into the Interest and Sinking Fund, the Issuer:

(i) shall transfer and deposit in the Interest and Sinking Fund each month an amount of not less than 1/12th of the annual debt service on the Bonds to be paid from Surplus Revenues until the amount on deposit in the Interest and Sinking Fund equals the amount required for annual debt service on the Bonds;

(ii) shall establish, adopt and maintain an annual budget that provides for either the monthly deposit of sufficient Surplus Revenues and/or tax revenues, the monthly deposit of any other legally available funds on hand at the time of the adoption of the annual budget, or a combination thereof, into the Interest and Sinking Fund for the repayment of the Bonds; and

(iii) shall at all times maintain and collect sufficient Utility System rates and charges in conjunction with any other legally available funds that, after payment of the costs of operating and maintaining the Utility System, produce revenues in an amount not less than the debt service requirements of all outstanding Utility System revenue bonds of the Issuer and other obligations of the Issuer which are secured in whole or in part by a pledge of revenues of the Utility System and for which the Issuer is budgeting the repayment of such obligations from the revenues of the Utility System, or the Issuer

shall provide documentation which evidences the levy of an ad valorem tax rate dedicated to the Interest and Sinking Fund, in conjunction with any other legally available funds except Utility System rates and charges, sufficient for the repayment of Utility System debt service requirements.

(b) Chapter 1208, Texas Government Code, applies to the issuance of the Bonds and the pledge of the taxes granted by the Issuer under this Section and Section 9, respectively, and is therefore valid, effective, and perfected. Should Texas law be amended at any time while the Bonds are outstanding and unpaid, the result of such amendment being that the pledge of the taxes granted by the Issuer under this Section is to be subject to the filing requirements of Chapter 9, Texas Business & Commerce Code, in order to preserve to the Registered Owners of the Bonds a security interest in said pledge, the Issuer agrees to take such measures as it determines are reasonable and necessary under Texas law to comply with the applicable provisions of Chapter 9, Texas Business & Commerce Code and enable a filing of a security interest in said pledge to occur.

SECTION 6. DEFEASANCE OF BONDS.

(a) Any Bond and the interest thereon shall be deemed to be paid, retired and no longer outstanding (a "Defeased Bond") within the meaning of this Ordinance, except to the extent provided in subsection (d) of this Section, when payment of the principal of such Bond, plus interest thereon to the due date (whether such due date be by reason of maturity or otherwise) either (i) shall have been made or caused to be made in accordance with the terms thereof, or (ii) shall have been provided for on or before such due date by irrevocably depositing with or making available to the Paying Agent/Registrar in accordance with an escrow agreement or other instrument (the "Future Escrow Agreement") for such payment (1) lawful money of the United States of America sufficient to make such payment or (2) Government Obligations that mature as to principal and interest in such amounts and at such times as will insure the availability, without reinvestment, of sufficient money to provide for such payment, and when proper arrangements have been made by the Issuer with the Paying Agent/Registrar for the payment of its services until all Defeased Bonds shall have become due and payable. At such time as a Bond shall be deemed to be a Defeased Bond hereunder, as aforesaid, such Bond and the interest thereon shall no longer be secured by, payable from, or entitled to the benefits of, the ad valorem taxes herein levied and pledged as provided in this Ordinance, and such principal and interest shall be payable solely from such money or Government Obligations. Notwithstanding any other provision of this Ordinance to the contrary, it is hereby provided that any determination not to redeem Defeased Bonds that is made in conjunction with the payment arrangements specified in Subsection (a)(i) or (ii) of this Section shall not be irrevocable, provided that: (1) in the proceedings providing for such payment arrangements, the Issuer expressly reserves the right to call the Defeased Bonds for redemption; (2) gives notice of the reservation of that right to the Registered Owners of the Defeased Bonds immediately following the making of the payment arrangements; and (3) directs that notice of the reservation be included in any redemption notices that it authorizes.

(b) Any moneys so deposited with the Paying Agent/Registrar may at the written direction of the Issuer be invested in Government Obligations, maturing in the amounts and times as hereinbefore set forth, and all income from such Government Obligations received by the Paying Agent/Registrar that is not required for the payment of the Bonds and interest thereon, with respect to which such money has been so deposited, shall be turned over to the Issuer, or deposited as directed in writing by the Issuer. Any Future Escrow Agreement pursuant to which the money and/or Government Obligations are held for the payment of Defeased Bonds may contain provisions permitting the investment or reinvestment of such moneys in Government Obligations or the substitution of other Government Obligations upon the satisfaction of the requirements specified in Subsection (a)(i) or (ii) of this Section. All income from such Government Obligations received by the Paying Agent/Registrar which is not required for the payment of the Defeased Bonds, with respect to which such money has been so deposited, shall be remitted to the Issuer or deposited as directed in writing by the Issuer.

(c) Unless modified in the Pricing Certificate, the term "Government Obligations" means any securities and obligations now or hereafter authorized by state law that are eligible to discharge obligations such as the Bonds, including (i) direct, noncallable obligations of the United States of America, including obligations that are unconditionally guaranteed by the United States of America, (ii) noncallable obligations of an agency or instrumentality of the United States of America, including obligations that are unconditionally guaranteed or insured by the agency or instrumentality and that, on the date the governing body of the Issuer adopts or approves the proceedings authorizing the financial arrangements, are rated as to investment quality by a nationally recognized investment rating firm not less than AAA or its equivalent, and (iii) noncallable obligations of a state or an agency or a county, municipality, or other political subdivision of a state that have been refunded and that, on the date the governing body of the Issuer adopts or approves the proceedings authorizing the financial arrangements, are rated as to investment quality by a nationally recognized investment rating firm not less than AAA or its equivalent.

(d) Until all Defeased Bonds shall have become due and payable, the Paying Agent/Registrar shall perform the services of Paying Agent/Registrar for such Defeased Bonds the same as if they had not been defeased, and the Issuer shall make proper arrangements to provide and pay for such services as required by this Ordinance.

(e) In the event that the Issuer elects to defease less than all of the principal amount of Bonds of a maturity, the Paying Agent/Registrar shall select, or cause to be selected, such amount of Bonds by such random method as it deems fair and appropriate.

SECTION 7. DAMAGED, MUTILATED, LOST, STOLEN, OR DESTROYED BONDS.

(a) Replacement Bonds. In the event any outstanding Bond is damaged, mutilated, lost, stolen or destroyed, the Paying Agent/Registrar shall cause to be printed, executed and delivered, a new Bond of the same principal amount, maturity and interest rate, as the damaged, mutilated, lost, stolen or destroyed Bond, in replacement for such Bond in the manner hereinafter provided.

(b) Application for Replacement Bonds. Application for replacement of damaged, mutilated, lost, stolen or destroyed Bonds shall be made by the Registered Owner thereof to the Paying Agent/Registrar. In every case of loss, theft or destruction of a Bond, the Registered Owner applying for a replacement Bond shall furnish to the Issuer and to the Paying Agent/Registrar such security or indemnity as may be required by them to save each of them harmless from any loss or damage with respect thereto. Also, in every case of loss, theft or destruction of a Bond, the Registered Owner shall furnish to the Issuer and to the Paying Agent/Registrar evidence to their satisfaction of the loss, theft or destruction of such Bond, as the case may be. In every case of damage or mutilation of a Bond, the Registered Owner shall surrender to the Paying Agent/Registrar for cancellation the Bond so damaged or mutilated.

(c) No Default Occurred. Notwithstanding the foregoing provisions of this Ordinance, in the event any such Bond shall have matured, and no default has occurred that is then continuing in the payment of the principal of, redemption premium, if any, or interest on the Bond, the Issuer may authorize the payment of the same (without surrender thereof except in the case of a damaged or mutilated Bond) instead of issuing a replacement Bond, provided security or indemnity is furnished as above provided in this Section.

(d) Charge for Issuing Replacement Bonds. Prior to the issuance of any replacement Bond, the Paying Agent/Registrar shall charge the Registered Owner of such Bond with all legal, printing, and other expenses in connection therewith. Every replacement Bond issued pursuant to the provisions of this Section by virtue of the fact that any Bond is lost, stolen or destroyed shall constitute a contractual obligation of the Issuer whether or not the lost, stolen or destroyed Bond shall be found at any time, or be enforceable by

anyone, and shall be entitled to all the benefits of this Ordinance equally and proportionately with any and all other Bonds duly issued under this Ordinance.

(e) Authority for Issuing Replacement Bonds. In accordance with Sec. 1206.022, Government Code, this Section 7 of this Ordinance shall constitute authority for the issuance of any such replacement Bond without necessity of further action by the governing body of the Issuer or any other body or person, and the duty of the replacement of such Bonds is hereby authorized and imposed upon the Paying Agent/Registrar, and the Paying Agent/Registrar shall authenticate and deliver such Bonds in the form and manner and with the effect, as provided in Section 3(a) of this Ordinance for Bonds issued in conversion and exchange for other Bonds.

SECTION 8. CUSTODY, APPROVAL, AND REGISTRATION OF BONDS; BOND COUNSEL'S OPINION; CUSIP NUMBERS AND CONTINGENT INSURANCE PROVISION, IF OBTAINED; ENGAGEMENT OF BOND COUNSEL.

(a) The Mayor of the Issuer is hereby authorized to have control of the Initial Bonds and all necessary records and proceedings pertaining to the Bonds pending its delivery and its investigation, examination, and approval by the Attorney General, and its registration by the Comptroller. Upon registration of an Initial Bond said Comptroller (or a deputy designated in writing to act for said Comptroller) shall manually sign the Comptroller's Registration Certificate attached to such Bond, and the seal of said Comptroller shall be impressed, or placed in facsimile, on such Bond. The approving legal opinion of the Issuer's Bond Counsel and the assigned CUSIP numbers may, at the option of the Issuer, be printed on the Bonds issued and delivered under this Ordinance, but neither shall have any legal effect, and shall be solely for the convenience and information of the Registered Owners of the Bonds. In addition, if bond insurance is obtained, the Bonds may bear an appropriate legend as provided by the insurer.

(b) The obligation of the Purchaser to accept delivery of the Bonds is subject to the Purchaser being furnished with the final, approving opinion of McCall, Parkhurst & Horton L.L.P., bond counsel to the Issuer, which opinion shall be dated as of and delivered on the date of initial delivery of the Bonds to the Purchaser. The engagement of such firm as bond counsel to the Issuer in connection with the issuance, sale and delivery of the Bonds is hereby approved and confirmed. The execution and delivery of an engagement letter between the Issuer and such firm, with respect to such services as bond counsel, is hereby authorized in such form as may be approved by the Mayor, and the Mayor is hereby authorized to execute such engagement letter.

SECTION 9. COVENANTS REGARDING TAX EXEMPTION OF INTEREST ON THE BONDS.

(a) Covenants. The Issuer covenants to take any action necessary to assure, or refrain from any action that would adversely affect, the treatment of the Bonds as obligations described in section 103 of the Internal Revenue Code of 1986, as amended (the "Code"), the interest on which is not includable in the "gross income" of the holder for purposes of federal income taxation. In furtherance thereof, the Issuer covenants as follows:

(1) to take any action to assure that no more than 10 percent of the proceeds of the Bonds or the projects financed therewith (less amounts deposited to a reserve fund, if any) are used for any "private business use," as defined in section 141(b)(6) of the Code or, if more than 10 percent of the proceeds or the projects financed or refinanced therewith are so used, such amounts, whether or not received by the Issuer, with respect to such private business use, do not, under the terms of this Ordinance or any underlying arrangement, directly or indirectly, secure or provide for the payment of more than 10 percent of the debt service on the Bonds, in contravention of section 141(b)(2) of the Code;

(2) to take any action to assure that in the event that the "private business use" described in subsection (1) hereof exceeds 5 percent of the proceeds of the Bonds or the projects financed therewith (less amounts deposited into a reserve fund, if any) then the amount in excess of 5 percent is used for a "private business use" that is "related" and not "disproportionate," within the meaning of section 141(b)(3) of the Code, to the governmental use;

(3) to take any action to assure that no amount that is greater than the lesser of $5,000,000, or 5 percent of the proceeds of the Bonds (less amounts deposited into a reserve fund, if any) is directly or indirectly used to finance loans to persons, other than state or local governmental units, in contravention of section 141(c) of the Code;

(4) to refrain from taking any action that would otherwise result in the Bonds being treated as "private activity bonds" within the meaning of section 141(b) of the Code;

(5) to refrain from taking any action that would result in the Bonds being "federally guaranteed" within the meaning of section 149(b) of the Code;

(6) to refrain from using any portion of the proceeds of the Bonds, directly or indirectly, to acquire or to replace funds that were used, directly or indirectly, to acquire investment property (as defined in section 148(b)(2) of the Code) that produces a materially higher yield over the term of the Bonds, other than investment property acquired with:

(A) proceeds of the Bonds invested for a reasonable temporary period of 3 years or less or, in the case of a refunding bond, for a period of 90 days or less until such proceeds are needed for the purpose for which the bonds are issued,

(B) amounts invested in a bona fide debt service fund, within the meaning of section 1.148-1(b) of the rules and regulations of the United States Department of the Treasury ("Treasury Regulations"), and

(C) amounts deposited in any reasonably required reserve or replacement fund to the extent such amounts do not exceed 10 percent of the proceeds of the Bonds;

(7) to otherwise restrict the use of the proceeds of the Bonds or amounts treated as proceeds of the Bonds, as may be necessary, so that the Bonds do not otherwise contravene the requirements of section 148 of the Code (relating to arbitrage);

(8) to refrain from using the proceeds of the Bonds or proceeds of any prior bonds to pay debt service on another issue more than 90 days after the date of issue of the Bonds in contravention of the requirements of section 149(d) of the Code (relating to advance refundings); and

(9) to pay to the United States of America at least once during each five-year period (beginning on the date of delivery of the Bonds) an amount that is at least equal to 90 percent of the "Excess Earnings," within the meaning of section 148(f) of the Code and to pay to the United States of America, not later than 60 days after the Bonds have been paid in full, 100 percent of the amount then required to be paid as a result of Excess Earnings under section 148(f) of the Code.

(b) Rebate Fund. In order to facilitate compliance with the above covenant (a)(9), a "Rebate Fund" is hereby established by the Issuer for the sole benefit of the United States of America, and such Rebate Fund shall not be subject to the claim of any other person, including without limitation the Bondholders.

The Rebate Fund is established for the additional purpose of compliance with section 148 of the Code.

(c) Use of Proceeds. The Issuer understands that the term "proceeds" includes "disposition proceeds" as defined in the Treasury Regulations and, in the case of refunding bonds, transferred proceeds (if any) and proceeds of the refunded bonds expended prior to the date of issuance of the Bonds. It is the understanding of the Issuer that the covenants contained herein are intended to assure compliance with the Code and any regulations or rulings promulgated by the United States Department of the Treasury pursuant thereto. In the event that regulations or rulings are hereafter promulgated that modify or expand provisions of the Code, as applicable to the Bonds, the Issuer will not be required to comply with any covenant contained herein to the extent that such failure to comply, in the opinion of nationally recognized bond counsel, will not adversely affect the exemption from federal income taxation of interest on the Bonds under section 103 of the Code. In the event that regulations or rulings are hereafter promulgated that impose additional requirements applicable to the Bonds, the Issuer agrees to comply with the additional requirements to the extent necessary, in the opinion of nationally recognized bond counsel, to preserve the exemption from federal income taxation of interest on the Bonds under section 103 of the Code. In furtherance of such intention, the Issuer hereby authorizes and directs the Mayor or Pricing Officer to execute any documents, certificates or reports required by the Code and to make such elections, on behalf of the Issuer, that may be permitted by the Code as are consistent with the purpose for the issuance of the Bonds.

(d) Allocation of, and Limitation on, Expenditures for the Projects. The Issuer covenants to account for the expenditure of sale proceeds and investment earnings to be used for the construction and acquisition of the Improvement Projects on its books and records in accordance with the requirements of the Code. The Issuer recognizes that in order for the proceeds to be considered used for the reimbursement of costs, the proceeds must be allocated to expenditures within 18 months of the later of the date that (1) the expenditure is made, or (2) the Improvement Projects are completed; but in no event later than three years after the date on which the original expenditure is paid. The foregoing notwithstanding, the Issuer recognizes that in order for proceeds to be expended under the Code, the sale proceeds or investment earnings must be expended no more than 60 days after the earlier of (1) the fifth anniversary of the delivery of the Bonds, or (2) the date the Bonds are retired. The Issuer agrees to obtain the advice of nationally-recognized bond counsel if such expenditure fails to comply with the foregoing to assure that such expenditure will not adversely affect the tax-exempt status of the Bonds. For purposes hereof, the issuer shall not be obligated to comply with this covenant if it obtains an opinion that such failure to comply will not adversely affect the excludability for federal income tax purposes from gross income of the interest.

(e) Disposition of Projects. The Issuer covenants that the property constituting the Improvement Projects and the projects refinanced by the Bonds will not be sold or otherwise disposed in a transaction resulting in the receipt by the Issuer of cash or other compensation, unless any action taken in connection with such disposition will not adversely affect the tax-exempt status of the Bonds. For purposes of the foregoing, the Issuer may rely on an opinion of nationally-recognized bond counsel that the action taken in connection with such sale or other disposition will not adversely affect the tax-exempt status of the Bonds. For purposes of the foregoing, the portion of the property comprising personal property and disposed in the ordinary course shall not be treated as a transaction resulting in the receipt of cash or other compensation. For purposes hereof, the Issuer shall not be obligated to comply with this covenant if it obtains an opinion that such failure to comply will not adversely affect the excludability for federal income tax purposes from gross income of the interest.

(f) Reimbursement. This Ordinance is intended to satisfy the official intent requirements set forth in section 1.150-2 of the Treasury Regulations.

SECTION 10. SALE OF BONDS AND APPROVAL OF OFFICIAL STATEMENT; FURTHER

PROCEDURES.

(a) Each Series of Bonds shall be sold and delivered subject to the provisions of Section 1 and Section 2 hereof through a negotiated sale, competitive sale or private placement and pursuant to the terms and provisions of a purchase contract or a notice of sale and official bid form (in each case, a "Purchase Agreement"), the terms and provisions of which are to be determined by the Pricing Officer in accordance with Section 2 hereof, and in which the purchaser or purchasers of the Bonds (the "Purchaser") shall be designated. The Pricing Officer is hereby authorized to execute and deliver one or more Purchase Agreement for and on behalf of the Issuer. The Bonds shall initially be registered in the name of the Purchaser or its designee.

(b) The Issuer hereby approves the form and content of the draft preliminary official statement relating to the Bonds and any addenda, supplement or amendment thereto, and approves the distribution of one or more preliminary official statement or other preliminary offering document in the reoffering of the Bonds by the Purchaser in final form, with such changes therein or additions thereto as the Pricing Officer may deem advisable. The Pricing Officer is hereby authorized, in the name and on behalf of the Issuer, to approve, distribute, and deliver one or more final official statement or other final offering document relating to the Bonds to be used by the Purchaser in the marketing of the Bonds.

(c) The Pricing Officer is authorized, in connection with effecting the sale of the Bonds, to obtain from a municipal bond insurance company so designated in the Pricing Certificate (the "Insurer") a municipal bond insurance policy (the "Insurance Policy") in support of the Bonds. To that end, should the Pricing Officer exercise such authority and commit the Issuer to obtain a municipal bond insurance policy, for so long as the Insurance Policy is in effect, the requirements of the Insurer relating to the issuance of the Insurance Policy as set forth in the Pricing Certificate are incorporated by reference into this Ordinance and made a part hereof for all purposes, notwithstanding any other provision of this Ordinance to the contrary. The Pricing Officer shall have the authority to execute any documents to effect the issuance of the Insurance Policy by the Insurer, including commitment agreements, membership agreements in mutual insurance companies and other similar agreements.

(d) The Mayor and Mayor Pro Tem, the City Manager, Pricing Officer and City Secretary and all other officers, employees and agents of the Issuer, and each of them, shall be and they are hereby expressly authorized, empowered and directed from time to time and at any time to do and perform all such acts and things and to execute, acknowledge and deliver in the name and under the corporate seal and on behalf of the Issuer a Paying Agent/Registrar Agreement with the Paying Agent/Registrar and all other instruments, whether or not herein mentioned, as may be necessary or desirable in order to carry out the terms and provisions of this Ordinance, the Pricing Certificate, the Bonds, the sale of the Bonds, any Purchase Agreement and any official statement or other offering document. In case any officer whose signature shall appear on any Bond shall cease to be such officer before the delivery of such Bond, such signature shall nevertheless be valid and sufficient for all purposes the same as if such officer had remained in office until such delivery.

SECTION 11. INTEREST EARNINGS ON BOND PROCEEDS. Interest earnings derived from the investment of proceeds from the sale of the Bonds issued for the Improvement Projects shall be used along with other Bond proceeds for the Improvement Projects; provided that after completion of such purpose, if any of such interest earnings remain on hand, such interest earnings shall be deposited in the Interest and Sinking Fund. It is further provided, however, that any interest earnings on Bond proceeds that are required to be rebated to the United States of America pursuant to Section 9 hereof in order to prevent the Bonds from being arbitrage bonds shall be so rebated and not considered as interest earnings for the purposes of this Section.

SECTION 12. CONSTRUCTION FUND OR ACCOUNT; INVESTMENTS.

(a) The proceeds of sale of the Bonds, excluding any accrued interest received from the initial purchaser of the Bonds and any other amounts to be deposited into the Interest and Sinking Fund, any amounts to be deposited into the escrow fund under the escrow agreement approved in Section 16 of this Ordinance and amounts to pay costs of issuance of the Bonds, shall be deposited in one or more construction funds or accounts for use, along with any investment earnings thereon, by the Issuer for payment of all lawful costs associated with the acquisition and construction of the Improvement Projects as hereinbefore provided. Upon payment of all such costs, any moneys remaining on deposit in said funds or accounts, including investment earnings, shall be transferred to the Interest and Sinking fund. Amounts so deposited to the Interest and Sinking Fund shall be used in the manner described in Section 5 of this Ordinance.

(b) The Issuer may invest proceeds of the Bonds (including investment earnings thereon) issued for Improvement Projects and amounts deposited into the Interest and Sinking Fund in investments authorized by the Public Funds Investment Act, Chapter 2256, Texas Government Code, as amended; provided, however, that the Issuer hereby covenants that the proceeds of the sale of the Bonds will be used as soon as practicable for the purposes for which the Bonds are issued.

(c) All deposits authorized or required by this Ordinance shall be secured to the fullest extent required by law for the security of public funds.

SECTION 13. COMPLIANCE WITH RULE 15c2-12.

(a) Definitions. As used in this Section, the following terms have the meanings ascribed to such terms below:

"*Financial Obligation*" means a (i) debt obligation, (ii) derivative instrument entered into in connection with or pledged as security or a source of payment for, an existing or planned debt obligation, or (iii) a guarantee of (i) or (ii); provided however, that a "financial obligation" shall not include municipal securities as to which a final official statement (as defined in the Rule) has been provided to the MSRB consistent with the Rule.

"MSRB" means the Municipal Securities Rulemaking Board.

"Rule" means SEC Rule 15c2-12, as amended from time to time.

"SEC" means the United States Securities and Exchange Commission.

(b) Annual Reports.

(i) The Issuer shall provide annually to the MSRB, in the electronic format prescribed by the MSRB, financial information and operating data (the "Annual Operating Report") with respect to the Issuer of the general type included in the final official statement authorized by this Ordinance, being the information described in the Pricing Certificate. The Issuer will additionally provide financial statements of the Issuer (the "Financial Statements"), that will be (i) prepared in accordance with the accounting principles described in the Pricing Certificate or such other accounting principles as the Issuer may be required to employ from time to time pursuant to State law or regulation and shall be in substantially the form included in the final official statement and (ii) audited, if the Issuer commissions an audit of such Financial Statements and the audit is completed within the period during which they must be provided. The Issuer will update and provide the Annual Operating Report within six months after the end of each fiscal year and the Financial Statements within 12 months of

the end of each fiscal year, in each case beginning with the fiscal year ending in and after 2024. The Issuer may provide the Financial Statements earlier, including at the time it provides its Annual Operating Report, but if the audit of such Financial Statements is not complete within 12 months after any such fiscal year end, then the Issuer shall file unaudited Financial Statements within such 12-month period and audited Financial Statements for the applicable fiscal year, when and if the audit report on such Financial Statements becomes available. All documents provided to the MSRB pursuant to this Section shall be accompanied by identifying information as prescribed by the MSRB.

(ii) If the Issuer changes its fiscal year, it will notify the MSRB of the change (and of the date of the new fiscal year end) prior to the next date by which the Issuer otherwise would be required to provide financial information and operating data pursuant to this Section. The financial information and operating data to be provided pursuant to this Section may be set forth in full in one or more documents or may be included by specific reference to any document (including an official statement or other offering document, if it is available from the MSRB) that theretofore has been provided to the MSRB or filed with the SEC.

(c) Event Notices.

(i) The Issuer shall notify the MSRB in an electronic format as prescribed by the MSRB, in a timely manner (but not in excess of ten business days after the occurrence of the event) of any of the following events with respect to the Bonds, if such event is material within the meaning of the federal securities laws:

1. Non-payment related defaults;
2. Modifications to rights of holders of the Bonds;
3. Bond calls;
4. Release, substitution, or sale of property securing repayment of the Bonds;
5. The consummation of a merger, consolidation, or acquisition involving an obligated person or the sale of all or substantially all of the assets of the obligated person, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms;
6. Appointment of a successor or additional trustee or the change of name of a trustee; and
7. Incurrence of a Financial Obligation of the Issuer or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a Financial Obligation of the Issuer, any of which affect security holders.

(ii) The Issuer shall notify the MSRB in an electronic format as prescribed by the MSRB, in a timely manner (but not in excess of ten business days after the occurrence of the event) of any of the following events with respect to the Bonds, without regard to whether such event is considered material within the meaning of the federal securities laws:

1. Principal and interest payment delinquencies;
2. Unscheduled draws on debt service reserves reflecting financial difficulties;
3. Unscheduled draws on credit enhancements reflecting financial difficulties;
4. Substitution of credit or liquidity providers, or their failure to perform;
5. Adverse tax opinions or the issuance by the Internal Revenue Service of proposed or final determinations of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with respect to the

tax-exempt status of the Bonds, or other material events affecting the tax-exempt status of the Bonds;

6. Tender offers;
7. Defeasances;
8. Rating changes;
9. Bankruptcy, insolvency, receivership or similar event of an obligated person; and
10. Default, event of acceleration, termination event, modification of terms, or other similar events under the terms of a Financial Obligation of the Issuer, any of which reflect financial difficulties.

(iii) The Issuer shall notify the MSRB, in a timely manner, of any failure by the Issuer to provide financial information or operating data in accordance with subsection (b) of this Section by the time required by such subsection.

(d) Limitations, Disclaimers, and Amendments.

(i) The Issuer shall be obligated to observe and perform the covenants specified in this Section for so long as, but only for so long as, the Issuer remains an "obligated person" with respect to the Bonds within the meaning of the Rule, except that the Issuer in any event will give notice of any deposit made in accordance with this Ordinance or applicable law that causes the Bonds no longer to be outstanding.

(ii) The provisions of this Section are for the sole benefit of the Registered Owners and beneficial owners of the Bonds, and nothing in this Section, express or implied, shall give any benefit or any legal or equitable right, remedy, or claim hereunder to any other person. The Issuer undertakes to provide only the financial information, operating data, financial statements, and notices which it has expressly agreed to provide pursuant to this Section and does not hereby undertake to provide any other information that may be relevant or material to a complete presentation of the Issuer's financial results, condition, or prospects or hereby undertake to update any information provided in accordance with this Section or otherwise, except as expressly provided herein. The Issuer does not make any representation or warranty concerning such information or its usefulness to a decision to invest in or sell Bonds at any future date.

(iii) UNDER NO CIRCUMSTANCES SHALL THE ISSUER BE LIABLE TO THE REGISTERED OWNER OR BENEFICIAL OWNER OF ANY BOND OR ANY OTHER PERSON, IN CONTRACT OR TORT, FOR DAMAGES RESULTING IN WHOLE OR IN PART FROM ANY BREACH BY THE ISSUER, WHETHER NEGLIGENT OR WITHOUT FAULT ON ITS PART, OF ANY COVENANT SPECIFIED IN THIS SECTION, BUT EVERY RIGHT AND REMEDY OF ANY SUCH PERSON, IN CONTRACT OR TORT, FOR OR ON ACCOUNT OF ANY SUCH BREACH SHALL BE LIMITED TO AN ACTION FOR MANDAMUS OR SPECIFIC PERFORMANCE.

(iv) No default by the Issuer in observing or performing its obligations under this Section shall comprise a breach of or default under this Ordinance for purposes of any other provision of this Ordinance. Nothing in this Section is intended or shall act to disclaim, waive, or otherwise limit the duties of the Issuer under federal and state securities laws.

(v) Notwithstanding anything to the contrary in Section 14 hereof, the provisions of this Section may be amended by the Issuer from time to time to adapt to changed circumstances that arise from a change in legal requirements, a change in law, or a change in the identity, nature, status, or type of operations of the Issuer, but only if (1) the provisions of this Section, as so amended, would

have permitted an underwriter to purchase or sell Bonds in the primary offering of the Bonds in compliance with the Rule, taking into account any amendments or interpretations of the Rule since such offering as well as such changed circumstances and (2) either (a) the Registered Owners of a majority in aggregate principal amount (or any greater amount required by any other provision of this Ordinance that authorizes such an amendment) of the outstanding Bonds consent to such amendment or (b) a person that is unaffiliated with the Issuer (such as nationally recognized bond counsel) determined that such amendment will not materially impair the interest of the Registered Owners and beneficial owners of the Bonds. The Issuer may also amend or repeal the provisions of this continuing disclosure agreement if the SEC amends or repeals the applicable provision of the Rule or a court of final jurisdiction enters judgment that such provisions of the Rule are invalid, but only if and to the extent that the provisions of this sentence would not prevent an underwriter from lawfully purchasing or selling Bonds in the primary offering of the Bonds. If the Issuer so amends the provisions of this Section, it shall include with any amended financial information or operating data next provided in accordance with subsection (b) of this Section an explanation, in narrative form, of the reason for the amendment and of the impact of any change in the type of financial information or operating data so provided.

(e) Amendment of the Rule. The provisions of this Section shall be revised by the Pricing Officer to reflect the requirements of the Rule if the Rule is amended after the adoption of this Ordinance but prior to the delivery of the Bonds so as to permit an underwriter to purchase or sell Bonds in the primary offering of the Bonds in compliance with the Rule. Any such revisions shall be set forth in the Pricing Certificate and are incorporated by reference into this Ordinance and made a part hereof for all purposes, notwithstanding any other provision of this Ordinance to the contrary.

SECTION 14. METHOD OF AMENDMENT. The Issuer hereby reserves the right to amend this Ordinance subject to the following terms and conditions, to-wit:

(a) The Issuer may from time to time, without the consent of any holder, except as otherwise required by paragraph (b) below, amend or supplement this Ordinance in order to (i) cure any ambiguity, defect or omission in this Ordinance that does not materially adversely affect the interests of the holders, (ii) grant additional rights or security for the benefit of the holders, (iii) add events of default as shall not be inconsistent with the provisions of this Ordinance and that shall not materially adversely affect the interests of the holders, (iv) qualify this Ordinance under the Trust Indenture Act of 1939, as amended, or corresponding provisions of federal laws from time to time in effect, or (v) make such other provisions in regard to matters or questions arising under this Ordinance as shall not be inconsistent with the provisions of this Ordinance and that shall not in the opinion of the Issuer's Bond Counsel materially adversely affect the interests of the holders.

(b) Except as provided in paragraph (a) above, the holders of Bonds aggregating in principal amount a majority of the aggregate principal amount of then outstanding Bonds that are the subject of a proposed amendment shall have the right from time to time to approve any amendment hereto that may be deemed necessary or desirable by the Issuer; provided, however, that without the consent of 100% of the holders in aggregate principal amount of the then outstanding Bonds that are the subject of a proposed amendment, nothing herein contained shall permit or be construed to permit amendment of the terms and conditions of this Ordinance or in any of the Bonds so as to:

(1) Make any change in the maturity of any of the affected outstanding Bonds;

(2) Reduce the rate of interest borne by any of the affected outstanding Bonds;

(3) Reduce the amount of the principal of, or redemption premium, if any, payable on any affected outstanding Bonds;

(4) Modify the terms of payment of principal or of interest or redemption premium on affected outstanding Bonds or impose any condition with respect to such payment; or

(5) Change the minimum percentage of the principal amount of Bonds necessary for consent to such amendment.

(c) If at any time the Issuer shall desire to amend this Ordinance under this Section, the Issuer shall send by U.S. mail to each Registered Owner of the affected Bonds a copy of the proposed amendment and cause notice of the proposed amendment to be published at least once in a financial publication published in The City of New York, New York or in the State of Texas. Such published notice shall briefly set forth the nature of the proposed amendment and shall state that a copy thereof is on file at the office of the Issuer for inspection by all holders of such Bonds.

(d) Whenever at any time within one year from the date of publication of such notice the Issuer shall receive an instrument or instruments executed by the holders of at least a majority in aggregate principal amount of all of the Bonds then outstanding that are required for the amendment, which instrument or instruments shall refer to the proposed amendment and that shall specifically consent to and approve such amendment, the Issuer may adopt the amendment in substantially the same form.

(e) Upon the adoption of any amendatory Ordinance pursuant to the provisions of this Section, this Ordinance shall be deemed to be modified and amended in accordance with such amendatory Ordinance, and the respective rights, duties, and obligations of the Issuer and all holders of such affected Bonds shall thereafter be determined, exercised, and enforced, subject in all respects to such amendment.

(f) Any consent given by the holder of a Bond pursuant to the provisions of this Section shall be irrevocable for a period of six months from the date of the publication of the notice provided for in this Section, and shall be conclusive and binding upon all future holders of the same Bond during such period. Such consent may be revoked at any time after six months from the date of the publication of said notice by the holder who gave such consent, or by a successor in title, by filing notice with the Issuer, but such revocation shall not be effective if the holders of a majority in aggregate principal amount of the affected Bonds then outstanding, have, prior to the attempted revocation, consented to and approved the amendment.

For the purposes of establishing ownership of the Bonds, the Issuer shall rely solely upon the registration of the ownership of such Bonds on the Registration Books kept by the Paying Agent/Registrar.

SECTION 15. DEFAULT AND REMEDIES.

(a) Events of Default. Each of the following occurrences or events for the purpose of this Ordinance is hereby declared to be an Event of Default:

(i) the failure to make payment of the principal of or interest on any of the Bonds when the same becomes due and payable; or

(ii) default in the performance or observance of any other covenant, agreement or obligation of the Issuer, the failure to perform which materially, adversely affects the rights of the Registered Owners of the Bonds, including, but not limited to, their prospect or ability to be repaid in accordance with this Ordinance, and the continuation thereof for a period of 60 days after notice of such default is given by any Registered Owner to the Issuer.

(b) Remedies for Default.

(i) Upon the happening of any Event of Default, then and in every case, any Registered Owner or an authorized representative thereof, including, but not limited to, a trustee or trustees therefor, may proceed against the Issuer for the purpose of protecting and enforcing the rights of the Registered Owners under this Ordinance, by mandamus or other suit, action or special proceeding in equity or at law, in any court of competent jurisdiction, for any relief permitted by law, including the specific performance of any covenant or agreement contained herein, or thereby to enjoin any act or thing that may be unlawful or in violation of any right of the Registered Owners hereunder or any combination of such remedies.

(ii) It is provided that all such proceedings shall be instituted and maintained for the equal benefit of all Registered Owners of Bonds then outstanding.

(c) Remedies Not Exclusive.

(i) No remedy herein conferred or reserved is intended to be exclusive of any other available remedy or remedies, but each and every such remedy shall be cumulative and shall be in addition to every other remedy given hereunder or under the Bonds or now or hereafter existing at law or in equity; provided, however, that notwithstanding any other provision of this Ordinance, the right to accelerate the debt evidenced by the Bonds shall not be available as a remedy under this Ordinance.

(ii) The exercise of any remedy herein conferred or reserved shall not be deemed a waiver of any other available remedy.

(iii) By accepting the delivery of a Bond authorized under this Ordinance, such Registered Owner agrees that the certifications required to effectuate any covenants or representations contained in this Ordinance do not and shall never constitute or give rise to a personal or pecuniary liability or charge against the officers, employees or agents of the Issuer or the members of its governing body.

SECTION 16. APPROVAL OF ESCROW AGREEMENT AND TRANSFER OF FUNDS. In furtherance of authority granted by Section 1207.007(b), Texas Government Code, the Mayor or a Pricing Officer are further authorized to enter into and execute on behalf of the Issuer with the escrow agent named therein, an escrow or similar agreement, in the form and substance as shall be approved by the Pricing Officer, which agreement will provide for the payment in full of the Refunded Obligations. In addition, the Mayor, Pricing Officer or other officer of the Issuer is authorized to purchase such securities, to execute such subscriptions for the purchase of the Escrowed Securities, (as defined in the agreement), if any, and to authorize such contributions to the escrow fund as provided in the agreement.

SECTION 17. REDEMPTION OF REFUNDED OBLIGATIONS.

(a) Subject to the execution and delivery of a Purchase Agreement with the Purchaser, the Issuer hereby directs that the Refunded Obligations be called for redemption on the dates and at such prices as set forth in the Pricing Certificate. The Pricing Officer is hereby authorized and directed to issue or cause to be issued the Notice of Redemption of the Refunded Obligations in substantially the form set forth in Exhibit A attached hereto, completed with information from the Pricing Certificate, to the paying agent/registrar(s) for the Refunded Obligations.

(b) In addition, the paying agent/registrar(s) for the Refunded Obligations is hereby directed to provide the appropriate notices of redemption and defeasance as specified by the ordinances authorizing

the issuance of the Refunded Obligations and is hereby directed to make appropriate arrangements so that the Refunded Obligations may be redeemed on their respective redemption dates. The Refunded Obligations shall be presented for redemption at the paying agent/registrar therefore, and shall not bear interest after the date fixed for redemption.

(c) If the redemption of the Refunded Obligations results in the partial refunding of any maturity of the Refunded Obligations, the Pricing Officer shall direct the paying agent/registrar(s) for the Refunded Obligations to designate at random and by lot which of the Refunded Obligations will be payable from and secured solely from ad valorem taxes of the Issuer pursuant to the ordinance of the Issuer authorizing the issuance of such Refunded Obligations (the "Refunded Obligation Ordinance"). The paying agent/registrar(s) shall notify by first-class mail all registered owners of all affected obligations of such maturities that: (i) a portion of such obligations have been refunded and are secured until final maturity solely with cash and investments maintained by the escrow agent in the escrow fund, (ii) the principal amount of all affected obligations of such maturities registered in the name of such registered owner that have been refunded and are payable solely from cash and investments in the Escrow Fund and the remaining principal amount of all affected obligations of such maturities registered in the name of such registered owner, if any, have not been refunded and are payable and secured solely from ad valorem taxes of the Issuer described in the Refunded Obligation Ordinance, (iii) the registered owner is required to submit his or her Refunded Obligations to the paying agent/registrar(s), for the purposes of re-registering such registered owner's obligations and assigning new CUSIP numbers in order to distinguish the source of payment for the principal and interest on such obligations, and (iv) payment of principal of and interest on such obligations may, in some circumstances, be delayed until such obligations have been re-registered and new CUSIP numbers have been assigned as required by (iii) above.

(d) The source of funds for payment of the principal of and interest on the Refunded Obligations on their respective maturity or redemption dates shall be from the funds placed in escrow with the escrow agent, pursuant to an escrow agreement approved in Section 16 of this Ordinance.

SECTION 18. APPROPRIATION. To pay the debt service coming due on the Bonds, if any, prior to receipt of the taxes levied to pay such debt service, there is hereby appropriated from current funds on hand, which are hereby certified to be on hand and available for such purpose, an amount, which together with capitalized interest received from the sale of the Bonds, if any, will be sufficient to pay such debt service, and such amount shall be used for no other purpose.

SECTION 19. EFFECTIVE DATE. In accordance with the provisions of Texas Government Code Section 1201.028, this Ordinance shall be effective immediately upon its adoption by the City Council.

SECTION 20. SEVERABILITY. If any section, article, paragraph, sentence, clause, phrase or word in this Ordinance, or application thereof to any persons or circumstances is held invalid or unconstitutional by a court of competent jurisdiction, such holding shall not affect the validity of the remaining portion of this Ordinance, despite such invalidity, which remaining portions shall remain in full force and effect.

The motion to approve this ordinance was made by _____ and seconded by _____. The ordinance was passed and approved by the following vote [__ – __ – __]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this 4th day of June, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Susan Keller

SCHEDULE I

November 5, 2019 Election Voted Bonds

Purpose	Amount Authorized	Amount Previously Issued*	Unissued Balance	Amount Being Issued*	Remaining Balance
Street Improvements	$154,000,000	$99,500,000	$54,500,000	$35,600,000	$18,900,000
Police Public Safety Facilities	$61,900,000	$61,900,000	$0	$0	$0
Acquisition of Land for Parks	$5,000,000	$5,000,000	$0	$0	$0

* Includes principal and premium

November 7, 2023 Election Voted Bonds

Purpose	Amount Authorized	Amount Previously Issued*	Unissued Balance	Amount Being Issued*	Remaining Balance
Street Improvements	$45,125,000	$0	$45,125,000	$5,000,000	$40,125,000
Drainage and Flood Control Improvements	$58,860,000	$0	$58,860,000	$10,000,000	$48,860,000
Park System Improvements	$33,450,000	$0	$33,450,000	$9,450,000	$24,000,000
Fire and Animal Control Public Safety Facilities	$42,015,000	$0	$42,015,000	$26,170,000	$15,845,000
Active Adult Center Facility	$47,360,000	$0	$47,360,000	$0	$47,360,000
New South Branch Library	$49,545,000		$49,545,000	$2,500,000	$47,045,000
Affordable Housing Projects	$15,000,000	$0	$15,000,000	$0	$15,000,000

* Includes principal and premium

SCHEDULE II

Schedule of Eligible Refunded Obligations

City of Denton Certificates of Obligation, Series 2014

Maturity Date (Feb. 15)	Principal Amount Outstanding
2025	$2,950,000
2026	2,835,000
2027	2,950,000
2028	3,065,000
2029	3,195,000
2030	3,355,000
2031	3,510,000
2032	3,670,000
2033	3,840,000
2034	3,990,000
2035	2,200,000
2036	2,315,000
2037	2,435,000
2038	2,560,000
2039	2,690,000
***	*****
2044	15,270,000
Total:	$60,615,000

City of Denton General Obligation Refunding and Improvement Bonds, Series 2014

Maturity Date (Feb. 15)	Principal Amount Outstanding
2025	$195,000
2026	205,000
2027	210,000
2028	220,000
2029	225,000
2030	235,000
2031	245,000
2032	250,000
2033	265,000
2034	275,000
Total:	$2,325,000

EXHIBIT A

Notice of Redemption

NOTICE IS HEREBY GIVEN that the City of Denton, Texas has called for redemption the outstanding obligations of the City described as follows (the "Refunded Obligations"):

City of Denton _____, Series 20__, dated _____, 2012, scheduled to mature on February 15, 20__ through February 15 20__, aggregating $_____ (and being all of the outstanding bonds of said series scheduled to mature on and after February 15, 20__);

Redemption Date: _____, 20__; redeemable at a redemption price of par plus accrued interest at the principal corporate offices of The Bank of New York Mellon Trust Company, N.A., only upon presentation by the owner thereof.

This notice of redemption and the payment of the redemption price of the Refunded Obligations is conditioned upon the deposit of moneys, in an amount equal to the amount necessary to effect the redemption, with the Paying Agent/Registrar or legally authorized escrow agent no later than the Redemption Date, and the City retains the right to rescind such notice at any time prior to the Redemption Date, and this notice of redemption shall be of no effect unless such moneys are so deposited on or prior to the Redemption Date. If such redemption is not effectuated, the Paying Agent/Registrar shall, within five days thereafter, give notice in the manner in which the notice of redemption was given that such moneys were not so received and shall rescind the redemption.

If moneys sufficient for the payment of such redemption price are held by or on behalf of the paying agent, the described Refunded Obligations shall become due and payable on the redemption date specified, and the interest thereon shall cease to accrue from and after the redemption date.

In compliance with section 3406 of the Internal Revenue Code of 1986, payors making certain payments due on debt securities may be obligated to deduct and withhold 30 percent of such payment from the remittance to any payee who has failed to provide such payor with a valid taxpayer identification number. To avoid the imposition of the withholding of tax, such payees should submit a taxpayer identification number when surrendering the Refunded Obligations for redemption.

NOTICE IS FURTHER GIVEN that all Refunded Obligations should be submitted to one of the following address:

First Class/Registered/ Certified Mail	Express Delivery	Hand Delivery
The Bank of New York Mellon Trust Company, N.A. Global Corporate Trust P.O. Box 396 East Syracuse, New York 13057	The Bank of New York Mellon Trust Company, N.A. Global Corporate Trust 111 Sanders Creek Parkway East Syracuse, New York 13057	The Bank of New York Mellon Trust Company, N.A. Global Corporate Trust Corporate Trust Window 101 Barclay Street 1ST Floor East New York, New York 10286

Dated:_____, 20__

By: The Bank of New York Mellon Trust Company, National Association

FY
2023-2024

City Council
Bond Ordinances

June 4, 2024 ID's 24-950; 24-951

GO Projects: 2019 Bond Program

Prop 1 Streets

Street Reconstruction	$	18,000,000
Hickory Creek Road		8,100,000
Ryan Road		4,000,000
Street Lighting		3,500,000
Sidewalks		2,000,000
Total	**$**	**35,600,000**

GO Projects: 2023 Bond Program

Ruddell, Mingo Roadway & Quiet Zones (Prop A)	$	5,000,000
Oakland Drainage & Upstream Detention Improvements (Prop B)		5,000,000
PEC 3&4 Drainage Improvements (Prop B)		5,000,000
Inclusive Playground (Prop C)		3,450,000
Trail Development (Prop C)		4,000,000
Aquatic Improvements (Prop C)		2,000,000
Fire Station # 5 (Prop D)		5,000,000
Fire Station # 6 (Prop D)		5,000,000
Linda McNatt Animal Care & Adoption Center (Prop D)		15,850,000
Public Art - Public Safety (Prop D)		320,000
South Branch Library (Prop G)		2,500,000
Total	**$**	**53,120,000**

2024 Debt Refunding

Average Interest Rate of Refunded Bonds	3.91%
Projected Interest Rate	3.70%

Refunding Bonds Opportunity		Principal Refunded	Maturities Refunded
General Obligation Refunding & Improvement Bonds, Series 2014	$	2,325,000	2024-2044
Certificates of Obligation, Series 2014	$	60,615,000	2025-2044
Total Refunding Opportunity	$	62,940,000	

Total Projected Savings*		
	$	1,620,530

General Obligation Refunding Bonds, Series 2014 Projected Savings*					
Total $1,620,530					
Savings by Debt Type					
General Fund	Airport	Solid Waste	Water	Wastewater	Electric
$153,355	$36,502	$108,347	$196,058	$140,080	$968,188

*Preliminary, subject to change

GO Bond Sale

2019 Bond Program Projects	$	35,600,000
2023 Bond Program Projects		53,120,000
2014 Refunding		62,940,000
Issuance Cost & Pricing Flexibility*		-
GO Bond Sale Total	**$**	**151,660,000**

*Covered by CO estimate

Notice of Intent to Issue COs

- Council approved April 2, 2024.
- Published in Denton Record Chronicle on April 11th and 18th.
- This Bond Ordinance to authorize the sale of COs is at least 46 day after the first publication per state law.

General Government COs

	NOI	BOND SALE
Fleet Building Addition Equipment and Furnishings	$2,000,000	$2,000,000
Fuel Control Hardware / Software Upgrade	650,000	650,000
End User Computing	664,500	664,500
Internal Service Total	**$3,314,500**	**$3,314,500**

	NOI	BOND SALE
Security Hardware Upgrade (Facilities)	$180,000	$180,000
Facilities ADA Upgrades (Facilities)	1,068,600	1,068,600
Facilities Capital Replacements (Facilities)	4,000,000	4,000,000
Facility Condition Maintenance (Facilities)	10,000,000	10,000,000
Standard Building Specifications (Facilities)	500,000	500,000
Adjacency Remodels (Facilities)	50,000	50,000
Service Center Renovation (Facilities)	9,000,000	9,000,000
Parking Lot Replacements (Facilities)	931,172	931,172
ADA Transition Plan Improvements (Parks)	309,000	309,000
Parkside Property Playground (Parks)	280,000	280,000
Traffic Signal Cabinets (Traffic)	208,000	208,000
Gridsmart Vehicle Detection (Traffic)	240,000	240,000
Traffic Signal Design and Rebuilds (Traffic)	1,950,000	1,950,000

General Government Continued on Next Slide

General Government COs Continued

	NOI	BOND SALE
Vehicle Replacement - General Fund (Motorpool)	5,498,000	5,498,000
Vehicle Additions - General Fund (Motorpool)	1,059,350	1,059,350
Infrastructure Replacement (Tech Services)	1,641,500	1,641,500
Radios & Modems (Tech Services)	725,653	725,653
Asset Management Software (Tech Services)	5,000,000	5,000,000
Citywide Fiber Replacement (Tech Services)	500,000	500,000
CAD/RMS Software Replacement (Tech Services)	4,000,000	4,000,000
Land Management Software (Tech Services)	5,000,000	5,000,000
Drainage Improvements (Drainage)	1,350,000	1,350,000
I35 TxDOT Merge Medallion Artwork (Streets)	1,500,000	671,665
Bonnie Brae 4B (Streets)	8,000,000	8,000,000
Bonnie Brae 5 (Streets)	2,000,000	2,000,000
Riney Road East (Streets)	6,000,000	6,000,000
McKinney Sidewalks (Streets)	5,500,000	5,500,000
Total - General Government	**$76,491,275**	**$75,662,940**
Grand Total General Government	**$79,805,775**	**$78,977,440**

Solid Waste CO Projects

	NOI	BOND SALE
Home Chemical Collection Storage Capacity	$ -	$ -
Fleet Shop at Solid Waste	2,000,000	2,000,000
Cell 5 & 6 Construction	-	-
Vehicles - New Additions	130,000	130,000
Vehicles - Replacements	2,069,730	1,709,730
Scalehouse	-	360,000
Solid Waste Total	**$ 4,199,730**	**$ 4,199,730**

Water Utility CO Projects

	NOI	BOND SALE
AMI/AMR Replacements	$ 2,000,000	$ 2,000,000
Sampling Station Upgrades	500,000	500,000
Distributor Replacement	4,320,572	4,320,572
LLRWPS Redundant Power	250,000	250,000
LLWTP Clarifiers Rehab	3,500,000	3,500,000
LLWTP Raw Water	1,500,000	1,500,000
Robson Ranch Water Line	400,000	400,000
RRWTP Capacity Rerate	8,000,000	8,000,000
RRWTP Disinfection	4,000,000	4,000,000
RRWTP Expansion #1	20,000,000	20,000,000
Supplement to Bond	12,200,000	12,200,000
Transmission Line	1,000,000	1,000,000
LLWTP Sludge Dewatering	500,000	500,000
Service Center Renovation	2,000,000	2,000,000
Water Total	**$ 60,170,572**	**$ 60,170,572**

Wastewater Utility CO Projects

	NOI	BOND SALE
12/15-inch Robson Ranch Interceptor (HC: O-4)	$ 2,361,900	$ 2,361,900
Clear Creek Water Reclamation Plant (CCWRP)	460,000	460,000
Collector Replacement Program	4,915,318	4,915,318
Hickory Creek Water Reclamation Plant Ph 1 (HC: O-1, O-2, O-3)	171,178	171,178
Milam Creek Basin Wastewater Line and Lift Station	5,752,000	5,752,000
PCWRP New 75 MGD Headworks	24,000,000	24,000,000
PCWRP Expansion to 26 MGD	6,300,000	6,300,000
Supplement to Bond Election 2019 Projects	8,000,000	8,000,000
Oversize Participation - Waterline Increases	4,000,000	4,000,000
Wastewater Total	**$ 55,960,396**	**$ 55,960,396**

Electric Utility CO Projects

	NOI	BOND SALE
Automated Meter Reading	$ 1,250,000	$ 1,250,000
Building Construction	5,000,000	5,000,000
Distribution Substations	6,980,000	6,980,000
Distribution Transformers	5,000,000	5,000,000
Feeder Extensions and Improve	6,902,100	6,902,100
New Residential & Commercial	5,269,000	5,269,000
Power Factor Improvement	150,000	150,000
Street Lighting	500,000	500,000
Transmission Lines	11,800,000	11,800,000
Transmission Substation	9,220,000	9,220,000
Technology - Hardware/Software	4,528,900	4,528,900
Electric - Relocations	3,400,000	3,400,000
Electric Total	**$ 60,000,000**	**$ 60,000,000**

CO Bond Sale Summary

General Government	$78,977,440
Solid Waste	4,199,730
Water	60,170,572
Wastewater	55,960,396
Electric	60,000,000
Subtotal	259,308,138
Issuance Cost & Pricing Flexibility*	3,021,862
Total	**$262,330,000**

*Shared with GO Bond Sale

2024 Bond Sale

General Obligations	$	151,660,000
Certificates of Obligations	$	262,330,000

Next Steps

- **June 12, 2024**
  - Date of Sale
- **July 17, 2024**
  - Preliminary date of close and delivery of funds

Questions

Randee Klingele
Treasury Manager

File #: ID 24-951, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton considering all matters incident and related to the issuance, sale and delivery of up to $262,330,000 in principal amount of "City of Denton Certificates of Obligation, Series 2024"; authorizing the issuance of the certificates; delegating the authority to certain city officials to execute certain documents relating to the sale of the certificates; approving and authorizing instruments and procedures relating to said certificates; enacting other provisions relating to the subject; and providing an effective date. The Public Utilities Board recommends approval 4-0.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: **Finance**

ACM: **Cassey Ogden**

DATE: **June 4, 2024**

SUBJECT

Consider adoption of an ordinance considering all matters incident and related to the issuance, sale and delivery of up to $262,330,000 in principal amount of "City of Denton Certificates of Obligation, Series 2024"; authorizing the issuance of the certificates; delegating the authority to certain city officials to execute certain documents relating to the sale of the certificates; approving and authorizing instruments and procedures relating to said certificates; enacting other provisions relating to the subject; and providing an effective date. The Public Utilities Board recommends approval 4-0.

BACKGROUND

On April 2, 2024, the City Council adopted Ordinance Nos. 24-568 and 24-569 directing the publication of Notice of Intentions to issue Certificates of Obligation (COs) for General Government, Solid Waste, Water, Wastewater and Electric projects. The notices were published in a newspaper of general circulation (Denton Record Chronicle) on April 11, 2024, and April 18, 2024, as required by state law. The notices were also posted on the City of Denton website.

GO and CO bond sale costs are a shared expense. CO's require Notice of Intentions to be issued early in the bond sale process calculating costs based on current market conditions and CO Utility project totals. The estimated CO cost will cover the GO bond sale this year.

The COs will be issued as a single series of obligations totaling $262, 330,000. The below table summarizes the totals for each fund and the estimated associated issuance cost and flexibility in pricing.

General Government	$78,977,440
Solid Waste	4,199,730
Water	60,170,572
Wastewater	55,960,396
Electric	60,000,000
Subtotal	$259,308,138
Issuance Cost & Pricing Flexibility*	3,021,862
Total CO Bond Sale	**$262,330,000**

*Shared with GO Bond Sale

The adopted FY 2023-24 budget included $307,318,597 in General Government, Solid Waste, Water, Wastewater and Electric projects however, the project list amounts were reduced by $48 million after an internal analysis of funding and product availability as well as project timelines, reducing the Bond Sale project list to $259,308,138 for these funds.

It is important to note that the City sells bonds in accordance with the useful life of the asset that is being acquired. For example, vehicles are typically sold with bonds that will be paid within five years. The 2024 bond sale includes debt issuance terms below. All issued debt will have a 9-year call option.

- General Government $54,199,937 will be 20-year debt, $17,555,653 will be 10-year debt and $7,221,850 will be 5-year debt.
- Solid Waste $2,000,000 will be 20-year and $2,199,730 will be 5-year debt.
- Water $60,170,572 will be 20-year debt.
- Wastewater $55,960,396 will be 20-year debt.
- Electric $55,471,100 will be 30-year debt and $4,528,900 will be 10-year debt.

Since bond market conditions can change rapidly, staff is recommending that the City Council approve a delegated parameters sale for the COs. The parameters ordinance sets the following requirements in order to complete the sale of the COs. By doing so, City staff will be authorized to execute the sale without additional approval.

- Maximum amount of sale is $262,330,000
- Final stated maturity of February 15, 2054
- Maximum net effective interest rate of 5.00%
- Delegation authority ends December 4, 2024

Below is a listing of the recommended CO funded projects.

CERTIFICATES OF OBLIGATION FUNDED PROJECTS	NOI	BOND SALE
Fleet Building Addition Equipment and Furnishings	$ 2,000,000	$ 2,000,000
Fuel Control Hardware / Software Upgrade	650,000	650,000
End User Computing	664,500	664,500
Internal Service Fund Total	**$ 3,314,500**	**$ 3,314,500**
Security Hardware Upgrade (Facilities)	$ 180,000	$ 180,000
Facilities ADA Upgrades (Facilities)	1,068,600	1,068,600
Facilities Capital Replacements (Facilities)	4,000,000	4,000,000
Facility Condition Maintenance (Facilities)	10,000,000	10,000,000
Standard Building Specifications (Facilities)	500,000	500,000
Adjacency Remodels (Facilities)	50,000	50,000
Service Center Renovation (Facilities)	9,000,000	9,000,000
Parking Lot Replacements (Facilities)	931,172	931,172
ADA Transition Plan Improvements (Parks)	309,000	309,000
Parkside Property Playground (Parks)	280,000	280,000
Traffic Signal Cabinets (Traffic)	208,000	208,000
Gridsmart Vehicle Detection (Traffic)	240,000	240,000
Traffic Signal Design and Rebuilds (Traffic)	1,950,000	1,950,000
Vehicle Replacement - General Fund (Motorpool)	5,498,000	5,498,000
Vehicle Additions - General Fund (Motorpool)	1,059,350	1,059,350
Infrastructure Replacement (Tech Services)	1,641,500	1,641,500
Radios & Modems (Tech Services)	725,653	725,653

CERTIFICATES OF OBLIGATION FUNDED PROJECTS	NOI	BOND SALE
Asset Management Software (Tech Services)	5,000,000	5,000,000
Citywide Fiber Replacement (Tech Services)	500,000	500,000
CAD/RMS Software Replacement (Tech Services)	4,000,000	4,000,000
Land Management Software (Tech Services)	5,000,000	5,000,000
Drainage Improvements (Drainage)	1,350,000	1,350,000
I35 TxDOT Merge Medallion Artwork (Streets)	1,500,000	671,665
Bonnie Brae 4B (Streets)	8,000,000	8,000,000
Bonnie Brae 5 (Streets)	2,000,000	2,000,000
Riney Road East (Streets)	6,000,000	6,000,000
McKinney Sidewalks (Streets)	5,500,000	5,500,000
General Government Total	76,491,275	75,662,940
Home Chemical Collection Storage Capacity	$0	$0
Fleet Shop at Solid Waste	2,000,000	2,000,000
Cell 5 & 6 Construction	0	0
Vehicles - New Additions	130,000	130,000
Vehicles - Replacements	2,069,730	1,709,730
Scalehouse	0	360,000
Solid Waste Total	**4,199,730**	**4,199,730**
AMI/AMR Replacements	2,000,000	2,000,000
Sampling Station Upgrades	500,000	500,000
Distributor Replacement Program	4,320,572	4,320,572
LLRWPS Redundant Power Supply	250,000	250,000
LLWTP Clarifiers Rehab (Sludge Rake Coating & Sludge Valves)	3,500,000	3,500,000
LLWTP Raw Water Transmission Line	1,500,000	1,500,000
Robson Ranch Water Line (WMP:15)	400,000	400,000
RRWTP Capacity Rerate and Performance Upgrades	8,000,000	8,000,000
RRWTP Disinfection Conversion and Chemical Improvements	4,000,000	4,000,000
RRWTP Expansion #1 (HC:O-1); RRWTP Expansion #2 (HC:O-	20,000,000	20,000,000
Supplement to Bond Election 2019 Projects	12,200,000	12,200,000
Transmission Line Condition Repairs	1,000,000	1,000,000
LLWTP Sludge Dewatering Improvement Project	500,000	500,000
Service Center Renovation	2,000,000	2,000,000
Water Total	**$60,170,572**	**$60,170,572**
12/15-inch Robson Ranch Interceptor (HC: O-4)	$2,361,900	$2,361,900
Clear Creek Water Reclamation Plant (CCWRP)	460,000	460,000
Collector Replacement Program	4,915,318	4,915,318
Hickory Creek Water Reclamation Plant Ph 1 (HC: O-1, O-2, O-3)	171,178	171,178
Milam Creek Basin Wastewater Line and Lift Station	5,752,000	5,752,000
PCWRP New 75 MGD Headworks	24,000,000	24,000,000
PCWRP Expansion to 26 MGD	6,300,000	6,300,000
Supplement to Bond Election 2019 Projects	8,000,000	8,000,000
Oversize Participation - Waterline Increases	4,000,000	4,000,000
Wastewater Total	**$55,960,396**	**$55,960,396**

CERTIFICATES OF OBLIGATION FUNDED PROJECTS	NOI	BOND SALE
Automated Meter Reading	$1,250,000	$1,250,000
Building Construction	5,000,000	5,000,000
Distribution Substations	6,980,000	6,980,000
Distribution Transformers	5,000,000	5,000,000
Feeder Extensions and Improve	6,902,100	6,902,100
New Residential & Commercial	5,269,000	5,269,000
Power Factor Improvement	150,000	150,000
Street Lighting	500,000	500,000
Transmission Lines	11,800,000	11,800,000
Transmission Substation	9,220,000	9,220,000
Technology - Hardware/Software	4,528,900	4,528,900
Electric - Relocations	3,400,000	3,400,000
Electric Total	**$60,000,000**	**$60,000,000**
TOTAL CO BOND PROJECT LIST	**$ 260,136,473**	**$ 259,308,138**

RECOMMENDATION

Staff recommends adoption of the ordinance.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

On October 23, 2024, the City Council adopted reimbursement ordinance (Ord. 23-1426) authorizing General Obligation Bonds and Certificates of Obligation funded projects in preparation of the 2024 Bond Sale.

On April 2, 2024, the City Council adopted ordinances (Ord. 24-568, 24-569) directing the publication of Notice of Intentions to Issue Certificates of Obligation of the City of Denton.

EXHIBITS

1. Agenda Information Sheet
2. Preliminary Official Statement
3. CO Ordinance
4. Presentation

Respectfully submitted:
Randee Klingele
Treasury Manager

This Preliminary Official Statement and the information contained herein are subject to completion or amendment. These securities may not be sold nor may offers to buy be accepted prior to the time the Preliminary Official Statement is delivered in final form. Under no circumstances shall the Preliminary Official Statement constitute an offer to sell or the solicitation of an offer to buy nor shall there be any sale of these securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of such jurisdiction.

DRAFT

HTS Continuing Disclosure Services
A Division of Hilltop Securities

(See "Continuing Disclosure of Information" herein)

PRELIMINARY OFFICIAL STATEMENT

Dated May __, 2024

Ratings:
Fitch: "___"
S&P: "___"
(See "Other Information - Ratings" herein)

NEW ISSUE - Book-Entry-Only

In the opinion of Bond Counsel, interest on the Certificates will be excludable from gross income for federal income tax purposes under statutes, regulations, published rulings and court decisions existing on the date thereof, subject to the matters described under "Tax Matters" herein, including the alternative minimum tax on certain corporations.

THE CERTIFICATES WILL NOT BE DESIGNATED AS "QUALIFIED TAX-EXEMPT OBLIGATIONS" FOR FINANCIAL INSTITUTIONS.

$240,610,000*
CITY OF DENTON, TEXAS
(Denton County)
CERTIFICATES OF OBLIGATION, SERIES 2024

Dated Date: June 1, 2024
Interest Accrues from Delivery Date

Due: February 15, as shown on page 2

PAYMENT TERMS . . . Interest on the $240,610,000* City of Denton, Texas Certificates of Obligation, Series 2024 (the "Certificates") will accrue from the delivery date (the "Delivery Date"), will be payable February 15 and August 15 of each year, commencing February 15, 2025, until maturity or prior redemption, and will be calculated on the basis of a 360-day year consisting of twelve 30-day months. The definitive Certificates will be initially registered and delivered only to Cede & Co., the nominee of The Depository Trust Company ("DTC") pursuant to the Book-Entry-Only System described herein. Beneficial ownership of the Certificates may be acquired in denominations of $5,000 or integral multiples thereof within a maturity. **No physical delivery of the Certificates will be made to the beneficial owners thereof.** Principal of, premium, if any, and interest on the Certificates will be payable by the Paying Agent/Registrar to Cede & Co., which will make distribution of the amounts so paid to the participating members of DTC for subsequent payment to the beneficial owners of the Certificates. See "The Obligations - Book-Entry-Only System" herein. The initial Paying Agent/Registrar is BOKF, NA, Dallas, Texas (see "The Obligations - Paying Agent/Registrar").

AUTHORITY FOR ISSUANCE . . . The Certificates are issued pursuant to the Constitution and general laws of the State of Texas, (the "State") particularly Subchapter C of Chapter 271, Texas Local Government Code (the Certificate of Obligation Act of 1971), as amended, and Texas Government Code, Chapter 1371, as amended, and constitute direct obligations of the City of Denton, Texas (the "City"), payable from a combination of (i) the levy and collection of a direct annual ad valorem tax, within the limits prescribed by law, on all taxable property within the City, and (ii) a limited pledge of surplus net revenues of the City's Utility System not in excess of $1,000, as provided in the Certificate Ordinance (defined herein) authorizing the Certificates (see "The Obligations - Authority for Issuance").

PURPOSE . . . Proceeds from the sale of the Certificates will be used for the purchase, construction and acquisition of certain real and personal property, to wit: (a) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's waterworks and wastewater system; (b) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's electric light and power system; (c) renovating, constructing, expanding, improving and equipping existing municipal service center building; (d) acquisition of vehicles and equipment for the fire, police, building inspections, community improvement services, animal services, streets and traffic control, facilities management, airport, technology services, fleet management, warehouse management, and parks and recreation departments; (e) renovations to, and equipping of, existing municipal buildings, including the acquisition and installation of replacement heating, venting and air conditioning equipment, roofing and flooring; (f) acquiring, expanding, constructing, renovating, improving and equipping parking facilities; (g) acquiring, constructing and installing building security systems, including security system technology equipment and software, for municipal buildings; (h) constructing, reconstructing, renovating, installing and equipping municipal parks; (i) renovations to and equipping existing municipal vehicle maintenance facility; (j) acquisition and installation of technology equipment, including radio equipment, computer equipment and software, for various municipal departments; (k) constructing and improving streets, including traffic signalization, landscaping, drainage, sidewalks, utility line relocations and the acquisition of land and rights-of-way therefor; (l) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's drainage and storm sewer systems; and (m) acquisition of vehicles and equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's solid waste disposal system , and also for the purpose of paying all or a portion of the City's contractual obligations for professional services, including engineers, architects, attorneys, map makers, auditors, and financial advisors, in connection with said projects and the Certificates (see "Plan of Financing").

MATURITY SCHEDULE

See page 2

SEPARATE ISSUES . . . The Certificates are being offered by the City concurrently with the "City of Denton, Texas General Obligation Refunding and Improvement Bonds, Series 2024" (the "Bonds") under a common official statement, and the Certificates and Bonds are hereinafter sometimes referred to collectively as the "Obligations." The Certificates and Bonds are separate and distinct securities offerings being issued and sold independently except for the common Official Statement, and, while the Obligations share certain common attributes, each issue is separate from the other and should be reviewed and analyzed independently, including the type of obligation being offered, its terms for payment, the security for its payment, the rights of the holders, the federal, state or local tax consequences of the purchase, ownership or disposition of the Obligations and other features.

LEGALITY . . . The Certificates are offered for delivery when, as and if issued and received by the Initial Purchaser subject to the approving opinion of the Attorney General of Texas and the opinion of McCall, Parkhurst & Horton L.L.P., Bond Counsel, Dallas, Texas (see Appendix C, "Forms of Bond Counsel's Opinions").

DELIVERY . . . It is expected that the Certificates will be available for delivery through The Depository Trust Company on July 16, 2024.

SEALED BIDS DUE JUNE 12, 2024, AT 9:45 AM, CDT**

* Preliminary, subject to change. See "Adjustment of Principal Amount and/or Types of Bids" in the Notice of Sale for the Certificates.
** Place and Time of Bid Opening . . . The City will accept bids for the sale of the Certificates on a day during the period beginning June 12, 2024 and initially ending June 26, 2024. At least 12 hours prior to the sale of the Certificates, Hilltop Securities Inc., as Financial Advisor to the City, will communicate, through Parity and Bloomberg, the date and time for submission of bids. The Financial Advisor, acting on behalf of the City, shall accept bids up to the time specified in the notice as hereinbefore described.

MATURITY SCHEDULE* **CUSIP Prefix: 248867 (1)**

Principal Amount	15-Feb Maturity	Interest Rate	Yield	CUSIP Suffix (1)	Principal Amount	15-Feb Maturity	Interest Rate	Yield	CUSIP Suffix (1)
$ 7,655,000	2025				$ 11,885,000	2040			
9,065,000	2026				12,525,000	2041			
9,545,000	2027				13,135,000	2042			
10,055,000	2028				13,705,000	2043			
10,595,000	2029				14,295,000	2044			
9,065,000	2030				2,185,000	2045			
9,560,000	2031				2,275,000	2046			
10,070,000	2032				2,380,000	2047			
10,610,000	2033				2,485,000	2048			
11,185,000	2034				2,595,000	2049			
9,135,000	2035				2,710,000	2050			
9,640,000	2036				2,835,000	2051			
10,150,000	2037				2,960,000	2052			
10,695,000	2038				3,100,000	2053			
11,275,000	2039				3,240,000	2054			

(1) CUSIP® is a registered trademark of the American Bankers Association. CUSIP data herein is provided by CUSIP Global Services ("CGS") managed on behalf of the American Bankers Association by FactSet Research Systems Inc. This data is not intended to create a database and does not serve in any way as a substitute for the CGS database. CUSIP® numbers are provided for convenience of reference only. None of the City, the Financial Advisor, or the Initial Purchaser of the Certificates take any responsibility for the accuracy of such numbers.

REDEMPTION . . . The City reserves the right, at its option, to redeem Certificates having stated maturities on and after February 15, 2035, in whole or in part in principal amounts of $5,000 or any integral multiple thereof, on February 15, 2034, or any date thereafter, at the par value thereof plus accrued interest to the date of redemption (see "The Obligations – Optional Redemption").

* Preliminary, subject to change. See "Adjustment of Principal Amount and/or Types of Bids" in the Notice of Sale for the Certificates.

This Preliminary Official Statement and the information contained herein are subject to completion or amendment. These securities may not be sold nor may offers to buy be accepted prior to the time the Preliminary Official Statement is delivered in final form. Under no circumstances shall the Preliminary Official Statement constitute an offer to sell or the solicitation of an offer to buy nor shall there be any sale of these securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of such jurisdiction.

HTS Continuing Disclosure Services
A Division of Hilltop Securities

(See "Continuing Disclosure of Information" herein)

PRELIMINARY OFFICIAL STATEMENT

Dated May __, 2024

Ratings:
Fitch: "__"
S&P: "__"
(See "Other Information - Ratings" herein)

NEW ISSUE - Book-Entry-Only

In the opinion of Bond Counsel, interest on the Bonds will be excludable from gross income for federal income tax purposes under statutes, regulations, published rulings and court decisions existing on the date thereof, subject to the matters described under "Tax Matters" herein, including the alternative minimum tax on certain corporations.

THE BONDS WILL NOT BE DESIGNATED AS "QUALIFIED TAX-EXEMPT OBLIGATIONS" FOR FINANCIAL INSTITUTIONS.

$135,175,000*
CITY OF DENTON, TEXAS
(Denton County)
GENERAL OBLIGATION REFUNDING AND IMPROVEMENT BONDS,
SERIES 2024

Dated Date: June 1, 2024
Interest Accrues from Delivery Date

Due: February 15, as shown on page 4

PAYMENT TERMS . . . Interest on the $135,175,000* City of Denton, Texas General Obligation Refunding and Improvement Bonds, Series 2024 (the "Bonds") will accrue from the delivery date (the "Delivery Date"), will be payable February 15 and August 15 of each year, commencing February 15, 2025, until maturity or prior redemption, and will be calculated on the basis of a 360-day year consisting of twelve 30-day months. The definitive Bonds will be initially registered and delivered only to Cede & Co., the nominee of The Depository Trust Company ("DTC") pursuant to the Book-Entry-Only System described herein. Beneficial ownership of the Bonds may be acquired in denominations of $5,000 or integral multiples thereof within a maturity. **No physical delivery of the Bonds will be made to the beneficial owners thereof.** Principal of, premium, if any, and interest on the Bonds will be payable by the Paying Agent/Registrar to Cede & Co., which will make distribution of the amounts so paid to the participating members of DTC for subsequent payment to the beneficial owners of the Bonds. See "The Obligations - Book-Entry-Only System" herein. The initial Paying Agent/Registrar is BOKF, NA, Dallas, Texas (see "The Obligations - Paying Agent/Registrar").

AUTHORITY FOR ISSUANCE . . . The Bonds are issued pursuant to the Constitution and general laws of the State of Texas, (the "State") including particularly Texas Government Code, Chapters 1207, 1371 and 1331, as amended, and are direct obligations of the City of Denton, Texas (the "City"), payable from an annual ad valorem tax levied, within the limits prescribed by law, on all taxable property within the City, as provided in the Bond Ordinance (defined herein) authorizing the Bonds (see "The Obligations - Authority for Issuance" and "The Obligations – Security and Source of Payment").

PURPOSE . . . Proceeds of the Bonds are expected to be used for (i) various street improvements, (ii) drainage and flood control improvements; (iii) park system improvements; (iv) fire and animal control public safety facilities; (v) a new South Branch library; (vi) refunding the obligations described in Schedule I – Schedule of Refunded Obligations (the "Refunded Obligations") for debt service savings, and (vii) paying the costs associated with the issuance of the Bonds (see "Plan of Financing").

MATURITY SCHEDULE

See page 4

SEPARATE ISSUES . . . The Bonds are being offered by the City concurrently with the "City of Denton, Texas Certificates of Obligation, Series 2024" (the "Certificates"), under a common Official Statement, and the Bonds and Certificates are hereinafter sometimes referred to collectively as the "Obligations." The Bonds and Certificates are separate and distinct securities offerings being issued and sold independently except for the common Official Statement, and, while the Obligations share certain common attributes, each issue is separate from the other and should be reviewed and analyzed independently, including the type of obligation being offered, its terms for payment, the security for its payment, the rights of the holders, the federal, state or local tax consequences of the purchase, ownership or disposition of the Obligations and other features.

LEGALITY . . . The Bonds are offered for delivery when, as and if issued and received by the Initial Purchaser subject to the approving opinion of the Attorney General of Texas and the opinion of McCall, Parkhurst & Horton L.L.P., Bond Counsel, Dallas, Texas (see Appendix C, "Forms of Bond Counsel's Opinions").

DELIVERY . . . It is expected that the Bonds will be available for delivery through The Depository Trust Company on July 16, 2024.

SEALED BIDS DUE JUNE 12, 2024, AT 10:15 AM, CDT**

* Preliminary, subject to change. See "Adjustment of Principal Amount and/or Types of Bids" in the Notice of Sale for the Bonds.

** Place and Time of Bid Opening . . . The City will accept bids for the sale of the Bonds on a day during the period beginning June 12, 2024 and initially ending June 26, 2024. At least 12 hours prior to the sale of the Bonds, Hilltop Securities Inc., as Financial Advisor to the City, will communicate, through Parity and Bloomberg, the date and time for submission of bids. The Financial Advisor, acting on behalf of the City, shall accept bids up to the time specified in the notice as hereinbefore described.

MATURITY SCHEDULE* **CUSIP Prefix: 248867 (1)**

Principal Amount	15-Feb Maturity	Interest Rate	Yield	CUSIP Suffix (1)	Principal Amount	15-Feb Maturity	Interest Rate	Yield	CUSIP Suffix (1)
$ 4,100,000	2025				$ 5,860,000	2035			
4,875,000	2026				6,195,000	2036			
5,155,000	2027				6,555,000	2037			
5,445,000	2028				6,935,000	2038			
5,755,000	2029				7,330,000	2039			
6,105,000	2030				7,740,000	2040			
6,475,000	2031				8,155,000	2041			
6,840,000	2032				8,555,000	2042			
7,245,000	2033				8,930,000	2043			
7,630,000	2034				9,295,000	2044			

(1) CUSIP® is a registered trademark of the American Bankers Association. CUSIP data herein is provided by CUSIP Global Services ("CGS") managed on behalf of the American Bankers Association by FactSet Research Systems Inc. This data is not intended to create a database and does not serve in any way as a substitute for the CGS database. CUSIP® numbers are provided for convenience of reference only. None of the City, the Financial Advisor, or the Initial Purchaser of the Certificates take any responsibility for the accuracy of such numbers.

REDEMPTION . . . The City reserves the right, at its option, to redeem Bonds having stated maturities on and after February 15, 2035, in whole or in part in principal amounts of $5,000 or any integral multiple thereof, on February 15, 2034, or any date thereafter, at the par value thereof plus accrued interest to the date of redemption (see "The Obligations – Optional Redemption").

* Preliminary, subject to change. See "Adjustment of Principal Amount and/or Types of Bids" in the Notice of Sale for the Bonds.

This Official Statement, which includes the cover pages, the Schedule and the Appendices hereto, does not constitute an offer to sell or the solicitation of an offer to buy in any jurisdiction to any person to whom it is unlawful to make such offer, solicitation, or sale.

No dealer, broker, salesperson, or other person has been authorized to give information or to make any representation other than those contained in this Official Statement, and, if given or made, such other information or representations must not be relied upon.

For purposes of compliance with Rule 15c 2-12 of the Securities and Exchange Commission (the "Rule"), this document constitutes an Official Statement of the City with respect to the Obligations that has been "deemed final" by the City as of its date except for the omission of no more than the information permitted by the Rule.

The information set forth herein has been obtained from the City and other sources believed to be reliable, but such information is not guaranteed as to accuracy or completeness and is not to be construed as the representation, promise, or guarantee of the Financial Advisor. Any information and expressions of opinion herein contained are subject to change without notice, and neither the delivery of this Official Statement nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the City or other matters described herein since the date hereof. See "Other Information - Continuing Disclosure of Information" for a description of the City's undertaking to provide certain information on a continuing basis.

Neither the City nor its Financial Advisor make any representation as to the accuracy, completeness, or adequacy of the information supplied by The Depository Trust Company for use in this Official Statement.

THIS OFFICIAL STATEMENT CONTAINS "FORWARD-LOOKING" STATEMENTS WITHIN THE MEANING OF SECTION 21E OF THE SECURITIES EXCHANGE ACT OF 1934, AS AMENDED. SUCH STATEMENTS MAY INVOLVE KNOWN AND UNKNOWN RISKS, UNCERTAINTIES, AND OTHER FACTORS WHICH MAY CAUSE THE ACTUAL RESULTS, PERFORMANCE, AND ACHIEVEMENTS TO BE DIFFERENT FROM FUTURE RESULTS, PERFORMANCE, AND ACHIEVEMENTS EXPRESSED OR IMPLIED BY SUCH FORWARD-LOOKING STATEMENTS. INVESTORS ARE CAUTIONED THAT THE ACTUAL RESULTS COULD DIFFER MATERIALLY FROM THOSE SET FORTH IN THE FORWARD-LOOKING STATEMENTS.

THE OBLIGATIONS ARE EXEMPT FROM REGISTRATION WITH THE SECURITIES AND EXCHANGE COMMISSION AND CONSEQUENTLY HAVE NOT BEEN REGISTERED THEREWITH. THE REGISTRATION, QUALIFICATION, OR EXEMPTION OF THE OBLIGATIONS IN ACCORDANCE WITH APPLICABLE SECURITIES LAW PROVISIONS OF THE JURISDICTION IN WHICH THE OBLIGATIONS HAVE BEEN REGISTERED, QUALIFIED OR EXEMPTED SHOULD NOT BE REGARDED AS A RECOMMENDATION THEREOF.

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The cover pages hereof, this page and the appendices included herein and any addenda, supplement or amendment hereto, are part of the Preliminary Official Statement.

PRELIMINARY OFFICIAL STATEMENT SUMMARY

This summary is subject in all respects to the more complete information and definitions contained or incorporated in this Preliminary Official Statement. The offering of the Bonds and Certificates to potential investors is made only by means of this entire Preliminary Official Statement. No person is authorized to detach this summary from this Preliminary Official Statement or to otherwise use it without the entire Preliminary Official Statement.

THE CITY ..... The City of Denton (the "City") is a political subdivision and municipal corporation of the State of Texas (the "State"), located in Denton County, Texas. The City covers approximately 97.411 square miles (see "Introduction - Description of the City").

THE BONDS ..... The City's $135,175,000* General Obligation Refunding and Improvement Bonds, Series 2024 are to mature on February 15 in the years 2025 through 2044 (see "The Obligations - Description of the Obligations").

THE CERTIFICATES ..... The City's $240,610,000* Certificates of Obligation, Series 2024 are to mature on February 15 in the years 2025 through 2054 (see "The Obligations - Description of the Obligations").

PAYMENT OF INTEREST ..... Interest on the Obligations accrues from the Delivery Date (defined herein) and is payable February 15, 2025 and each August 15 and February 15 thereafter until maturity or prior redemption (see "The Obligations - Description of the Obligations" and "The Obligations - Optional Redemption").

AUTHORITY FOR ISSUANCE..... The Certificates are issued pursuant to the Constitution and general laws of the State, particularly Subchapter C of Chapter 271, Texas Local Government Code, as amended, and Texas Government Code, Chapter 1371, as amended, and an ordinance (the "Authorizing Certificate Ordinance") of the City in which the City Council delegated to the City Manager or the Chief Financial Officer authority to complete the sale of the Certificates. The terms of the sale will be included in a "Pricing Certificate," which will complete the sale of the Certificates (the Authorizing Certificate Ordinance and the Pricing Certificate for the Certificates are jointly referred to as the "Certificate Ordinance") (see "The Obligations - Authority for Issuance").

The Bonds are issued pursuant to the Constitution and general laws of the State, including particularly Texas Government Code, Chapters 1207, 1371 and 1331, as amended, and an ordinance (the "Authorizing Bond Ordinance") of the City in which the City Council delegated to the City Manager or the Chief Financial Officer authority to complete the sale of the Bonds. The terms of the sale will be included in a "Pricing Certificate," which will complete the sale of the Bonds (the Authorizing Bond Ordinance and the Pricing Certificate for the Bonds are jointly referred to as the "Bond Ordinance") (see "The Obligations - Authority for Issuance").

SECURITY FOR THE CERTIFICATES..... The Certificates constitute direct obligations of the City, payable from a combination of (i) a direct annual ad valorem tax levied, within the limits prescribed by law, on all taxable property within the City, and (ii) a limited pledge (not to exceed $1,000) of surplus net revenues of the City's Utility System (see "The Obligations - Security and Source of Payment").

SECURITY FOR THE BONDS ..... The Bonds constitute direct obligations of the City, payable from a direct annual ad valorem tax levied, within the limits prescribed by law, on all taxable property located within the City (see "The Obligations - Security and Source of Payment").

REDEMPTION ..... The City reserves the right, at its option, to redeem Bonds and Certificates, as the case may be, having stated maturities on and after February 15, 2035, in whole or in part in principal amounts of $5,000 or any integral multiple thereof, on February 15, 2034, or any date thereafter, at the par value thereof plus accrued interest to the date of redemption (see "The Obligations - Optional Redemption").

TAX EXEMPTION..... In the opinion of Bond Counsel, the interest on the Obligations will be excludable from gross income for federal income tax purposes under existing law, subject to the matters described under "Tax Matters" herein.

* Preliminary, subject to change.

USE OF PROCEEDS ..... Proceeds from the sale of the Certificates will be used for the purchase, construction and acquisition of certain real and personal property, to wit: (a) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's waterworks and wastewater system; (b) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's electric light and power system; (c) renovating, constructing, expanding, improving and equipping existing municipal service center building; (d) acquisition of vehicles and equipment for the fire, police, building inspections, community improvement services, animal services, streets and traffic control, facilities management, airport, technology services, fleet management, warehouse management, and parks and recreation departments; (e) renovations to, and equipping of, existing municipal buildings, including the acquisition and installation of replacement heating, venting and air conditioning equipment, roofing and flooring; (f) acquiring, expanding, constructing, renovating, improving and equipping parking facilities; (g) acquiring, constructing and installing building security systems, including security system technology equipment and software, for municipal buildings; (h) constructing, reconstructing, renovating, installing and equipping municipal parks; (i) renovations to and equipping existing municipal vehicle maintenance facility; (j) acquisition and installation of technology equipment, including radio equipment, computer equipment and software, for various municipal departments; (k) constructing and improving streets, including traffic signalization, landscaping, drainage, sidewalks, utility line relocations and the acquisition of land and rights-of-way therefor; (l) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's drainage and storm sewer systems; and (m) acquisition of vehicles and equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's solid waste disposal system , and also for the purpose of paying all or a portion of the City's contractual obligations for professional services, including engineers, architects, attorneys, map makers, auditors, and financial advisors, in connection with said projects and the Certificates (see "Plan of Financing").

Proceeds of the Bonds are expected to be used for (i) various street improvements, (ii) drainage and flood control improvements; (iii) park system improvements; (iv) fire and animal control public safety facilities; (v) a new South Branch library; (vi) refunding the obligations described in Schedule I – Schedule of Refunded Obligations (the "Refunded Obligations") for debt service savings, and (vii) paying the costs associated with the issuance of the Bonds (see "Plan of Financing").

RATINGS..... The Obligations and the presently outstanding general obligation debt of the City are rated "___" by Fitch Ratings ("Fitch") and "___" by S&P Global Ratings ("S&P"), a division of S&P Global Inc. See "Other Information – Ratings" herein.

BOOK-ENTRY-ONLY SYSTEM..... The definitive Obligations will be initially registered and delivered only to Cede & Co., the nominee of DTC pursuant to the Book-Entry-Only System described herein. Beneficial ownership of the Obligations may be acquired in denominations of $5,000 or integral multiples thereof within a maturity. No physical delivery of the Obligations will be made to the beneficial owners thereof. Principal of, premium, if any, and interest on the Obligations will be payable by the Paying Agent/Registrar to Cede & Co., which will make distribution of the amounts so paid to the participating members of DTC for subsequent payment to the beneficial owners of the Obligations (see "The Obligations - Book-Entry-Only System").

PAYMENT RECORD..... The City has never defaulted on the payment of its tax-supported indebtedness.

SELECTED FINANCIAL INFORMATION

Fiscal Year Ended 9/30	Estimated Population [1]	Net Taxable Assessed Valuation [2]	Net Taxable Assessed Valuation Per Capita	Net Tax Debt Outstanding at End of Fiscal Year [8]	Per Capita Net Funded Tax Debt	Ratio Net Tax Debt to Net Taxable Assessed Valuation	% of Total Tax Collections
2020	140,956	$ 12,620,560,528 [3]	89,535	$ 249,482,532	1,770	1.98%	99.65%
2021	143,775	13,581,648,271 [4]	94,465	308,521,854	2,146	2.27%	99.74%
2022	146,950	14,403,105,063 [5]	98,014	354,343,240	2,411	2.46%	99.68%
2023	150,624	16,721,123,624 [6]	111,012	392,635,000	2,607	2.35%	99.44%
2024	150,842	19,219,843,947 [7]	127,417	517,470,000 [9]	3,431	2.69%	97.86% [10]

(1) Source: City Officials.
(2) Valuations shown are certified taxable assessed values reported by the Denton Central Appraisal District to the State Comptroller of Public Accounts. Certified values are subject to change throughout the year as contested values are resolved and the Appraisal District updates records. Source: Denton Central Appraisal District as of July 22, 2023.
(3) Includes tax incremental value of approximately $168,826,531 that is not available for the City's general obligations and debt of City.
(4) Includes tax incremental value of approximately $198,541,948 that is not available for the City's general obligations and debt of City.
(5) Includes tax incremental value of approximately $236,666,283 that is not available for the City's general obligations and debt of City.
(6) Includes tax incremental value of approximately $260,921,114 that is not available for the City's general obligations and debt of City.
(7) Includes tax incremental value of approximately $655,364,707 that is not available for the City's general obligations and debt of City.
(8) Excludes self-supported general obligation debt.
(9) Projected. Includes a portion of the Obligations. Excludes the Refunded Obligations. Preliminary, subject to change.
(10) Collections for part year only, through April 1, 2024.

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CITY OFFICIALS, STAFF AND CONSULTANTS

ELECTED OFFICIALS

City Council	Term Expires
Gerard Hudspeth Mayor	May, 2026
Vicki Byrd Councilmember, District 1	May, 2025
Brian Beck Mayor Pro Tem Councilmember, District 2	May, 2025
Paul Meltzer Councilmember, District 3	May, 2025
Joe Holland Councilmember, District 4	May, 2025
Brandon Chase McGee Councilmember, At Large Place 5	May, 2026
Jill Jester Councilmember, At Large Place 6	May, 2026

SELECTED ADMINISTRATIVE STAFF

Name	Position
Sara Hensley	City Manager
Frank Dixon	Assistant City Manager
Christine Taylor	Assistant City Manager
Cassandra Ogden	Assistant City Manager
Jessica Williams	Chief Financial Officer
Vis Bouaphanthavong	Assistant Director of Finance
Lauren Thoden	City Secretary
Jesus Salazar	Deputy City Secretary
Mack Reinwand	City Attorney

CONSULTANTS AND ADVISORS

Auditors ..... Weaver and Tidwell, L.L.P.
Dallas, Texas

Bond Counsel ..... McCall, Parkhurst & Horton L.L.P.
Dallas, Texas

Financial Advisor.....Hilltop Securities Inc.
Fort Worth, Texas

For additional information regarding the City, please contact:

Jessica Williams, Chief Financial Officer
Mack Reinwand-City Attorney
City of Denton
215 E. McKinney Street
Denton, Texas 76201
(940) 349-8244

or

Laura Alexander
Hilltop Securities Inc.
777 Main Street, Suite 1525
Fort Worth, Texas 76102
(817) 332-9710

PRELIMINARY OFFICIAL STATEMENT

RELATING TO

CITY OF DENTON, TEXAS

$240,610,000*	**$135,175,000***
CERTIFICATES OF OBLIGATION, SERIES 2024	**GENERAL OBLIGATION REFUNDING AND IMPROVEMENT BONDS, SERIES 2024**

INTRODUCTION

This Preliminary Official Statement, which includes the Schedule and Appendices hereto, provides certain information regarding the issuance of $240,610,000* City of Denton, Texas Certificates of Obligation, Series 2024 (the "Certificates") and $135,175,000* City of Denton, Texas General Obligation Refunding and Improvement Bonds, Series 2024 (the "Bonds"). The Bonds and the Certificates (collectively the "Obligations") are separate and distinct securities offerings being authorized for issuance under separate ordinances (the "Bond Ordinance" and the "Certificate Ordinance", respectively, each as defined below, and collectively the "Ordinances") adopted by the City Council of the City, but are being offered and sold pursuant to a common Official Statement, and while the Bonds and Certificates share certain common attributes, each issue is separate and apart from the other and should be reviewed and analyzed independently, including the kind and type of obligation being issued, its terms of payment, the security for its payment, the rights of the holders, the federal, state or local tax consequences of the purchase, ownership or disposition of the Obligations and the covenants and agreements made with respect thereto. The City Council is expected to adopt an ordinance on June 4, 2024 authorizing the issuance of the Bonds (the "Authorizing Bond Ordinance"). In the Authorizing Bond Ordinance, as permitted by the provisions of Chapter 1371, Texas Government Code, as amended, the City Council delegated the authority to the City Manager or the Chief Financial Officer to establish the terms and details of the Bonds and to effect the sale of the Bonds pursuant to a "Pricing Certificate" (the Authorizing Bond Ordinance and the Pricing Certificate for the Bonds are jointly referred to as the "Bond Ordinance"). The City Council is expected to adopt an ordinance on June 4, 2024 authorizing the issuance of the Certificates (the "Authorizing Certificate Ordinance"). In the Authorizing Certificate Ordinance, as permitted by the provisions of Chapters 1371, Texas Government Code, as amended, the City Council delegated the authority to the City Manager or the Chief Financial Officer to establish the terms and details of the Certificates and to effect the sale of the Certificates pursuant to a "Pricing Certificate" (the Authorizing Certificate Ordinance and the Pricing Certificate for the Certificates are jointly referred to as the "Certificate Ordinance"). Capitalized terms used in this Preliminary Official Statement have the same meanings assigned to such terms in each respective Ordinance, except as otherwise indicated herein.

There follows in this Preliminary Official Statement descriptions of the Obligations and certain information regarding the City and its finances. All descriptions of documents contained herein are only summaries and are qualified in their entirety by reference to each such document. Copies of such documents may be obtained from the City's Financial Advisor, Hilltop Securities Inc., Fort Worth, Texas.

DESCRIPTION OF THE CITY . . . The City of Denton, Texas (the "City") is a political subdivision located in Denton County operating as a home-rule city under the laws of the State of Texas (the "State") and a charter approved by the voters in 1959. The City operates under the Council/Manager form of government where the Mayor and six Councilmembers are elected for staggered two-year terms. The City Council formulates operating policy for the City while the City Manager is the chief administrative officer. The City is approximately 97.411 square miles in area.

PLAN OF FINANCING

PURPOSE . . . Proceeds from the sale of the Certificates will be used for the purchase, construction and acquisition of certain real and personal property, to wit: (a) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's waterworks and wastewater system; (b) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's electric light and power system; (c) renovating, constructing, expanding, improving and equipping existing municipal service center building; (d) acquisition of vehicles and equipment for the fire, police, building inspections, community improvement services, animal services, streets and traffic control, facilities management, airport, technology services, fleet management, warehouse management, and parks and recreation departments; (e) renovations to, and equipping of, existing municipal buildings, including the acquisition and installation of replacement heating, venting and air conditioning equipment, roofing and flooring; (f) acquiring, expanding, constructing, renovating, improving and equipping parking facilities; (g) acquiring, constructing and installing building security systems, including security system technology equipment and software, for municipal buildings; (h) constructing, reconstructing, renovating, installing and equipping municipal parks; (i) renovations to and equipping existing municipal vehicle maintenance facility; (j) acquisition and installation of technology equipment, including radio equipment, computer equipment and software, for various municipal departments; (k) constructing and improving streets, including traffic signalization, landscaping, drainage, sidewalks, utility line relocations and the acquisition of land and rights-of-way therefor; (l) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's drainage and storm sewer systems; and (m) acquisition of vehicles and equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the City's solid waste disposal system;, and also for the purpose of paying all or a portion of the City's contractual obligations for professional services, including engineers, architects, attorneys, map makers, auditors, and financial advisors, in connection with said projects and the Certificates.

Proceeds of the Bonds are expected to be used for (i) various street improvements, (ii) drainage and flood control improvements; (iii) park system improvements; (iv) fire and animal control public safety facilities; (v) a new South Branch library; (vi) refunding the obligations described in Schedule I – Schedule of Refunded Obligations (the "Refunded Obligations") for debt service savings, and (vii) paying the costs associated with the issuance of the Bonds .

* Preliminary, subject to change.

REFUNDED OBLIGATIONS . . . The principal and interest due on the Refunded Obligations are to be paid on the scheduled redemption dates of such Refunded Obligations, from funds to be deposited pursuant to an escrow agreement (the "Escrow Agreement") between the City and BOKF, NA (the "Escrow Agent"). The Bond Ordinance provides that from a portion of proceeds of the sale of the Bonds received from the Purchaser of the Bonds together with other funds of the City, if any, the City will deposit with the Escrow Agent the amount necessary to accomplish the discharge and final payment of the Refunded Obligations on their respective redemption dates as described in "Schedule I - Schedule of Refunded Obligations". Such funds will be held by the Escrow Agent in an escrow fund (the "Escrow Fund") irrevocably pledged to the payment of principal of and interest on the Refunded Obligations and will be used to purchase certain obligations of the United States of America and obligations of agencies or instrumentalities of the United States of America, including obligations that are unconditionally guaranteed by such agency or instrumentality, that are noncallable and that were, on the date the Bond Ordinance was adopted, rated as to investment quality by a nationally recognized rating firm not less than "AAA" (the "Escrowed Securities"). Under the Escrow Agreement, the Escrow Fund is irrevocably pledged to the payment of the principal and interest on the Refunded Obligations and amounts therein will not be available to pay the Bonds.

Public Finance Partners LLC (the "Verification Agent") will verify at the time of delivery of the Bonds to the Purchaser of the Bonds, the mathematical accuracy of the schedules that demonstrate that the Escrowed Securities will mature and pay interest in such amounts which, together with uninvested funds in the Escrow Fund, will be sufficient to pay, when due, the amount necessary to accomplish the discharge and final payment of principal of and interest on the Refunded Obligations on their respective redemption dates (see "Other Information - Verification of Arithmetical and Mathematical Computations").

By the deposit of the Escrowed Securities and cash, if any, with the Escrow Agent pursuant to the Escrow Agreement, the City will have effected the legal defeasance of the Refunded Obligations, pursuant to Chapter 1207 and the ordinances authorizing the issuance of the Refunded Obligations. It is the opinion of Bond Counsel that, as a result of such defeasance, and in reliance upon the report of the Verification Agent, the Refunded Obligations will no longer be payable from ad valorem taxes and other sources of security, if any, but will be payable solely from the principal of and interest on the Escrowed Securities and cash, if any, on deposit in the Escrow Fund and held for such purpose by the Escrow Agent, and that the Refunded Obligations will be defeased and are not to be included in or considered to be indebtedness of the City for the purpose of a limitation of indebtedness or for any other purpose. See "APPENDIX C - Forms of Bond Counsel's Opinions" herein.
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* Preliminary, subject to change.

THE OBLIGATIONS

DESCRIPTION OF THE OBLIGATIONS . . . The Obligations are dated June 1, 2024, and mature on February 15 in each of the years and in the amounts shown on page 2 and page 4 hereof. Interest will accrue from the date of initial delivery thereof (the "Delivery Date"), will be computed on the basis of a 360-day year of twelve 30-day months, and will be payable on February 15 and August 15 of each year, commencing February 15, 2025 until maturity or prior redemption. The definitive Obligations will be issued only in fully registered form in any integral multiple of $5,000 for any one maturity and will be initially registered and delivered only to Cede & Co., the nominee of The Depository Trust Company ("DTC") pursuant to the Book-Entry-Only System described herein. **No physical delivery of the Obligations will be made to the beneficial owners thereof.** Principal of, premium, if any, and interest on the Obligations will be payable by the Paying Agent/Registrar to Cede & Co., which will make distribution of the amounts so paid to the participating members of DTC for subsequent payment to the beneficial owners of the Obligations. See "The Obligations - Book-Entry-Only System" herein.

AUTHORITY FOR ISSUANCE . . . The Certificates are being issued pursuant to the Constitution and general laws of the State, particularly Subchapter C of Chapter 271, Texas Local Government Code, as amended, and Texas Government Code, Chapter 1371, as amended, and the Certificate Ordinance.

The Bonds are being issued pursuant to the Constitution and general laws of the State, particularly Chapters 1207, 1371 and 1331, Texas Government Code, as amended, and the Bond Ordinance.

SECURITY AND SOURCE OF PAYMENT . . .

The Certificates . . . The Certificates constitute direct obligations of the City, payable from a combination of (i) a direct annual ad valorem tax levied, within the limits prescribed by law, on all taxable property within the City, and (ii) a limited pledge (not to exceed $1,000) of surplus net revenues of the City's Utility System (consisting of the electric system and the waterworks and sewer system).

The Bonds . . . The Bonds constitute direct obligations of the City and the principal thereof and interest thereon are payable from an annual ad valorem tax levied by the City, within the limits prescribed by law, upon all taxable property in the City, as provided in the Bond Ordinance.

TAX RATE LIMITATION . . . All taxable property within the City is subject to the assessment, levy and collection by the City of a continuing, direct annual ad valorem tax sufficient to provide for the payment of principal of and interest on all ad valorem tax debt, including the Obligations, within the limits prescribed by law. Article XI, Section 5, of the Texas Constitution is applicable to the City, and limits its maximum ad valorem tax rate to $2.50 per $100 Taxable Assessed Valuation for all City purposes. The Home Rule Charter of the City adopts the constitutionally authorized maximum tax rate of $2.50 per $100 Taxable Assessed Valuation. Administratively, the Attorney General of the State will permit allocation of $1.50 of the $2.50 maximum tax rate for all general obligation debt, as calculated at the time of issuance and based on 90% tax collection factor.

OPTIONAL REDEMPTION . . . The City reserves the right, at its option, to redeem the Obligations having stated maturities on and after February 15, 2035 in whole or in part in principal amounts of $5,000 or any integral multiple thereof, on February 15, 2034 or any date thereafter, at the par value thereof plus accrued interest to the date of redemption. If less than all of the Bonds or Certificates are to be redeemed, the City may select the maturities of Bonds or Certificates, as the case may be, to be redeemed. If less than all the Bonds or Certificates of any maturity are to be redeemed, the Paying Agent/Registrar (or DTC while the Bonds or Certificates, as the case may be, are in Book-Entry-Only form) shall determine by lot the Bonds or Certificates, or portions thereof, within such maturity to be redeemed. If a Bond or Certificate (or any portion of the principal sum thereof) shall have been called for redemption and notice of such redemption shall have been given, such Bond or Certificate (or the principal amount thereof to be redeemed) shall become due and payable on such redemption date and interest thereon shall cease to accrue from and after the redemption date, provided funds for the payment of the redemption price and accrued interest thereon are held by the Paying Agent/Registrar on the redemption date.

With respect to any optional redemption of the Bonds or Certificates, as the case may be, unless certain prerequisites to such redemption required by the respective Ordinance have been met and money sufficient to pay the principal of and premium, if any, and interest on the Bonds or Certificates, as the case may be, to be redeemed will have been received by the Paying Agent/Registrar prior to the giving of such notice of redemption, such notice may state that said redemption will, at the option of the City, be conditional upon the satisfaction of such prerequisites and receipt of such money by the Paying Agent/Registrar on or prior to the date fixed for such redemption or upon any prerequisite set forth in such notice of redemption. If a conditional notice of redemption is given and such prerequisites to the redemption are not fulfilled, such notice will be of no force and effect, the City will not redeem such Bonds or Certificates, as the case may be, and the Paying Agent/Registrar will give notice in the manner in which the notice of redemption was given, to the effect that the Bonds or Certificates, as the case may be, have not been redeemed.

NOTICE OF REDEMPTION . . . Not less than 30 days prior to a redemption date for the Obligations, the City shall cause a notice of redemption to be sent by United States mail, first class, postage prepaid, to the registered owners of the Obligations to be redeemed, in whole or in part, at the address of the registered owner appearing on the registration books of the Paying Agent/Registrar at the close of business on the business day next preceding the date of mailing such notice. ANY NOTICE SO MAILED SHALL BE CONCLUSIVELY PRESUMED TO HAVE BEEN DULY GIVEN WHETHER OR NOT THE REGISTERED OWNER RECEIVES SUCH NOTICE. IF AN OBLIGATION (OR ANY PORTION OF ITS PRINCIPAL SUM) SHALL HAVE BEEN DULY CALLED FOR REDEMPTION AND NOTICE OF SUCH REDEMPTION DULY GIVEN, THEN UPON THE REDEMPTION DATE SUCH OBLIGATION (OR THE PORTION OF ITS PRINCIPAL SUM TO BE REDEEMED) SHALL BECOME DUE AND PAYABLE, AND, IF MONIES FOR THE PAYMENT OF THE REDEMPTION PRICE ARE HELD FOR THE PURPOSE OF SUCH PAYMENT BY THE PAYING AGENT/REGISTRAR AND ALL OTHER CONDITIONS TO REDEMPTION ARE SATISFIED, INTEREST SHALL CEASE TO ACCRUE AND BE PAYABLE FROM AND AFTER THE REDEMPTION DATE ON THE PRINCIPAL AMOUNT REDEEMED.

DEFEASANCE . . . The Ordinances provide that any Obligation and the interest thereon shall be deemed to be paid, retired, and no longer outstanding (a "Defeased Obligation") within the meaning of such Ordinance when payment of the principal of such Obligation, plus interest thereon to the due date either (i) shall have been made or caused to be made in accordance with the terms thereof, or (ii) shall have been provided for on or before such due date by irrevocably depositing with or making available to the Paying Agent/Registrar for such payment (1) lawful money of the United States of America sufficient to make such payment or (2) Government Obligations which mature as to principal and interest in such amounts and at such times as will ensure the availability, without reinvestment, of sufficient money to provide for such payment, and when proper arrangements have been made by the City with the Paying Agent/Registrar for the payment of its services until all Defeased Obligations shall have become due and payable, and thereafter the City will have no further responsibility with respect to amounts available to such paying agent (or other financial institution permitted by applicable law) for the payment of such defeased bonds, including any insufficiency therein caused by the failure of such paying agent (or other financial institution permitted by applicable law) to receive payment when due on the Government Obligations. At such time as an Obligation shall be deemed to be a Defeased Obligation hereunder, as aforesaid, such Obligation and the interest thereon shall no longer be secured by, payable from, or entitled to the benefits of, the ad valorem taxes herein levied and pledged as provided in the Ordinance, and such principal and interest shall be payable solely from such money or Government Obligations.

Any moneys so deposited with the Paying Agent/Registrar may at the written direction of the City also be invested in Government Obligations, maturing in the amounts and times as hereinbefore set forth, and all income from such Government Obligations received by the Paying Agent/Registrar which is not required for the payment of the Obligations and interest thereon, with respect to which such money has been so deposited, shall be turned over to the City, or deposited as directed in writing to the City. The Ordinances provide that "Government Obligations" means (a) direct, noncallable obligations of the United States of America including obligations that are unconditionally guaranteed by the United States of America and (b) noncallable obligations of an agency or instrumentality of the United States of America, including obligations that are unconditionally guaranteed or insured by the agency or instrumentality and that, on the date the City Council approves such defeasance, are rated as to investment quality by a nationally recognized investment rating firm not less than AAA or its equivalent.

Upon such deposit as described above, such Defeased Obligations shall no longer be regarded to be outstanding obligations payable from ad valorem taxes levied by the City or from the other revenues pledged to their payment in the Ordinances, but will be payable only from the funds and Government Obligations deposited in escrow and will not be considered debt of the City for any purpose. After firm banking and financial arrangements for the discharge and final payment or redemption of the Obligations have been made as described above, all rights of the City to initiate proceedings to call the Obligations for redemption or take any other action amending the terms of the Obligations are extinguished; provided, however, that the right to call the Obligations for redemption is not extinguished if the City: (i) in the proceedings providing for the firm banking and financial arrangements, expressly reserves the right to call the Obligations for redemption; and (ii) gives notice of the reservation of that right to the owners of the Obligations immediately following the making of the firm banking and financial arrangements; (iii) directs that notice of the reservation be included in any redemption notices that it authorizes.

BOOK-ENTRY-ONLY SYSTEM . . . *This section describes how ownership of the Obligations is to be transferred and how the principal of, premium, if any, and interest on the Obligations are to be paid to and accredited by DTC while the Obligations are registered in its nominee name. The information in this section concerning DTC and the Book-Entry-Only System has been provided by DTC for use in disclosure documents such as this Official Statement. The City believes the source of such information to be reliable, but takes no responsibility for the accuracy or completeness thereof.*

The City cannot and does not give any assurance that (1) DTC will distribute payments of debt service on the Obligations, or redemption or other notices, to DTC Participants, (2) DTC Participants or others will distribute debt service payments paid to DTC or its nominee (as the registered owner of the Obligations), or redemption or other notices, to the Beneficial Owners, or that they will do so on a timely basis, or (3) DTC will serve and act in the manner described in this Official Statement. The current rules applicable to DTC are on file with the Securities and Exchange Commission, and the current procedures of DTC to be followed in dealing with DTC Participants are on file with DTC.

DTC will act as securities depository for the Obligations. The Obligations will be issued as fully-registered securities registered in the name of Cede & Co. (DTC's partnership nominee) or such other name as may be requested by an authorized representative of DTC. One fully-registered security certificate will be issued for each maturity of the Obligations in the aggregate principal amount thereof and will be deposited with DTC.

DTC, the world's largest securities depository, is a limited-purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code, and a "clearing agency" registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934. DTC holds and provides asset servicing for over 3.5 million issues of U.S. and non-U.S. equity issues, corporate and municipal debt issues, and money market instruments (from over 100 countries) that DTC's participants ("Direct Participants") deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities, through electronic computerized book-entry transfers and pledges between Direct Participants' accounts. This eliminates the need for physical movement of securities certificates. Direct Participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation ("DTCC"). DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, and clearing corporations that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly ("Indirect Participants"). DTC has a Standard & Poor's rating of "AA+". The DTC Rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at www.dtcc.com and www.dtc.org.

Purchases of Obligations under the DTC system must be made by or through Direct Participants, which will receive a credit for the Obligations on DTC's records. The ownership interest of each actual purchaser of each Obligation ("Beneficial Owner") is in turn to be recorded on the Direct and Indirect Participants' records. Beneficial Owners will not receive written confirmation from DTC of their purchase, but Beneficial Owners are expected to receive written confirmations providing details of the transactions, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owners entered into the transaction. Transfers of ownership interest in the Obligations are to be accomplished by entries made on the books of Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in the Obligations, except in the event that use of the book-entry system for the Obligations is discontinued.

To facilitate subsequent transfers, all Obligations deposited by Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co., or such other name as may be requested by an authorized representative of DTC. The deposit of Obligations with DTC and their registration in the name of Cede & Co. or such other DTC nominee do not effect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Obligations; DTC's records reflect only the identity of the Direct Participant to whose account such Obligations are credited, which may or may not be the Beneficial Owners. The Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time. Beneficial Owners of Obligations may wish to take certain steps to augment the transmission to them of notices of significant events with respect to the Obligations, such as redemptions, tenders, defaults, and proposed amendments to the Obligation documents. For example, Beneficial Owners of Obligations may wish to ascertain that the nominee holding the Obligations for their benefit has agreed to obtain and transmit notices to Beneficial Owners. In the alternative, Beneficial Owners may wish to provide their names and addresses to the registrar and request that copies of notices be provided directly to them.

Redemption notices shall be sent to DTC. If less than all of the Obligations within a maturity are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such issue to be redeemed.

Neither DTC nor Cede & Co. will consent or vote with respect to the Obligations unless authorized by a Direct Participant in accordance with DTC's procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the City as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the Obligations are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Payments on the Obligations will be made to DTC. DTC's practice is to credit Direct Participants' accounts, upon DTC's receipt of funds and corresponding detail information from the City or the Paying Agent/Registrar on payable dates in accordance with their respective holdings shown on DTC's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as in the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC, the Paying Agent/Registrar or the City, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment to DTC is the responsibility of the City, disbursement of such payments to Direct Participants shall be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners shall be the responsibility of Direct and Indirect Participants.

DTC may discontinue providing its services as securities depository with respect to the Obligations at any time by giving reasonable notice to the City and the Paying Agent/Registrar. Under such circumstances, in the event that a successor securities depository is not obtained, Obligation certificates are required to be printed and delivered.

The City may decide to discontinue use of the system of book-entry transfers through DTC (or a successor securities depository). In that event, Obligations will be printed and delivered.

Use of Certain Terms in Other Sections of this Official Statement. In reading this Official Statement it should be understood that while the Obligations are in the Book-Entry-Only System, references in other sections of this Official Statement to registered owners should be read to include the person for which the Participant acquires an interest in the Obligations, but (i) all rights of ownership must be exercised through DTC and the Book-Entry-Only System, and (ii) except as described above, notices that are to be given to registered owners under the Ordinances will be given only to DTC.

Information concerning DTC and the Book-Entry-Only System has been obtained from DTC and is not guaranteed as to accuracy or completeness by, and is not to be construed as a representation by the City, the Financial Advisor or the Initial Purchasers.

EFFECT OF TERMINATION OF BOOK-ENTRY-ONLY SYSTEM . . . In the event that the Book-Entry-Only System is discontinued by DTC or the use of the Book-Entry-Only System is discontinued by the City, printed Obligations will be issued to the holders and the Obligations will be subject to transfer, exchange and registration provisions as set forth in the Ordinances and summarized under "The Obligations - Transfer, Exchange and Registration" below.

PAYING AGENT/REGISTRAR . . . The initial Paying Agent/Registrar for the Bonds and the Certificates is BOKF, NA, Dallas, Texas. In the Ordinances, the City retains the right to replace the Paying Agent/Registrar. The City covenants to maintain and provide a Paying Agent/Registrar at all times until the Bonds and Certificates are duly paid and any successor Paying Agent/Registrar shall be a commercial bank, trust company, financial institution or other entity duly qualified and legally authorized to serve as and perform the duties and services of Paying Agent/Registrar for the Bonds and Certificates. Upon any change in the Paying Agent/Registrar for the Bonds and Certificates, the City agrees to promptly cause a written notice thereof to be sent to each registered owner of the Bonds and Certificates, as applicable, by United States mail, first class, postage prepaid, which notice shall also give the address of the new Paying Agent/Registrar.

In the event the use of the Book-Entry-Only system is discontinued, principal of the Bonds and Certificates is payable to the registered holder appearing on the registration books of the Paying Agent/Registrar (the "Registered Owner") at the designated corporate trust office of the Paying Agent/Registrar upon surrender of the Bonds and Certificates for payment; provided, however, that so long as Cede & Co. (or other DTC nominee) is the registered owner of the Obligations, all payments will be made as described under "The Obligations - Book-Entry-Only System" herein. Interest on the Bonds and Certificates is payable to the Register Owners appearing on the registration books of the Paying Agent/Registrar at the close of business on the Record Date (identified below) and such interest shall be paid by the Paying Agent/Registrar by check mailed, first class postage prepaid, to the Register Owner or by such other arrangement, acceptable to the Paying Agent/Registrar, requested by and at the risk and expense of the Registered Owner. If the date for the payment of the principal of or interest on the Bonds and Certificates shall be a Saturday, Sunday, a legal holiday, or a day when banking institutions in the city where the designated corporate office of the Paying Agent/Registrar is located is authorized by law or executive order to close, then the date for such payment shall be the next succeeding day which is not such a Saturday, Sunday, legal holiday, or day when banking institutions are authorized to close; and payment on such date shall have the same force and effect as if made on the original date payment was due.

TRANSFER, EXCHANGE AND REGISTRATION . . . In the event the Book-Entry-Only System should be discontinued, printed Obligations will be delivered to the Registered Owners and thereafter the Obligations may be transferred and exchanged on the registration books of the Paying Agent/Registrar only upon presentation and surrender of such printed Obligations to the Paying Agent/Registrar and such transfer or exchange shall be without expense or service charge to the Registered Owner, except for any tax or other governmental charges required to be paid with respect to such registration, exchange and transfer. Obligations may be assigned by the execution of an assignment form on the Obligations or by other instrument of transfer and assignment acceptable to the Paying Agent/Registrar. New Obligations will be delivered by the Paying Agent/Registrar, in lieu of the Obligations being transferred or exchanged, at the designated office of the Paying Agent/Registrar, or sent by United States mail, first class, postage prepaid, to the new Registered Owner or his designee. To the extent possible, new Obligations issued in an exchange or transfer of Obligations will be delivered to the Registered Owner or assignee of the Registered Owner in not more than three business days after the receipt of the Obligations to be canceled, and the written instrument of transfer or request for exchange duly executed by the Registered Owner or his duly authorized agent, in form satisfactory to the Paying Agent/Registrar. New Obligations registered and delivered in an exchange or transfer shall be in any integral multiple of $5,000 for any one maturity and for a like aggregate principal amount as the Obligations surrendered for exchange or transfer. See "The Obligations—Book-Entry-Only System" herein for a description of the system to be utilized initially in regard to ownership and transferability of the Obligations. Neither the City nor the Paying Agent/Registrar shall be required to transfer or exchange any Obligation called for redemption, in whole or in part, within 45 days of the date fixed for redemption; provided, however, such limitation of transfer shall not be applicable to an exchange by the Registered Owner of the uncalled balance of an Obligation.

RECORD DATE FOR INTEREST PAYMENT . . . The record date ("Record Date") for the interest payable on the Bonds and Certificates on any interest payment date means the close of business on the last business day of the month next preceding such interest payment date.

In the event of a non-payment of interest on a scheduled payment date, and for 30 days thereafter, a new record date for such interest payment (a "Special Record Date") will be established by the Paying Agent/Registrar, if and when funds for the payment of such interest have been received from the City. Notice of the Special Record Date and of the scheduled payment date of the past due interest ("Special Payment Date", which shall be 15 days after the Special Record Date) shall be sent at least five business days prior to the Special Record Date by United States mail, first class postage prepaid, to the address of each Registered Owner of a Bond and Certificate appearing on the registration books of the Paying Agent/Registrar at the close of business on the last business day next preceding the date of mailing of such notice.

AMENDMENTS . . . In each Ordinance, the City has reserved the right to amend the Ordinance without the consent of any holder of the respective Obligation for the purpose of amending or supplementing the Ordinance to (i) cure any ambiguity, defect or omission therein that does not materially adversely affect the interests of the holders, (ii) grant additional rights or security for the benefit of the holders, (iii) add events of default as shall not be inconsistent with the provisions of the Ordinance that do not materially adversely affect the interests of the holders, (iv) qualify the Ordinance under the Trust Indenture Act of 1939, as amended, or corresponding provisions of federal laws from time to time in effect or (v) make such other provisions in regard to matters or questions arising under the Ordinance that are not inconsistent with the provisions thereof and which, in the opinion of Bond Counsel for the City, do not materially adversely affect the interests of the holders.

Each Ordinance further provides that the holders of the Bonds or Certificates, as applicable, aggregating in principal amount a majority of the outstanding Bonds or Certificates, as the case may be, shall have the right from time to time to approve any amendment not described above to the applicable Ordinance if it is deemed necessary or desirable by the City; provided, however, that without the consent of 100% of the holders in original principal amount of the then outstanding Bonds or Certificates so affected, no amendment may be made for the purpose of: (i) making any change in the maturity of any of the outstanding Bonds or Certificates; (ii) reducing the rate of interest borne by any of the outstanding Bonds or Certificates; (iii) reducing the amount of the principal of, or redemption premium, if any, payable on any outstanding Bonds or Certificates; (iv) modifying the terms of payment of principal or of interest or redemption premium on outstanding Bonds or Certificates, or imposing any condition with respect to such payment; or (v) changing the minimum percentage of the principal amount of the Bonds or Certificates necessary for consent to such amendment. Reference is made to the Ordinances for further provisions relating to the amendment thereof.

REMEDIES . . . Each Ordinance establishes specific events of default with respect to the respective series of Obligations. If the City defaults in the payment of the principal of or interest on the Bonds or Certificates when due or the City defaults in the observance or performance of any of the covenants, conditions, or obligations of the City, the failure to perform which materially, adversely affects the rights of the owners thereof, including but not limited to, their prospect or ability to be repaid in accordance with the respective Ordinance, and the continuation thereof for a period of 60 days after notice of such default is given by any owner to the City, each Ordinance provides that any registered owner of a respective Obligation is entitled to seek a writ of mandamus from a court of proper jurisdiction requiring the City to make such payment or observe and perform such covenants, obligations, or conditions. The issuance of a writ of mandamus may be sought if there is no other available remedy at law to compel performance of the respective Obligations or Ordinance and the City's obligations are not uncertain or disputed. The remedy of mandamus is controlled by equitable principles, so rests with the discretion of the court, but may not be arbitrarily refused. There is no acceleration of maturity of the Obligations in the event of default and, consequently, the remedy of mandamus may have to be relied upon from year to year. The Ordinances do not provide for the appointment of a trustee to represent the interest of the owners of the respective Obligations upon any failure of the City to perform in accordance with the terms of the Ordinances, or upon any other condition and accordingly all legal actions to enforce such remedies would have to be undertaken at the initiative of, and be financed by, the Registered Owners. The Texas Supreme Court has ruled in *Tooke v. City of Mexia* 197 S.W.3d 325 (Tex. 2006) that a waiver of sovereign immunity in a contractual dispute must be provided for by statute in "clear and unambiguous" language. Furthermore, Tooke, and subsequent jurisprudence, held that a municipality is not immune from suit for torts committed in the performance of its proprietary functions, as it is for torts committed in the performance of its governmental functions (the "Proprietary-Governmental Dichotomy"). Governmental functions are those that are enjoined on a municipality by law and are given by the State as a part of the State's sovereignty, to be exercised by the municipality in the interest of the general public, while proprietary functions are those that a municipality may, in its discretion, perform in the interest of the inhabitants of municipality. In *Wasson Interests, Ltd., V. City of Jacksonville*, No. 489 S.W.3d 427 (Tex. 2016), ("Wasson") the Texas Supreme Court (the "Court") addressed whether the distinction between governmental and proprietary acts (as found in tort-based causes of action) applies to the breach of contract claims against municipalities. The Court analyzed the rationale behind the Proprietary-Governmental Dichotomy to determine that "a city's proprietary functions are not done pursuant to the "will of the people" and protecting such municipalities "via the State's immunity is not an efficient way to ensure efficient allocation of State resources". While the Court recognized that the distinction between government and proprietary functions is not clear, the Wasson opinion held the Proprietary-Governmental Dichotomy applies in contract-claims context. Therefore, in regard to municipal contract cases (as in tort claims), it is incumbent on the courts to determine whether a function is proprietary or governmental based upon the statutory guidance and definitions found in the Texas Civil Practice and Remedies Code. Notwithstanding the foregoing new case law issued by the Court, such sovereign immunity issues have not been adjudicated in relation to bond matters (specifically, in regard to the issuance of municipal debt). Each situation will be prospectively evaluated based on the facts and circumstances surrounding the contract in question to determine if a suit, and subsequently, a judgment, is justiciable against a municipality. Because it is unclear whether the Texas legislature has effectively waived the City's sovereign immunity from a suit for money damages, owners of Obligations may not be able to bring such a suit against the City for breach of the Obligations or Ordinance covenants in the absence of City action. Chapter 1371, Texas Government Code ("Chapter 1371"), which pertains to the issuance of public securities by issuers such as the City, permits the

City to waive sovereign immunity in the proceedings authorizing its debt, but in connection with the issuance of the Obligations, the City has not waived sovereign immunity. Even if a judgment against the City could be obtained, it could not be enforced by direct levy and execution against the City's property. Further, the Registered Owners cannot themselves foreclose on property within the City or sell property within the City to enforce the tax lien on taxable property to pay the principal of and interest on the Bonds or the Certificates. Furthermore, the City is eligible to seek relief from its creditors under Chapter 9 of the U.S. Bankruptcy Code ("Chapter 9"). Although Chapter 9 provides for the recognition of a security interest represented by a specifically pledged source of revenues, the pledge of ad valorem taxes in support of a general obligation of a bankrupt entity is not specifically recognized as a security interest under Chapter 9. Chapter 9 also includes an automatic stay provision that would prohibit, without Bankruptcy Court approval, the prosecution of any other legal action by creditors or Obligationholders of an entity which has sought protection under Chapter 9. Therefore, should the City avail itself of Chapter 9 protection from creditors, the ability to enforce would be subject to the approval of the Bankruptcy Court (which could require that the action be heard in Bankruptcy Court instead of other federal or state court); and the Bankruptcy Code provides for broad discretionary powers of a Bankruptcy Court in administering any proceeding brought before it. The opinions of Bond Counsel will note that all opinions relative to the enforceability of the Obligations are qualified with respect to the customary rights of debtors relative to their creditors, by principles of governmental immunity, and by general principles of equity which permit the exercise of judicial discretion.

Initially, the only Registered Owner of the Bonds and Certificates will be Cede & Co., as DTC's nominee. See "The Obligations - Book-Entry-Only System" herein for a description of the duties of DTC with regard to ownership of the Bonds and Certificates.

TAX INFORMATION

AD VALOREM TAX LAW . . . The appraisal of property within the City is the responsibility of the Denton Central Appraisal District (the "Appraisal District"). Excluding agricultural and open-space land, which may be taxed on the basis of productive capacity, the Appraisal District is required under V.T.C.A., Title I, Tax Code, as amended (the "Property Tax Code") to appraise all property within the Appraisal District on the basis of 100% of its market value and is prohibited from applying any assessment ratios. In determining the market value of property, different methods of appraisal may be used, including the cost method of appraisal, the income method of appraisal and the market data comparison method of appraisal, and the method considered most appropriate by the chief appraiser is to be used. State law requires the appraised value of a residence homestead to be based solely on the property's value as a residence homestead, regardless of whether residential use is considered to be the highest and best use of the property. State law further limits the appraised value of a residence homestead for a tax year to an amount that would not exceed the lesser of (1) the market value of the property for the most recent tax year that the market value was determined by the appraisal office or (2) the sum of (a) 10% of the property's appraised value in the preceding tax year, plus (b) the property's appraised value in the preceding tax year, plus (c) the market value of all new improvements to the property. The value placed upon property within the Appraisal District is subject to review by an Appraisal Review Board, consisting of members appointed by the Board of Directors of the Appraisal District. The Appraisal District is required to review the value of property within the Appraisal District at least every three years. The City may require annual review at its own expense, and is entitled to challenge the determination of appraised value of property within the City by petition filed with the Appraisal Review Board.

Reference is made to the Property Tax Code, for identification of property subject to taxation; property exempt or which may be exempted from taxation, if claimed; the appraisal of property for ad valorem taxation purposes; and the procedures and limitations applicable to the levy and collection of ad valorem taxes.

Article VIII of the State Constitution ("Article VIII") and State law provide for certain exemptions from property taxes, the valuation of agricultural and open-space lands at productivity value, and the exemption of certain personal property from ad valorem taxation.

Under Section 1-b, Article VIII, and State law, the governing body of a political subdivision, at its option, may grant an exemption of not less than $3,000 of the market value of the residence homestead of persons 65 years of age or older and the disabled from all ad valorem taxes thereafter levied by the political subdivision. Once authorized, such exemption may be repealed or decreased or increased in amount (i) by the governing body of the political subdivision or (ii) by a favorable vote of a majority of the qualified voters at an election called by the governing body of the political subdivision, which election must be called upon receipt of a petition signed by at least 20% of the number of qualified voters who voted in the preceding election of the political subdivision. In the case of a decrease, the amount of the exemption may not be reduced to less than $3,000 of the market value.

The surviving spouse of an individual who qualifies for the foregoing exemption for the residence homestead of a person 65 or older (but not the disabled) is entitled to an exemption for the same property in an amount equal to that of the exemption for which the deceased spouse qualified if (i) the deceased spouse died in a year in which the deceased spouse qualified for the exemption, (ii) the surviving spouse was at least 55 years of age at the time of the death of the individual's spouse and (iii) the property was the residence homestead of the surviving spouse when the deceased spouse died and remains the residence homestead of the surviving spouse.

In addition to any other exemptions provided by the Property Tax Code, the governing body of a political subdivision, at its option, may grant an exemption of up to 20% of the market value of residence homesteads, with a minimum exemption of $5,000.

In the case of residence homestead exemptions granted under Section 1-b, Article VIII, ad valorem taxes may continue to be levied against the value of homesteads exempted where ad valorem taxes have previously been pledged for the payment of debt if cessation of the levy would impair the obligation of the contract by which the debt was created.

Under Article VIII and State law, the governing body of a county, municipality or junior college district may provide for a freeze on total amount of ad valorem taxes levied on the residence homestead of a disabled person or persons 65 years of age or older above the amount of tax imposed in the year such residence qualified for such exemption. Also, upon receipt of a petition signed by five percent of the registered voters of the county, municipality or junior college district, an election must be held to determine by majority vote whether to establish such a limitation on taxes paid on residence homesteads of persons 65 years of age or who are disabled. Upon providing for such exemption, the total amount of taxes imposed on such homestead cannot be increased except for improvements (other than maintenance, repairs or improvements required to comply with governmental requirements) and such freeze is transferable to a different residence homestead. Also, a surviving spouse of a taxpayer who qualifies for the freeze on ad valorem taxes is entitled to the same exemption so long as the property was the residence homestead of the surviving spouse when the deceased spouse died and remains the residence homestead of the surviving spouse and the spouse was at least 55 years of age at the time of the death of the individual's spouse. Once established such freeze cannot be repealed or rescinded.

State law and Section 2, Article VIII, mandate an additional property tax exemption for disabled veterans or the surviving spouse or children of a deceased veteran who died while on active duty in the armed forces; the exemption applies to either real or personal property with the amount of assessed valuation exempted ranging from $5,000 to a maximum of $12,000, dependent upon the degree of disability or whether the exemption is applicable to a surviving spouse or children; provided, however, that beginning in the 2009 tax year, a disabled veteran who receives from the United States Department of Veterans Affairs or its successor 100 percent disability compensation due to a service-connected disability and a rating of 100 percent disabled or of individual unemployability is entitled to an exemption from taxation of the total appraised value of the veteran's residence homestead. In addition, effective January 1, 2012, and subject to certain conditions, surviving spouses of a deceased veteran who had received a disability rating of 100% will be entitled to receive a residential homestead exemption equal to the exemption received by the deceased spouse until such surviving spouse remarries.

Article VIII provides that eligible owners of both agricultural land (Section 1-d) and open-space land (Section 1-d-1), including open-space land devoted to farm or ranch purposes or open-space land devoted to timber production, may elect to have such property appraised for property taxation on the basis of its productive capacity. The same land may not be qualified under both Section 1-d and 1-d-1.

Nonbusiness personal property, such as automobiles or light trucks, are exempt from ad valorem taxation unless the governing body of a political subdivision elects to tax this property. Boats owned as nonbusiness property are exempt from ad valorem taxation.

Article VIII, Section 1-j, provides for "freeport property" to be exempted from ad valorem taxation. Freeport property is defined as goods detained in Texas for 175 days or less for the purpose of assembly, storage, manufacturing, processing or fabrication. Notwithstanding such exemption, counties, school districts, junior college districts and cities may tax such tangible personal property provided official action to tax the same was taken before April 1, 1990. Decisions to continue to tax may be reversed in the future; decisions to exempt freeport property are not subject to reversal.

Article VIII, Section 1-n of the Texas Constitution provides for the exemption from taxation of "goods-in-transit." "Goods-in-transit" is defined by Section 11.253 of the Property Tax Code, as personal property acquired or imported into Texas and transported to another location in the State or outside of the State within 175 days of the date the property was acquired or imported into Texas. The exemption excludes oil, natural gas, petroleum products, aircraft and special inventory, including motor vehicle, vessel and out-board motor, heavy equipment and manufactured housing inventory. Section 11.253 permits local governmental entities, on a local option basis, to take official action by January 1 of the year preceding a tax year, after holding a public hearing, to tax "goods-in-transit" during the following tax year. After taking such official action, the goods-in-transit remain subject to taxation by the local governmental entity until the governing body of the governmental entity rescinds or repeals its previous actions to tax goods-in-transit. A taxpayer may only receive either the freeport exemption or the "goods-in-transit" exemption for items of personal property.

The City or Denton County may create one or more tax increment financing districts ("TIF") within the City or Denton County, as applicable, and freeze the taxable values of property in the TIF at the value at the time of its creation. Other overlapping taxing units levying taxes in the TIF may agree to contribute all or part of future ad valorem taxes levied and collected against the value of property in the TIF in excess of the "frozen values" to pay or finance the costs of certain public improvements in the TIF. Taxes levied by the City against the values of real property in the TIF in excess of the "frozen" value are not available for general city use but are restricted to paying or financing "project costs" within the TIF. The City also may enter into tax abatement agreements to encourage economic development. Under the agreements, a property owner agrees to construct certain improvements on its property. The City in turn agrees not to levy a tax on all or part of the increased value attributable to the improvements until the expiration of the agreement. The abatement agreement could last for a period of up to 10 years. The City has active reinvestment zones for tax abatements and tax increment financing zones for tax increment financing purposes. See "Tax Information - Tax Incentive Policy, – Property Tax Abatement" and "- Tax Increment Financing and Public Improvement District" and "Table 1 - Valuation, Exemptions and General Obligation Debt".

The City is also authorized, pursuant to Chapter 380, Texas Local Government Code, as amended ("Chapter 380"), to establish programs to promote state or local economic development and to stimulate business and commercial activity in the City. In accordance with a program established pursuant to Chapter 380, the City may make loans or grants of public funds such as ad valorem taxes or sales taxes for economic development purposes, however no obligations secured by ad valorem taxes may be issued for such purposes unless approved by voters of the City. The City has entered into several Chapter 380 Agreements. See "Tax Information - Chapter 380 Agreements".

NO-NEW-REVENUE TAX RATE AND VOTER-APPROVAL TAX RATE . . . The Following terms as used in this section have the meanings provided below:

"adjusted" means lost values are not included in the calculation of the prior year's taxes and new values are not included in the current year's taxable values.

"de minimis rate" means the maintenance and operations tax rate that will produce the prior year's total maintenance and operations tax levy (adjusted) from the current year's values (adjusted), plus the rate that produces an additional $500,000 in tax revenue when applied to the current year's taxable value, plus the debt service tax rate.

"no-new-revenue tax rate" means the combined maintenance and operations tax rate and debt service tax rate that will produce the prior year's total tax levy (adjusted) from the current year's total taxable values (adjusted).

"special taxing unit" means a city for which the maintenance and operations tax rate proposed for the current tax year is 2.5 cents or less per $100 of taxable value.

"unused increment rate" means the cumulative difference between a city's voter-approval tax rate and its actual tax rate for each of the tax years 2020 through 2022, which may be applied to a city's tax rate in tax years 2021 through 2023 without impacting the voter-approval tax rate.

"voter-approval tax rate" mean the maintenance and operations tax rate that will produce the prior year's total maintenance and operations tax levy (adjusted) from the current year's values (adjusted) multiplied by 1.035, plus the debt service tax rate, plus the "unused increment rate".

The City's tax rate consists of two components: (1) a rate for funding of maintenance and operations expenditures in the current year (the "maintenance and operations tax rate"), and (2) a rate for funding debt service in the current year (the "debt service tax rate"). Under State law, the assessor for the City must submit an appraisal roll showing the total appraised, assessed, and taxable values for all property in the City to the City Council by August 1 of each year, or as soon as practicable thereafter.

A city must annually calculate its "voter-approval tax rate" and "no-new-revenue tax rate" (as such terms are defined above) in accordance with forms prescribed by the State Comptroller and provide notice of such rates to each owner of taxable property within the city and the county tax assessor-collector for each county in which all or part of the city is located. A city must adopt a tax rate before the later of September 30 or the 60th day after receipt of the certified appraisal roll, except that a tax rate that exceeds the voter-approval tax rate must be adopted not later than the 71st day before the next occurring November uniform election date. If a city fails to timely adopt a tax rate, the tax rate is statutorily set as the lower of the no-new-revenue tax rate for the current tax year or the tax rate adopted by the city for the preceding tax year.

As described below, the Property Tax Code provides that if a city adopts a tax rate that exceeds its voter-approval tax rate or, in certain cases, its "de minimis rate", an election must be held to determine whether or not to reduce the adopted tax rate to the voter-approval tax rate.

A city may not adopt a tax rate that exceeds the lower of the voter-approval tax rate or the no-new-revenue tax rate until each appraisal district in which such city participates has delivered notice to each taxpayer of the estimated total amount of property taxes owed and the city has held a public hearing on the proposed tax increase.

For cities with a population of 30,000 or more as of the most recent federal decennial census, if the adopted tax rate for any tax year exceeds the voter-approval tax rate, that city must conduct an election on the next occurring November uniform election date to determine whether or not to reduce the adopted tax rate to the voter-approval tax rate.

For cities with a population less than 30,000 as of the most recent federal decennial census, if the adopted tax rate for any tax year exceeds the greater of (i) the voter-approval tax rate or (ii) the de minimis rate, the city must conduct an election on the next occurring November uniform election date to determine whether or not to reduce the adopted tax rate to the voter-approval tax rate. However, for any tax year during which a city has a population of less than 30,000 as of the most recent federal decennial census and does not qualify as a special taxing unit, if a city's adopted tax rate is equal to or less than the de minimis rate but greater than both (a) the no-new-revenue tax rate, multiplied by 1.08, plus the debt service tax rate or (b) the city's voter-approval tax rate, then a valid petition signed by at least three percent of the registered voters in the city would require that an election be held to determine whether or not to reduce the adopted tax rate to the voter-approval tax rate.

Any city located at least partly within an area declared a disaster area by the Governor of the State or the President of the United States during the current year may calculate its "voter-approval tax rate" using a 1.08 multiplier, instead of 1.035, until the earlier of (i) the second tax year in which such city's total taxable appraised value exceeds the taxable appraised value on January 1 of the year the disaster occurred, or (ii) the third tax year after the tax year in which the disaster occurred.

State law provides cities and counties in the State the option of assessing a maximum one-half percent (1/2%) sales and use tax on retail sales of taxable items for the purpose of reducing its ad valorem taxes, if approved by a majority of the voters in a local option election. If the additional sales and use tax for ad valorem tax reduction is approved and levied, the no-new-revenue tax rate and voter-approval tax rate must be reduced by the amount of the estimated sales tax revenues to be generated in the current tax year.

The calculations of the no-new-revenue tax rate and voter-approval tax rate do not limit or impact the City's ability to set a debt service tax rate in each year sufficient to pay debt service on all of the City's tax-supported debt obligations, including the Obligations.

Reference is made to the Property Tax Code for definitive requirements for the levy and collection of ad valorem taxes and the calculation of the various defined tax rates.

PROPERTY ASSESSMENT AND TAX PAYMENT . . . Property within the City is generally assessed as of January 1 of each year. Business inventory may, at the option of the taxpayer, be assessed as of September 1. Oil and gas reserves are assessed on the basis of a valuation process that uses pricing information contained in the most recently published Early Release Overview of the Annual Energy Outlook published by the United States Energy Information Administration, as well as appraisal formulas developed by the State Comptroller of Public Accounts. Taxes become due October 1 of the same year, and become delinquent on February 1 of the following year. Taxpayers 65 years old or older are permitted by State law to pay taxes on homesteads in four installments with the first due on February 1 of each year and the final installment due on August 1.

PENALTIES AND INTEREST . . . Charges for penalty and interest on the unpaid balance of delinquent taxes are made as follows:

Month	Cumulative Penalty	Cumulative Interest	Total
February	6%	1%	7%
March	7	2	9
April	8	3	11
May	9	4	13
June	10	5	15
July	12	6	18

After July, the penalty remains at 12%, and interest accrues at a rate of one percent (1%) for each month or portion of a month the tax remains unpaid. A delinquent tax continues to incur the penalty interest as long as the tax remains unpaid, regardless of whether a judgment for the delinquent tax has been rendered. The purpose of imposing such interest is to compensate the taxing unit for revenue lost because of the delinquency. In addition, if an account is delinquent in July, an attorney's collection fee of up to 20% may be added to the total tax penalty and interest charge. Under certain circumstances, taxes which become delinquent on the homestead of a taxpayer 65 years old or older incur a penalty of 8% per annum with no additional penalties or interest assessed. In general, property subject to the City's lien may be sold, in whole or in parcels, pursuant to court order to collect the amounts due. Federal law does not allow for the collection of penalty and interest against an estate in bankruptcy. Federal bankruptcy law provides that an automatic stay of action by creditors and other entities, including governmental units, goes into effect with the filing of any petition in bankruptcy. The automatic stay prevents governmental units from foreclosing on property and prevents liens for post-petition taxes from attaching to property and obtaining secured creditor status unless, in either case, an order lifting the stay is obtained from the bankruptcy court. In many cases post-petition taxes are paid as an administrative expense of the estate in bankruptcy or by order of the bankruptcy court.

CITY APPLICATION OF TAX CODE . . . The City grants an exemption to the market value of the residence homestead of persons 65 years of age or older of $50,000. Disabled taxpayers also receive a $50,000 exemption.

The City grants an additional one-half of one percent, or a minimum of $5,000 exemption of the market value of residence homesteads.

See Table 1 for a listing of the amounts of the exemptions described above.

Ad valorem taxes are not levied by the City against the exempt value of residence homesteads for the payment of debt.
The City does not tax nonbusiness personal property.

Denton County began collecting taxes for the City during the fiscal year 2006-07.

The City does not allow split payments, and discounts are not allowed.

The City does not tax freeport property.

The City collects the additional one-half cent sales tax for reduction of ad valorem taxes.

The City does tax "goods-in-transit".

The City has adopted the tax freeze (limitation) for citizens who are disabled or are 65 years of age or older.

The City has adopted a tax abatement policy.

The City participates in two tax increment reinvestment zones, which were created in 2010 and 2012.

TAX INCREMENT FINANCING AND PUBLIC IMPROVEMENT DISTRICT . . . The City participates in two tax increment reinvestment zones, which were created in 2010 and 2012. The first reimbursement to the developer, Westray Group, LP, from the Westpark Tax Increment Reinvestment Zone (TIRZ) Number Two included pre-development costs, drainage improvement costs and the cost associated with traffic signals for a total of $665,040. The City created Rayzor Ranch Public Improvement District No. 1 (the "District") in 2014 for the undertaking and financing of public improvements authorized by Chapter 372 of the Texas Local Government Code. Additional information on the tax increment reinvestment zones and the District can be found in the Annual Comprehensive Financial Report, Notes to Basic Financial Statements, IV. Detailed Notes on All Funds, B. Property Tax Revenue.

TAX INCENTIVE POLICY . . . The City enters into economic development incentive agreements consisting of property tax abatement agreements and Chapter 380 agreements with entities to promote development and redevelopment within the City, stimulate commercial activity, generate additional sales tax, and enhance the property tax base and economic vitality of the City. A summary of newly initiated agreements and terminated agreements follows.

PROPERTY TAX ABATEMENTS . . . No new property tax abatements were approved, initiated, or terminated in 2024.

CHAPTER 380 AGREEMENTS . . . A Chapter 380 Agreement was granted to the Fine Arts Theatre of Denton, LLC for the renovation of the historic theater on the face of the Downtown Square, representing a capital investment of $9,119,623. The agreement provides a cash grant in the amount of $1,076,366 after the developer receives a Certificate of Occupancy to pay down the construction loan principal to the required $3,195,000 for their bank loan. An additional operation grant, in the amount of $544,503, grant will be paid annually to cover the projected shortfall between Net Profit and Debt Service. The total incentive award in the amount of $1,620,869 will be funded through the downtown TIRZ Number One. No agreements were terminated in 2024. DynaGrid will likely be terminated in the future, as the company sold their property in Denton and must maintain their corporate headquarters and principal place of business within the Denton city limits. The company is also failing to render for taxation if they do not own property in Denton. From the Future will initiate in 2024.

Buc-ee's Travel Center Balloon Grant payment was made this year following the 60-month period, as a Balloon payment was due if $2 million in payments had not been reached in the 60-month period. The Balloon Grant was designed to reimburse the developer for the match they paid for the Texas Department of Transportation (TxDOT) grant to advance several mobility improvements to the intersections of Loop 288/Lillian Miller and I-35E, Mayhill Road and I-35E, and Brinker Road and I-35E. Payments continue to be made to Buc-ee's Travel Center, Unicorn Lake, Rayzor Ranch Marketplace and Town Center, Golden Triangle Mall, and O'Reilly Hotel and Convention Center for sales tax, and Mayday Manufacturing, Westgate Business Park, WinCo Distribution Center, and O'Reilly Hotel and Convention Center for ad valorem rebates. This is the final year of the ten-year Chapter 380 Agreement with Mayday Manufacturing. TeamOfDefenders received an expansion grant paymentvin 2024. O'Reilly Hotel and Convention Center also receives hotel occupancy tax payments.

Additional information on all of the tax abatement and Chapter 380 agreements may be found in Appendix B – Excerpts from the City of Denton, Texas Annual Comprehensive Financial Report, Notes to Basic Financial Statements, V. Other Information, F Tax Abatements.

TABLE 1 - VALUATION, EXEMPTIONS AND GENERAL OBLIGATION DEBT

2023/24 Market Valuation Established by Denton Central Appraisal District		$ 22,953,024,865
Less Exemptions/Reductions at 100% Market Value:		
Residence Homestead Exemptions	$ 104,527,247	
Over 65 Exemptions	436,302,366	
Disabled Persons Exemptions	11,582,689	
Disabled Veterans Exemptions	173,485,586	
Agricultural Land Use Productivity	571,312,834	
Historical/Other Exemptions	6,525,337	
Freeport Exemptions	408,838,881	
Abatement Exemptions	23,819,579	
Pollution Exemptions	23,595,885	
Homestead Cap Adjustment	1,317,825,807	3,077,816,211
2023/24 Taxable Assessed Valuation (as of 7-22-2023)		$ 19,875,208,654
2023/24 Incremental Taxable Assessed Value of Real Property within Reinvestment Zones		(655,364,707)
2023/24 Net Taxable Assessed Valuation available for General Obligations and Debt of City (as of 7-22-2023)		$ 19,219,843,947
City Funded Debt Payable from Ad Valorem Taxes (1)		
General Obligation Bonds (as of 4-1-24)	$ 332,515,000 (2)	
Certificates of Obligation (as of 4-1-24)	619,480,000 (2)	
The Bonds	135,175,000 (3)	
The Certificates	240,610,000 (3)	
Funded Debt Payable from Ad Valorem Taxes		$ 1,327,780,000
Less Self-Supporting General Obligation Debt (4)		
Solid Waste System General Obligation Debt	$ 40,185,000 (5)	
Utility System General Obligation Debt	770,125,000 (5)	810,310,000
Net Tax Supported Debt Payable from Ad Valorem Taxes		$ 517,470,000
Interest and Sinking Fund as of 4-1-24 (estimated)		$ 9,646,753
Ratio Total Funded Debt to Net Taxable Assessed Valuation		6.91%
Ratio Net Funded Debt to Net Taxable Assessed Valuation		2.69%

2024 Estimated Population - 150,624

Per Capita Net Taxable Assessed Valuation - $127,601

Per Capita Total Funded Debt - $8,815

Per Capita Net Funded Debt - $3,436

(1) The above statement of indebtedness does not include $172,900,000 Utility System Revenue Bonds, $134,715,000 Utility System Revenue Refunding Bonds or $300,000,000 Utility System Revenue Extendable Commercial Paper Notes, Series A as these bonds and notes are payable solely from the net revenues of the Utility System (the "System"), as defined in the ordinances authorizing such bonds and notes.

(2) Excludes the Refunded Obligations. Preliminary, subject to change.

(3) Preliminary, subject to change.

(4) As a matter of policy, the City pays debt service on its general obligation debt issued to fund improvements to its Utility System and Solid Waste System from surplus revenues of these Systems (see "Table 7 – General Obligation Debt Service Requirements" and "Table 9 – Computation of Self-Supporting Debt"). This policy may be subject to change in the future.

The City's Utility System is comprised of the City's entire existing electric, light and power system and the waterworks and sewer system. Drainage is managed under the waterworks and wastewater system. The City's Utility System General Obligation Debt has been issued to finance or refinance Utility System improvements and contractual obligations and is paid, or is expected to be paid, from Utility System revenues. In addition, the City has $172,900,000 Utility System Revenue Bonds, $134,715,000 Utility System Revenue Refunding Bonds outstanding payable from a pledge of Utility System revenues.

The City's Solid Waste System General Obligation Debt has been issued to finance or refinance Solid Waste System improvements and is paid, or is expected to be paid, from Solid Waste System revenues. The City has no outstanding Solid Waste System Revenue Bonds.

(5) Includes a portion of the Obligations. Preliminary, subject to change.

TABLE 2 - TAXABLE ASSESSED VALUATIONS BY CATEGORY (1)

	Taxable Appraised Value for Fiscal Year Ended September 30,					
	2024		2023		2022	
Category	Amount	% of Total	Amount	% of Total	Amount	% of Total
Real, Residential, Single Family	$ 12,640,265,177	55.07%	$ 10,290,861,945	53.71%	$ 8,179,274,977	51.07%
Real, Residential, Multi-Family	3,010,316,741	13.12%	2,581,359,659	13.47%	2,192,401,019	13.69%
Real, Vacant Lots/Tracts	382,596,204	1.67%	423,344,124	2.21%	314,300,099	1.96%
Real, Acreage (Land Only)	576,294,402	2.51%	429,021,486	2.24%	361,523,875	2.26%
Real, Farm and Ranch Improvements	215,962,158	0.94%	182,206,679	0.95%	157,873,244	0.99%
Real, Commercial and Industrial	3,803,222,853	16.57%	3,299,538,286	17.22%	3,032,461,538	18.93%
Real, Oil, Gas, and Other Mineral Reserves	120,209,519	0.52%	87,640,017	0.46%	48,516,939	0.30%
Real and Tangible Personal, Utilities	178,025,520	0.78%	152,340,178	0.80%	142,991,907	0.89%
Tangible Personal, Commercial and Industrial	1,703,709,612	7.42%	1,507,941,787	7.87%	1,425,520,232	8.90%
Tangible Personal, Other	23,932,876	0.10%	23,831,628	0.12%	23,969,949	0.15%
Real and Special Property, Inventory	298,489,803	1.30%	181,149,319	0.95%	137,388,170	0.86%
Total Appraised Value Before Exemptions	$ 22,953,024,865	100.00%	$ 19,159,235,108	100.00%	$ 16,016,221,949	100.00%
Less: Total Exemptions/Reductions	(3,077,816,211)		(2,177,190,370)		(1,376,450,603)	
Less: Tax Increment Value	(655,364,707)		(260,921,114)		(236,666,283)	
Net Taxable Assessed Value	$ 19,219,843,947		$ 16,721,123,624		$ 14,403,105,063	

	Taxable Appraised Value for Fiscal Year Ended September 30,			
	2021		2020	
Category	Amount	% of Total	Amount	% of Total
Real, Residential, Single Family	$ 7,448,956,811	49.84%	$ 7,010,158,815	36.59%
Real, Residential, Multi-Family	2,079,085,736	13.91%	1,778,847,172	9.28%
Real, Vacant Lots/Tracts	281,625,453	1.88%	263,786,761	1.38%
Real, Acreage (Land Only)	365,649,752	2.45%	374,863,507	1.96%
Real, Farm and Ranch Improvements	119,135,103	0.80%	123,803,396	0.65%
Real, Commercial and Industrial	2,965,114,413	19.84%	2,780,957,817	14.51%
Real, Oil, Gas, and Other Mineral Reserves	32,916,830	0.22%	70,254,568	0.37%
Real and Tangible Personal, Utilities	133,632,949	0.89%	124,940,388	0.65%
Tangible Personal, Commercial and Industrial	1,393,035,792	9.32%	1,519,412,977	7.93%
Tangible Personal, Other	24,210,105	0.16%	24,514,962	0.13%
Real Property, Inventory	101,288,806	0.68%	115,151,665	0.60%
Total Appraised Value Before Exemptions	$ 14,944,651,750	100.00%	$ 14,186,692,028	74.05%
Less: Total Exemptions/Reductions	(1,377,732,859)		(1,397,304,969)	
Less: Tax Increment Value	14,729,380		(168,826,531)	
Net Taxable Assessed Value	$ 13,581,648,271		$ 12,620,560,528	

(1) Valuations shown are certified taxable assessed values reported by the Denton Central Appraisal District to the State Comptroller of Public Accounts. Certified values are subject to change throughout the year as contested values are resolved and the Appraisal District updates records. For the Fiscal Year ended 2024, the values were reported on July 22, 2023 based on information as of January 1, 2023.

TABLE 3 - VALUATION AND GENERAL OBLIGATION DEBT HISTORY

Fiscal Year Ended 9/30	Estimated Population [1]	Net Taxable Assessed Valuation [2]	Net Taxable Assessed Valuation Per Capita	Net Tax Debt Outstanding at End of Year [8]	Ratio Net Tax Debt to Net Taxable Assessed Valuation	Net Funded Tax Debt Per Capita
2020	140,956	$ 12,620,560,528 [3]	$ 89,535	$ 249,482,532	1.98%	$ 1,770
2021	143,775	13,581,648,271 [4]	94,465	308,521,854	2.27%	2,146
2022	146,950	14,403,105,063 [5]	98,014	354,343,240	2.46%	2,411
2023	150,624	16,721,123,624 [6]	111,012	392,635,000	2.35%	2,607
2024	150,842	19,219,843,947 [7]	127,417	517,470,000 [9]	2.69%	3,431

(1) Source: City Officials.
(2) Valuations shown are certified taxable assessed values reported by the Denton Central Appraisal District to the State Comptroller of Public Accounts. Certified values are subject to change throughout the year as contested values are resolved and the Appraisal District updates records. Source: Denton Central Appraisal District as of July 22, 2023.
(3) Includes tax incremental value of approximately $168,826,531 that is not available for the City's general obligations and debt of City.
(4) Includes tax incremental value of approximately $198,541,948 that is not available for the City's general obligations and debt of City.
(5) Includes tax incremental value of approximately $236,666,283 that is not available for the City's general obligations and debt of City.
(6) Includes tax incremental value of approximately $260,921,114 that is not available for the City's general obligations and debt of City.
(7) Includes tax incremental value of approximately $655,364,707 that is not available for the City's general obligations and debt of City.
(8) Excludes self-supported general obligation debt.
(9) Projected. Includes a portion of the Obligations. Excludes the Refunded Obligations. Preliminary, subject to change.

TABLE 4 - TAX RATE, LEVY AND COLLECTION HISTORY

Fiscal Year Ended 9/30	Tax Rate	Distribution: General Fund	Distribution: Interest and Sinking Fund	Tax Levy [1]	% Current Collections	% Total Collections
2020	$ 0.59045	$ 0.38536	$ 0.20509	$ 74,970,911	99.65%	99.65%
2021	0.59045	0.38036	0.21009	77,744,137	99.74%	99.74%
2022	0.56582	0.35044	0.21538	79,382,757	99.68%	99.68%
2023	0.56068	0.35643	0.20425	91,758,521	99.44%	99.44%
2024	0.56068	0.35478	0.20590	107,734,580	97.86% [2]	97.86% [2]

(1) Tax levy for the year 2024 is based on the adjusted certified value. Prior years represent adjusted values that include all supplements through July 22, 2023. Includes tax incremental reinvestment zone revenues.
(2) Collections through April 1, 2024 (partial year).

TABLE 5 - TEN LARGEST TAXPAYERS [1]

Name of Taxpayer	Nature of Property	2023/24 Taxable Assessed Valuation	% of Total Taxable Assessed Valuation
Paccar Inc.	Diesel Truck Manufacturing	$113,169,010	0.57%
Columbia Medical Center of Denton	Hospital/Professional Building	87,500,889	0.44%
TRDWind Timberlinks Borrower LLC	Apartments	81,000,000	0.41%
32Hundred Windsor Gardens LP & JRM Windsor LLC	Apartments	73,750,000	0.37%
NREA Gardens, DST	Retail	70,150,000	0.35%
Winco Foods LLC	Food Distribution	70,000,000	0.35%
Exeter Denton Land LP	Distribution	67,975,309	0.34%
North Texas Development PFC	Apartments	67,538,470	0.34%
RR Town Center Associates LLC	Retail	66,256,402	0.33%
Westdale Carriage Square Ltd	Apartments	64,179,000	0.32%
		$ 761,519,080	3.83%

(1) Source: Denton Central Appraisal District.

GENERAL OBLIGATION DEBT LIMITATION . . . No general obligation debt limitation is imposed on the City under current State law or the City's Home Rule Charter (see "The Obligations – Tax Rate Limitation" for a description of the limitations on ad valorem tax rates).

TABLE 6 - ESTIMATED OVERLAPPING TAX DEBT

Expenditures of the various taxing entities within the territory of the City are paid out of ad valorem taxes levied by such entities on properties within the City. Such entities are independent of the City and may incur borrowings to finance their expenditures. This statement of direct and estimated overlapping ad valorem tax debt ("Tax Debt") was developed from information contained in "Texas Municipal Reports" published by the Municipal Advisory Council of Texas. Except for the amounts relating to the City, the City has not independently verified the accuracy or completeness of such information, and no person should rely upon such information as being accurate or complete. Furthermore, certain entities listed may have issued additional Tax Debt since the date hereof, and such entities may have programs requiring the issuance of substantial amounts of additional Tax Debt, the amount of which cannot be determined. The following table reflects the estimated share of overlapping Tax Debt of the City.

Taxing Jurisdiction	2023/24 Taxable Assessed Value	2023/24 Tax Rate	Total Funded Debt	Estimated % Applicable	City's Overlapping Funded Debt As of 4-1-24	Authorized But Unissued Debt As Of 4-1-24
City of Denton	$ 19,219,843,947 (1)	$ 0.56068	$ 517,470,000 (2)	100.00%	$ 517,470,000 (2)	$ 260,138,000 (3)
Denton Independent School District	31,791,626,154	1.15920	2,142,646,665	55.44%	1,187,883,311	381,996,928
Denton County	177,207,953,929	0.18949	624,655,000	11.13%	69,524,102	549,690,625
Argyle Independent School District	5,029,248,334	1.21220	408,721,443	6.46%	26,403,405	54,980,000
Aubrey Independent School District	2,762,317,378	1.25750	309,196,976	0.07%	216,438	159,385,000
Krum Independent School District	1,894,059,010	1.23210	132,758,314	4.75%	6,306,020	136,200,000
Lake Dallas Independent School District	3,111,782,774	1.25750	169,696,798	0.09%	152,727	-
Pilot Point Independent School District	1,333,495,415	1.15676	44,855,000	0.13%	58,312	-
Ponder Independent School District	1,316,828,255	1.24230	69,430,000	6.11%	4,242,173	-
Sanger Independent School District	2,251,671,262	1.14740	141,456,760	0.24%	339,496	-
Total Direct and Overlapping Funded Debt					$ 1,812,595,983	
Ratio of Direct and Overlapping Funded Debt to Taxable Assessed Valuation					9.43%	
Per Capita Overlapping Funded Debt					$ 5,738.76	

(1) Excludes tax incremental value of approximately $655,364,707 that is not available for the City's general obligations and debt of City.
(2) Includes a portion of the Obligations. Excludes self-supporting. See Tables 1 and 9 herein for more detailed information on the City's general obligation self-supporting debt. Preliminary, subject to change.
(3) Reflects remaining authorization after the issuance of the Bonds. Preliminary, subject to change.

TABLE 7 – PRO FORMA GENERAL OBLIGATION DEBT SERVICE REQUIREMENTS

Fiscal Year Ended 9/30	Outstanding Debt Service [1]			The Bonds [2]		The Certificates [3]		Total Outstanding Debt	Less: Self-Supporting Solid Waste Debt Service [4]	Less: Self-Supporting Utility Debt Service [4]	Total Debt Service Requirements	% of Principal Retired
	Principal	Interest	Total	Principal	Interest	Principal	Interest					
2024	$ 62,885,000	$ 42,089,506	$ 104,974,506	$ -	$ -	$ -	$ -	$ 104,974,506	$ 4,765,800	$ 59,481,734	$ 40,726,973	
2025	58,630,000	37,552,638	96,182,638	4,100,000	7,271,367	7,655,000	12,757,653	127,966,657	5,279,418	70,095,042	52,592,197	
2026	52,610,000	34,995,400	87,605,400	4,875,000	6,485,669	9,065,000	11,352,688	119,383,756	5,064,244	63,151,531	51,167,981	
2027	52,885,000	32,532,750	85,417,750	5,155,000	6,222,381	9,545,000	10,864,175	117,204,306	4,672,363	62,859,713	49,672,231	
2028	50,725,000	30,056,244	80,781,244	5,445,000	5,944,131	10,055,000	10,349,675	112,575,050	4,173,113	61,564,644	46,837,294	23.99%
2029	48,610,000	27,669,338	76,279,338	5,755,000	5,650,131	10,595,000	9,807,613	108,087,081	3,859,394	60,322,881	43,904,806	
2030	50,865,000	25,319,087	76,184,087	6,105,000	5,338,806	9,065,000	9,291,538	105,984,431	3,384,031	60,435,863	42,164,537	
2031	47,315,000	23,103,319	70,418,319	6,475,000	5,008,581	9,560,000	8,802,631	100,264,531	3,188,600	55,231,538	41,844,394	
2032	47,725,000	21,078,500	68,803,500	6,840,000	4,659,063	10,070,000	8,287,344	98,659,906	2,979,494	54,146,388	41,534,025	
2033	46,565,000	19,112,866	65,677,866	7,245,000	4,289,331	10,610,000	7,744,494	95,566,691	2,934,331	51,636,988	40,995,372	47.25%
2034	43,745,000	17,311,347	61,056,347	7,630,000	3,898,863	11,185,000	7,172,375	90,942,584	2,812,344	48,630,131	39,500,109	
2035	45,405,000	15,660,091	61,065,091	5,860,000	3,544,750	9,135,000	6,638,975	86,243,816	2,481,850	47,054,856	36,707,109	
2036	44,310,000	14,025,534	58,335,534	6,195,000	3,228,306	9,640,000	6,146,131	83,544,972	2,231,094	46,413,175	34,900,703	
2037	43,425,000	12,404,641	55,829,641	6,555,000	2,893,619	10,150,000	5,626,644	81,054,903	1,763,750	45,719,088	33,572,066	
2038	43,260,000	10,786,591	54,046,591	6,935,000	2,539,506	10,695,000	5,079,463	79,295,559	1,696,319	45,749,384	31,849,856	69.11%
2039	41,290,000	9,224,497	50,514,497	7,330,000	2,165,050	11,275,000	4,502,750	75,787,297	1,691,925	45,760,472	28,334,900	
2040	40,400,000	7,790,053	48,190,053	7,740,000	1,769,463	11,885,000	3,894,800	73,479,316	1,691,094	44,955,913	26,832,309	
2041	38,180,000	6,431,688	44,611,688	8,155,000	1,352,219	12,525,000	3,254,038	69,897,944	1,694,094	44,378,888	23,824,963	
2042	32,340,000	5,119,422	37,459,422	8,555,000	956,356	13,135,000	2,646,138	62,751,916	1,695,050	42,145,466	18,911,400	
2043	23,540,000	4,030,400	27,570,400	8,930,000	584,800	13,705,000	2,075,788	52,865,988	1,189,319	37,494,438	14,182,231	89.18%
2044	16,515,000	3,283,716	19,798,716	9,295,000	197,519	14,295,000	1,480,788	45,067,022	142,975	34,813,672	10,110,375	
2045	17,115,000	2,684,103	19,799,103	-	-	2,185,000	1,130,588	23,114,691	-	23,114,691	-	
2046	13,790,000	2,139,897	15,929,897	-	-	2,275,000	1,035,813	19,240,709	-	19,240,709	-	
2047	11,230,000	1,700,897	12,930,897	-	-	2,380,000	935,406	16,246,303	-	16,246,303	-	
2048	8,025,000	1,364,384	9,389,384	-	-	2,485,000	828,984	12,703,369	-	12,703,369	-	96.34%
2049	8,305,000	1,086,381	9,391,381	-	-	2,595,000	717,859	12,704,240	-	12,704,241	-	
2050	8,205,000	802,869	9,007,869	-	-	2,710,000	601,813	12,319,681	-	12,319,681	-	
2051	7,325,000	526,331	7,851,331	-	-	2,835,000	480,516	11,166,847	-	11,166,847	-	
2052	5,720,000	274,419	5,994,419	-	-	2,960,000	351,900	9,306,319	-	9,306,319	-	
2053	3,940,000	78,800	4,018,800	-	-	3,100,000	215,550	7,334,350	-	7,334,350	-	99.77%
2054	-	-	-	-	-	3,240,000	72,900	3,312,900	-	3,312,900	-	100.00%
	$ 1,014,880,000	$ 410,235,707	$ 1,425,115,707	$ 135,175,000	$ 73,999,911	$ 240,610,000	$ 144,147,025	$ 2,019,047,641	$ 59,390,599	$ 1,209,491,211	$ 750,165,832	

(1) "Outstanding Debt" does not include lease/purchase obligations, however, it does include self-supporting debt. Preliminary, subject to change.
(2) Average life of the issue - 11.118 years. Interest on the Bonds has been calculated at the rate of 3.77% for purposes of illustration. Preliminary, subject to change.
(3) Average life of the issue - 12.472 years. Interest on the Certificates has been calculated at the rate of 3.93% for purposes of illustration. Preliminary, subject to change.
(4) Includes a portion of the Obligations. Excludes the Refunded Obligations Preliminary, subject to change.

TABLE 8 - INTEREST AND SINKING FUND BUDGET PROJECTION [1]

Budgeted Tax Supported Debt Service Requirements and Fiscal Charges, Fiscal Year Ending 9/30/2024		$ 106,221,238
Interest and Sinking Fund Balance as of 9/30/23	$ 1,138,403	
Interest and Sinking Fund Tax Levy	39,047,851	
From Revenue Supported Sources	67,173,387	107,359,641
Estimated Balance, 9/30/23		$ 1,138,403

(1) Source: City's Annual Budget for Fiscal Year 2023/24.

TABLE 9 - COMPUTATION OF SELF-SUPPORTING DEBT

Net Revenue from Solid Waste System, Fiscal Year Ended 9-30-23	$ 13,496,643 [1]
Less: Solid Waste System Revenue Bond Requirements, 2024 Fiscal Year	-
Balance Available for Other Purposes	$ 13,496,643
Solid Waste System General Obligation Bond Requirements, 2024 Fiscal Year	(4,765,800)
Balance	$ 8,730,843
Net Revenue from Utility System, Fiscal Year Ended 9-30-23	$ 121,502,695 [1]
Less: Utility System Revenue Bond Requirements, 2024 Fiscal Year	(25,300,313)
Balance Available for Other Purposes	$ 96,202,382
Utility System General Obligation Bond Requirements, 2024 Fiscal Year	(59,481,734)
Balance	$ 36,720,649

(1) Does not deduct franchise fees and/or return on investment paid to the General Fund.

TABLE 10 - AUTHORIZED BUT UNISSUED GENERAL OBLIGATION REFUNDING AND IMPROVEMENT BONDS

Purpose	Date Authorized	Amount Authorized	Amount Heretofore Issued	Amount Being Issued [1]	Unissued Balance
Street & Drainage	11/5/2019	$ 154,000,000	$ 99,500,000	$ 35,600,000	$ 18,900,000
Street	11/7/2023	45,125,000	-	5,000,000	40,125,000
Drainage & Flood Control	11/7/2023	58,860,000	-	10,000,000	48,860,000
Parks	11/7/2023	33,450,000	-	9,450,000	24,000,000
Public Safety Facilities	11/7/2023	42,015,000	-	23,167,000	18,848,000
Affordable Housing	11/7/2023	15,000,000	-	-	15,000,000
Active Adult Center	11/7/2023	47,360,000	-	-	47,360,000
Library	11/7/2023	49,545,000	-	2,500,000	47,045,000
		$ 445,355,000	$ 99,500,000	$ 85,717,000	$ 260,138,000

(1) Includes premium on the Bonds. Preliminary, subject to change.

ANTICIPATED ISSUANCE OF ADDITIONAL GENERAL OBLIGATION DEBT . . . As shown in Table 10 above, after the issuance of the Bonds, the City will have $18,900,000 voted but unissued debt remaining from the November 5, 2019 authorization and $241,238,000 voted but unissued debt remaining from the November 7, 2023 authorization. In June of 2020, the City established a commercial paper note program which allows for the issuance, at one time, or from time to time, of up to $100,000,000 aggregate principal amount of commercial paper notes (the "*CP Notes*") in order to finance public improvements authorized in the November 5, 2019 bond election and the November 7, 2023 bond election. The CP Notes are secured by ad valorem taxes and proceeds from "rolls" of CP Notes and from bonds issued under the November 5, 2019 authorization and the November 7, 2023 authorization. As of April 1, 2024, no CP Notes are outstanding. The City may also issue tax-supported debt other than voter approved general obligation bonds to fund public improvements, such as certificates of obligation or tax anticipation notes, without submitting a measure to the voters, but in certain instances, subject to voter petition rights for a referendum. Further, the City may issue tax-supported debt other than voter approved general obligation bonds to refund bonds or other obligations not currently payable from or supported by ad valorem taxes, such as the City's Utility System revenue bonds. The City anticipates the issuance of approximately $79.013 million in tax supported debt in fiscal year 2025.

TABLE 11 - OTHER OBLIGATIONS

The City is a lessor in various noncancelable leases of land, building, and equipment. During fiscal year 2023, the City recognized $197,884 in lease revenue and $53,136 in interest revenue.

As of September 30, 2023, the City's lease receivable balance of $3,330,780 was comprised of the following:

Governmental Activities	
One building lease with rents received totaling $16,659 during the fiscal year 2023, at an interest rate of 1.20%, with a remaining lease term of 7 years	$ 123,492
One equipment lease with rents received totaling $44,201 during the fiscal year 2023, at an interest rate of 0.58%, with a remaining lease term of 3 years	318,440
One land lease with rents received totaling $18,186 during the fiscal year 2023, at an interest rate of 1.88%, with a remaining lease term of 45 years	859,162
Business-type Activities	
Various land leases with rents received totaling $137,010 during the fiscal year 2023, at an interest rate of 1.47%, with remaining lease terms ranging from 12 to 25 years	2,029,686
	$ 3,330,780

The lease receivables are expected to be received in subsequent years as follows:

	Governmental Activities		Business-Type Activities	
Fiscal Year	Principal	Interest	Principal	Interest
2024	$ 95,352	$ 18,932	$ 124,351	$ 31,670
2025	96,195	18,269	126,281	29,740
2026	96,864	17,600	128,241	27,780
2027	50,625	16,995	130,232	25,789
2028	17,425	16,735	682,128	97,975
2029 - 2033	55,491	80,589	491,547	46,757
2034 - 2038	31,424	77,841	150,226	25,377
2039 - 2043	51,692	73,963	164,782	10,822
2044 - 2048	76,533	67,970	31,898	296
2049 - 2053	106,786	59,393	-	-
2054 - 2058	143,427	47,678	-	-
2059 - 2063	187,597	32,174	-	-
2064 - 2068	240,627	12,110	-	-
2069	51,056	7	-	-
	$ 1,301,094	$ 540,256	$ 2,029,686	$ 296,206

The City has various aeronautical leasing agreements for land leases (54 agreements, 5 Licenses, 72 buildings) and hangar space (27) at Denton Enterprise Airport. These qualify as regulated leases and are not included in the measurement of lease receivables, in accordance with the requirements of GASB Statement No. 87. The City recognized $777,020 (Land Lease) and $157,544 (Hangar Lease) in lease revenue during fiscal year 2023 for these leases, which have CPR increases that range from 1-5 years, dependent on the lease terms ranging from 1-30 years, with some leases having additional options that range from 5-20 years. As of October 1, 2023, the minimum payments expected to be received over the next five years is shown in the table below:

Fiscal Year	
2024	$ 877,754
2025	990,761
2026	1,015,491
2027	1,050,948
2028	1,077,185

Additionally, on January 1, 2023, City of Denton, TX entered into a 48-month lease as Lessee for the use of Employee Health Clinic. An initial lease liability was recorded in the amount of $300,845. As of September 30, 2023, the value of the lease liability is $247,072. The City of Denton, TX is required to make monthly fixed payments of $6,018. The lease has an interest rate of 0.2130%. The value of the right to use asset as of September 30, 2023 of $300,845 with accumulated amortization of $56,408. The City has one extension option(s), each for 12 months.

PENSION FUND . . . The City of Denton participates as one of 901 plans in the defined benefit cash-balance plan administered by the Texas Municipal Retirement System (TMRS). TMRS is statewide public retirement plan created by the State of Texas and administered in accordance with the TMRS Act, Subtitle G, Title 8, Texas Government Code (the TMRS Act) as an agent multiple-employer retirement system for employees of Texas participating cities. The TMRS Act places the general administration and management of the System with a six-member, Governor-appointed board of trustees; however, TMRS is not fiscally dependent on the State of Texas. TMRS issues a publicly-available annual comprehensive financial report obtainable at www.tmrs.com.

All eligible employees of the city are required to participate in TMRS.

Benefits Provided . . . TMRS provides retirement, disability, and death benefits. Benefit provisions are adopted by the governing body of the City, within the options available in the state statutes governing TMRS.

At retirement, the employee's benefit is calculated based on the sum of the employee's contributions with interest, and the city-financed monetary credits with interest. Employees may choose to receive their retirement benefit in one of seven payments options. Employees may also choose to receive a portion of their benefit as a Partial Lump Sum Distribution in an amount equal to 12, 24, or 36 monthly payments, which cannot exceed 75% of the employee's deposits and interest.

Upon retirement, the employee's retirement benefits are calculated based on the sum of the employee's contributions, with interest, and the City-financed monetary credits, with interest. City-financed monetary credits are composed of three sources: prior service credits, current service credits, and updated service credits.

- Prior service credit, granted by each city joining TMRS, is a monetary credit equal to the accumulated value of the percentage of prior service credit selected by the City, multiplied by an employee's contributions that would have been made, based on the average salary prior to TMRS participation, for the number of months the employee was employed by the City before joining TMRS, accruing 3% annual interest and including the matching ratio adopted by the City.
- Current Service Credit is a monetary credit for service performed by an employee after the City joined TMRS and is based on a percent (200%) of the employee's total contributions and interest credits (commonly referred to as the City's matching ratio). Each participating city designates the rate the employee contributions (7% for the City) and interest is credited on contribution balances annually at a guaranteed minimum 5% rate. Any change in the matching ratio would be applied prospectively.
- Updated Service Credits (USC) is an optional monetary credit granted on an annually repeated basis by the City, and it may increase an employee's monthly retirement benefit. In calculating USC, TMRS looks at the changes in the employee's salary over their career and any changes the City has made to its TMRS plan, such as the employee contribution rate or the City's matching ratio. Although USC may increase the employee's retirement benefit, USC does not affect the amount of contributions in an employee's account or the amount an employee will receive if they refund.

The plan provisions also include an annually repeating basis cost of living adjustments for retires equal to 70% of the change in the consumer price index. If an employee terminates employment and refunds their account, the employee will receive their total contributions, plus credited interest. The employee will not receive any of the city-financed monetary credits. An employee can retire at ages 60 and above with 5 or more years of service or with 20 years of service regardless of age. A member is vested after five years.

Employees covered by benefit terms . . . At the December 31, 2022 valuation and measurement date, the following employees were covered by the benefit terms:

Inactive Employees or Beneficiaries Currently Receiving Benefits	884
Inactive Employees Entitled to But Not Yet Receiving Benefits	851
Active Employees	1,355
	3,090

Contributions . . . The contribution rates for employees in TMRS are either 5%, 6%, or 7% of employee gross earnings, and the city matching percentages are either 100%, 150%, or 200%, both as adopted by the City Council. Under the state law governing TMRS, the contribution rate for each city is determined annually by the actuary, using the Entry Age Normal (EAN) actuarial cost method. The City's contribution rate is based on the liabilities created from the benefit plan options selected by the City and any changes in benefits or actual experience over time.

Employees for the City were required to contribute 7% of their annual gross earnings during the fiscal year. The contribution rates for the City were 17.87% and 18.15% in calendar years 2022 and 2023, respectively. The City's contributions to TMRS for the year ended September 30, 2023 were $21,104,072 and were equal to the required contributions.

Net Pension Liability . . . The City's Net Pension Liability ("NPL") was measured as of December 31, 2022, and the Total Pension Liability ("TPL") used to calculate the NPL was determined by an actuarial valuation as of that date.

Actuarial Assumptions . . . The TPL in the December 31, 2022 actuarial valuation was determined using the following actuarial assumptions:

Inflation	2.50% per year
Overall payroll growth	3.50% per year
Investment Rate of Return	6.75%, net of pension plan investment expense, including inflation

Salary increases were based on a service-related table. Mortality rates for active members are based on the PUB(10) mortality tables with the Public Safety table used for males and the General Employee table used for females. Mortality rates for healthy retirees and beneficiaries are based on the gender-distinct 2019 Municipal Retirees of Texas mortality tables. The rates for actives, healthy retirees and beneficiaries are projected on a fully generational basis by Scale UMP to account for future mortality improvements. For disabled annuitants, the same mortality tables for healthy retirees are used with a 4-year set-forward for males and a 3-year set-forward for females. In addition, a 3.5% and 3.0% minimum mortality rate is applied, for males and females respectively, to reflect the impairment for younger members who become disabled. The rates are projected on a fully generational basis by Scale UMP to account for future mortality improvements subject to the floor.

The actuarial assumptions were developed primarily from the actuarial investigation of the experience of TMRS over the four-year period from December 31, 2014 to December 31, 2018. They were adopted in 2019 and first used in the December 31, 2019 actuarial valuation. The post-retirement mortality assumption for healthy annuitants and Annuity Purchase Rate (APRs) are based on the Mortality Experience Investigation Study covering 2009 through 2011 and dated December 31, 2013. Plan assets are managed on a total return basis with an emphasis on both capital appreciation as well as the production of income in order to satisfy the short-term and long-term funding needs of TMRS.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target allocation and best estimates of real rates of return for each major asset class in fiscal year 2023 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (Arithmetic)
Global Equity	35.0%	7.70%
Core Fixed Income	6.0%	4.90%
None-Core Fixed Income	20.0%	8.70%
Real Return	12.0%	8.10%
Real Estate	12.0%	5.80%
Absolute Return	5.0%	6.90%
Private Equity	10.0%	11.80%
Total	100.0%	

Discount Rate . . . The discount rate used to measure the Total Pension Liability was 6.75%. The projection of cash flows used to determine the discount rate assumed that employee and employer contributions will be made at the rates specified in statute. Based on that assumption, the pension plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current active and inactive employees. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability.

Changes in the Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balance at 12/31/2021	$ 600,289,185	$ 560,080,718	$ 40,208,467
Changes for the year:			
Service cost	19,111,021	-	19,111,021
Interest	40,284,903	-	40,284,903
Difference between expected and actual experience	8,678,564	-	8,678,564
Changes of assumptions	-	-	-
Contributions - employer	-	19,140,875	(19,140,875)
Contributions - employee	-	7,670,708	(7,670,708)
Net investment income	-	(40,913,118)	40,913,118
Benefit payments, including refunds of employee contributions	(26,062,628)	(26,062,628)	-
Administrative expense	-	(353,785)	353,785
Other changes	-	422,171	(422,171)
Net changes	42,011,860	(40,095,777)	82,107,637
Balance at 12/31/2022	$ 642,301,045	$ 519,984,941	$ 122,316,104

Sensitivity of the Net Pension Liability to changes in the Discount Rate . . . The following presents the net pension liability of the City, calculated using the discount rate of 6.75%, as well as what the City's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (5.75%) or 1-percentage-point higher (7.75%) than the current rate:

	1% Decrease in Discount Rate (5.75%)	Current Discount Rate (6.75%)	1% Increase in Discount Rate (7.75%)
City's Net Pension Liability	$216,545,504	$122,316,104	$ 45,501,845

Pension Plan Fiduciary Net Position . . . Detailed information about the pension plan's Fiduciary Net Position is available in a separately-issued TMRS financial report. That report may be obtained on the Internet at www.tmrs.com.

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions . . . For the year ended September 30, 2023, the City recognized pension expense of $7,836,233. This amount is included as part of personal services expenses.

At September 30, 2023, the City reported deferred outflows of resources and deferred inflows of resources related to TMRS pension from the following sources:

	Deferred Outflow of Resources	Deferred Inflows of Resources
Differences between projected and actual investment earnings	$ 35,798,004	$ -
Contributions subsequent to the measurement date	15,417,601	-
Differences between expected and actual economic experience	12,641,610	-
Difference in assumption changes	184,942	-
Total	$ 64,042,157	$ -

$15,417,601 reported as deferred outflows of resources related to pensions resulting from contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability for the City's fiscal year ending September 30, 2024. Other amounts reported as deferred outflows and inflows of resources related to pensions will be recognized in pension expense as follows:

For the Year Ended September 30,	
2023	$ 6,707,832
2024	12,989,176
2025	12,449,041
2026	16,478,507
2027	-
Total	$ 48,624,556

FIREMEN'S RELIEF AND RETIREMENT FUND

Plan Description . . . The City contributes to the retirement plan for firefighters in the Denton Fire Department known as the Denton Firemen's Relief and Retirement Fund (the Fund). The Fund is a single employer, contributory, defined benefit plan. The benefit provisions of the Fund are authorized by the Texas Local Fire Fighters' Retirement Act (TLFFRA). TLFFRA provides the authority and procedure to amend benefit provisions. The plan is administered by the Board of Trustees of the Denton Firemen's Relief and Retirement Fund. The City does not have access to nor can it utilize assets within the retirement plan trust. The Fund issues a stand-alone report pursuant to GASB Statement No. 67, which may be obtained by writing the Denton Firemen's Relief and Retirement Fund at P.O. Box 2375, Denton, Texas 76202. See that report for all information about the plan fiduciary net position.

Benefits Provided . . . Firefighters in the Denton Fire Department are covered by the Denton Firemen's Relief and Retirement Fund which provides service retirement, death, disability, and withdrawal benefits. These benefits fully vest after 20 years of credited service. Firefighters may retire at age 50 with 20 years of service. A partially-vested benefit is provided for firefighters who terminate employment with at least 10 but less than 20 years of service. If a terminated firefighter has a partially vested benefit, the firefighter may retire starting on the date they would have both completed 20 years of service if they had remained a Denton firefighter and attained age 50. The present plan effective January 1, 2011 provides a monthly normal service retirement benefit, payable in a Joint and Two-Thirds to Spouse form of annuity, equal to 2.59% of Highest 36-Month Average Salary for each year of service.

A retiring firefighter who is at least age 52 with at least 22 years of service has the option to elect the Retroactive Deferred Retirement Option Plan (RETRO DROP) which will provide a lump sum benefit and a reduced monthly benefit. The reduced monthly benefit is based on the service and Highest 36-Month Average Salary as if the firefighter had terminated employment on their selected RETRO DROP benefit calculation date, which is no earlier than the later of the date the firefighter meets the age 52 and 22 years of service requirements and the date four years prior to the date the firefighter actually retires. Upon retirement, the employee will receive, in addition to the monthly retirement benefit, a lump sum equal to the sum of (1) the amount of monthly contributions the member has made to the Fund after the RETRO DROP benefit calculation date plus (2) the total of the monthly retirement benefits the member would have received between the RETRO DROP benefit calculation date and the date retired under the plan. There are no account balances. The lump sum is calculated at the time of retirement and distributed as soon as administratively possible.

There is no provision for automatic postretirement benefit increases. The Fund has the authority to provide, and has periodically in the past provided, ad hoc postretirement benefit increases.

Employees Covered by Benefit Terms . . . In the December 31, 2021 actuarial valuation, the following numbers of members were covered by the Fund:

Inactive Employees or Beneficiaries Currently Receiving Benefits	92
Inactive Employees Entitled to But Not Yet Receiving Benefits	7
Active Employees	211
	310

Contributions . . . The contribution provisions of the Fund are authorized by TLFFRA. TLFFRA provides the authority and procedure to change the amount of contributions determined as a percentage of pay by each firefighter and a percentage of payroll by the City.

The contribution policy of the Denton Firemen's Relief and Retirement Fund requires contributions equal to 12.6% of pay by the firefighters, the rate elected by the firefighters according to TLFFRA. The City began contributing in December 2017 according to a new City funding policy. The ordinance defining it includes an actuarially determined contribution rate over a closed 25-year amortization period, a contribution rate of 18.5% for several years, a minimum rate standard, and City review and approval of each actuarial valuation. The December 31, 2022 actuarial valuation includes the assumption the City contribution rate will be 18.5% over the unfunded liability amortization period. The costs of administering the plan are paid from the Fund assets. The City's contributions to the Fund for the year ended September 30, 2023 were $4,804,198.

Ultimately, the funding policy also depends upon the total return of the Fund's assets, which varies from year to year. Investment policy decisions are established and maintained by the board of trustees. For the calendar year ending December 31, 2022, the money-weighted rate of return on pension plan investments was 17.93%. This measurement of the investment performance is net of investment-related expenses, reflecting the effect of the timing of the contributions received and the benefits paid during the year.

While the contribution requirements are not actuarially determined, state law requires that each change in plan benefits adopted by the Fund must first be approved by an eligible actuary, certifying the contribution commitment by the firefighters and the assumed city contribution rate together provide an adequate contribution arrangement. Using the entry age actuarial cost method, the plan's normal cost contribution rate is determined as a percentage of payroll. The excess of the total contribution rate over the normal cost contribution rate is used to amortize the plan's unfunded actuarial accrued liability (UAAL). The number of years needed to amortize the plan's UAAL is actuarially determined using an open, level percentage of payroll method.

Net Pension Liability . . . The City of Denton's net pension liability was measured as of December 31, 2022, and the total pension liability used to calculate the net pension liability was determined based on the actuarial valuation as of December 31, 2022.

Total Pension Liability	$ 152,376,252
Plan fiduciary net position	136,802,800
City's net pension liability	15,573,452
Plan fiduciary net position as a percentage of the total pension liability	89.8%

Actuarial Assumptions . . . The total pension liability in the December 31, 2021 actuarial valuation was determined using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.50% per year
Overall payroll growth	3.00% per year, plus promotion, step and longevity increases that vary by service
Investment Rate of Return	6.75%, net of pension plan investment expense, including inflation

Mortality rates were based on the PubS-2010 (public safety) total dataset mortality tables employees and for retirees (sex distinct), projected for mortality improvement generationally using the projection scale MP-2019.

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The long-term expected rate of return on pension plan investments is reviewed for each biennial actuarial valuation and was determined using a building-block method in which expected future net real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These components are combined to produce the long-term expected rate of return by weighting the expected future net real rates of return by the target asset allocation percentage (currently resulting in 4.96%) and by adding expected inflation (2.5%). In addition, the final 6.75% assumption was selected by "rounding down" and thereby reflects a reduction of 0.71% for adverse deviation. The target allocation and expected arithmetic net real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (Arithmetic)
Equities		
Large Cap Domestic	40.0%	6.00%
Small/Mid Cap Domestic	10.0%	6.50%
International Developed	10.0%	6.50%
Alternatives		
Master Limited Partnerships	8.0%	6.50%
Real Estate	15.0%	4.50%
Fixed Income	15.0%	1.00%
Cash	2.0%	0.00%
Total	100.0%	
Weighted Average		4.96%

Discount Rate . . . The discount rate used to measure the total pension liability was 6.75%. No projection of cash flows was used to determine the discount rate because the December 31, 2022 actuarial valuation showed expected contributions would pay the normal cost and amortize the unfunded actuarial accrued liability (UAAL) in nine years. Because of the nine-year amortization period of the UAAL, the pension plan's fiduciary net position is expected to be available to make all projected future benefit payments of current active and inactive members. Therefore, the long-term expected rate of return on pension plan investments of 6.75% was applied to all periods of projected benefit payments as the discount rate to determine the total pension liability.

Changes in Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
Balance at 12/31/2021	$ 142,439,646	$ 140,537,577	$ 1,902,069
Changes for the year:			
Service cost	4,965,768	-	4,965,768
Interest	9,787,310	-	9,787,310
Change of benefit terms	-	-	-
Difference between expected and actual experience	-	-	-
Contributions - employer	-	4,545,905	(4,545,905)
Contributions - employee	-	3,096,130	(3,096,130)
Net investment income	-	(6,446,061)	6,446,061
Benefit payments, including refunds of employee contributions	(4,816,472)	(4,816,472)	-
Administrative expense	-	(114,279)	114,279
Net changes	14,106,818	(3,734,777)	(9,232,620)
Balance at 12/31/2022	$ 142,439,646	$ 136,802,800	$ (7,330,551)

Sensitivity of the Net Pension Liability to Changes in the Discount Rate . . . The following presents the net pension liability of the City of Denton, calculated using the discount rate of 6.75%, as well as what the city's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (5.75%) or 1-percentage-point higher (7.75%) than the current rate:

	1% Decrease in Discount Rate (5.75%)	Current Discount Rate (6.75%)	1% Increase in Discount Rate (7.75%)
City's Net Pension Liability	$35,273,538	$15,573,452	$ (884,561)

Pension Plan Fiduciary Net Position . . . The plan fiduciary net position reported above is the same as reported by the Fund. Detailed information about the plan fiduciary net position is available in the Fund's separately issued audited financial statements, which are reported using the economic resources measurement focus and the accrual basis of accounting in conformity with accounting principles generally accepted in the United States of America. Revenues are recorded when earned, and expenses are recorded when a liability is incurred, regardless of the timing of the related cash flows. Investments are reported at fair value, the price that would be recognized to sell an asset in an orderly transaction between market participants at the measurement date.

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions . . . For the year ended September 30, 2023, the City recognized negative pension expense of $2,336,612. Amounts recognized in the fiscal year represent changes between the current and prior year measurement dates. This amount is included as part of personnel services expenses.

At September 30, 2023, the City reported deferred outflows of resources and deferred inflows of resources related to the Fund from the following sources:

	Deferred Outflow of Resources	Deferred Inflows of Resources
Differences between projected and actual investment earnings	$ 933,280	$ -
Contributions subsequent to the measurement date	3,506,747	-
Differences between expected and actual economic experience	5,407,801.00	(375,549)
Difference in assumption changes	2,417,951	-
Total	$ 12,265,779	$ (375,549)

Deferred outflows of resources related to pensions resulting from contributions subsequent to the measurement date of $3,506,747 will be recognized as a reduction of the net pension liability for the measurement year ending December 31, 2023 and the City's fiscal year ending September 30, 2024. Other amounts reported as deferred outflows and inflows of resources related to pensions will be recognized in pension expense (income) as follows:

For the Year Ended September 30,	
2024	$ (1,057,188)
2025	780,350
2026	1,812,996
2027	4,392,413
2028	1,042,326
Thereafter	1,412,586
Total	$ 8,383,483

OTHER POST EMPLOYMENT BENEFITS . . . The City of Denton provides for two post-employment benefit (OPEB) plans; one provides for postemployment medical care through a single-employer defined benefit medical plan (Medical OPEB), and the other is the Texas Municipal Retirement System Supplemental Death Benefits Fund (TMRS SDBF), a single-employer defined benefit OPEB plan. Both plans are described in detail following.

Aggregate amounts for the two OPEB plans are as follows:

	Medical OPEB	TMRS SDBF	Total
Total OPEB Liability	$ 41,482,438	$ 3,732,019	$ 45,214,457
Deferred outflows of resources	$ 5,630,418	$ 1,014,418	6,644,836
Deferred inflows of resources	12,622,440	1,895,755	14,518,195
OPEB expense	3,228,576	265,055	3,493,631

Plan Description . . . The City of Denton provides post-employment medical care (OPEB) for retired employees through a single-employer defined benefit medical plan. The plan provides medical benefits for eligible retirees, their spouses and dependents though the City's group health insurance plans, which covers both active and retired members. The benefits, benefit levels, and contribution rates are recommended annually by the City management as part of the budget process. Any changes in rate subsidies for retirees are approved by the City Council. Since an irrevocable trust has not been established, the plan is not accounted for as a trust fund. The plan does not issue a separate financial report.

Benefits Provided . . . The City provides post-employment medical, dental, and vision care benefits to its retirees. To be eligible for benefits, an employee must qualify for retirement under the Texas Municipal Retirement System or the Denton Firemen's Relief and Retirement Plan. Retirees must make a one-time irrevocable decision to choose benefits at the time of retirement, after that their eligibility for the benefits ceases. However, retirees can move between plans and can add and drop dependents based on qualifying events.

All medical care benefits are provided through the City's self-insured health plan. The benefit levels are the same as those afforded to active employees.

In the December 31, 2022 actuarial valuation, the following number of employees were covered by the benefit terms:

Inactive Employees or Beneficiaries Currently Receiving Benefits	249
Active Employees	1,540
	1,789

Funding Policy . . . The plan premium rates are recommended annually by City management and approved by the City Council as part of the annual budget. The retiree's contribution is the full amount of the actuarially determined blended premium rate less a subsidy dependent upon years of service at retirement. By providing retirees with access to the City's healthcare plans based on the same rates it charges to active employees, the City is in effect providing a subsidy to retirees. This implied subsidy exists because, on average, retiree health care costs are higher than active employee healthcare costs. By the City not contributing anything toward this plan in advance, the City employs a pay-as-you-go method through paying the higher rate for active employees each year. The City contributes $40 per month for each five-year increment of service, up to $200 per month, toward the cost of retiree coverage. The full cost for dental and vision is paid by the retiree. Retirees are required to enroll in Medicare Part B once eligible (age 65) and are moved into a fully-insured Medicare Supplement plan at that time. The same City contribution level applies to the supplement.

Medical OPEB Liability. . . The City's medical OPEB liability of $41,482,438 was measured as of December 31, 2022, the same date as the actuarial valuation.

The medical OPEB liability in the December 31, 2022 actuarial valuation was determined using the following actuarial assumptions and other inputs, applied to all periods included in the measurement, unless otherwise specified.

Significant method and assumptions used for this fiscal year valuation were as follows:

Valuation Date	December 31, 2021
Actuarial cost method	Individual Entry-Age Normal Method
Discount Rate	2.75% as of December 31, 2019 1.84% as of December 31, 2021 4.05% as of December 31, 2022
Inflation Rate	2.50% per annum
Projected salary increases	3.50% to 11.50% for TMRS, including inflation 3.00% to 9.18% for Fire, including inflation
Healthcare trend rates	Initial rate of 7.00% declining to an ultimate rate of 4.15% after 13 years
Mortality	**TMRS:** For healthy retirees, the gender-distinct 2019 Municipal Retirees of Texas mortality tables are used. The rates are projected on a fully generational basis using the ultimate mortality improvement rates in the MP tables to account for future mortality improvements. **Firefighters**: The gender-distinct PubS-2010 (safety employees) total data set mortality are used. The rates are projected on a fully generational basis using the projection scale of MP-2019.
Participation Rates	65% for employees retiring at age 65 or older: 45% for employees retiring between the ages 50 and 64; 5% for employees retiring between the ages of 45 and 49; 0% for retirees under the age 50 at retirement

Changes in the Medical OPEB Liability

	Total Medical OPEB Liability
Balance at 12/31/2021	$ 49,266,518
Changes for the year:	
Service cost	3,282,530
Interest	921,256
Difference between expected and actual experience	(42,650)
Changes of assumptions	(10,266,201)
Benefit payments	(1,679,015)
Net Changes	(7,784,080)
Balance at 12/31/2022	$ 41,482,438

Total OPEB liability as a percentage of covered payroll was 30.13%.

Sensitivity of the Medical OPEB Liability to Changes in the Discount Rate

The following schedule shows the impact of the medical OPEB liability if the discount rate used was 1% less than (3.05%) and 1% greater than (4.05%) the discount rate that was used (5.05%) in measuring the medical OPEB liability:

	1% Decrease (3.05%)	Current Discount Rate (4.05%)	1% Increase (5.05%)
Total medical OPEB Liability	$45,753,482	$ 41,482,438	$37,735,595

Sensitivity of the Medical OPEB Liability to Changes in the Healthcare Cost Trend Rate Assumption

The following schedule shows the impact of the medical OPEB liability if the healthcare trend cost rate used was 1% less than (6.00%) and 1% more than (8.00%) the healthcare cost trend rate that was used (7.00%) in measuring the medical OPEB liability:

	1% Decrease (6.00%)	Current Healthcare Cost Trend Rate (8.00%)	1% Increase (7.00%)
Total medical OPEB Liability	$38,111,505	$ 41,482,438	$45,474,336

Medical OPEB Expense and Deferred outflows of Resources and Deferred Inflows of Resources Related to Medical OPEB

For the year ended September 30, 2023, the City recognized medical OPEB expense of $265,055. At September 30, 2023, the City reported deferred outflows of resources and deferred inflows of resources related to medical OPEB from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual economic experience	$ 217,802	$ 1,914,043
Changes in actuarial assumptions	3,890,791	10,708,397
Contribution subsequent to the measurement date	1,521,825	-
Totals	$ 5,630,418	$ 12,622,440

Deferred outflows of resources related to OPEB contributions subsequent to the measurement date of $1,521,825 will be recognized as a reduction of the medical OPEB liability for the City's fiscal year ending September 30, 2024. Other amounts reported as deferred outflows of resources related to the medical OPEB will be recognized in OPEB expense as follows:

Year Ending September 30,	
2024	$ (975,210)
2025	(975,210)
2026	(983,003)
2027	(1,198,753)
2028	(994,385)
Thereafter	(3,387,286)
Total	$ (8,513,847)

Supplemental Death Benefit Fund . . . The City of Denton voluntarily participates in the Texas Municipal Retirement System Supplemental Death Benefits Fund (TMRS SDBF). The SDBF is a defined benefit group-term life insurance Other Postemployment Benefit (OPEB) plan as defined by GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. No assets are accumulated in a trust that meets the criteria in paragraph 4 of GASB Statement No. 75. It is established and administered in accordance with the TMRS Act identically to the City's pension plan.

Benefits provided . . . The SDBF provides group-term life insurance to City employees who are active members in TMRS, including or not including retirees. The City Council opted into this system via an ordinance, and may terminate coverage under, and discontinue participation in, the SDBF by adopting an ordinance before November 1st of any year to be effective the following January 1st.

Payments from this fund are similar to group-term life insurance benefits and are paid to the designated beneficiaries upon the receipt of an approved application for payment. The death benefit for active employees provides a lump-sum payment approximately equal to the employee's annual salary (calculated based on the employee's actual earnings for the 12-month period preceding the month of death). The death benefit for retirees is considered an "other postemployment benefit" (OPEB) and is a fixed amount of $7,500. As the SDBF covers both active and retiree participants with no segregation of assets, the SDBF is considered to be an unfunded OPEB plan.

In the December 31, 2022 actuarial valuation, the following number of employees were covered by the benefit terms:

Inactive Employees or Beneficiaries Currently Receiving Benefits	647
Inactive Employees entitled to but not yet receiving benefits	217
Active Employees	1,323
	2,187

The City contributes to the SDBF at a contractually required rate as determined by an annual actuarial valuation, which was 0.28% for 2023 and 0.18% for 2022, of which 0.10% for 2023 and 0.09% for 2022, represented the retiree-only portion for each year, as a percentage of annual covered payroll. The rate is equal to the cost of providing one-year term life insurance. The funding policy for the SDBF program is to assure that adequate resources are available to meet all the death benefit payments for the upcoming year; the intent is not to prefund retiree term life insurance during employees' entire careers. The City's contribution to the SDBF for two years ended September 30, 2023 and 2022 were $300,164 and $190,063 respectively, representing contributions for both active and retiree coverage, which equaled the required contribution each year.

FINANCIAL INFORMATION

TABLE 12 - CHANGES IN NET POSITION OF GOVERNMENTAL ACTIVITIES

	Fiscal Year Ended September 30,				
Revenues:	2023	2022	2021	2020	2019
Program Revenue:					
Charges for Services	$ 23,704,503	$ 25,203,727	$ 18,751,972	$ 17,442,268	$ 20,276,028
Operating Grants and Contributions	10,623,546	9,545,392	8,607,304	8,991,320	4,092,532
Capital Grants and Contributions	27,351,806	34,406,757	23,945,640	34,911,879	28,085,591
General Revenue:					
Property Tax	92,185,668	79,552,638	78,243,553	75,431,860	71,351,314
Sales Tax	55,906,340	53,264,724	45,404,857	39,337,834	38,330,825
Other Taxes/Fees	43,582,046	42,503,178	35,648,023	32,100,345	29,873,654
Miscellaneous	17,283,086	7,125,797	5,876,421	7,111,569	10,119,145
Total Revenue	$ 270,636,995	$ 251,602,213	$ 216,477,770	$ 215,327,075	$ 202,129,089
Expenditures:					
General Government	$ 53,383,319	$ 40,369,454	$ 37,401,990	$ 37,921,928	$ 39,051,942
Public Safety	104,695,335	87,970,791	93,415,418	82,119,480	77,883,435
Public Works	39,086,849	25,489,369	14,063,366	26,049,847	24,502,864
Parks and Recreation	28,096,065	22,787,282	19,295,206	15,759,371	17,710,634
Interest on Long-Term Debt	10,198,425	8,571,877	7,380,293	6,757,736	6,750,917
Total Expenses	$ 235,459,993	$ 185,188,773	$ 171,556,273	$ 168,608,362	$ 165,899,792
Increase in Net Position before Transfers	$ 35,177,002	$ 66,413,440	$ 44,921,497	$ 46,718,713	$ 36,229,297
Transfers	4,017,015	2,913,731	1,975,432	1,296,624	1,018,664
Increase (Decrease) in Net Position	$ 39,194,017	$ 69,327,171	$ 46,896,929	$ 48,015,337	$ 37,247,961
Prior Period Adjustment	-	9,072,792 (2)	-	-	-
Net Position at Beginning of Year	407,093,261	328,693,298	281,796,369	233,781,032	196,533,071
Net Position at End of Year	$ 446,287,278 (1)	$ 407,093,261	$ 328,693,298	$ 281,796,369	$ 233,781,032

(1) Unrestricted net position, that part of the net position that may be used to meet the City's ongoing obligations, was ($9,172,313) as of September 30, 2023. This table refers to governmental activities only and does not include enterprise funds such as solid waste or utility activities.
(2) An adjustment has been recorded to account for the recognition of intergovernmental revenues received in advance and held as an unearned revenue liability.

TABLE 12A - GENERAL FUND REVENUES AND EXPENDITURE HISTORY

	Fiscal Year Ended September 30,				
Revenues:	2023	2022	2021	2020	2019
Taxes	$ 113,955,253	$ 102,491,584	$ 95,276,289	$ 88,273,338	$ 85,149,284
Licenses and Permits	6,049,752	9,058,717	5,939,320	5,225,128	3,889,820
Franchise Fee	22,851,663	19,910,133	17,961,984	16,196,987	13,443,408
Fines and Forfeitures	1,961,982	1,875,399	1,572,587	2,279,771	3,651,697
Fees for Service	9,662,872	9,630,662	9,354,890	6,803,459	6,981,182
Interest Revenue	2,587,602	(127,267)	160,094	793,413	1,114,348
Intergovernmental	2,961,572	2,508,006	4,166,856	5,075,506	1,339,188
Miscellaneous	342,941	322,173	385,998	313,541	470,502
Total Revenues	$ 160,373,637	$ 145,669,407	$ 134,818,018	$ 124,961,143	$ 116,039,429
Expenditures:					
General Government	$ 33,498,179	$ 26,563,210	$ 26,460,924	$ 26,969,064	$ 29,967,473
Public Safety	96,317,917	86,682,395	80,847,727	75,985,961	68,174,782
Public Works	3,454,541	2,956,465	2,919,114	3,021,395	3,035,748
Parks and Recreation	15,781,789	13,308,304	11,259,612	8,872,556	9,786,783
Capital Outlay	475,410	540,289	476,296	442,932	737,271
Debt Service: Principal Retirement	-	-	-	-	4,171
Total Expenditures	$ 149,527,836	$ 130,050,663	$ 121,963,673	$ 115,291,908	$ 111,706,228
Excess (Deficiency) of Revenues Over Expenditures	$ 10,845,801	$ 15,618,744	$ 12,854,345	$ 9,669,235	$ 4,333,201
Other Financing Sources (Uses):					
Transfers In	$ 25,750	$ 2,728	$ 33,964	$ -	$ -
Sale of Capital Assets	198,474	568,128	326,682	112,824	17,033
Transfers (Out)	(11,929,049)	(9,230,186)	(8,497,210)	(6,738,692)	(3,928,775)
Total Other Financing Sources (Uses)	$ (11,704,825)	$ (8,659,330)	$ (8,136,564)	$ (6,625,868)	$ (3,911,742)
Net Changes in Fund Balance	$ (859,024)	$ 6,959,414	$ 4,717,781	$ 3,043,367	$ 421,459
Fund Balance at Beginning of Year	45,459,406	38,499,992	33,782,211	30,738,844	30,317,385
Fund Balance at End of Year	$ 44,600,382	$ 45,459,406	$ 38,499,992	$ 33,782,211	$ 30,738,844

TABLE 13 - MUNICIPAL SALES TAX HISTORY

The City has adopted the Municipal Sales and Use Tax Act, Texas Tax Code, Chapter 321, which grants the City the power to impose and levy a 1% Local Sales and Use Tax within the City; the proceeds are credited to the General Fund and are not pledged to the payment of the Obligations. Collections and enforcements are effected through the offices of the Comptroller of Public Accounts, State of Texas, who remits the proceeds of the tax, after deduction of a 2% service fee, to the City monthly. In January 1994, the voters of the City approved the imposition of an additional one-half of one percent (½ of 1%) for property tax reduction. In September 2003, the voters of the City approved the imposition of an additional one-half of one percent (½ of 1%) for the Denton County Transportation Authority. The implementation of this tax began January 2004, and is allocated directly to the Denton County Transportation Authority.

Fiscal Year Ended 9/30	Total Collected [1]	% of Ad Valorem Tax Levy	Equivalent of Ad Valorem Tax Rate	Per Capita
2020	$ 39,337,834	52.47%	$ 0.3117	$ 279
2021	45,404,857	58.40%	0.3343	316
2022	53,264,724	67.10%	0.3698	362
2023	55,906,340	60.93%	0.3343	371
2024 [2]	27,466,355	25.49%	0.1429	182

(1) Source: City of Denton Annual Program of Services.
(2) Collections through April 1, 2024.

The sales tax breakdown for the City is as follows:

Property Tax Relief	0.50¢
Denton County Transportation Authority	0.50¢
City Sales & Use Tax	1.00¢
State Sales & Use Tax	6.25¢
Total	8.25¢

FINANCIAL POLICIES

Basis of Accounting . . . The accounting policies of the City conform to generally accepted accounting principles of the Governmental Accounting Standards Board and program standards adopted by the Government Finance Officers Association of the United States and Canada. The GFOA has awarded a Certificate of Achievement for Excellence in Financial Reporting to the City of Denton for each fiscal year since 1983. The City's current report will be submitted to GFOA to determine its eligibility for another Certificate.

The City has also received the GFOA's award for Distinguished Budget Presentation each year since 1986.

The measurement focuses for the Enterprise Funds, Internal Service Funds and Nonexpendable Trust Funds are income determination and cost of service, respectively. Accordingly, the accrual basis, whereby revenues and expenses are identified in the accounting period in which they are earned and incurred and net income, is utilized for these funds. The modified accrual basis, whereby revenues are recognized when they become both measurable and available for use during the year and expenditures are recognized when the related fund liability is incurred, is used for all other funds.

Fund Balance Policy . . .The City strives to achieve and maintain and unassigned fund balance in the General Fund equal to 20% of budgeted expenditures. An additional 5% resiliency reserve (25% combined total) may be maintained to safeguard against unusual financial circumstances or economic downturns.

Budgetary Procedures . . . As prescribed by City Charter, the City Manager, within the time period required by law, submits to the City Council a proposed budget for the fiscal year beginning the following October 1. The budget includes proposed expenditures and revenues required to fund the expenditures. Following Council considerations, amendments and refinements, a public hearing is ordered and conducted for the purpose of obtaining taxpayer comments. The budget is finally approved and adopted by passage of an ordinance by the City Council prior to the beginning of the fiscal year. The budget is adopted on a basis consistent with generally accepted accounting principles. It is the goal of the City to achieve and maintain an unassigned fund balance in the general fund equal to 20% of budgeted expenditures. An additional 5% resiliency reserve (25% combined total) may be maintained to safeguard against unusual financial circumstances and/or economic downturns.

INVESTMENTS

The City invests its investable funds in investments authorized by Texas law in accordance with investment policies approved by the City Council. Both Texas law and the City's investment policies are subject to change.

LEGAL INVESTMENTS . . . Under State law, the City is authorized to invest in: (1) obligations, including letters of credit, of the United States or its agencies and instrumentalities, including the Federal Home Loan Banks; (2) direct obligations of the State or its agencies and instrumentalities; (3) collateralized mortgage obligations issued by a federal agency or instrumentality of the United States, the underlying security for which is guaranteed by an agency or instrumentality of the United States; (4) other obligations, the principal and interest of which are unconditionally guaranteed or insured by, or backed by the full faith and credit of, the State or the United States or their respective agencies and instrumentalities, including obligations that are fully guaranteed or insured by the Federal Deposit Insurance Corporation (the "FDIC") or by the explicit full faith and credit of the United States; (5) obligations of states, agencies, counties, cities, and other political subdivisions of any state rated as to investment quality by a nationally recognized investment rating firm not less than A or its equivalent; (6) bonds issued, assumed, or guaranteed by the State of Israel; (7) interest-bearing banking deposits that are guaranteed or insured by the FDIC or the National Credit Union Share Insurance Fund (the "NCUSIF") or their respective successors; (8) interest-bearing banking deposits, other than those described in clause (7), that (i) are invested through a broker or institution with a main office or branch office in this state and selected by the City in compliance with the PFIA, (ii) the broker or institution arranges for the deposit of the funds in one or more federally insured depository institutions, wherever located, for the City's account, (iii) the full amount of the principal and accrued interest of the banking deposits is insured by the United States or an instrumentality of the United States, and (iv) the City appoints as its custodian of the banking deposits, in compliance with the PFIA, the institution in clause (8)(i) above, a bank, or a broker-dealer; (9) certificates of deposit and share certificates meeting the requirements of the PFIA (i) that are issued by an institution that has its main office or a branch office in the State and are guaranteed or insured by the FDIC or the NCUSIF, or their respective successors, or are secured as to principal by obligations described in clauses (1) through (8), above, or secured in accordance with Chapter 2257, Texas Government Code, or in any other manner and amount provided by law for City deposits, or (ii) where (a) the funds are invested by the City through a broker or institution that has a main office or branch office in the State and selected by the City in compliance with the PFIA, (b) the broker or institution arranges for the deposit of the funds in one or more federally insured depository institutions, wherever located, for the account of the City, (c) the full amount of the principal and accrued interest of each of the certificates of deposit is insured by the United States or an instrumentality of the United States; and (d) the City appoints, in compliance with the PFIA, the institution in clause (9)(ii)(a) above, a bank, or broker-dealer as custodian for the City with respect to the certificates of deposit; (10) fully collateralized repurchase agreements that have a defined termination date, are secured by a combination of cash and obligations described by clauses (1) or (12), which are pledged to the City, held in the City's name, and deposited at the time the investment is made with the City or with a third party selected and approved by the City, and are placed through a primary government securities dealer, as defined by the Federal Reserve, or a financial institution doing business in the State; (11) certain bankers' acceptances with a stated maturity of 270 days or less, if the short-term obligations of the accepting bank, or of the holding company of which the bank is the largest subsidiary, are rated not less than A-1 or P-1 or the equivalent by at least one nationally recognized credit rating agency; (12) commercial paper with a stated maturity of 365 days or less that is rated at least A-1 or P-1 or an equivalent by either (i) two nationally recognized credit rating agencies, or (ii) one nationally recognized credit rating agency if the commercial paper is fully secured by an irrevocable letter of credit issued by a United States or state bank; (13) no-load money market mutual funds registered with and regulated by the Securities and Exchange Commission and complies with Securities and Exchange Commission Rule 2a-7; (14) no-load mutual funds that are registered and regulated by the Securities and Exchange Commission that have a weighted maturity of less than two years and either (i) have a duration of one year or more and are invested exclusively in obligations approved in this paragraph, or (ii) have a duration of less than one year and the investment portfolio is limited to investment grade securities, excluding asset backed securities; (15) guaranteed investment contracts that have a defined termination date and are secured by obligations described in clause (1), excluding obligations which the City is explicitly prohibited from investing in, and in an amount at least equal to the amount of bond proceeds invested under such contract; and (16) securities lending programs if (i) the securities loaned under the program are 100% collateralized, including accrued income, (ii) a loan made under the program allows for termination at any time, (iii) a loan made under the program is either secured by (a) obligations described in clauses (1) through (8) above, (b) irrevocable letters of credit issued by a state or national bank that is continuously rated by a nationally recognized investment rating firm at not less than A or its equivalent, or (c) cash invested in obligations described in clauses (1) through (8) above, clauses (12) through (14) above, or an authorized investment pool, (iv) the terms of a loan made under the program require that the securities being held as collateral be pledged to the City, held in the City's name, and deposited at the time the investment is made with the City or with a third party designated by the City, (v) a loan made under the program is placed through either a primary government securities dealer or a financial institution doing business in the State, and (vi) the agreement to lend securities has a term of one year or less.

The City may invest in such obligations directly or through government investment pools that invest solely in such obligations provided that the pools are rated no lower than "AAA" or "AAA-m" or an equivalent by at least one nationally recognized rating service. The City may also contract with an investment management firm registered under the Investment Advisers Act of 1940 (15 U.S.C. Section 80b-1 et seq.) or with the State Securities Board to provide for the investment and management of its public funds or other funds under its control for a term up to two years, but the City retains ultimate responsibility as fiduciary of its assets. In order to renew or extend such a contract, the City must do so by order, ordinance, or resolution.

The City if specifically prohibited from investing in (1) obligations whose payment represents the coupon payments on the outstanding principal balance of the underlying mortgage-backed security collateral and pays no principal (2) obligations whose payment represents the principal stream of cash flow from the underlying mortgage-backed security and bears no interest (3) collateralized mortgage obligations that have a stated final maturity of greater than 10 years and (4) collateralized mortgage obligations the interest rate of which is determined by an index that adjusts opposite to the changes in a market index.

INVESTMENT POLICIES . . . Under Texas law, the City is required to invest its funds under written investment policies that primarily emphasize safety of principal and liquidity; that address investment diversification, yield, maturity, and the quality and capability of investment management; and that includes a list of authorized investments for City funds, maximum allowable stated maturity of any individual investment, the maximum average dollar-weighted maturity allowed for pooled fund groups, methods to monitor the market price of investments acquired with public funds, a requirement for settlement of all transactions, except investment pool funds and mutual funds, on a delivery versus payment basis, and procedures to monitor rating changes in investments acquired with public funds and the liquidation of such investments consistent with the Public Funds Investment Act. All City funds must be invested consistent with a formally adopted "Investment Strategy Statement" that specifically addresses each funds' investment. Each Investment Strategy Statement will describe its objectives concerning: (1) suitability of investment type, (2) preservation and safety of principal, (3) liquidity, (4) marketability of each investment, (5) diversification of the portfolio, and (6) yield.

Under Texas law, City investments must be made "with judgment and care, under prevailing circumstances, that a person of prudence, discretion, and intelligence would exercise in the management of the person's own affairs, not for speculation, but for investment, considering the probable safety of capital and the probable income to be derived." At least quarterly the investment officers of the City shall submit an investment report detailing: (1) the investment position of the City, (2) that all investment officers jointly prepared and signed the report, (3) the beginning market value, the ending market value and the fully accrued interest during the reporting period of each pooled fund group, (4) the book value and market value of each separately listed asset at the end of the reporting period, (5) the maturity date of each separately invested asset, (6) the account or fund or pooled fund group for which each individual investment was acquired, and (7) the compliance of the investment portfolio as it relates to: (a) adopted investment strategy statements and (b) state law. No person may invest City funds without express written authority from the City Council.

Effective September 1, 2019, the investment officer of a local government is allowed to invest bond proceeds or pledged revenue only to the extent permitted by the PFIA and in accordance with (i) statutory provisions governing the debt issuance (or lease, installment sale, or other agreement) and (ii) the local government's investment policy regarding the debt issuance or the agreement.

ADDITIONAL PROVISIONS . . Under Texas law the City is additionally required to: (1) annually review its adopted policies and strategies; (2) adopt a rule, order, ordinance or resolution stating that it has reviewed its investment policy and investment strategies and records any changes made to either its investment policy or investment strategy in the respective rule, order, ordinance or resolution; (3) require any investment officers with personal business relationships or relatives with firms seeking to sell securities to the City to disclose the relationship and file a statement with the Texas Ethics Commission and the City Council; (4) require the registered principal of firms seeking to sell securities to the City to: (a) receive and review the City's investment policy, (b) acknowledge that reasonable controls and procedures have been implemented to preclude investment transactions conducted between the City and the business organization that are not authorized by the City's investment policy (except to the extent that this authorization is dependent on an analysis of the makeup of the City's entire portfolio or requires an interpretation of subjective investment standards), and (c) deliver a written statement attesting to these requirements; (5) perform an annual audit of the management controls on investments and adherence to the City's investment policy; (6) provide specific investment training for the Treasurer, Chief Financial Officer and investment officers; (7) restrict reverse repurchase agreements to not more than 90 days and restrict the investment of reverse repurchase agreement funds to no greater than the term of the reverse repurchase agreement; (8) restrict the investment in no-load mutual funds in the aggregate to no more than 15% of the entity's monthly average fund balance, excluding bond proceeds and reserves and other funds held for debt service; (9) require local government investment pools to conform to the new disclosure, rating, net asset value, yield calculation, and advisory board requirements; and (10) at least annually review, revise, and adopt a list of qualified brokers that are authorized to engage in investment transactions with the City.

TABLE 14- CURRENT INVESTMENTS [1]

As of April 1, 2024, the City's available funds were invested as follows:

Description	Market Value Percent	Market Value	Book Value
Treasury Securities	35.18%	$ 241,055,000	$ 241,645,572
Federal Agency Issues - Coupon	20.85%	142,879,823	143,038,519
Federal Agency Issues - Callable	7.20%	49,360,370	49,346,554
Commercial Paper	10.04%	68,800,700	68,823,839
Local Government Inv. Pool- TexSTAR	6.41%	43,935,217	43,935,217
Local Government Inv. Pool- TexPool	14.60%	100,000,000	100,000,000
Demand Deposits/Wells Fargo [2]	5.05%	34,572,609	34,572,609
Municipal Bonds-Coupon	0.66%	4,542,021	4,553,036
	100.00%	$ 685,145,740	$ 685,915,346

(1) There are no City funds invested in derivative securities, i.e., securities whose rate of return is determined by reference to some other instrument, index or commodity.
(2) Insured up to the FDIC limit with uninsured amounts collateralized by U.S. federal agency securities at a minimum of 102% of principal plus accrued interest.

TexSTAR is a local government investment pool for whom Hilltop Securities Asset Management, Inc. provides customer service and marketing for the pool. TexSTAR currently maintains a "AAAm" rating from Standard & Poor's and has an investment objective of achieving and maintaining a stable net asset value of $1.00 per share. Daily investments or redemptions of funds is allowed by the participants.

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TAX MATTERS

OPINIONS

The Certificates . . . On the date of initial delivery of the Certificates, McCall, Parkhurst and Horton L.L.P., Dallas, Texas, Bond Counsel to the City, will render its opinion that, in accordance with Existing Law, (1) interest on the Certificates for federal income tax purposes will be excludable from the "gross income" of the holders thereof and (2) the Certificates will not be treated as "specified private activity bonds" the interest on which would be included as an alternative minimum tax preference item under section 57(a)(5) of the Code. Except as stated above, Bond Counsel to the City will express no opinion as to any other federal, state or local tax consequences of the purchase, ownership or disposition of the Certificates. See Appendix C – Forms of Bond Counsel's Opinions.

The Bonds . . . On the date of initial delivery of the Bonds, Bond Counsel to the City, will render its opinion that, in accordance with statutes, regulations, published rulings and court decisions existing on the date thereof ("Existing Law"), (1) interest on the Bonds for federal income tax purposes will be excludable from the "gross income" of the holders thereof and (2) the Bonds will not be treated as "specified private activity bonds" the interest on which would be included as an alternative minimum tax preference item under section 57(a)(5) of the Internal Revenue Code of 1986 (the "Code"). Except as stated above, Bond Counsel to the City will express no opinion as to any other federal, state or local tax consequences of the purchase, ownership or disposition of the Bonds. See Appendix C – Forms of Bond Counsel's Opinions.

In rendering each of the foregoing opinions, Bond Counsel to the City will rely upon (a) certain information and representations of the City, including information and representations contained in the City's federal tax certificate with respect to each Obligation issue, and (b) covenants of the City contained in the Obligation documents relating to certain matters, including arbitrage and the use of the proceeds of the Obligations and the property financed or refinanced therewith. Failure by the City to observe the aforementioned representations or covenants could cause the interest on the Obligations to become taxable retroactively to the date of issuance.

The Code and the regulations promulgated thereunder contain a number of requirements that must be satisfied subsequent to the issuance of the Obligations in order for interest on the Obligations to be, and to remain, excludable from gross income for federal income tax purposes. Failure to comply with such requirements may cause interest on the Obligations to be included in gross income retroactively to the date of issuance of the Obligations. The opinion of Bond Counsel to the City is conditioned on compliance by the City with the covenants and other requirements described in the preceding paragraph, and Bond Counsel to the City has not been retained to monitor compliance with these requirements subsequent to the issuance of the Obligations.

Bond Counsel's opinion represents its legal judgment based upon its review of Existing Law and the reliance on the aforementioned information, representations and covenants. Bond Counsel's opinion is not a guarantee of a result. The Existing Law is subject to change by the Congress and to subsequent judicial and administrative interpretation by the courts and the Department of the Treasury. There can be no assurance that such Existing Law or the interpretation thereof will not be changed in a manner which would adversely affect the tax treatment of the purchase, ownership or disposition of the Obligations.

A ruling was not sought from the Internal Revenue Service by the City with respect to the Obligations or the projects being financed or refinanced therewith. Bond Counsel's opinion represents its legal judgment based upon its review of Existing Law and the representations of the City that it deems relevant to render such opinion and is not a guarantee of a result. No assurances can be given as to whether or not the Internal Revenue Service will commence an audit of the Obligations, or as to whether the Internal Revenue Service would agree with the opinion of Bond Counsel. If an audit is commenced, under current procedures the Internal Revenue Service is likely to treat the City as the taxpayer and the holders of the Obligations may have no right to participate in such procedure. No additional interest will be paid upon any determination of taxability.

FEDERAL INCOME TAX ACCOUNTING TREATMENT OF ORIGINAL ISSUE DISCOUNT

The initial public offering price to be paid for one or more maturities of the Obligations may be less than the principal amount thereof or one or more periods for the payment of interest on the Obligations may not be equal to the accrual period or be in excess of one year (the "Original Issue Discount Bonds"). In such event, the difference between (i) the "stated redemption price at maturity" of each Original Issue Discount Bond, and (ii) the initial offering price to the public of such Original Issue Discount Bond would constitute original issue discount. The "stated redemption price at maturity" means the sum of all payments to be made on the Obligations less the amount of all periodic interest payments. Periodic interest payments are payments which are made during equal accrual periods (or during any unequal period if it is the initial or final period) and which are made during accrual periods which do not exceed one year.

Under Existing Law, any owner who has purchased such Original Issue Discount Bond in the initial public offering is entitled to exclude from gross income (as defined in section 61 of the Code) an amount of income with respect to such Original Issue Discount Bond equal to that portion of the amount of such original issue discount allocable to the accrual period. For a discussion of certain collateral federal tax consequences, see discussion set forth below.

In the event of the redemption, sale or other taxable disposition of such Original Issue Discount Bond prior to stated maturity, however, the amount realized by such owner in excess of the basis of such Original Issue Discount Bond in the hands of such owner (adjusted upward by the portion of the original issue discount allocable to the period for which such Original Issue Discount Bond was held by such initial owner) is includable in gross income.

Under Existing Law, the original issue discount on each Original Issue Discount Bond is accrued daily to the stated maturity thereof (in amounts calculated as described below for each six-month period ending on the date before the semiannual anniversary dates of the date of the Obligations and ratably within each such six-month period) and the accrued amount is added to an initial owner's basis for such Original Issue Discount Bond for purposes of determining the amount of gain or loss recognized by such owner upon the redemption, sale or other disposition thereof. The amount to be added to basis for each accrual period is equal to (a) the sum of the issue price and the amount of original issue discount accrued in prior periods multiplied by the yield to stated maturity (determined on the basis of compounding at the close of each accrual period and properly adjusted for the length of the accrual period) less (b) the amounts payable as current interest during such accrual period on such Original Issue Discount Bond.

The federal income tax consequences of the purchase, ownership, redemption, sale or other disposition of Original Issue Discount Bonds which are not purchased in the initial offering at the initial offering price may be determined according to rules which differ from those described above. All owners of Original Issue Discount Bonds should consult their own tax advisors with respect to the determination for federal, state and local income tax purposes of the treatment of interest accrued upon redemption, sale or other disposition of such Original Issue Discount Bonds and with respect to the federal, state, local and foreign tax consequences of the purchase, ownership, redemption, sale or other disposition of such Original Issue Discount Bonds.

COLLATERAL FEDERAL INCOME TAX CONSEQUENCES

The following discussion is a summary of certain collateral federal income tax consequences resulting from the purchase, ownership or disposition of the Obligations. This discussion is based on Existing Law, all of which are subject to change or modification, retroactively.

The following discussion is applicable to investors, other than those who are subject to special provisions of the Code, such as financial institutions, property and casualty insurance companies, life insurance companies, individual recipients of Social Security or Railroad Retirement benefits, individuals allowed an earned income credit, certain S corporations with subchapter C earnings and profits, foreign corporations subject to the branch profits tax, taxpayers qualifying for the health insurance premium assistance credit, and taxpayers who may be deemed to have incurred or continued indebtedness to purchase tax-exempt obligations.

THE DISCUSSION CONTAINED HEREIN MAY NOT BE EXHAUSTIVE. INVESTORS, INCLUDING THOSE WHO ARE SUBJECT TO SPECIAL PROVISIONS OF THE CODE, SHOULD CONSULT THEIR OWN TAX ADVISORS AS TO THE TAX TREATMENT WHICH MAY BE ANTICIPATED TO RESULT FROM THE PURCHASE, OWNERSHIP AND DISPOSITION OF TAX-EXEMPT OBLIGATIONS BEFORE DETERMINING WHETHER TO PURCHASE THE OBLGATIONS.

Interest on the Obligations may be includable in certain corporation's "adjusted financial statement income" determined under section 56A of the Code to calculate the alternative minimum tax imposed by section 55 of the Code.

Under section 6012 of the Code, holders of tax-exempt obligations, such as the Obligations, may be required to disclose interest received or accrued during each taxable year on their returns of federal income taxation.

Section 1276 of the Code provides for ordinary income tax treatment of gain recognized upon the disposition of a tax-exempt obligation, such as the Obligations, if such obligation was acquired at a "market discount" and if the fixed maturity of such obligation is equal to, or exceeds, one year from the date of issue. Such treatment applies to "market discount bonds" to the extent such gain does not exceed the accrued market discount of such bonds; although for this purpose, a de minimis amount of market discount is ignored. A "market discount bond" is one which is acquired by the holder at a purchase price which is less than the stated redemption price at maturity or, in the case of a bond issued at an original issue discount, the "revised issue price" (i.e., the issue price plus accrued original issue discount). The "accrued market discount" is the amount which bears the same ratio to the market discount as the number of days during which the holder holds the obligation bears to the number of days between the acquisition date and the final maturity date.

STATE, LOCAL AND FOREIGN TAXES

Investors should consult their own tax advisors concerning the tax implications of the purchase, ownership or disposition of the Obligations under applicable state or local laws. Foreign investors should also consult their own tax advisors regarding the tax consequences unique to investors who are not United States persons.

INFORMATION REPORTING AND BACKUP WITHHOLDING

Subject to certain exceptions, information reports describing interest income, including original issue discount, with respect to the Obligations will be sent to each registered holder and to the Internal Revenue Service. Payments of interest and principal may be subject to backup withholding under section 3406 of the Code if a recipient of the payments fails to furnish to the payor such owner's social security number or other taxpayer identification number ("TIN"), furnishes an incorrect TIN, or otherwise fails to establish an exemption from the backup withholding tax. Any amounts so withheld would be allowed as a credit against the recipient's federal income tax. Special rules apply to partnerships, estates and trusts, and in certain circumstances, and in respect of Non-U.S. Holders, certifications as to foreign status and other matters may be required to be provided by partners and beneficiaries thereof.

FUTURE AND PROPOSED LEGISLATION

Tax legislation, administrative actions taken by tax authorities, or court decisions, whether at the Federal or state level, may adversely affect the tax-exempt status of interest on the Obligations under Federal or state law and could affect the market price or marketability of the Obligations. Any such proposal could limit the value of certain deductions and exclusions, including the exclusion for tax-exempt interest. The likelihood of any such proposal being enacted cannot be predicted. Prospective purchasers of the Obligations should consult their own tax advisors regarding the foregoing matters.

CONTINUING DISCLOSURE OF INFORMATION

In each of the Ordinances, the City has made the following agreement for the benefit of the holders and beneficial owners of the respective series of Obligations. The City is required to observe each agreement while it remains obligated to advance funds to pay such Obligations. Under each agreement, the City will be obligated to provide certain updated financial information and operating data annually, and the timely notice of specified events to the Municipal Securities Rulemaking Board ("MSRB"). This information will be available free of charge from the MSRB via the Electronic Municipal Market Access ("EMMA") system at www.emma.msrb.org.

ANNUAL REPORTS . . . The City shall provide annually to the MSRB, in the electronic format prescribed by the MSRB, financial information and operating data (the "Annual Operating Report") with respect to the City of the general type included in this Official Statement under Tables numbered 1 through 5 and 7 through 14. The City will additionally provide financial statements of the City (the "Financial Statements"), that will be (i) prepared in accordance with the accounting principles described in the City's annual audited financial statements or such other accounting principles as the City may be required to employ from time to time pursuant to State law or regulation and shall be in substantially the form included in this Official Statement and (ii) audited, if the City commissions an audit of such Financial Statements and the audit is completed within the period during which they must be provided. The City will update and provide the Annual Operating Report within six months after the end of each fiscal year and the Financial Statements within 12 months of the end of each fiscal year, in each case beginning with the fiscal year ending in and after 2024. The City may provide the Financial Statements earlier, including at the time it provides its Annual Operating Report, but if the audit of such Financial Statements is not complete within 12 months after any such fiscal year end, then the City shall file unaudited Financial Statements within such 12-month period and audited Financial Statements for the applicable fiscal year, when and if the audit report on such Financial Statements becomes available.

The financial information and operating data to be provided may be set forth in full in one or more documents or may be included by specific reference to any document available to the public on the MSRB's Internet Web site or filed with the United States Securities and Exchange Commission (the "SEC"), as permitted by SEC Rule 15c2-12 (the "Rule").

The City's current fiscal year end is September 30. Accordingly, it must provide the Annual Operating Report by March 31 in each year, unless the City changes its fiscal year. If the City changes its fiscal year, it will notify the MSRB of the change.

NOTICE OF CERTAIN EVENTS . . . The City will also provide timely notices of certain events to the MSRB. The City will provide notice of any of the following events with respect to the Obligations to the MSRB in a timely manner (but not in excess of ten business days after the occurrence of the event): (1) principal and interest payment delinquencies; (2) non-payment related defaults, if material; (3) unscheduled draws on debt service reserves reflecting financial difficulties; (4) unscheduled draws on credit enhancements reflecting financial difficulties; (5) substitution of credit or liquidity providers, or their failure to perform; (6) adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determinations of taxability, Notices of Proposed Issue (IRS Form 5701-TEB), or other material notices or determinations with respect to the tax status of the Obligations, or other material events affecting the tax status of the Obligations; (7) modifications to rights of holders of the Obligations, if material; (8) Obligation calls, if material, and tender offers; (9) defeasances; (10) release, substitution, or sale of property securing repayment of the Obligations, if material; (11) rating changes; (12) bankruptcy, insolvency, receivership, or similar event of the City, which shall occur as described below; (13) the consummation of a merger, consolidation, or acquisition involving the City or the sale of all or substantially all of its assets, other than in the ordinary course of business, the entry into of a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms, if material; (14) appointment of a successor or additional trustee or the change of name of a trustee, if material; (15) incurrence of a Financial Obligation, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of any Financial Obligation of the City, any of which affect security holders, if material; and (16) default, event of acceleration, termination event, modification of terms, or other similar events under the terms of any Financial

Obligation of the City, any of which reflect financial difficulties. In addition, the City will provide timely notice of any failure by the City to provide annual financial information in accordance with their agreement described above under "Annual Reports". For purposes of clauses (15) and (16) above, "Financial Obligation" means (i) a debt obligation, (ii) a derivative instrument entered into in connection with, or pledged as security or a source of payment for, an existing or planned debt obligation, or (iii) guarantee of (i) or (ii). The term Financial Obligation shall not include municipal securities as to which a final official statement has been provided to the MSRB consistent with the Rule.

For these purposes, any event described in (12) in the immediately preceding paragraph is considered to occur when any of the following occur: the appointment of a receiver, fiscal agent, or similar officer for the City in a proceeding under the United States Bankruptcy Code or in any other proceeding under state or federal law in which a court or governmental authority has assumed jurisdiction over substantially all of the assets or business of the City, or if such jurisdiction has been assumed by leaving the existing governing body and officials or officers in possession but subject to the supervision and orders of a court or governmental authority, or the entry of an order confirming a plan of reorganization, arrangement, or liquidation by a court or governmental authority having supervision or jurisdiction over substantially all of the assets or business of the City.

LIMITATIONS AND AMENDMENTS . . . The City has agreed to update information and to provide notices of specified events only as described above. The City has not agreed to provide other information that may be relevant or material to a complete presentation of its financial results of operations, condition, or prospects or agreed to update any information that is provided, except as described above. The City makes no representation or warranty concerning such information or concerning its usefulness to a decision to invest in or sell Obligations at any future date. The City disclaims any contractual or tort liability for damages resulting in whole or in part from any breach of its continuing disclosure agreement or from any statement made pursuant to its agreement, although holders of Obligations may seek a writ of mandamus to compel the City to comply with its agreement.

The City may amend its continuing disclosure agreement for either or both of the Bonds and Certificates from time to time to adapt to changed circumstances that arise from a change in legal requirements, a change in law, or a change in the identity, nature, status, or type of operations of the City, if (i) the agreement, as amended, would have permitted an underwriter to purchase or sell Bonds or Certificates, as the case may be, in the offering described herein in compliance with the Rule, taking into account any amendments or interpretations of the Rule to the date of such amendment, as well as such changed circumstances, and (ii) either (a) the holders of a majority in aggregate principal amount of the outstanding Bonds or Certificates, as the case may be, consent to the amendment or (b) any person unaffiliated with the City (such as nationally recognized bond counsel) determines that the amendment will not materially impair the interests of the holders and beneficial owners of the Bonds or Certificates, as the case may be. The City may also amend or repeal the provisions of this continuing disclosure agreement if the SEC amends or repeals the applicable provisions of the Rule or a court of final jurisdiction enters judgment that such provisions of the Rule are invalid, but only if and to the extent that the provisions of this sentence would not prevent an underwriter from lawfully purchasing or selling Obligations in the primary offering of the Obligations. If the City so amends the agreement, it has agreed to include with the next financial information and operating data provided in accordance with its agreement described above under "Annual Reports" an explanation, in narrative form, of the reasons for the amendment and of the impact of any change in the type of financial information and operating data so provided.

COMPLIANCE WITH PRIOR UNDERTAKINGS . . . During the last five years, the City believes it has complied in all material respects with all continuing disclosure agreements made by it in accordance with SEC Rule 15c2-12.

OTHER INFORMATION

RATINGS

The Obligations and the presently outstanding tax supported debt of the City are rated "___" by Fitch and "___" by S&P. An explanation of the significance of such ratings may be obtained from the company furnishing the rating. The ratings reflect only the respective views of such organizations and the City makes no representation as to the appropriateness of the ratings. There is no assurance that such ratings will continue for any given period of time or that they will not be revised downward or withdrawn entirely by either or both of such rating companies, if in the judgment of either or both companies, circumstances so warrant. Any such downward revision or withdrawal of such ratings, or either of them, may have an adverse effect on the market price of the Obligations.

LITIGATION

Various claims and lawsuits are pending against the City. In accordance with Generally Accepted Accounting Principles, those judgments considered "probable" are accrued by the City, while those claims and judgments considered "reasonably possible" are disclosed but not accrued. In the opinion of City management and the City Attorney, the maximum amount of all significant claims considered reasonably possible, excluding condemnation proceedings, is approximately $500,000 as of the date of this Official Statement. It is the opinion of the City Attorney and City management that potential losses after insurance coverage on all probable claims and lawsuits will not have a material adverse financial impact upon the City or its operations, see Appendix B, Notes to Basic Financial Statements G., page 86.

At the time of the initial delivery of the Bonds, the City will provide the Initial Purchasers with a certificate to the effect that, except as disclosed herein, no litigation of any nature has been filed or is then pending challenging the issuance of the Bonds or that affects the payment and security of the Bonds or in any other manner questioning the issuance, sale or delivery of the Bonds.

REGISTRATION AND QUALIFICATION OF OBLIGATIONS FOR SALE

The sale of the Obligations has not been registered under the Federal Securities Act of 1933, as amended, in reliance upon the exemption provided thereunder by Section 3(a)(2); and the Obligations have not been qualified under the Securities Act of Texas in reliance upon various exemptions contained therein; nor have the Bonds or Certificates been qualified under the securities acts of any jurisdiction. The City assumes no responsibility for qualification of the Bonds or Certificates under the securities laws of any jurisdiction in which the Obligations may be sold, assigned, pledged, hypothecated or otherwise transferred. This disclaimer of responsibility for qualification for sale or other disposition of the Obligations shall not be construed as an interpretation of any kind with regard to the availability of any exemption from securities registration provisions.

LEGAL INVESTMENTS AND ELIGIBILITY TO SECURE PUBLIC FUNDS IN TEXAS

The Obligations. Section 1201.041 of the Public Security Procedures Act (Chapter 1201, Texas Government Code) provides that the Obligations are negotiable instruments, investment securities governed by Chapter 8, Texas Business and Commerce Code, and are legal and authorized investments for insurance companies, fiduciaries, and trustees, and for the sinking funds of municipalities or other political subdivisions or public agencies of the State of Texas. In addition, various provisions of the Texas Finance Code provide that, subject to a prudent investor standard, the Obligations are legal investments for state banks, savings banks, trust companies with at least $1 million of capital, and savings and loan associations.

The Certificates. Section 271.051, Texas Local Government Code, provides that the Certificates are legal and authorized investments for banks, savings banks, trust companies, savings and loan associations, insurance companies, fiduciaries, trustees and guardians, and for the sinking funds of municipalities, school districts, and other political subdivisions or public agencies of the State of Texas. The Certificates are eligible to secure deposits of any public funds of the State, municipalities, school districts, and other political subdivisions of the State, and are legal security for those deposits to the extent of their market value.

General Considerations. For political subdivisions in Texas that have adopted investment policies and guidelines in accordance with the Public Funds Investment Act (Texas Government Code, Chapter 2256), the Obligations may have to be assigned a rating of at least "A" or its equivalent as to investment quality by a national rating agency before such obligations are eligible investments for sinking funds and other public funds. The City has made no investigation of other laws, rules, regulations, or investment criteria which might apply to such institutions or entities or which might limit the suitability of the Obligations for any of the foregoing purposes or limit the authority of such institutions or entities to purchase or invest in the Obligations for such purposes. The City has made no review of laws in other states to determine whether the Obligations are legal investments for various institutions in those states.

LEGAL OPINIONS AND NO-LITIGATION CERTIFICATE

The City will furnish a complete transcript of proceedings had incident to the authorization and issuance of the Bonds and of the Certificates, including the unqualified approving legal opinions of the Attorney General of Texas approving the Initial Bond and the Initial Certificate and to the effect that the Bonds and the Certificates are valid and legally binding obligations of the City, and based upon examination of such transcript of proceedings, the approving legal opinions of Bond Counsel, to like effect and to the effect that the interest on the Bonds and the Certificates will be excludable from gross income for federal income tax purposes under Section 103(a) of the Code, subject to the matters described under "Tax Matters" herein. The customary closing papers, including a certificate to the effect that no litigation of any nature has been filed or is then pending to restrain the issuance and delivery of the Obligations, or which would affect the provision made for their payment or security or in any manner questioning the validity of said Obligations will also be furnished. Though it represents the Financial Advisor and purchasers of debt from governmental issuers from time to time in matters unrelated to the issuance of the Obligations, Bond Counsel has been engaged by and only represents the City in connection with the issuance of the Obligations. Bond Counsel was not requested to participate, and did not take part, in the preparation of the Notice of Sale and Bidding Instructions, the Official Bid Form and the Official Statement, and such firm has not assumed any responsibility with respect thereto or undertaken independently to verify any of the information contained therein, except that, in its capacity as Bond Counsel, such firm has reviewed the information describing the Obligations in the Official Statement to verify that such description conforms to the provisions of the Bond Ordinance and the Certificate Ordinance. The legal fee to be paid Bond Counsel for services rendered in connection with the issuance of the Obligations is contingent on the sale and delivery of the Obligations. The legal opinion will accompany the Obligations deposited with DTC or will be printed on the Obligations in the event of the discontinuance of the Book-Entry-Only System.

The legal opinions to be delivered concurrently with the delivery of the Obligations express the professional judgment of the attorneys rendering the opinions as to the legal issues explicitly addressed therein. In rendering a legal opinion, the attorney does not become an insurer or guarantor of that expression of professional judgment, of the transaction opined upon, or of the future performance of the parties to the transaction. Nor does the rendering of an opinion guarantee the outcome of any legal dispute that may arise out of the transaction.

VERIFICATION OF ARITHMETICAL AND MATHEMATICAL COMPUTATIONS

Public Finance Partners LLC, will deliver to the City, on or before the settlement date of the Bonds, its verification report indicating that it has verified the mathematical accuracy of the mathematical computations of the adequacy of the cash, if any, and the maturing principal of and interest on the Escrowed Securities, to pay, when due, the maturing principal of, interest on and related call premium requirements, if any, of the Refunded Obligations.

Public Finance Partners LLC relied on the accuracy, completeness and reliability of all information provided to it by, and on all decisions and approvals of, the City. In addition, Public Finance Partners LLC has relied on any information provided to it by the City's retained advisors, consultants or legal counsel.

The report will be relied upon by Bond Counsel in rendering its opinion with respect to the defeasance of the Refunded Obligations.

AUTHENTICITY OF FINANCIAL DATA AND OTHER INFORMATION

The financial data and other information contained herein have been obtained from City records, audited financial statements, and other sources which are believed to be reliable. There is no guarantee that any of the assumptions or estimates contained herein will be realized. All of the summaries of the statutes, documents, and ordinances contained in this Official Statement are made subject to all of the provisions of such statutes, documents, and ordinances. These summaries do not purport to be complete statements of such provisions and reference is made to such documents for further information. Reference is made to original documents in all respects.

FINANCIAL ADVISOR

Hilltop Securities Inc., ("HilltopSecurities") is employed as Financial Advisor to the City in connection with the issuance of the Obligations. The Financial Advisor's fee for services rendered with respect to the sale of the Obligations is contingent upon the issuance and delivery of the Obligations. HilltopSecurities, in its capacity as Financial Advisor, has relied on the opinion of Bond Counsel and has not verified and does not assume any responsibility for the information, covenants, and representations contained in any of the legal documents with respect to the federal income tax status of the Obligations, or the possible impact of any present, pending, or future actions taken by any legislative or judicial bodies.

The Financial Advisor to the City has provided the following sentence for inclusion in this Official Statement. The Financial Advisor has reviewed the information in this Official Statement in accordance with, and as part of, its responsibilities to the City and, as applicable, to investors under the federal securities laws as applied to the facts and circumstances of this transaction, but the Financial Advisor does not guarantee the accuracy or completeness of such information.

INITIAL PURCHASER OF THE CERTIFICATES

After requesting competitive bids for the Certificates, the City accepted the bid of _____ (the "Initial Purchaser of the Certificates") to purchase the Certificates at the interest rates shown on page 2 of the Official Statement at a price of par plus a cash premium of $_____. The Initial Purchaser of the Certificates can give no assurance that any trading market will be developed for the Certificates after their sale by the City to the Initial Purchaser of the Certificates. The City has no control over the price at which the Certificates are subsequently sold and the initial yield at which the Certificates will be priced and reoffered will be established by and will be the sole responsibility of the Initial Purchaser of the Certificates.

INITIAL PURCHASER OF THE BONDS

After requesting competitive bids for the Bonds, the City accepted the bid of _____ (the "Initial Purchaser of the Bonds") to purchase the Bonds at the interest rates shown on page 4 of the Official Statement at a price of par plus a cash premium of $_____. The Initial Purchaser of the Bonds can give no assurance that any trading market will be developed for the Bonds after their sale by the City to the Initial Purchaser of the Bonds. The City has no control over the price at which the Bonds are subsequently sold and the initial yield at which the Bonds will be priced and reoffered will be established by and will be the sole responsibility of the Initial Purchaser of the Bonds.

The Initial Purchaser of the Bonds and the Initial Purchaser of the Certificates are herein collectively referred to as the "Initial Purchasers".

CERTIFICATION OF THE OFFICIAL STATEMENT

At the time of payment for and delivery of the Obligations, the City will furnish to the Initial Purchasers a certificate, executed by a proper City officer, acting in such officer's official capacity, to the effect that to the best of such officer's knowledge and belief: (a) the descriptions and statements of or pertaining to the City contained in the Official Statement, and any addenda, supplement, or amendment thereto, on the date of the Official Statement, on the date of sale of the Obligations, and the acceptance of the best bid therefor, and on the date of the delivery, were and are true and correct in all material respects; (b) insofar as the City and its affairs, including its financial affairs, are concerned, the Official Statement did not and does not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading; (c) insofar as the descriptions and statements, including financial data, of or pertaining to entities, other than the City, and their activities contained in the Official Statement are concerned, such statements and data have been obtained from sources which the City believes to be reliable and the City has no reason to believe that they are untrue in any material respect; and (d) there has been no material adverse change in the financial condition of the City since the date of the last audited financial statements of the City.

CYBERSECURITY

The unauthorized access, use, disclosure, disruption, modification, or destruction of the City's information or information systems could negatively impact the operations of the City and its ability to provide services to its citizens. The City uses a risk-based approach and "best practices" to protect the confidentiality, integrity and availability of the information and information systems that it is entrusted with. Employees are required to take annual security training which is re-enforced with continuous phishing email tests. The City uses the NIST-CSF framework to assure compliance with multiple standards, regulations, and other obligations. In addition, to help protect the City against claims and expenses due to a cybersecurity incident, the City maintains cyber insurance.

FORWARD LOOKING STATEMENTS DISCLAIMER

The statements contained in this Official Statement, and in any other information provided by the City, that are not purely historical, are forward-looking statements, including statements regarding the City's expectations, hopes, intentions, or strategies regarding the future. Readers should not place undue reliance on forward-looking statements. All forward-looking statements included in this Official Statement are based on information available to the City on the date hereof, and the City assumes no obligation to update any such forward-looking statements. The City's actual results could differ materially from those discussed in such forward-looking statements.

The forward-looking statements included herein are necessarily based on various assumptions and estimates and are inherently subject to various risks and uncertainties, including risks and uncertainties relating to the possible invalidity of the underlying assumptions and estimates and possible changes or developments in social, economic, business, industry, market, legal, and regulatory circumstances and conditions and actions taken or omitted to be taken by third parties, including customers, suppliers, business partners and competitors, and legislative, judicial, and other governmental authorities and officials. Assumptions related to the foregoing involve judgments with respect to, among other things, future economic, competitive, and market conditions and future business decisions, all of which are difficult or impossible to predict accurately and many of which are beyond the control of the City. Any of such assumptions could be inaccurate and, therefore, there can be no assurance that the forward-looking statements included in this Official Statement will prove to be accurate.

LINKS TO WEBSITES

The City has provided links to websites in this Official Statement to allow investors independent access to information or expertise that may be of value. INFORMATION ON SUCH WEBSITES IS NOT INCORPORATED INTO THIS OFFICIAL STATEMENT BY REFERENCE OR OTHERWISE. The inclusion of any links does not imply a recommendation or endorsement of the information or views expressed within a website. The City has not participated in the preparation, compilation or selection of information or views in any website referenced in this Official Statement, and assumes no responsibility or liability for the information or views, or accuracy or completeness thereof, in any website referenced herein.

MISCELLANEOUS

The Ordinances authorizing the issuance of the Obligations will approve the form and content of this Official Statement, and any addenda, supplement or amendment thereto, and will authorize its further use in the reoffering of the Obligations by the Initial Purchasers.

_____

PRICING OFFICER
City of Denton, Texas

Schedule I

SCHEDULE OF REFUNDED OBLIGATIONS*

Certificates of Obligation, Series 2014

Original Dated Date	Maturity Date	Interest Rate	Principal Amount Outstanding	Principal Amount Refunded
4/15/2014	2/15/2025	5.000%	$ 2,735,000	$ 2,735,000
	2/15/2026	3.000%	2,835,000	2,835,000
	2/15/2027	4.000%	2,950,000	2,950,000
	2/15/2028	3.250%	3,065,000	3,065,000
	2/15/2029	3.500%	3,195,000	3,195,000
	2/15/2030	3.500%	3,355,000	3,355,000
	2/15/2031	4.000%	3,510,000	3,510,000
	2/15/2032	4.000%	3,670,000	3,670,000
	2/15/2033	3.750%	3,840,000	3,840,000
	2/15/2034	3.750%	3,990,000	3,990,000
	2/15/2035	4.000%	2,200,000	2,200,000
	2/15/2036	4.000%	2,315,000	2,315,000
	2/15/2037	4.000%	2,435,000	2,435,000
	2/15/2038	4.000%	2,560,000	2,560,000
	2/15/2039	4.000%	2,690,000	2,690,000
	2/15/2040 (1)	4.000%	2,815,000	2,815,000
	2/15/2041 (1)	4.000%	2,930,000	2,930,000
	2/15/2042 (1)	4.000%	3,050,000	3,050,000
	2/15/2043 (1)	4.000%	3,175,000	3,175,000
	2/15/2044 (1)	4.000%	3,300,000	3,300,000
			$ 60,615,000	$ 60,615,000

The 2025 – 2044 maturities will be redeemed prior to original maturity on _____, 2024* at par.

(1) Represents a Term Bond with a final maturity of February 15, 2044

General Obligation Refunding and Improvement Bonds, Series 2014

Original Dated Date	Maturity Date	Interest Rate	Principal Amount Outstanding	Principal Amount Refunded
4/15/2014	2/15/2025	3.000%	$ 195,000	$ 195,000
	2/15/2026	3.000%	205,000	205,000
	2/15/2027	3.000%	210,000	210,000
	2/15/2028	3.000%	220,000	220,000
	2/15/2029	3.125%	225,000	225,000
	2/15/2030	3.250%	235,000	235,000
	2/15/2031	3.375%	245,000	245,000
	2/15/2032	3.375%	250,000	250,000
	2/15/2033	3.500%	265,000	265,000
	2/15/2034	3.500%	275,000	275,000
			$ 2,325,000	$ 2,325,000

The 2025 – 2034 maturities will be redeemed prior to original maturity on _____, 2024* at par.

_____

* Preliminary, subject to change.

APPENDIX A

GENERAL INFORMATION REGARDING THE CITY

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Finance Department
215 E. McKinney St., Denton, TX 76201 • (940) 349-8531

March 12, 2024

The Honorable Mayor, Members of the City Council and Citizens
City of Denton
Denton, Texas

It is with great pleasure that we present to you a copy of the Annual Comprehensive Financial Report (ACFR) of the City of Denton (the City) for the fiscal year ended September 30, 2023. The purpose of the report is to provide the City Council, management, citizens, and other interested parties with detailed information concerning the City's financial condition.

THE REPORT

The Texas Local Government Code (§ 103.001) requires an annual audit for municipalities. In addition, the City Charter (Section 2.13) requires a Certified Public Accountant who, as of the end of the fiscal year, shall make an "independent audit of accounts" and prepare a report to the City Council and the City Manager. This document fulfills the above-mentioned requirements, and the independent auditor's opinion is included in the report for the fiscal year ended September 30, 2023.

The ACFR is presented in three main sections: Introductory, Financial, and Statistical. The Introductory Section includes this transmittal letter, the City's organizational chart, and a list of principal officials. The Financial Section includes the Management's Discussion and Analysis (MD&A), Basic Financial Statements, Required Supplementary Information, Combining and Individual Fund Financial Statements, along with the independent auditors' report. The Statistical Section and Other Supplementary Information include selected financial and demographic information, generally presented on a multi-year basis.

The responsibility for both the accuracy of the presented information and the completeness and fairness of the presentation of the data, including all disclosures, rests with the City, and is based upon a comprehensive framework of internal control established for this purpose. Because the cost of internal control should not exceed anticipated benefits, the objective is to provide reasonable, rather than absolute, assurance the financial statements are free of any material misstatements. To the best of our knowledge and belief, the enclosed data is accurate in all material respects and is reported in a manner designed to fairly present the results of our operations in each of the various funds reported by the City. All disclosures necessary to enable the reader to gain an understanding of the City's financial activities have been included.

The accounting firm of Weaver and Tidwell, LLP. has issued an unmodified opinion on the City of Denton's financial statements for the period ended September 30, 2023. As a recipient of federal and state grant awards, a separate audit is prepared to meet the requirements of the Single Audit Act Amendments of 1996 and related Uniform Guidance. As a part of the City's single audit, tests are conducted to determine that the City has complied with applicable laws and regulations related to federal awards.

Management's Discussion and Analysis (MD&A) immediately follows the independent auditors' report and provides a narrative introduction, overview, and analysis of the basic financial statements. The MD&A complements this letter of transmittal and should be read in conjunction with it.

CITY OF DENTON PROFILE

Denton distinguishes itself from other cities in North Texas through its vibrant arts and culture scene, robust university partnerships, dynamic community collaborations, and commitment to 100% renewable energy. Originally incorporated on September 26, 1866, Denton has evolved from a serene college town on the outskirts of the Dallas-Fort Worth metroplex into one of the fastest-growing cities in the United States, with a current

population of approximately 150,000. This figure is projected to reach 229,192 by 2040, according to U.S. Census Bureau forecasts. Denton combines a reverence for its history with an eagerness to innovate. The City of Denton is in the northern portion of the Dallas/Fort Worth Consolidated Metropolitan Statistical Area (CMSA). The City is a part of the Dallas/Fort Worth Metroplex and is situated at the apex of a triangle based by Dallas (37 miles to the southeast) and Fort Worth (35 miles to the southwest) providing excellent access to and from all parts of the area. The heart of the city's urban core is anchored by a vibrant cultural arts district within Downtown Denton as well as three university campuses. The community is also recognized for its commitment to sustainability and environmental stewardship, in addition to its focus on health and wellness, highlighted by over 5,000 acres of parkland, more than 60 hiking trails, and numerous recreational facilities.

CITY SERVICES AND ORGANIZATION OF THE GOVERNMENT

The City is a home rule city and operates under the Council-Manager form of government. The elected seven-member council consists of a Mayor and six Council Members. The Mayor and two Council Members are elected at large, while the remaining representatives are elected from single member districts. The City Council enacts local laws, determines policy, and adopts the annual budget, and the City Manager is the chief executive officer for the City.

The City provides a full range of general government services to its citizens including: public safety (police and fire protection); public works (construction and maintenance of highways, streets and infrastructure); parks and recreation; library; planning and zoning; economic development; and general administrative services. The City's enterprise fund operations consist of a utility system, solid waste, and airport operations. The City's utility system provides electric, water, and wastewater services.

The internal service operations consist of Materials Management, Fleet Services, Risk Retention, Health Insurance, Engineering Services, Technology Services, Customer Service, and Facilities funds. The Materials Management Fund accounts for the financing of Warehouse and Purchasing services which are provided to other City departments. The Fleet Services Fund accounts for the financing of goods and services provided by the municipal garage to other departments within the City. The Risk Retention Fund accounts for the accumulation of resources for the payment of workers' compensation, general liability claims, and insurance policies. The Health Insurance Fund accounts for administration of the self-insurance program for health coverage in the City. The Engineering Services Fund accounts for the provision of internal engineering services to various City operations and capital projects. The Technology Services Fund provides support for the various information and computer systems within the City. The Customer Service Fund accounts for the financing of customer service activities provided to the residents and businesses of the City on behalf of other departments within the City. The Facilities Management Fund is responsible for maintaining all city-owned facilities and vertical construction projects. The financial statements presented include all government activities, organizations, and functions for which the City is financially accountable as defined by the Governmental Accounting Standards Board (GASB).

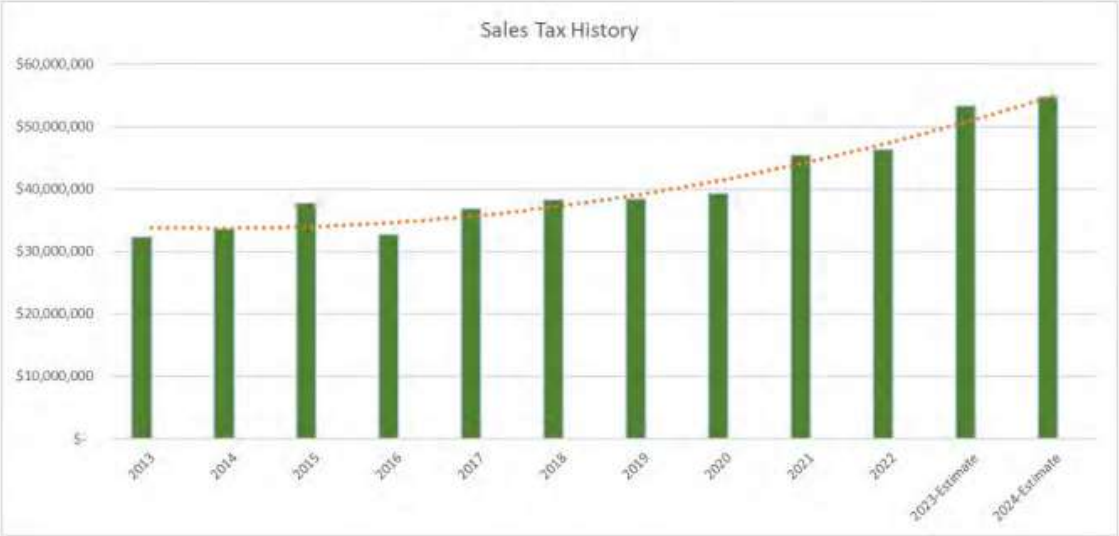
LOCAL ECONOMY

As the Dallas Ft. Worth Metroplex continues to grow, the City of Denton is seeing increased growth. In Fiscal year 2022-23, the City continued to see an increase in development and economic activity, resulting in strong property tax collection, sales tax collection, and an increase in return on investment (ROI) revenue from city utilities. Greater than one-third of the total General Fund revenue is generated from ad valorem taxes. As shown below, the 2023 certified value increased by 15.05% or $2,522,956,725 (excluding TIRZ) from the 2022 certified value. Analysis of the increase shows there was approximately $1.02 billion in new value added to the appraisal roll due to new growth and construction. The City received a certified total from the Denton County Appraisal District (DCAD) with only 1.3% of properties still under protest. The low amount of protested value helps create more certainty in the revenue forecast. Below is a chart with a detailed breakdown of certified values:

	2022 Certified Total AV	2023 Certified Total AV	Increase (Decrease)	Percent Change	New Value
General Government	$16,764,866,572	$19,287,823,297	$2,522,956,725	15.05%	$1,023,634,611
Downtown TIRZ[1]	$154,545,050	$164,000,321	$9,455,271	6.12%	$838,845
Westpark TIRZ[2]	$109,275,972	$157,617,172	$48,341,200	44.24%	$28,435,571
Total	$17,028,687,594	$19,609,440,790	$2,580,753,196	15.16%	$1,052,909,027

[1] Downtown TIRZ – Reflects 90% of incremental value which changed in FY 2023 per Ordinance No. 2010-316.
[2] Westpark TIRZ – Reflects 40% of incremental value through FY 2037 per Ordinance No. 2013-033.

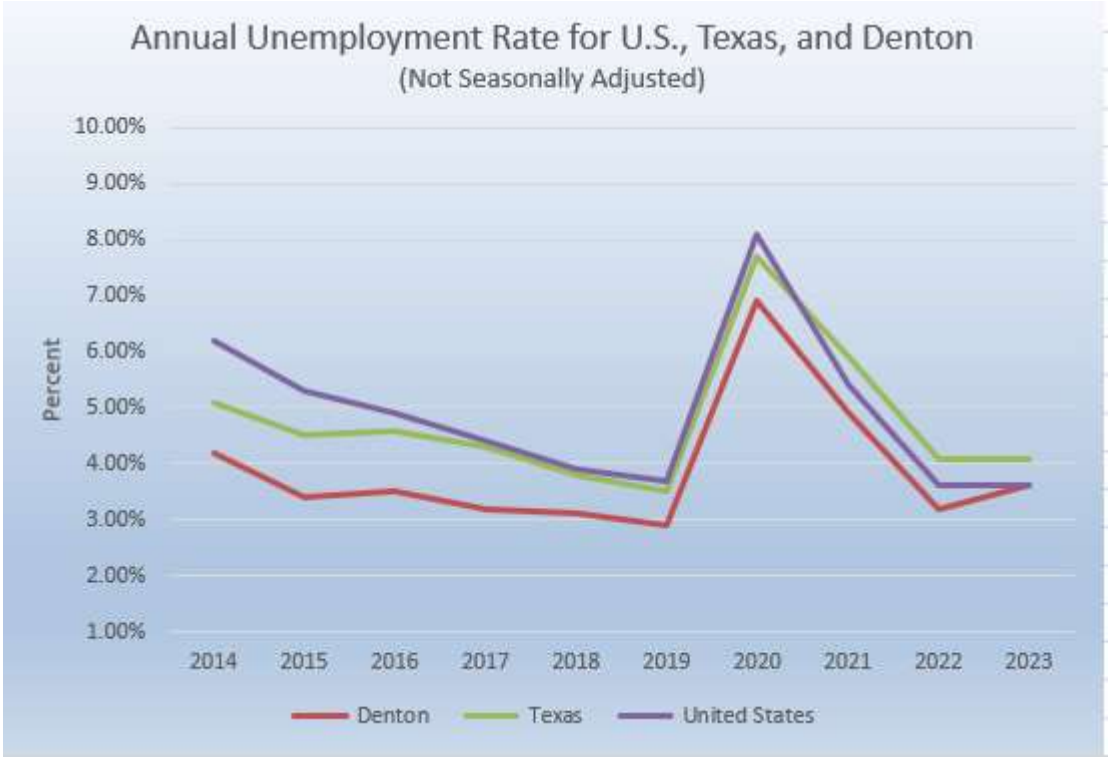
Sales tax represents approximately 34.86% of overall revenue in the General Fund, sales tax is a significant revenue source that is dependent upon a variety of economic factors. For FY 2022-23, total sales tax revenues equaled $55,906,340 which is $2,641,616 or 5.0%, more than the prior year collections of $53,264,724. The anticipated FY 2023-24 collections total $57,545,000 which is 1.50% above the FY 2022-23 estimated collection. The chart below illustrates collections over the prior ten-year period with an estimate of collection in FY 2023-24.

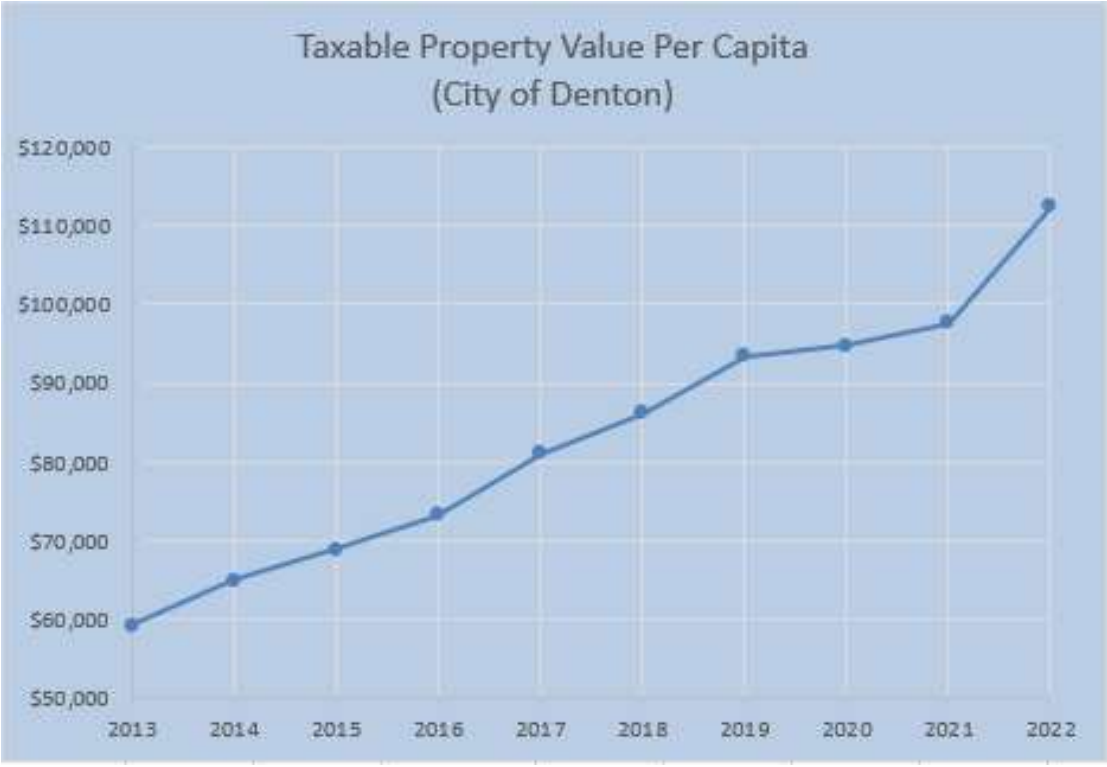


From a budgetary basis, the General Fund received $173.7 million in revenue and incurred $174.4 million in expenses resulting in a change in fund balance of $0.7 million.

The City of Denton's not seasonally adjusted annual unemployment average rate remains below state and on par with national levels at an average 3.6 percent in 2023 which has slightly increased compared to 3.2 percent average in FY2021-2022. The City of Denton issued 2,203 residential, commercial, multi-family building permits for FY2022-23, with an estimated value of $1,352 million (excluding City building, County buildings, schools, and churches). This compares to a total of 2,818 issued for FY2021-22 with an estimated value of $1,392 million. The overall permit numbers were down; primarily in single family residential, however values remain consistent due to an increase in multifamily housing.

The following two charts highlight the strength of the local economy over the last ten years by displaying the City of Denton's unemployment rate compared to Texas and the United States and the taxable property values per capita in the City of Denton.





https://data.bls.gov/timeseries/LNS14000000
https://texaslmi.com/
Accessed 2-15-24

Fiscal year 2022-23 the City continued to see indicators of a strong economic and development activity. Listed below are just a few of the highlights:

- The Rayzor Ranch mixed-use development is located on both the north and south sides of US Highway 380 in Denton. Rayzor Ranch Marketplace, on the north side of the development, has constructed over 500,000 square feet of retail and commercial space. Sam's Club and Wal-Mart anchor the development that includes Ulta Beauty, Starwood Cafe and Hanasato Sushi, as recent tenant additions. Home Depot is also under construction in the Marketplace. The Town Center also includes the Embassy Suites Hotel and Convention Center described in more detail below. In addition, a new 300-unit multifamily project, the Village at Rayzor Ranch, opened in late 2019, and construction began in 2020 and opened in 2021, on the Residences at Rayzor Ranch, a 40-acre site that will include 215 town homes,65 single family homes and 31 single-family homes. They began leasing three and four bedroom town homes this past summer. Cava Mezze Grill and Growler Bar are new restaurant tenants at the Town Center. Recent developments include an At Home and a future 148,000 square foot and $22.7 million Target store.
- O'Reilly Hotel Partners Denton (OHPD) opened the 70,000-square-foot Convention Center, 318-room LEED Gold Certified Embassy Suites Hotel and Houlihan's restaurant project in January 2018. The property was designated as a "2019 AAA Inspector's Best of Housekeeping Hotel," which ranks the hotel in the top 25% of 27,000 inspected hotels. In 2019, Hilton Worldwide recognized the Embassy Suites Denton Hotel and Convention Center as the #1 in Brand 2019 Connie Award winner, the highest distinction across all 17 Hilton Worldwide brands and the 258 eligible properties. As a major anchor for the Rayzor Ranch Town Center, the project capitalizes on the shopping, entertainment, and restaurants located nearby. The privately managed convention center is also expected to expand the City's convention business and overall tourism industry.
- Denton continued to see positive growth in the tech industry in FY 2022-23. Denton's coworking space and entrepreneur center, Stoke Denton, continues to serve as a training and mentorship hub. Stoke and Texas Woman's University (TWU) Center for Women Entrepreneurs (CWE) launched an incubator program, AccelerateHER. They accepted 8 entrepreneurs into the fourth round of the program who will participate in 5 months of workshops, mentorship and coaching to help support and grow their businesses. Twenty-six new members joined toke in 2022-2023 including 8 from the AccelerateHER cohort. Stoke hosted a Startup Crawl; Big Ideas Creative Mixer; the second and expanded Denton Pitch Competition and Expo; and the Flint Conference at Sunago Bell.
- Infill development in the downtown core includes a 60-80-unit multi-family development located in the current parking lot at 216 W. Mulberry Street. The project will utilize part of the former DATCU drive through. Lang Partners is developing the Railyard mixed-use Transit Oriented Development (TOD) near the Denton County Transit Authority (DCTA) station and former Trinity Industries site. The Railyard will include over 700 multi-family units that will occur over three phases of development. These projects will act as catalysts for future infill and TOD in Downtown Denton.
- A number of projects, which will total over 3 million square feet, are currently underway in the Westpark Tax Increment Reinvestment Zone (TIRZ) and industrial area.
  - Ironwood Realty Partners and Scannell Properties have partnered on an industrial project, Denton Crossing @ I-35, which will house approximately 1.2 million square feet of industrial speculative space along Western Boulevard. There will be a total of four buildings upon completion. Buildings 1 and 2 will have just under 700,000 square feet. Building 2 has completed construction. Building 3 is currently under construction and will comprise up to 398,000. Building 4 has been constructed and has 127,000 square feet of warehouse space. Elite Materials Logistics plans to occupy a building in phase 2 of the development.
  - Cowboy Distribution, a warehouse/distribution center facility on 10 acres north of Jim Christal Road and east of N. Western Boulevard, is in the platting stage.
  - Exeter has completed a building comprising 649,000 square feet, where W. Oak Street and Jim Christal meet, that will be the newest distribution center for Lowe's Home Improvement. Exeter is also constructing three buildings at the northeast corner of Western Blvd. and Jim Christal.

Construction has been competed for Building 3. The square footage of these buildings are 324,000 square feet, 421,000 square feet, and 1,076,000 square feet.

- Hunt Southwest is developing 23-acre site on S. Western Boulevard at Jim Christal Road at the I-35 Convergence. It is planned to have 250,080 square feet of warehouse space with a proposed build-to-suit on seven of the acres, for a 227,420 square foot building.
- Westpark Industrial, a 16-acre parcel, will include two speculative buildings at just over 100,000 square feet each. 251 N Western.
- Denton Point is comprised of two buildings totaling 242,320 square feet. Building 2 is a 130,000 SF facility located along Western Boulevard. Denton Point is a rail-served development for manufacturing and supply chain uses. Westcore, based in San Diego, purchased Denton Point for $32 million. Denton 1 is occupied by a shipping and logistics operation, DHL.Westpark Industrial is located on a 15-acre parcel on S. Western Boulevard, south of the Tyson plat, that is divided into two sites that each have speculative buildings at totaling 242,378 square feet.

FINANCIAL INFORMATION AND FINANCIAL POLICY

The City's financial direction begins with the City's Charter, which is the basis for all financial policies the City implements. The City maintains financial policies for general operations, which include policies for financial management and fund balances, budget compliance, debt issuance and management, accounts payable, water service, and purchasing, among others.

The City's accounting records for general governmental operations are maintained on a modified accrual basis, with revenues being recorded when available and measurable, and expenditures being recorded when the liability is incurred. Proprietary (including Internal Service Funds) operations are maintained on a full accrual basis.

The City's Annual Operating Budget is proposed by the City Manager and approved by the City Council following public discussion. The City's Charter requires adoption of the City's budget by no later than September 30th. The budget structure is organized by funds. Normally, funds are segregated for the purpose of carrying on specific activities or attaining certain objectives in accordance with special regulations, restrictions, or limitations. The two types of funds utilized in the budget are Governmental and Proprietary (including Internal Service Funds). Budgetary control is maintained at the fund level by the Finance Department. All legally required funds are budgeted annually. The specific funds that make up the Governmental Fund type are General Fund, General Debt Service Fund, Street Improvement Fund, Tourist and Convention Fund, Police Confiscation Fund, Catalyst Fund (formerly Economic Development Investment Fund)*, Parks Gas Well Fund, Roadway Impact Fee Fund, Tree Mitigation Fund, Public Education Government (PEG) Fund, McKenna Trust Fund, Park Land Dedication and Development Trust Funds, Downtown Tax Increment Reinvestment Zone (TIRZ) Fund, Westpark Tax Increment Reinvestment Zone (TIRZ) Fund, Miscellaneous Special Revenue Funds, and Sustainability Framework Fund. The Proprietary Fund types are Electric Fund, Water Fund, Wastewater Fund, Solid Waste Fund, Customer Service Fund, Airport Fund, Technology Services Fund, Materials Management Fund, Fleet Management Fund, Health Insurance Fund, Risk Retention Fund, Engineering Services Fund and Facilities Management.

LONG-TERM FINANCIAL PLANNING

In conjunction with this document, interested parties are encouraged to read the City of Denton's FY 2023-24 Annual Budget document. This document details the City's strategic plan, long-term financial policies, program accomplishments, and other key initiatives. The document also includes the long-term financial forecasts for each of the major funds, and a summary of the assumptions that are included in these plans. In addition, the budget document provides an overview of the adopted Capital Improvement Program and planned future debt issuances. The Annual Budget can be accessed through the City's web site at www.cityofdenton.com and selecting Financial Transparency under the "Open Government" link.

RELEVANT FINANCIAL POLICIES

The City of Denton maintains reserve balances for emergencies. In the General Fund, the target reserve level is a minimum of 20% of budgeted expenditures with an additional 5% resiliency reserve for a combined total of 25% to provide stability and flexibility for the organization. As described in the accompanying ACFR document, the unassigned fund balance is $44.6 million, or 24.2%, of the budgeted General Fund expenditures for the fiscal year ended September 30, 2023.

Beginning in FY 2011-12, the City adopted a policy which requires a minimum ending working capital balance (current assets minus current liabilities) of at least 8% of budgeted expenditures for the Electric, Water, Wastewater and Solid Waste Funds. If the working capital level should fall below the desired minimum, the City will implement necessary corrective action with a five-year plan to restore the working capital balance to 8% of budgeted expenditures.

Additionally, rate reserve levels were established for the Electric, Water, Wastewater, and Solid Waste Funds in FY 2011-12 according to the unique operational aspects of each utility. The rate reserve levels were most recently revised in FY 2020-21 based on the factors of revenue stability, expense and demand volatility, infrastructure age, debt levels and management plans for the use of these reserves. The rate reserve level is established at a range of 38% to 61% of expenses for the Electric Fund, at a range of 20% to 31% of expenses for the Wastewater Fund, at a range of 25% to 42% of expenses for the Water Fund, and at a range of 6% to 10% of expenses for the Solid Waste Fund. If the rate reserve level falls below the range, the City will implement the necessary corrective action within a five-year plan to restore the balances to the levels outlined above.

The City of Denton has adopted an Investment Policy which guides the investment of all City funds. In accordance with State law, the policy is reviewed annually by the City Council to ensure that public funds are being invested in a conservative and prudent fashion. In addition, the City also annually reviews and approves a Debt Management policy. The purpose of this policy is to provide general guidelines regarding the issuance of City debt and the use and limitation of such debt. The City complied with all aspects of the Investment and Debt Management policies during FY 2022-23.

MAJOR INITIATIVES

The City's Strategic Plan and Council specifically identified improving facility infrastructure as a major goal. In response to this goal, the FY 2023-24 Budget includes additional issuance of General Obligation Bonds. This increase in funding shows the City's continued commitment to facility infrastructure and equipment funding.

The combination of increased operating funding along with the issuance of debt shows the strong commitment to improving our infrastructure. In the future, the City staff will continue efforts to identify additional funding for facility infrastructure and equipment funding activities along with potential future debt issuances for street reconstruction to continue to improve the condition of the City's streets over the long term.

AWARDS AND ACKOWLEDGEMENTS

The Government Finance Officers' Association (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the City for its Annual Comprehensive Financial Report for the fiscal year ended September 30, 2022, for the thirty-seventh consecutive year. To be awarded the Certificate of Achievement in Financial Reporting, the City must publish an easily readable and efficiently organized Annual Comprehensive Financial Report. This report satisfies both generally accepted accounting principles and applicable legal requirements. The Certificate of Achievement is held for a period of one year only. We believe our current Annual Comprehensive Financial Report continues to meet the Certificate of Achievement requirements, and we are submitting it to GFOA to determine its eligibility for another certificate.

The City also received the GFOA award for Distinguished Budget Presentation for its fiscal year 2022-23 Annual Budget for the thirty-sixth consecutive year. To qualify for the Distinguished Budget Presentation Award, the City's budget document was judged according to its compliance with specific guidelines established by GFOA. These guidelines help ensure that Denton's budget is distinguished as an operations guide, financial plan, policy document, and communications device. The City has submitted its fiscal year 2023-24 Annual Budget to GFOA to determine its eligibility for another certificate. We believe it continues to meet the Distinguished Budget Presentation Award criteria.

The City received a Certificate of Distinction from the Government Treasurers of Texas (GTOT). The distinction was received for developing an investment policy that meets the requirements of the Public Funds Investment Act and the standards for prudent public investing as established by the GTOT. The GTOT awards an estimated 38 distinctions annually, which the City has received seven times since 1999.

In 2023, City of Denton was awarded the Five Transparency Stars by the Texas Comptroller, which recognizes cities, counties, special purpose districts and school districts to provide easy online access to important financial data. The City of Denton is only one of 14 local government in Texas to receive all five transparency stars. Transparency Stars are granted and maintained on an ongoing basis.

We would like to thank the City Council for their strong leadership and support that helped make the presentation of this report possible. We would also like to thank the City Manager, Finance staff, department directors, division heads and especially the Accounting Division staff for their diligent efforts in the preparation of the annual financial report.

Cassandra Ogden
Assistant City Manager

Jessica Williams
Chief Financial Officer, MPA, CPFO

APPENDIX B

EXCERPTS FROM THE

CITY OF DENTON, TEXAS

ANNUAL COMPREHENSIVE FINANCIAL REPORT

For the Year Ended September 30, 2023

The information contained in this Appendix consists of excerpts from the City of Denton, Texas Annual Comprehensive Financial Report for the Year Ended September 30, 2023, and is not intended to be a complete statement of the City's financial condition. Reference is made to the complete Report for further information.

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weaver
Assurance • Tax • Advisory

Independent Auditor's Report

To the Honorable Mayor
and Members of the City Council of the
City of Denton, Texas

Report on the Audit of the Financial Statements

Opinions

We have audited the financial statements of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of the City of Denton, Texas (City), as of and for the year ended September 30, 2023, and the related notes to the financial statements, which collectively comprise the City's basic financial statements as listed in the table of contents.

In our opinion, the accompanying financial statements present fairly, in all material respects, the respective financial position of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of the City, as of September 30, 2023, and the respective changes in financial position and, where applicable, cash flows thereof and the respective budgetary comparison for the General Fund for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS) and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States (*Government Auditing Standards*). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the City and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Emphasis of Matter

As discussed in Note I(18) to the basic financial statements, during the year ended September 30, 2023, the City implemented Governmental Accounting Standards Board (GASB) Statement No. 96, *Subscription-Based Information Technology Arrangements*. Our opinions are not modified with respect to this matter.

Responsibilities of Management for the Financial Statements

The City's management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the City's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Weaver and Tidwell, L.L.P.
2300 North Field Street, Suite 1000 | Dallas, Texas 75201
Main: 972.490.1970

The Honorable Mayor and
Members of the City Council of the
City of Denton, Texas

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the City's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the City's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control–related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and the required supplementary information, as listed in the table of contents, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with GAAS, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

The Honorable Mayor and
Members of the City Council of the
City of Denton, Texas

Supplementary Information

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the City's basic financial statements. The combining and individual fund financial statements and schedules, as listed in the table of contents, are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The combining and individual fund financial statements and schedules are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with GAAS. In our opinion, the other supplementary information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Other Information Included in the Annual Comprehensive Financial Report (ACFR)

Management is responsible for the other information included in the ACFR. The other information comprises the introductory and statistical sections but does not include the basic financial statements and our auditor's report thereon. Our opinions on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated March 12, 2024 on our consideration of the City's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the City's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the City's internal control over financial reporting and compliance.

Weaver and Tidwell, L.L.P.

WEAVER AND TIDWELL, L.L.P.

Dallas, Texas
March 12, 2024

CITY OF DENTON

Introduction

The Management's Discussion and Analysis is designed to (a) assist the reader in focusing on significant financial issues, (b) provide an overview of the City's financial activity, (c) identify changes in the City's financial position (its ability to address the next and subsequent years' challenges), (d) identify any material deviations from the financial plan (the approved budget), and (e) identify individual fund issues or concerns.

This narrative should be read in conjunction with the transmittal letter at the beginning of the report and the financial statements following this section.

Financial Highlights

- The assets and deferred outflows of the City exceeded its liabilities and deferred inflows at the close of the fiscal year ended September 30, 2023 by $1,549,081,740 (net position), an increase of 5.16 percent from prior year net position. Of this amount, $195,199,155 (unrestricted net position) may be used to meet the government's ongoing obligations to citizens and creditors.
- Net Pension Liability of the City is $137,889,556, as compared to $42,110,536 for the year ended September 30, 2022. Governmental Accounting Standards Board Statement No. 68, *Accounting and Financial Reporting for Pensions,* requires the City to report its net pension liability for participation in Texas Municipal Retirement System (TMRS) of the total Net Pensions Liability reported by the TMRS. As a result of recording the increase in the City's portion of net pension liability of $95,779,020, a decrease in deferred pension inflows of $49,630,391, and an increase in deferred pension outflows of $40,721,220.
- Governmental activities general and transfer revenues were $212,974,156 as compared to $185,360,068 for the year ended September 30, 2022. The increase of $27,614,088 is primarily driven by an increase in investment income, sales tax revenues, property tax, and franchise fees. Business-type activity general revenues and transfers were positive $13,372,331 compared to negative $3,268,523 for the year ended September 30, 2022. The increase is primarily driven by investment revenue.
- Governmental funds reported combined ending fund balances of $253,289,181 as of September 30, 2023 which is an increase of $15,228,014 from fiscal year 2021-2022 ending fund balance total of $238,061,167.
- The City's primary General Fund resources are property taxes, sales tax, and franchise fees. These combined resources account for 88.3 percent of total General Fund revenues which decreased 3.93 percent compared to last year's results.
- The City's long-term liabilities outstanding increased by $218,536,143 in fiscal year 2022-2023. The increase is primarily attributable to an increase of $109,886,602 of Certificates of Obligation and General Obligations Bonds Payable and the increase in net pension liability described above.

OVERVIEW OF THE FINANCIAL STATEMENTS

The Management's Discussion and Analysis is intended to serve as an introduction to the City of Denton's basic financial statements. The City's basic financial statements are comprised of three components: (1) government-wide financial statements, (2) fund financial statements and (3) notes to the financial statements. This report also contains other supplementary information in addition to the basic financial statements themselves.

Government-wide Financial Statements. The government-wide financial statements are designed to provide readers with a broad overview of the City's finances in a manner similar to a private-sector business.

The statement of net position presents information on all of the City's assets, liabilities, deferred inflows, and deferred outflows with the difference reported as net position. Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position of the City is improving or deteriorating.

The statement of activities presents information showing how the City's net position changed during the most recent fiscal year. All of the current year's revenues and expenses are considered regardless of when cash is received or paid. Thus, revenues and expenses are reported in this statement for some items that will only result in cash flows in future fiscal periods (e.g., uncollected taxes and earned but not used vacation leave). Both the statement of net position and the statement of activities are prepared using the accrual basis of accounting as opposed to the modified accrual basis.

In the Statement of Net Position and the Statement of Activities, the City is divided between two kinds of activities:

- **Governmental activities**. Most of the City's basic services are reported here, including police, fire, libraries, development, public services and operations, public works, building inspection, technology services and general administration. Property taxes, sales taxes, and franchise fees finance most of these activities.
- **Business-type activities**. The City charges a fee to customers to cover the cost of services it provides. The City's utility systems (electric, water and wastewater), solid waste, and airport activities are reported here.

Fund Financial Statements. A fund is a grouping of related accounts used to maintain control over resources that have been segregated for specific activities or objectives. Fund financial statements provide detailed information about the most significant funds, not the City as a whole. Some funds are required to be established by state law or bond covenants. However, the City Council establishes many other funds to help control and manage money for particular purposes or to show that it is meeting legal responsibilities for using certain taxes, grants and other monies. The following illustration summarizes the major features the City's financial statements. The City of Denton's funds are categorized as governmental, proprietary funds or fiduciary funds.

- **Governmental funds**. The majority of the City's basic services are reported in governmental funds, which focus on how money flows into and out of those funds and the balances left at year-end that are available for spending. These funds are reported using an accounting method identified as the modified accrual basis of accounting, which measures cash and all other financial assets that can readily be converted to cash. The governmental fund statements provide a detailed short-term view of the City's general government operations and the basic services it provides. Governmental fund information helps the reader determine whether there are more or fewer financial resources that can be spent in the near future to finance the City's programs. By comparing information presented for governmental funds with similar information presented for governmental activities in the government-wide financial statements, readers may better understand the long-term impact of the government's near-term financing decisions. The relationship or differences between governmental activities (reported in the Statement of Net Position and the Statement of Activities) and governmental funds are detailed in a reconciliation following the fund financial statements.

  The City of Denton maintains thirteen governmental funds. Information is presented separately in the governmental funds balance sheet and in the governmental funds statement of revenues, expenditures and changes in fund balances for the general fund, debt service fund, capital projects fund, and ARPA fund, all of which are considered to be major funds. Data from the other nine governmental funds are combined into a single, aggregated presentation. Individual fund data for eight of these non-major governmental funds, along with an aggregate of all other governmental funds, is provided in the form of combining statements elsewhere in this report.

- **Proprietary funds**. The City charges customers for certain services it provides, whether to outside customers or to other units within the City. These services are generally reported in proprietary funds. Proprietary funds are reported in the same manner that all activities are reported in the Statement of Net Position and the Statement of Activities. The City's enterprise funds are similar to the business-type activities that are reported in the government-wide statements but provide more detail and additional information, such as cash flows. The City's internal service funds are used to accumulate and allocate costs internally among the City of Denton's various functions. Both enterprise funds and internal service funds are components of proprietary funds.

The City of Denton maintains five enterprise funds. The City uses enterprise funds to account for its electric, water, wastewater, solid waste, and airport operations. The individual funds provide the same type of information as the government-wide financial statements only in more detail. The City considers all enterprise funds to be major funds.

The City of Denton maintains eight internal service funds. The City uses internal service funds to account for materials management, fleet services, health insurance, risk retention, technology services, engineering services, customer service, and facilities management. Because these services benefit both governmental and business-type functions, they have been included in both the governmental and business-type activities in the government-wide financial statements. Individual fund data for the internal service funds are provided in the form of combining statements in the combining and individual fund statements and schedules section of this report.

Notes to the financial statements.
The notes provide additional information that is essential to a full understanding of the data provided in the government-wide and fund financial statements.

Other Information.
The combining nonmajor fund statements and individual fund schedules are presented immediately following the notes to the financial statements.

GOVERNMENT-WIDE FINANCIAL ANALYSIS

As of September 30, 2023, the City's combined net position was $1,549,081,740 of which $446,287,278 can be attributed to governmental activities and $1,102,794,462 attributed to business-type activities. This analysis focuses on the net position (Table 1) and changes in net position (Table 2) of the City's governmental and business-type activities.

The largest portion of the City's net position (78.5%) reflects its investment in capital assets (e.g., land, building, machinery and equipment), less any related debt used to acquire those assets that is still outstanding. The City uses these capital assets to provide services to citizens; consequently, these assets are not available for future spending. Although the City's investment in its capital assets is reported net of related debt, it should be noted that the resources needed to repay this debt must be provided from other sources, since the capital assets themselves cannot be used to liquidate these liabilities.

Table 1
Net Position
(in thousands)

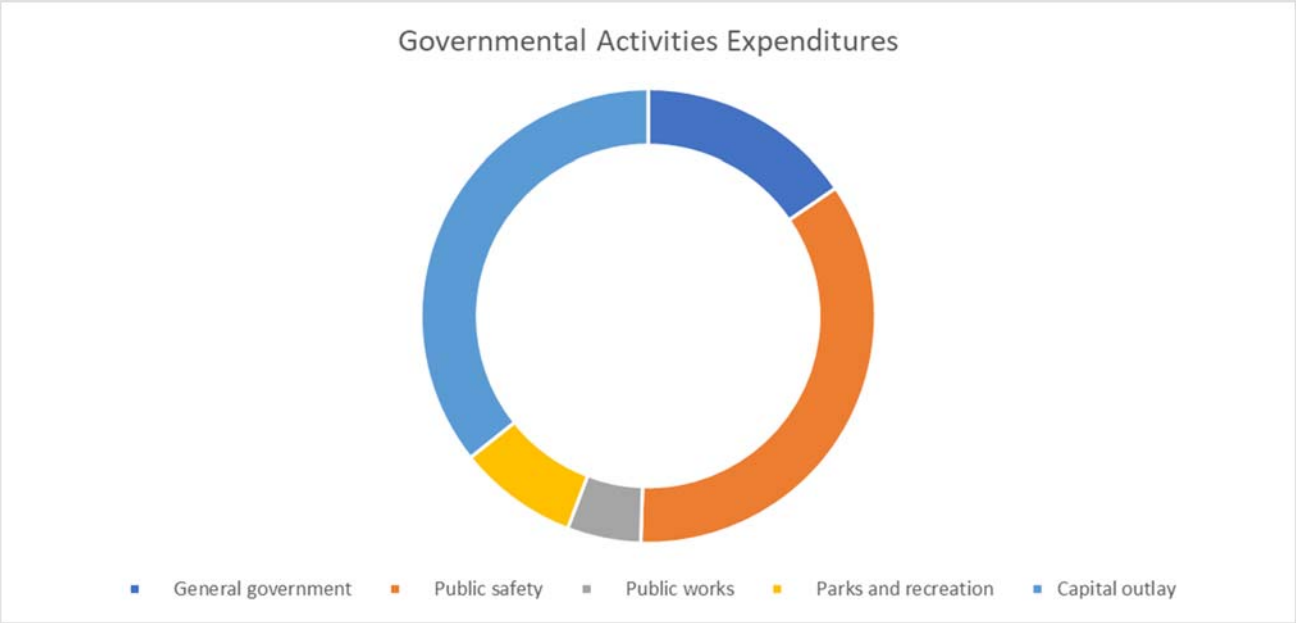
	Governmental Activities		Business-type Activities		Total	
	2023	2022	2023	2022	2023	2022
Current and other assets	$ 359,378	$ 362,233	$ 719,477	$ 709,978	$ 1,078,855	$ 1,072,211
Capital assets, net of accumulated depreciation/amortization	706,397	624,510	1,567,873	1,441,274	2,274,269	2,065,784
Total assets	1,065,775	986,743	2,287,350	2,151,252	3,353,124	3,137,995
Deferred outflows of resources	59,533	33,111	24,657	11,800	84,190	44,911
Long-term liabilities outstanding	579,628	465,067	1,152,527	1,048,553	1,732,155	1,513,620
Other liabilities	87,896	104,658	48,810	32,694	136,706	137,352
Total liabilities	667,524	569,725	1,201,337	1,081,247	1,868,861	1,650,972
Deferred inflows of resources	11,497	43,036	7,874	15,892	19,371	58,928
Net position:						
Net investment in capital assets	394,899	368,485	820,951	773,134	1,215,850	1,141,619
Restricted	42,216	35,793	95,817	73,714	138,033	109,507
Unrestricted	9,172	2,815	186,027	219,065	195,199	221,880
Total net position	$ 446,287	$ 407,093	$ 1,102,795	$ 1,065,913	$ 1,549,082	$ 1,473,006

Governmental activities increased the City's net position by $39,194,017. Business-type activities increased the City's net position by $36,881,172. The key elements of these increases are contained in Table 2.

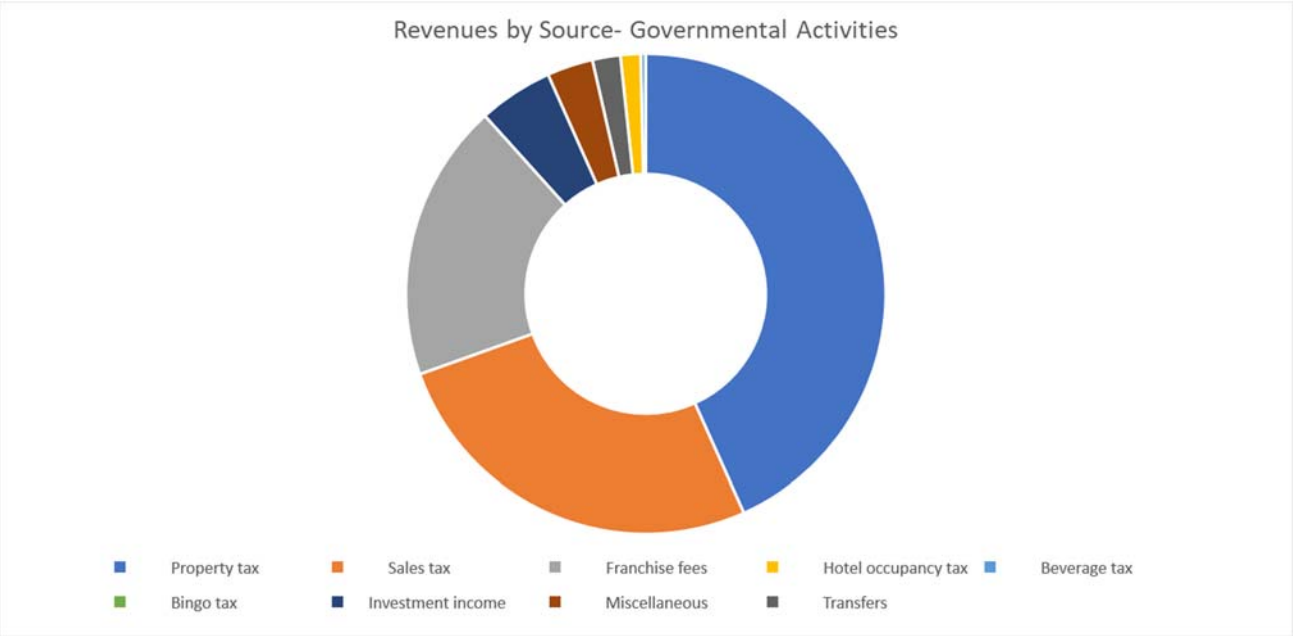
Table 2
Changes in Net Position
(in thousands)

	Governmental Activities		Business-type Activities		Total	
	2023	2022	2023	2022	2023	2022
Revenues:						
Program Revenues:						
Charges for services	$ 23,704	$ 25,204	$ 483,377	$ 449,116	$ 507,081	$ 474,320
Operating grants and contributions	10,624	9,545	-	-	10,624	9,545
Capital grants and contributions	27,352	34,407	28,043	52,663	55,395	87,070
General Revenues:						-
Property tax	92,186	79,553	-	-	92,186	79,553
Sales tax	55,906	53,265	-	-	55,906	53,265
Franchise tax	39,963	38,132	-	-	39,963	38,132
Hotel occupancy tax	2,895	3,684	-	-	2,895	3,684
Beverage tax	707	671	-	-	707	671
Bingo tax	17	15	-	-	17	15
Investment income (loss)	11,030	(973)	17,370	(647)	28,400	(1,620)
Gain on sale of capital assets	-	565	19	292	19	857
Miscellaneous	6,252	7,534	-	-	6,252	7,534
Total revenues	270,636	251,602	528,809	501,424	799,445	753,026
Expenses:						
General government	53,383	40,370	-	-	53,383	40,370
Public safety	104,695	87,971	-	-	104,695	87,971
Public works	39,087	25,489	-	-	39,087	25,489
Parks and recreation	28,096	22,787	-	-	28,096	22,787
Interest on long-term debt	10,198	8,572	-	-	10,198	8,572
Electric	-	-	364,624	270,422	364,624	270,422
Water	-	-	41,006	35,892	41,006	35,892
Wastewater	-	-	41,810	36,814	41,810	36,814
Solid waste	-	-	38,049	34,117	38,049	34,117
Airport	-	-	2,421	2,437	2,421	2,437
Total expenses	235,459	185,189	487,910	379,682	723,369	564,871
Increase in net position before transfers	35,177	66,413	40,899	121,742	76,076	188,155
Transfers	4,017	2,914	(4,017)	(2,914)	-	-
Increase in net position	39,194	69,327	36,882	118,828	76,076	188,155
Net position at beginning of year	407,093	337,766	1,065,913	947,085	1,473,006	1,284,851
Net position at end of year	$ 446,287	$ 407,093	$ 1,102,795	$ 1,065,913	$ 1,549,082	$ 1,473,006

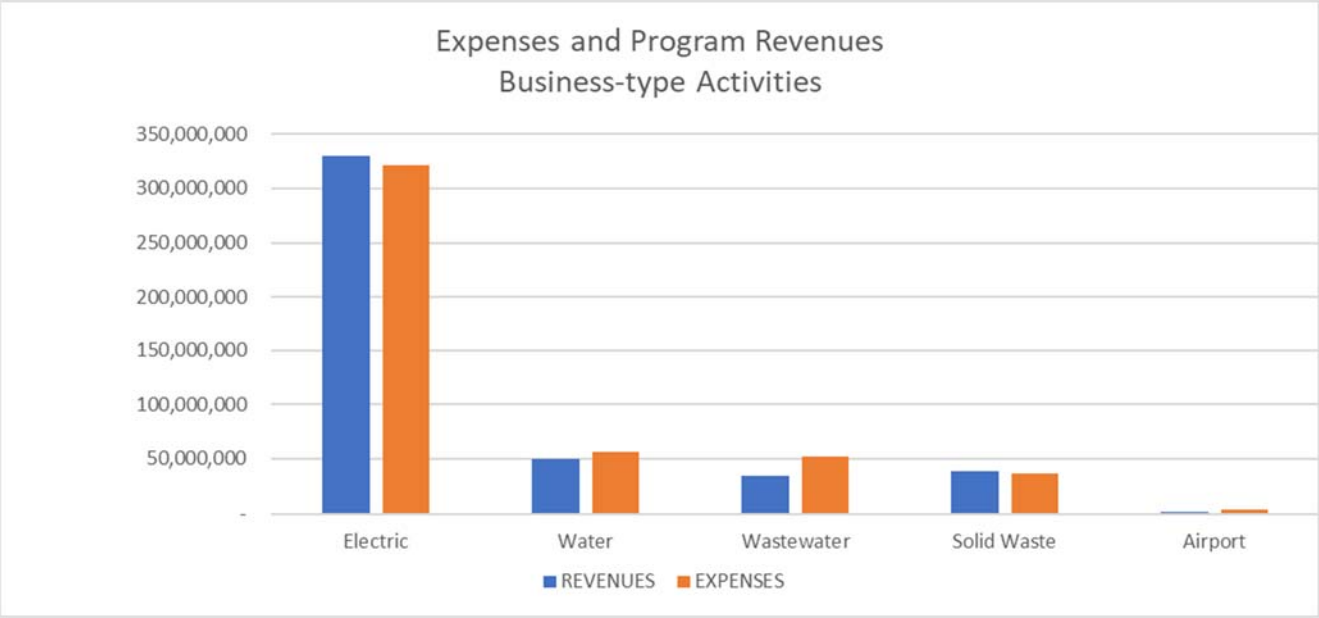
Governmental activities. Expenses for governmental activities reflect an increase of $50.3 million over the prior year. Increases include $13.0 million in General Government, $16.7 million for Public Safety, $13.6 million in Public Works, and $5.3 million for Parks and Recreation. The most significant governmental activities expense was in providing public safety, which incurred expenses of $104,695,335. The largest expense for public safety is the cost of personnel, which totaled $80,687,030. Last year the City added 32.0 new positions in public safety including 15.0 in the police department and 15.0 in the fire department.



Governmental expenses were funded by revenues collected from a variety of sources, with the largest being from property taxes, which are $92,185,668 for the fiscal year ended September 30, 2023. Governmental activities program revenues decreased $7.5 million over the prior year. Charges for Services decreased $1.5 million from general government and parks and recreation. Capital grants and contributions decreased $7.1 million from contributed asset revenues and American Rescue Plan Act (ARPA) funding for public works transportation and general government projects were completed. Operating grants and contributions increased $1.1 million from funding for public safety and parks and recreation. Governmental activities general revenues included an increase of $12.6 million for property tax due to rising values and new construction. Sales tax increased $2.6 million due to population and business growth. Investment income increased $12.0 million due to rising interest rates. Transfers reflect a net $4.0 million transfer in for governmental activities for the current year.



Business-type activities. Business-type activities increased the City's net position by $36,881,172. This accounts for 48.67% of the growth in the entity-wide net position. Total utility service revenues increased by $39.7 million. Electric charges for services increased by $39.0 million mainly due to an increase in Core Scientific revenues. No rate adjustments for electric, however there were various increases in water, wastewater, and solid waste rates through existing rates and additions of new rates in FY22-23. Water charges for services increased by $0.8 million as compared to the service charges from prior year. Wastewater charges increased $1.2 million compared to the prior year. Solid Waste charges for service provided a decreased of $1.5 million compared to the prior year. Airport charges for goods and services increased by $0.3 million. Water and Wastewater collected $15.8 million and $12.5 million in impact fees, respectively, reflecting a $1.5 million decrease over the prior year. Capital contributions reflected a decrease of $24.6 million from the prior year, 65.6% of this decrease relates to a year over year change in Wastewater utilities. The Airport gas well revenues contributed an additional $0.4 million revenue, a decrease of $0.6 million from the prior year. Gas well revenues continue to decline as many wells in the City are being systematically plugged. Total enterprise funds operating costs, before depreciation, increased $86.3 million. Electric operating costs, before depreciation, account for 78.4 percent of total enterprise fund expenses. Cost increases include purchase power costs of $69.4 million from the prior year. Expenses for personnel services and administrative costs increased by $4.0 million. Water expenses increased $4.3 million from the prior year, due to an increase in materials and supplies by 27 percent and administrative costs by 17 percent from prior year. Wastewater expenses increased $4.6 million, due to an increase in personnel and administrative costs. Solid Waste expenses increased $3.7 million from the prior year, due to increased personnel services of $2.3 million.



FINANCIAL ANALYSIS OF THE GOVERNMENT'S FUNDS

As noted earlier, the City uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements.

Governmental funds. The focus of the City's governmental funds is to provide information on near-term inflows, outflows, and balances of resources available to spend. Such information is useful in assessing the City's financing requirements. In particular, unassigned fund balance may serve as a useful measure of a government's net resources available for spending at the end of the fiscal year.

As of the end of the current fiscal year, the City's governmental funds reported a combined ending fund balance of $253.3 million, an increase of $15.2 million in comparison with the prior year. $44.2 million constitutes unassigned fund balance, which is available for spending at the government's discretion. The remainder of the

fund balance has been classified to indicate that it is not available for new spending because it has already been classified as restricted ($152.7 million), committed ($30.3 million), and assigned ($26.1 million).

The General Fund is the chief operating fund of the City. At September 30, 2023, the unassigned fund balance of the General Fund was $44.6 million, or 24.2% of budgeted general fund expenditures. Revenues were $14.7 million higher compared to the previous year primarily due to increases in taxes of $11.5 million, investment revenues of $2.7 million, and franchise fees of $2.9 million. Licenses and permits decreased $3.0 million. The net change in General Fund expenditures was $19.5 million higher compared to the previous year primarily due to increased costs related to personnel services and operations. Personnel costs increased $11.1 million over the prior year which includes a 4% cost of living adjustment (COLA). Public safety increased $9.6 million over the prior year due to the addition of 15.0 in the police department and 15.0 in the fire department.

At the end of the fiscal year, the Capital Projects Fund has a total fund balance of $160.8 million, an increase of $12.2 million. The total fund balance is made up of $125.9 million in restricted funds, $8.9 million in committed funds, and $26.1 million in assigned funds, all for capital construction and acquisition. In 2023, the City received $60.1 million of proceeds from the issuance of debt and recognized $14.0 million current year of regional toll revenues from the Texas Department of Transportation, while expending $96.5 million on construction and acquisition. In addition, the capital projects fund received $21.8 million of transfers from other funding sources. The City also received approximately $8.5 million in developer's contributed capital recorded in the government-wide financial statements. This is $12.9 million less than in the prior year.

The Debt Service Fund has a total fund balance of $1.1 million, all of which is restricted for the payment of debt service. As compared with the prior year results, the overall decrease in the debt service fund balance of $1.3 million. An increase of $3.0 million in tax revenue was offset by an increase of $2.9 million in principal and interest costs.

Proprietary funds. The City's proprietary funds provide the same type of information found in the government-wide financial statements, but in more detail.

Unrestricted net position at September 30, 2023 in proprietary funds are $83.4 million for Electric, $52.7 million for Water, $35.5 million for Wastewater, $10.6 million for Solid Waste, and $2.8 million for the Airport fund. The results reflect decreases of the unrestricted net position in the Electric Fund of $34.9 million, Wastewater of $4.1 million, partially offset by increases in the Water fund of $5.4 million, Solid Waste fund of $3.4 million, and Airport fund of $0.1 million. Other factors concerning the finances of these funds have already been addressed in the discussion of the City of Denton's business-type activities.

GENERAL FUND BUDGETARY HIGHLIGHTS

During fiscal year 2023, one formal amendment to adjust the City of Denton's Annual Program of Services was approved by Council. Council approved funding to provide for additional improvements and other administrative expenses. The additional funds increased the General Fund by $1.1 million for an additional 10 FTEs for police and planning departments.

GENERAL FUND BUDGET TO ACTUAL HIGHLIGHT

For fiscal year 2023, General Fund actual expenditures (including transfers) on a budgetary basis were $174.4 million compared to the final budget of $184.0 million. The $9.6 million favorable variance was primarily due to a one-time expense transfer savings of $13.9 million which partially offset increased costs of personnel services of $1.6 million and interfund-transfers and $4.7 million.

Actual revenues for the General Fund (including transfers and sale of capital asset) on a budgetary basis were $173.7 million compared to the final budget of $182.9 million. Included in the $9.2 million unfavorable revenue

variance was $14.5 million of transfers, $2.8 million of decreases in license and permits, $0.4 million of decreases in fines and forfeitures, and $1.5 million of decreases in intergovernmental revenue. These unfavorable variances were offset by increases of $5.2 million in franchise fees, $2.4 million in investment revenue, and $1.0 million in taxes.

The City of Denton's General Fund unassigned fund balance at September 30, 2023 is $44.6 million, or 24.2% of budgeted expenditures. Below is a listing of the ending unassigned balances for the prior year, as well as the fiscal year 2023 unassigned fund balance.

	Actual 9/30/2023	Actual 9/30/2022
Unassigned balance	$44,600,382	$45,459,406
% of final budgeted expenditures	24.2%	29.7%
Policy level	20% plus up to a 5% resiliency reserve	20% plus up to a 5% resiliency reserve

The largest revenue source of the General Fund's budget was the ad valorem tax. Denton's ad valorem tax rate is comprised of two components. The first is the operations and maintenance component that is used to calculate revenue for the City's General Fund operations. The second component is the debt portion that is used to calculate revenue to pay the City's general debt service obligations. The Denton Central Appraisal District's certified appraisal roll shows an increase of 15.0% compared to the prior year certified value, which showed an increase of 7.9%. The current property tax year included $1.0 billion of new growth and construction that was added to the tax rolls in Tax year 2022 as compared to Tax year 2021. The fiscal year 2023 ad valorem tax rate remained the same compared to fiscal year 2022 at $0.560682 per $100 of valuation.

CAPITAL ASSET AND DEBT ADMINISTRATION

Capital assets. At the end of fiscal year 2023, the City had $2.3 billion invested in a broad range of capital assets, including police and fire equipment, buildings, park facilities, roads, bridges, electrical infrastructure, water and sewer lines, SBITA assets and lease assets (see Table 3 below). This amount represents a net increase (including additions and deductions) of $208.5 million or 10.1% over the prior fiscal year.

Table 3
Capital Assets at Year-end
(Net of Accumulated Depreciation/Amortization, in Thousands)

	Governmental Activities		Business-type Activities		Totals	
	2023	2022	2023	2022	2023	2022
Land	$ 47,479	$ 30,865	$ 88,227	$ 76,044	$ 135,706	$ 106,909
Landfill improvements	-	-	2,358	3,855	2,358	3,855
Building and improvements	77,722	65,785	26,674	27,478	104,395	93,263
Plant, machinery and equipment	57,142	50,169	602,846	601,460	659,988	651,629
Water rights	-	-	45,957	46,653	45,957	46,653
Infrastructure	192,063	147,420	488,876	460,293	680,939	607,713
SBITA assets	8,950	-	3,032	-	11,982	-
Lease assets	244	-	-	-	244	-
Construction in progress	322,796	330,271	309,904	225,491	632,700	555,762
Total capital assets	$ 706,396	$ 624,510	$ 1,567,873	$ 1,441,274	$ 2,274,269	$ 2,065,784

This year's major asset additions included:

Description	Amount
Mayhill Phase 3	58,135,305
Police Substation & Firing Range	24,543,987
Locust-Hickory Transmission Line	15,822,787
Pecan Creek Tributary 4 at Locust & Highland	4,948,127
40 Acre Land Purchase	4,381,219
Magnolia Drainage Phase 2	4,256,602
Eagle Substation	3,831,801
Hickory Creek Lift	3,763,210
Gas Header Perimeter Road	3,695,794
Athletic Field Lighting	2,912,469
Pecan Creek Tributary 4	4,994,353
Stuart Ridge Phase 2	2,439,923
Laney Property Addition	2,410,560
Eagle Drive Drainage Phase 2	2,329,008
Country Lakes North Phase 6	2,034,705
	140,499,850

Additional information on the City's capital assets can be found in note IV. D. of this report.

Debt. At year-end, the City had $1,398.3 million in bonds and notes outstanding as compared to $1,293.3 million at the end of the prior fiscal year, an increase of 8.1%, as shown in Table 4.

Table 4
Outstanding Debt at Year-end
(in thousands)

	Governmental Activities		Business-type Activities		Totals	
	2023	2022	2023	2022	2023	2022
General obligation bonds	$ 258,005	$ 236,288	$ 111,900	$ 99,072	$ 369,905	$ 335,360
Certificates of obligation	134,630	118,055	573,285	506,945	707,915	625,000
Revenue bonds	-	-	320,520	332,955	320,520	332,955
Total	$ 392,635	$ 354,343	$1,005,705	$ 938,972	$ 1,398,340	$1,293,315

These amounts do not include net unamortized premiums/(discounts) of $87,550,894 nor net deferred gain/(loss) on refunding of $23,732.

During the fiscal year, the City issued two types of debt, both in July 2023. The first debt issuance included $72.6 million in general obligation refunding bonds of which $32.1 million was for business-type activities. Of this amount, $31.2 million was issued to pay the costs of bond election capital improvements for streets in the Capital Projects fund. The remaining $41.4 million was issued to refund outstanding debt obligations. The second debt issuance included $149.1 million ($118.0 million of which is included as part of business-type activities) in certificates of obligation. The debt was issued to pay the costs of various capital improvements in the Capital Projects Fund $29.8 million, the Electric Fund $68.3 million, the Water Fund $19.6 million, the Wastewater Fund $15.3 million, the Solid Waste Fund $14.8 million, the Fleet Fund $1.2 million and the Technology Fund $150 thousand.

Standard and Poor's Corporation has given both the City's General Obligation Bonds and Certificates of Obligation an "AA+" rating. Standard and Poor's Corporation has given the City's Utility System Revenue Bonds a rating of "A+". Fitch has given the City's General Obligation Bonds and the Certificates of Obligation a rating of "AA+." Fitch has given the City's Utility System Revenue Bonds a rating of "A". The City is permitted by Article XI, Section 5 of the State of Texas Constitution to levy taxes up to $2.50 per $100 of assessed valuation for general governmental services including the payment of principal and interest on general obligation long-term debt. The current ratio of tax-supported debt to certified assessed value of all taxable property is 2.9%.

Other long-term liabilities. The City maintains a self-insurance program for property, excess flood (for specific properties), general liability and excess general liability, aviation ground operations liability, auto liability and physical damage, public officials' liability, professional liability for EMT operations, employment practices liability, law enforcement professional liability, cyber, commercial crime, and workers' compensation. Private insurance companies cover claims for property loss on a per occurrence basis, except for specific perils, with deductibles that vary depending on location and property values, for workers' compensation losses over $1,000,000 per occurrence, and general liability over $500,000 per occurrence. The Risk Retention Fund has a reserve for claims and judgments of $4.9 million outstanding at year-end. Other obligations include pension liabilities, accrued vacation pay, and sick leave. More detailed information about the City's long-term liabilities is presented in Note IV. F.

The City's Electric Fund has a liability set up for claims and judgements of $2.7 million outstanding at year-end. More detailed information on this long-term liability can be found in note V.G. of this report.

ECONOMIC FACTORS AND NEXT YEAR'S BUDGETS AND RATES

While growth for the Denton community is expected to be moderate in the short term, demand for city services are expected to remain strong over the long term. As a result, the Budget had no tax rate increase, maintaining the City's current rate of $0.560682 per $100 valuation. While sales tax collections increased $2.6 million compared to the prior fiscal year $7.9 million increase, 2024 Budget projects an increase of 1.5% from actual fiscal year 2023 sales tax revenue. Budgeted funding enhancements for fiscal year 2024 include $4.9 million for general fund departments. The fiscal year 2024 Budget included 27 approved supplements for additional staff, increase in operating contracts and capital.

The unemployment rate for the City was 4.0 percent on September 30, 2023 compared to 3.2 percent as of September 30, 2022.

The fiscal year 2024 budget includes no rate changes for water, solid waste, or electric. Wastewater rates are to increase 11% to fund critical infrastructure required by growth and development.

REQUESTS FOR INFORMATION

This financial report is designed to provide a general overview of the City's finances for all those with an interest in the City's finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the City of Denton Finance Department, 215 E. McKinney, Denton, Texas 76201.

CITY OF DENTON, TEXAS **Exhibit I**
STATEMENT OF NET POSITION
AS OF SEPTEMBER 30, 2023

	Primary Government		
	Governmental Activities	Business-type Activities	Total
ASSETS:			
Cash, cash equivalents and investments, at fair value	$ 120,335,984	$ 151,209,900	$ 271,545,884
Receivables, net of allowances:			
Taxes	10,670,310	-	10,670,310
Accounts	-	22,067,176	22,067,176
Unbilled utility service	-	17,917,273	17,917,273
Interest	610,849	768,685	1,379,534
Other	3,488,134	10,125,949	13,614,083
Internal balances	(17,810,876)	17,926,309	115,433
Due from other governments	4,908,666	-	4,908,666
Inventory	17,995,493	-	17,995,493
Prepaid items	3,064	62,852,670	62,855,734
Other assets	-	142,260,039	142,260,039
Restricted assets:			
Cash, cash equivalents and investments, at fair value	217,139,479	292,379,571	509,519,050
Escrow deposits	204,000	-	204,000
Taxes	682,480	-	682,480
Accrued interest	1,058,651	1,486,335	2,544,986
Other receivables	91,991	13,180	105,171
Debt issuance costs - insurance	-	470,345	470,345
SBITA assets, net of accumulated amortization	8,950,445	3,031,667	11,982,112
Lease assets, net of accumulated amortization	244,437	-	244,437
Capital assets not being depreciated	370,274,508	398,131,010	768,405,518
Capital assets, net of accumulated depreciation	326,927,311	1,166,710,105	1,493,637,416
Total assets	1,065,774,926	2,287,350,214	3,353,125,140
DEFERRED OUTFLOWS OF RESOURCES:			
Deferred loss on refundings	228,768	1,007,830	1,236,598
Deferred pension balances	54,831,948	21,475,988	76,307,936
Deferred other post-employment benefit balances	4,472,057	2,172,779	6,644,836
Total deferred outflows of resources	59,532,773	24,656,597	84,189,370
LIABILITIES:			
Accounts payable	14,181,377	11,894,681	26,076,058
Retainage payable	96,204	391,488	487,692
Deposits	549,917	11,028,685	11,578,602
Accrued interest	87,445	-	87,445
Due to other governments	-	-	-
Other liabilities	923,925	-	923,925
Unearned revenue	45,856,762	-	45,856,762
Payable from restricted assets:			
Accounts payable	14,339,252	12,069,094	26,408,346
Retainage payable	9,766,769	5,253,861	15,020,630
Accrued interest	2,094,552	8,171,889	10,266,441
Noncurrent liabilities:			
Noncurrent liabilities due within one year	42,140,422	60,021,713	102,162,135
Noncurrent liabilities due in more than one year	537,487,278	1,092,506,726	1,629,994,004
Total liabilities	667,523,903	1,201,338,137	1,868,862,040
DEFERRED INFLOWS OF RESOURCES:			
Deferred lease revenues	1,214,933	2,001,723	3,216,656
Deferred gain on refundings	-	1,260,330	1,260,330
Deferred pension balances	375,549	-	375,549
Deferred other post-employment benefit balances	9,906,036	4,612,159	14,518,195
Total deferred inflows of resources	11,496,518	7,874,212	19,370,730
NET POSITION:			
Net investment in capital assets	394,899,297	820,950,533	1,215,849,830
Restricted for:			
Debt service	-	15,734,523	15,734,523
Parks and recreation	11,845,587	-	11,845,587
Capital acquisition	25,373,436	80,082,564	105,456,000
Other grants and purposes	4,996,645	-	4,996,645
Unrestricted	9,172,313	186,026,842	195,199,155
Total net position	$ 446,287,278	$ 1,102,794,462	$ 1,549,081,740

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON, TEXAS
STATEMENT OF ACTIVITIES
FOR THE YEAR ENDED SEPTEMBER 30, 2023

Exhibit II

		Program Revenues		
Functions/Programs	Expenses	Charges for Services	Operating Grants and Contributions	Capital Grants and Contributions
Primary government:				
Governmental activities:				
General government	53,383,319	9,008,753	5,299,256	2,420,321
Public safety	104,695,335	6,364,307	4,290,490	477,616
Public works	39,086,849	784,136	-	24,576,372
Parks and recreation	28,096,065	7,547,307	1,033,800	(122,503)
Interest expense	10,198,425	-	-	-
Total governmental activities	235,459,993	23,704,503	10,623,546	27,351,806
Business-type activities:				
Electric system	364,624,498	329,513,796	-	495,060
Water system	41,005,645	65,514,614	-	7,311,818
Wastewater system	41,810,385	47,276,024	-	19,257,307
Solid waste	38,049,052	39,176,607	-	-
Airport	2,421,380	1,896,148	-	978,427
Total business-type activities	487,910,960	483,377,189	-	28,042,612
Total primary government	723,370,953	507,081,692	10,623,546	55,394,418

(continued on the following page)

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON, TEXAS **Exhibit II**
STATEMENT OF ACTIVITIES (concluded)
FOR THE YEAR ENDED SEPTEMBER 30, 2023

	Net (Expense) Revenue and Changes in Net Position		
	Primary Government		
Functions/Programs	Governmental Activities	Business-type Activities	Total
Primary government:			
Governmental activities:			
General government	(36,654,989)	-	(36,654,989)
Public safety	(93,562,922)	-	(93,562,922)
Public works	(13,726,341)	-	(13,726,341)
Parks and recreation	(19,637,461)	-	(19,637,461)
Interest expense	(10,198,425)	-	(10,198,425)
Total governmental activities	(173,780,138)	-	(173,780,138)
Business-type activities:			
Electric system	-	(34,615,642)	(34,615,642)
Water system	-	31,820,787	31,820,787
Wastewater system	-	24,722,946	24,722,946
Solid waste	-	1,127,555	1,127,555
Airport	-	453,195	453,195
Total business-type activities	-	23,508,841	23,508,841
Total primary government	(173,780,138)	23,508,841	(150,271,297)
General revenues:			
Taxes:			
Property tax	92,185,668	-	92,185,668
Sales tax	55,906,340	-	55,906,340
Franchise fees	39,963,334	-	39,963,334
Hotel occupancy tax	2,894,816	-	2,894,816
Beverage tax	707,315	-	707,315
Bingo tax	16,581	-	16,581
Investment income	11,029,848	17,370,180	28,400,028
Gain on sale of capital assets	-	19,166	19,166
Miscellaneous	6,253,238	-	6,253,238
Transfers	4,017,015	(4,017,015)	-
Total general revenues and transfers	212,974,155	13,372,331	226,346,486
Change in net position	39,194,017	36,881,172	76,075,189
Net position at beginning of year	407,093,261	1,065,913,290	1,473,006,551
Net position at end of year	446,287,278	1,102,794,462	1,549,081,740

The notes to the basic financial statements are an integral part of this statement. **(concluded)**

CITY OF DENTON, TEXAS
BALANCE SHEET
GOVERNMENTAL FUNDS
AS OF SEPTEMBER 30, 2023

Exhibit III

	General Fund	Debt Service Fund	Capital Projects Fund	ARPA Fund	Other Governmental Funds	Total Governmental Funds
ASSETS:						
Cash, cash equivalents and investments, at fair value	$ 38,643,912	$ 1,097,793	$ 219,094,055	$ 10,794,790	$ 46,392,296	$ 316,022,846
Receivables, net of allowances for uncollectibles:						
Taxes	10,670,310	375,834	-	-	306,646	11,352,790
Accrued interest	198,376	5,581	1,113,782	9,744	234,947	1,562,430
Other	1,923,866	-	-	-	118,250	2,042,116
Interfund receivables	1,913,464	-	-	-	-	1,913,464
Due from other governments	2,121,889	-	667,315	-	2,119,462	4,908,666
Total assets	$ 55,471,817	$ 1,479,208	$ 220,875,152	$ 10,804,534	$ 49,171,601	$ 337,802,312
LIABILITIES:						
Accounts payable	6,858,050	-	14,616,336	95,464	983,679	22,553,529
Retainage payable	-	-	9,111,448	500,000	14,877	9,626,325
Interfund payables	-	-	-	-	988,306	988,306
Due to other governments	-	-	-	-	-	-
Other liabilities	923,925	-	-	-	-	923,925
Unearned revenues	-	-	35,635,491	10,209,070	12,201	45,856,762
Total liabilities	7,781,975	-	59,363,275	10,804,534	1,999,063	79,948,847
DEFERRED INFLOWS OF RESOURCES:						
Unavailable revenue - property taxes	623,276	340,805	-	-	-	964,081
Unavailable revenue - general services	1,310,217	-	-	-	-	1,310,217
Unavailable revenue - intergovernmental	1,033,801	-	667,314	-	466,705	2,167,820
Deferred inflows - leases	122,166	-	-	-	-	122,166
Total deferred inflows of resources	3,089,460	340,805	667,314	-	466,705	4,564,284
FUND BALANCES:						
Restricted for:						
Debt service	-	1,138,403	-	-	-	1,138,403
Parks and recreation	-	-	1,937,630	-	11,711,557	13,649,187
Streets and drainage projects	-	-	39,266,339	-	9,040,059	48,306,398
Other capital projects	-	-	84,667,842	-	-	84,667,842
Other grants and purposes	-	-	-	-	4,955,475	4,955,475
Committed to:						
Streets	-	-	8,809,621	-	8,994,528	17,804,149
Parks and recreation	-	-	60,000	-	-	60,000
Other purposes	-	-	43,628	-	12,410,978	12,454,606
Assigned to:						
Streets and drainage projects	-	-	16,382,349	-	-	16,382,349
Capital projects	-	-	9,677,154	-	-	9,677,154
Other purposes		-	-	-	750	750
Unassigned	44,600,382	-	-	-	(407,514)	44,192,868
Total fund balances	44,600,382	1,138,403	160,844,563	-	46,705,833	253,289,181
Total liabilities, deferred inflows of resources and fund balances	$ 55,471,817	$ 1,479,208	$ 220,875,152	$ 10,804,534	$ 49,171,601	$ 337,802,312

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON, TEXAS
RECONCILIATION OF THE BALANCE SHEET
OF GOVERNMENTAL FUNDS TO THE
STATEMENT OF NET POSITION
AS OF SEPTEMBER 30, 2023

Exhibit IV

Total fund balances - governmental funds (Exhibit III)		$	253,289,181
Amounts reported for governmental activities in the statement of net position are different because:			
Capital assets used in governmental activities are not financial resources and therefore are not reported as assets in governmental funds. Includes capital assets of internal service funds.			706,396,701
Certain receivables will be collected next year but are not available soon enough to pay for the current period's expenditures and therefore are reported as deferred inflows of resources in the funds.			4,442,118
Deferred outflows of resources are not reported in the governmental funds. Includes deferred outflows of internal service funds:			
Deferred loss on refundings	$ 228,768		
Deferred pension balances	54,831,948		
Deferred other post-employment benefits contributions	4,472,057		59,532,773
An internal charge to business-type activities is not recorded at the fund level.			(1,036,034)
Several internal service funds are used by the City's management to charge the costs of certain activities, such as insurance and fleet management, to individual funds. The assets, liabilities, deferred outflows, and deferred inflows of the internal service funds are included with governmental activities. Internal service fund balances not included in other reconciling items listed above or below:			
Current and other assets	$ 41,300,253		
Liabilities	(33,259,932)		
Deferred inflows	(1,092,767)		6,947,554
Long-term balances, including bonds payable, are not due and payable in the current period and therefore are not reported as liabilities in the funds. Includes balances of internal service funds. Long-term liabilities and related balances at year-end consist of:			
General obligation bonds payable	$ (258,005,000)		
Certificates of obligation payable	(134,630,000)		
Bond (premiums)/discounts	(28,677,480)		
Accrued interest on the bonds	(2,181,997)		
Capital leases payable	(247,072)		
Capital leases payable	(8,255,975)		
Net Pension Liability	(93,457,989)		
Total other post-employment benefits liability	(30,188,938)		
Compensated absences	(17,358,979)		(573,003,430)
Deferred inflows of resources are not reported in the governmental funds. Includes deferred outflows of internal service funds:			
Deferred pension balances and			
Deferred other post-employment benefits contributions			(10,281,585)
Total net position of governmental activities (Exhibit I)		$	446,287,278

The notes to the basic financial statements are an integral part of this exhibit.

CITY OF DENTON, TEXAS
STATEMENT OF REVENUES, EXPENDITURES,
AND CHANGES IN FUND BALANCES
GOVERNMENTAL FUNDS
FOR THE YEAR ENDED SEPTEMBER 30, 2023

Exhibit V

	General Fund	Debt Service Fund	Capital Projects Fund	ARPA Fund	Other Governmental Funds	Total Governmental Funds
REVENUES:						
Taxes	$ 113,955,253	$ 32,733,509	$ -	$ -	$ 4,741,503	$ 151,430,265
Licenses and permits	6,049,752	-	-	-	-	6,049,752
Franchise fees	22,851,663	-	-	-	17,111,671	39,963,334
Fines and forfeitures	1,961,982	-	-	-	456,971	2,418,953
Fees for services	9,662,872	-	-	-	5,698,489	15,361,361
Investment revenue	2,587,602	764,351	5,752,739	-	1,925,156	11,029,848
Intergovernmental	2,961,572	-	16,004,667	5,310,047	4,581,704	28,857,990
Miscellaneous	342,941	-	105,324	-	6,151,186	6,599,451
Total revenues	160,373,637	33,497,860	21,862,730	5,310,047	40,666,680	261,710,954
EXPENDITURES:						
Current:						
General government	33,498,180	-	127,035	2,696,843	7,082,626	43,404,684
Public safety	96,317,917	-	59,168	208,172	2,018,239	98,603,496
Public works	3,454,541	-	-	-	11,300,388	14,754,929
Parks and recreation	15,781,789	-	189,747	-	7,989,514	23,961,050
Capital outlay	475,410	-	96,501,790	2,405,032	975,345	100,357,577
Debt service:						
Principal retirement	-	22,555,789	-	-	-	22,555,789
Bond refunding	-	178,390	-	-	-	178,390
Bond issuance costs	-	55,015	438,055	-	-	493,070
Interest and other charges	-	12,754,569	-	-	-	12,754,569
Total expenditures	149,527,837	35,543,763	97,315,795	5,310,047	29,366,112	317,063,554
Excess (deficiency) of revenues over (under) expenditures	10,845,800	(2,045,903)	(75,453,065)	-	11,300,568	(55,352,600)
OTHER FINANCING SOURCES (USES):						
Refunding bonds issued	-	9,300,000	-	-	-	9,300,000
Payment to refunded bond agent	-	(10,156,875)	-	-	-	(10,156,875)
Issuance of long-term debt	-	-	60,075,000	-	-	60,075,000
Premium on debt issuance	-	911,669	5,899,840	-	-	6,811,509
Proceeds from sale of capital assets	198,474	-	-	-	7,252	205,726
Transfers in	25,750	717,980	21,840,279	-	11,324,732	33,908,741
Transfers out	(11,929,048)	-	(125,725)	-	(17,508,714)	(29,563,487)
Total other financing sources (uses)	(11,704,824)	772,774	87,689,394	-	(6,176,730)	70,580,614
Net change in fund balances	(859,024)	(1,273,129)	12,236,329	-	5,123,838	15,228,014
Fund balance at beginning of year	45,459,406	2,411,532	148,608,234	-	41,581,995	238,061,167
Fund balances at end of year	$ 44,600,382	$ 1,138,403	$ 160,844,563	$ -	$ 46,705,833	$ 253,289,181

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON, TEXAS **Exhibit VI**

RECONCILIATION OF THE STATEMENT OF REVENUES, EXPENDITURES, AND CHANGES IN FUND BALANCES OF GOVERNMENTAL FUNDS TO THE STATEMENT OF ACTIVITIES

FOR THE YEAR ENDED SEPTEMBER 30, 2023

Net change in fund balances - total governmental funds (Exhibit V)	**$ 15,228,014**
Amounts reported for governmental activities in the statement of activities are different because:	
Governmental funds report capital outlays as expenditures. However, in the statement of activities the cost of those assets is allocated over their estimated useful lives and reported as depreciation expense. This amount represents the difference between capital outlay of $101,868,370 and depreciation of $27,363,415 (which is the net of overall governmental activities depreciation of $32,005,311 less internal service fund depreciation of $4,641,896).	**74,504,955**
Revenues in the statement of activities that do not provide current financial resources are not reported as revenues in the funds. Such amounts are recorded in the funds when considered available.	**773,488**
The net effect of various miscellaneous transactions involving capital assets (i.e., SBITA, leases, sales, trade-ins and donations) is to decrease net position.	**(5,250,530)**
Bond proceeds provide current financial resources to governmental funds, but issuing debt increases long-term liabilities in the statement of net position. Repayment of bond principal is an expenditure in the governmental funds, but the repayment reduces long-term liabilities in the statement of net position. This is the amount by which proceeds exceeded payments.	**(37,564,497)**
Fund-level financials report costs related to bonds as expenditures; however, these are deferred and amortized on the government-wide financials.	**(3,876,627)**
Certain expenses reported in the statement of activities do not require the use of current financial resources and therefore are not reported as expenditures in governmental funds.	**(2,894,878)**
Internal service funds are used by management to charge the costs of certain activities, such as insurance and technology services, to individual funds. A portion of the net revenue (expense) of certain internal service funds is reported with governmental activities. The amount reported with business-type activities is ($3,011,695).	**(1,725,908)**
Change in net position of governmental activities (Exhibit II)	**$ 39,194,017**

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON

CITY OF DENTON, TEXAS
STATEMENT OF REVENUES, EXPENDITURES AND
CHANGES IN FUND BALANCE - BUDGET TO ACTUAL
GENERAL FUND
FOR THE YEAR ENDED SEPTEMBER 30, 2023

Exhibit VII

	Budgeted Amounts		Actual	Adjustments - Budgetary	Actual on a Budgetary	Variance with Final Budget - Positive
	Original	Final	Amounts	Basis	Basis	(Negative)
REVENUES:						
Taxes	$ 112,957,687	$ 112,957,687	$ 113,955,253	$ -	$ 113,955,253	$ 997,566
Licenses and permits	8,806,895	8,858,784	6,049,752	-	6,049,752	(2,809,032)
Franchise fees	17,660,041	17,660,041	22,851,663	-	22,851,663	5,191,622
Fines and forfeitures	2,396,756	2,396,756	1,961,982	-	1,961,982	(434,774)
Fees for services	8,827,339	8,345,643	9,662,872	-	9,662,872	1,317,229
Investment revenue	150,000	150,000	2,587,602	-	2,587,602	2,437,602
Intergovernmental	3,594,259	4,475,289	2,961,572	-	2,961,572	(1,513,717)
Miscellaneous	392,749	250,526	342,941	-	342,941	92,415
Total revenues	154,785,726	155,094,726	160,373,637	-	160,373,637	5,278,911
EXPENDITURES:						
Current:						
General government	54,604,776	54,657,704	33,498,180	4,663,099	38,161,279	16,496,425
Public safety	87,130,085	88,023,221	96,317,917	(5,571,790)	90,746,127	(2,722,906)
Public works	3,099,512	3,099,512	3,454,541	(405,206)	3,049,335	50,177
Parks and recreation	15,770,631	15,617,719	15,781,789	(601,943)	15,179,846	437,873
Capital outlay	588,567	539,186	475,410	-	475,410	63,776
Total expenditures	161,193,571	161,937,342	149,527,837	(1,915,840)	147,611,997	14,325,345
Excess (deficiency) of revenues over (under) expenditures	(6,407,845)	(6,842,616)	10,845,800	1,915,840	12,761,640	19,604,256
OTHER FINANCING SOURCES (USES):						
Proceeds from sale of capital assets	500,000	191,000	198,474	-	198,474	7,474
Transfer in	27,573,659	27,573,659	25,750	13,074,286	13,100,036	(14,473,623)
Transfers out	(21,659,276)	(22,023,060)	(11,929,048)	(14,839,310)	(26,768,358)	(4,745,298)
Total other financing sources (uses)	6,414,383	5,741,599	(11,704,824)	(1,765,024)	(13,469,848)	(19,211,447)
Net change in fund balance	6,538	(1,101,017)	(859,024)	150,816	(708,208)	392,809
Fund balances at beginning of year	45,459,406	45,459,406	45,459,406	-	45,459,406	-
Fund balance at end of year	$ 45,465,944	$ 44,358,389	$ 44,600,382	$ 150,816	$ 44,751,198	$ 392,809

Adjustments - Budgetary Basis are expenditures allocated to and reimbursed by other funds. These expenditures are recorded in the other funds' financials.

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON, TEXAS **Exhibit VIII**
STATEMENT OF NET POSITION
PROPRIETARY FUNDS
AS OF SEPTEMBER 30, 2023

	Business-type Activities - Enterprise Funds		
	Utility System		
	Electric Fund	Water Fund	Wastewater Fund
ASSETS:			
Current assets:			
Cash, cash equivalents and investments, at fair value	$ 36,132,024	$ 54,245,224	$ 41,215,104
Receivables, net of allowances:			
Accounts	14,329,661	3,973,144	1,960,753
Unbilled utility service	10,813,193	3,131,546	2,067,728
Accrued interest	183,680	275,758	209,520
Other	9,421,718	-	979
Interfund receivables	14,582,614	1,845,326	346,901
Merchandise inventory	-	-	-
Prepaid items	62,852,670	-	-
Other Assets	142,260,039	-	-
Total current assets	290,575,599	63,470,998	45,800,985
Noncurrent assets:			
Restricted assets:			
Cash, cash equivalents and investments, at fair value	96,038,223	78,857,977	79,692,149
Escrow deposit	-	-	-
Accrued interest	488,218	400,881	405,121
Other receivables	-	-	-
Total restricted assets	96,526,441	79,258,858	80,097,270
Unamortized debt issuance costs - insurance	470,345	-	-
Lease assets, net of accumulated amortization	-	-	-
SBITA assets, net of accumulated amortization	2,731,632	300,035	-
Capital assets, net of accumulated depreciation	730,958,477	393,014,222	360,140,870
Total noncurrent assets	830,686,895	472,573,115	440,238,140
Total assets	1,121,262,494	536,044,113	486,039,125
DEFERRED OUTFLOWS OF RESOURCES:			
Deferred charges on refunding	391,140	573,794	-
Deferred pension balances	10,059,343	3,533,709	3,056,491
Deferred other post employment benefit balances	776,170	420,259	440,549
Total deferred outflows of resources	11,226,653	4,527,762	3,497,040
LIABILITIES:			
Current liabilities:			
Accounts payable	7,895,455	1,748,235	1,176,111
Retainage payable	-	224,700	7,557
Claims payable	-	-	-
Compensated absences payable	1,377,459	409,066	327,106
Deposits	8,984,521	849,069	603,939
Accrued interest	-	-	-
Interfund payables	-	-	-
Payable from restricted assets:			
Accounts payable	3,510,373	5,921,770	2,636,951
Retainage payable	2,720,749	1,752,177	780,935
Accrued interest	6,722,680	581,511	598,336
Certificate, general obligation, and revenue bonds	39,757,051	8,870,673	5,259,050
Total current liabilities paid from restricted assets	52,710,853	17,126,131	9,275,272
Total current liabilities	70,968,288	20,357,201	11,389,985

(continued on the following page)

CITY OF DENTON, TEXAS
STATEMENT OF NET POSITION
PROPRIETARY FUNDS
AS OF SEPTEMBER 30, 2023

Exhibit VIII

	Business-type Activities - Enterprise Funds			Governmental Activities - Internal Service Funds
	Solid Waste Fund	Airport Fund	Total Enterprise Funds	
ASSETS:				
Current assets:				
Cash, cash equivalents and investments, at fair value	$ 16,400,058	$ 3,217,490	$ 151,209,900	$ 16,874,346
Receivables, net of allowances:				
Accounts	1,729,712	73,906	22,067,176	-
Unbilled utility service	1,904,806	-	17,917,273	-
Accrued interest	83,371	16,356	768,685	83,796
Other	703,252	-	10,125,949	1,538,009
Interfund receivables	-	-	16,774,841	-
Merchandise inventory	-	-	-	17,995,493
Prepaid items	-	-	62,852,670	3,064
Other Assets	-	-	142,260,039	-
Total current assets	20,821,199	3,307,752	423,976,533	36,494,708
Noncurrent assets:				
Restricted assets:				
Cash, cash equivalents and investments, at fair value	34,577,503	3,213,719	292,379,571	4,578,271
Escrow deposit	-	-	-	204,000
Accrued interest	175,778	16,337	1,486,335	23,274
Other receivables	-	128,614	128,614	-
Total restricted assets	34,753,281	3,358,670	293,994,520	4,805,545
Unamortized debt issuance costs - insurance	-	-	470,345	-
Lease assets, net of accumulated amortization	-	-	-	244,437
SBITA assets, net of accumulated amortization	-	-	3,031,667	5,401,047
Capital assets, net of accumulated depreciation	60,854,648	19,872,898	1,564,841,115	17,295,782
Total noncurrent assets	95,607,929	23,231,568	1,862,337,647	27,746,811
Total assets	116,429,128	26,539,320	2,286,314,180	64,241,519
DEFERRED OUTFLOWS OF RESOURCES:				
Deferred charges on refunding	42,896	-	1,007,830	-
Deferred pension balances	4,497,800	328,645	21,475,988	9,186,971
Deferred other post employment benefit balances	512,741	23,060	2,172,779	910,357
Total deferred outflows of resources	5,053,437	351,705	24,656,597	10,097,328
LIABILITIES:				
Current liabilities:				
Accounts payable	1,035,310	39,570	11,894,681	5,967,100
Retainage payable	159,231	-	391,488	-
Claims payable	-	-	-	4,773,339
Compensated absences payable	476,482	43,736	2,633,849	1,096,254
Deposits	573,359	17,797	11,028,685	549,917
Accrued interest	-	-	-	87,445
Interfund payables	-	-	-	17,700,000
Payable from restricted assets:				
Accounts payable	-	-	12,069,094	-
Retainage payable	-	-	5,253,861	236,648
Accrued interest	269,362	-	8,171,889	-
Certificate, general obligation, and revenue bonds	3,501,090	-	57,387,864	726,375
Total current liabilities paid from restricted assets	3,770,452	-	82,882,708	963,023
Total current liabilities	6,014,834	101,103	108,831,411	31,137,078

(continued on the following page)

CITY OF DENTON, TEXAS **Exhibit VIII**
STATEMENT OF NET POSITION
PROPRIETARY FUNDS
AS OF SEPTEMBER 30, 2023

	Business-type Activities - Enterprise Funds		
	Utility System		
	Electric Fund	Water Fund	Wastewater Fund
Noncurrent liabilities:			
General obligation bonds payable	$ 63,472,877	$ 23,855,385	$ 7,756,304
Certificates of obligation	377,974,492	74,184,018	98,081,920
Revenue bonds payable	322,283,491	-	-
Notes payable	7,500,000	-	-
Compensated absences payable	504,343	93,624	81,149
Claims and judgement payable	2,700,000	-	-
Lease liability	-	-	-
SBITA liability	2,670,421	-	-
Net pension liability	20,554,357	7,011,082	6,915,503
Total other post-employment benefits liability	5,393,320	2,888,277	3,248,856
Landfill closure/postclosure costs	-	-	-
Total noncurrent liabilities	803,053,301	108,032,386	116,083,732
Total liabilities	874,021,589	128,389,587	127,473,717
DEFERRED INFLOWS OF RESOURCES:			
Deferred inflows - leases	1,311,866	-	-
Deferred charges on refundings	815,186	200,196	171,219
Deferred pension balances	-	-	-
Deferred other post employment benefit balances	1,644,319	934,171	877,385
Total deferred inflows of resources	3,771,371	1,134,367	1,048,604
NET POSITION:			
Net investment in capital assets	155,519,365	311,885,499	295,125,869
Restricted for debt service	15,734,523	-	
Restricted for capital acquisition	-	46,426,615	30,425,893
Unrestricted	83,442,299	52,735,807	35,462,082
Total net position	$ 254,696,187	$ 411,047,921	$ 361,013,844

(continued on the following page)

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON, TEXAS **Exhibit VIII**
STATEMENT OF NET POSITION (concluded)
PROPRIETARY FUNDS
AS OF SEPTEMBER 30, 2023

	Business-type Activities - Enterprise Funds			Governmental Activities - Internal Service Funds
	Solid Waste Fund	Airport Fund	Total Enterprise Funds	
Noncurrent liabilities:				
General obligation bonds payable	$ 4,766,311	$ -	$ 99,850,877	$ -
Certificates of obligation	34,815,752	-	585,056,182	9,147,438
Revenue bonds payable	-	-	322,283,491	-
Notes payable	-	-	7,500,000	-
Compensated absences payable	216,478	28,337	923,931	231,577
Claims and judgement payable	-	-	2,700,000	4,032,928
Lease liability	-	-	-	247,072
SBITA liability	-	-	2,670,421	5,003,121
Net pension liability	9,283,642	666,983	44,431,567	16,781,884
Total other post-employment benefits liability	3,319,660	175,406	15,025,519	5,870,388
Landfill closure/postclosure costs	12,064,738	-	12,064,738	-
Total noncurrent liabilities	64,466,581	870,726	1,092,506,726	41,314,408
Total liabilities	70,481,415	971,829	1,201,338,137	72,451,486
DEFERRED INFLOWS OF RESOURCES:				
Deferred inflows - leases	689,857	-	2,001,723	1,092,767
Deferred charges on refundings	73,729	-	1,260,330	-
Deferred pension balances	-	-	-	-
Deferred other post employment benefit balances	1,100,279	56,005	4,612,159	2,045,195
Total deferred inflows of resources	1,863,865	56,005	7,874,212	3,137,962
NET POSITION:				
Net investment in capital assets	38,546,902	19,872,898	820,950,533	12,398,166
Restricted for debt service	-	-	15,734,523	-
Restricted for capital acquisition	-	3,230,056	80,082,564	-
Unrestricted	10,590,383	2,760,237	184,990,808	(13,648,767)
Total net position	$ 49,137,285	$ 25,863,191	$ 1,101,758,428	$ (1,250,601)
Adjustment to reflect inclusion of internal service fund activities related to enterprise funds.			1,036,034	
Net position of business-type activities (Exhibit I)			$ 1,102,794,462	

The notes to the basic financial statements are an integral part of this statement. **(concluded)**

CITY OF DENTON, TEXAS **Exhibit IX**
STATEMENT OF REVENUES, EXPENSES AND
CHANGES IN FUND NET POSITION
PROPRIETARY FUNDS
FOR THE YEAR ENDED SEPTEMBER 30, 2023

	Business-type Activities - Enterprise Funds		
	Utility System		
	Electric Fund	Water Fund	Wastewater Fund
OPERATING REVENUES:			
Utility services	$ 325,539,428	$ 48,493,256	$ 32,834,806
Charges for goods and services	-	-	-
Other fees	3,974,368	1,193,346	1,894,212
Miscellaneous	-	-	-
Total operating revenues	329,513,796	49,686,602	34,729,018
OPERATING EXPENSES:			
Operating expenses before depreciation and amortization	311,690,293	27,848,534	27,486,644
Depreciation and amortization	27,500,779	10,201,146	10,912,258
Total operating expenses	339,191,072	38,049,680	38,398,902
Operating income (loss)	(9,677,276)	11,636,922	(3,669,884)
NON-OPERATING REVENUES (EXPENSES):			
Investment revenue	5,831,510	5,086,788	4,675,751
Interest expense and fiscal charges	(22,140,363)	(2,741,192)	(3,066,478)
Impact fee revenue	-	15,828,012	12,547,006
Gain on disposal of capital assets	(4,806,647)	6,815	12,351
Gas well revenues	-	-	-
Other non-operating revenues (expenses)	3,219,121	165,658	840
Total non-operating revenues (expenses)	(17,896,379)	18,346,081	14,169,470
Income (loss) before contributions and transfers	(27,573,655)	29,983,003	10,499,586
CONTRIBUTIONS AND TRANSFERS:			
Capital contributions	495,060	7,311,818	19,257,307
Transfers in	280	158	235,210
Transfers out	(898,330)	(1,241,640)	(1,166,030)
Total contributions and transfers	(402,990)	6,070,336	18,326,487
Change in net position	(27,976,645)	36,053,339	28,826,073
Net position at beginning of year	282,672,832	374,994,582	332,187,771
Total net position at end of year	$ 254,696,187	$ 411,047,921	$ 361,013,844

(continued on the following page)

The notes to the basic financial statements are an integral part of this statement.

CITY OF DENTON, TEXAS
STATEMENT OF REVENUES, EXPENSES AND CHANGES IN FUND NET POSITION (concluded)
PROPRIETARY FUNDS
FOR THE YEAR ENDED SEPTEMBER 30, 2023

Exhibit IX

	Business-type Activities - Enterprise Funds			Governmental Activities -
	Solid Waste Fund	Airport Fund	Total Enterprise Funds	Internal Service Funds
OPERATING REVENUES:				
Utility services	$ 38,775,920	$ 1,491,409	$ 447,134,819	$ -
Charges for goods and services	-	-	-	111,112,099
Other fees	400,687	-	7,462,613	-
Miscellaneous	-	24,300	24,300	3,820,268
Total operating revenues	39,176,607	1,515,709	454,621,732	114,932,367
OPERATING EXPENSES:				
Operating expenses before depreciation and amortization	29,216,319	1,469,952	397,711,742	115,285,585
Depreciation and amortization	7,135,414	1,113,881	56,863,478	4,641,896
Total operating expenses	36,351,733	2,583,833	454,575,220	119,927,481
Operating income (loss)	2,824,874	(1,068,124)	46,512	(4,995,114)
NON-OPERATING REVENUES (EXPENSES):				
Investment revenue	1,434,635	341,496	17,370,180	1,044,283
Interest expense and fiscal charges	(974,635)	35,298	(28,887,370)	(468,129)
Impact fee revenue	-	-	28,375,018	-
Gain on disposal of capital assets	(175,852)	-	(4,963,333)	5,227
Gas well revenues	-	380,439	380,439	-
Other non-operating revenues (expenses)	12,205	148,000	3,545,824	715
Total non-operating revenues (expenses)	296,353	905,233	15,820,758	582,096
Income (loss) before contributions and transfers	3,121,227	(162,891)	15,867,270	(4,413,018)
CONTRIBUTIONS AND TRANSFERS:				
Capital contributions	-	978,427	28,042,612	3,654
Transfers in	56,317	-	291,965	102,207
Transfers out	(235,000)	(767,980)	(4,308,980)	(430,446)
Total contributions and transfers	(178,683)	210,447	24,025,597	(324,585)
Change in net position	2,942,544	47,556	39,892,867	(4,737,603)
Net position at beginning of year	46,194,741	25,815,635	1,061,865,561	3,487,002
Total net position at end of year	$ 49,137,285	$ 25,863,191	$ 1,101,758,428	$ (1,250,601)

Change in fund net position of proprietary funds	39,892,867
Adjustment to reflect inclusion of internal service fund activities related to enterprise funds.	(3,011,695)
Change in net position of business-type activities (Exhibit II)	$ 36,881,172

The notes to the basic financial statements are an integral part of this statement. (concluded)

CITY OF DENTON, TEXAS
STATEMENT OF CASH FLOWS
PROPRIETARY FUNDS
FOR THE YEAR ENDED SEPTEMBER 30, 2023

Exhibit X

	Business-type Activities - Enterprise Funds		
	Utility System		
	Electric Fund	Water Fund	Wastewater Fund
CASH FLOWS FROM OPERATING ACTIVITIES:			
Cash received from customers	$ 330,209,746	$ 47,775,516	$ 34,349,222
Cash paid to employees for services	(22,214,059)	(9,286,092)	(8,388,593)
Cash paid to suppliers	(311,947,442)	(11,566,974)	(17,346,876)
Net cash provided (used) by operating activities	(3,951,755)	26,922,450	8,613,753
CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES:			
Transfers out	(898,330)	(1,241,640)	(1,166,030)
Transfers in	280	158	235,210
Proceeds from issuance of non-capital debt	7,500,000	-	-
Principal payments on non-capital debt	(7,040,000)	-	-
Interest and fiscal charges on non-capital debt	(729,625)	-	-
Net cash provided (used) by noncapital financing activities:	(1,167,675)	(1,241,482)	(930,820)
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES:			
Proceeds from issuance of debt	98,656,702	22,775,264	40,983,448
Principal payments on capital debt	(55,329,654)	(8,171,352)	(29,067,893)
Principal payments under capital lease obligation	-	-	-
Interest and fiscal charges	(26,486,476)	(3,649,243)	(8,220,540)
Acquisition of lease assets	-	-	-
Lease liability	-	-	-
Acquisition of SBITA assets	(3,652,376)	(347,936)	-
SBITA liability	2,670,421	-	-
Proceeds from gas wells	-	-	-
Proceeds from impact fees	-	15,828,012	16,817,006
Proceeds from lease financing	-	-	-
Proceeds from capital contributions and transfers in	-	-	-
Proceeds from sale or reimbursement of capital assets	75,637	6,815	12,390
Acquisition and construction of capital assets	(59,005,069)	(50,157,408)	(38,813,049)
Net cash provided (used) by capital financing activities	(43,070,815)	(23,715,848)	(18,288,638)
CASH FLOWS FROM INVESTING ACTIVITIES:			
Proceeds from sale and maturities of investment securities	106,302,712	67,015,691	69,846,567
Purchase of investment securities	(88,486,843)	(80,953,683)	(74,485,065)
Interest received on investments	5,151,141	4,290,275	4,422,326
Proceeds from ownership investment	3,219,121	-	-
Net cash provided (used) by investing activities	26,186,131	(9,647,717)	(216,172)
Net increase (decrease) in cash and cash equivalents	(22,004,114)	(7,682,597)	(10,821,877)
Cash and cash equivalents at beginning of year	53,579,687	39,481,318	39,706,711
Cash and cash equivalents at end of year	31,575,573	31,798,721	28,884,834
Investments, at fair value (Note IV.A.)	100,594,674	101,304,480	92,022,419
Cash, cash equivalents and investments, at fair value	$ 132,170,247	$ 133,103,201	$ 120,907,253
RECONCILIATION OF OPERATING INCOME (LOSS) TO NET CASH PROVIDED (USED) BY OPERATING ACTIVITIES:			
Operating income (loss)	$ (9,677,276)	$ 11,636,922	$ (3,669,884)
Adjustments:			
Depreciation and amortization expense	27,500,779	10,201,146	10,912,258
Decrease (Increase) in receivables	2,369,416	(1,429,579)	(364,835)
Decrease (Increase) in interfund receivables	(4,679,779)	(481,507)	(14,961)
Decrease (Increase) in inventories	-	-	-
Decrease (Increase) in customer deposits	3,115,636	-	-
Decrease (Increase) in prepaid items	(38,248,308)	-	-
Decrease (Increase) in other assets	8,807,096	-	-
Increase in escrow deposits	-	6,432,041	-
Increase (Decrease) in accounts payable	5,744,024	-	1,231,693
Decrease in unearned revenue	-	-	-
Increase (Decrease) in compensated absences payable	185,990	43,486	40,510
Increase (Decrease) in net municipal pension balances	1,250,820	436,887	393,769
Increase (Decrease) in other post-employment benefit balances	159,699	83,054	85,203
Increase (Decrease) in closure/postclosure liability	-	-	-
Increase (Decrease) in interfund payables	(370,529)	-	-
Increase (Decrease) in lease deferred inflows	(109,323)	-	-
Total adjustments	5,725,521	15,285,528	12,283,637
Net cash provided (used) by operating activities	$ (3,951,755)	$ 26,922,450	$ 8,613,753
NONCASH CAPITAL, INVESTING AND FINANCING ACTIVITIES:			
Decrease in fair value of investments	778,386	419,326	477,681
Increase (Decrease) in equity due to non-cash transfers	280	-	-
Capital asset contributions	495,060	7,311,818	19,257,307

The notes to the basic financial statements are an integral part of this statement.

(continued on the following page)

CITY OF DENTON, TEXAS
STATEMENT OF CASH FLOWS (concluded)
PROPRIETARY FUNDS
FOR THE YEAR ENDED SEPTEMBER 30, 2023

Exhibit X

	Business-type Activities - Enterprise Funds			Governmental Activities
	Solid Waste Fund	Airport Fund	Total Enterprise Funds	Internal Service Funds
CASH FLOWS FROM OPERATING ACTIVITIES:				
Cash received from customers	$ 38,988,630	$ 1,513,197	$ 452,836,311	$ 115,048,949
Cash paid to employees for services	(12,118,726)	(759,247)	(52,766,717)	(23,549,281)
Cash paid to suppliers	(16,181,786)	(636,680)	(357,679,758)	(85,865,980)
Net cash provided (used) by operating activities	10,688,118	117,270	42,389,836	5,633,688
CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES:				
Transfers out	(235,000)	(767,980)	(4,308,980)	(430,446)
Transfers in	56,317	-	291,965	102,207
Proceeds from issuance of non-capital debt	-	-	7,500,000	-
Principal payments on non-capital debt	-	-	(7,040,000)	-
Interest and fiscal charges on non-capital debt	-	-	(729,625)	-
Net cash provided (used) by noncapital financing activities:	(178,683)	(767,980)	(4,286,640)	(328,239)
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES:				
Proceeds from issuance of debt	7,357,088	-	169,772,502	4,048,014
Principal payments on capital debt	5,258,606	-	(87,310,293)	(3,230,889)
Principal payments under capital lease obligation	-	-	-	(1,243)
Interest and fiscal charges	(555,086)	-	(38,911,345)	(479,599)
Acquisition of lease assets	-	-	-	244,437
Lease liability	-	-	-	(247,073)
Acquisition of SBITA assets	-	-	(4,000,312)	(7,160,374)
SBITA liability	-	-	2,670,421	5,003,121
Proceeds from gas wells	-	553,971	553,971	-
Proceeds from impact fees	-	-	32,645,018	-
Proceeds from lease financing	-	-	-	2,636
Proceeds from capital contributions and transfers in	-	1,004,341	1,004,341	3,654
Proceeds from sale or reimbursement of capital assets	-	-	94,842	2,961
Acquisition and construction of capital assets	(9,263,149)	83,229	(157,155,446)	(6,554,770)
Net cash provided (used) by capital financing activities	2,797,459	1,641,541	(80,636,301)	(8,369,125)
CASH FLOWS FROM INVESTING ACTIVITIES:				
Proceeds from sale and maturities of investment securities	9,287,391	1,948,105	254,400,466	10,583,911
Purchase of investment securities	(22,959,398)	(3,313,470)	(270,198,459)	(10,557,694)
Interest received on investments	1,187,932	323,246	15,374,920	939,531
Proceeds from ownership investment	-	-	3,219,121	-
Net cash provided (used) by investing activities	(12,484,075)	(1,042,119)	2,796,048	965,748
Net increase (decrease) in cash and cash equivalents	822,819	(51,288)	(39,737,057)	(2,097,928)
Cash and cash equivalents at beginning of year	11,355,759	1,587,709	145,711,184	7,520,137
Cash and cash equivalents at end of year	12,178,578	1,536,421	105,974,127	5,422,209
Investments, at fair value (Note IV.A.)	38,798,983	4,894,788	337,615,344	16,030,408
Cash, cash equivalents and investments, at fair value	$ 50,977,561	$ 6,431,209	$ 443,589,471	$ 21,452,617
RECONCILIATION OF OPERATING INCOME (LOSS) TO NET CASH PROVIDED (USED) BY OPERATING ACTIVITIES:				
Operating income (loss)	$ 2,824,874	$ (1,068,124)	$ 46,512	$ (4,995,114)
Adjustments:				
Depreciation and amortization expense	7,135,414	1,113,881	56,863,478	4,641,896
Decrease (Increase) in receivables	(38,235)	(2,512)	534,255	241,368
Decrease (Increase) in interfund receivables	-	-	(5,176,247)	-
Decrease (Increase) in inventories	-	-	-	(3,681,707)
Decrease (Increase) in customer deposits	(122,056)	-	2,993,580	-
Decrease (Increase) in prepaid items	-	-	(38,248,308)	13,759
Decrease (Increase) in other assets	-	-	8,807,096	-
Increase in escrow deposits	-	-	6,432,041	61,201
Increase (Decrease) in accounts payable	(734,325)	9,768	6,251,160	2,796,631
Decrease in unearned revenue	-	-	-	-
Increase (Decrease) in compensated absences payable	90,579	24,131	384,696	21,951
Increase (Decrease) in net municipal pension balances	(129,066)	35,566	1,987,976	1,485,748
Increase (Decrease) in other post-employment benefit balances	799,421	4,560	1,131,937	(83,911)
Increase (Decrease) in closure/postclosure liability	1,012,793	-	1,012,793	-
Increase (Decrease) in interfund payables	(123,595)	-	(494,124)	5,229,219
Increase (Decrease) in lease deferred inflows	(27,686)	-	(137,009)	(97,353)
Total adjustments	7,863,244	1,185,394	42,343,324	10,628,802
Net cash provided (used) by operating activities	$ 10,688,118	$ 117,270	$ 42,389,836	$ 5,633,688
NONCASH CAPITAL, INVESTING AND FINANCING ACTIVITIES:				
Decrease in fair value of investments	65,783	12,202	1,753,378	92,029
Increase (Decrease) in equity due to non-cash transfers	178,683	-	178,963	-
Capital asset contributions	-	978,427	28,042,612	3,654

The notes to the basic financial statements are an integral part of this statement.

(concluded)

I. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The City of Denton is a municipal corporation governed by an elected seven-member council consisting of a mayor elected at large and six councilpersons, four representing specific geographical districts and two elected at large. The City receives funding from state and federal government sources and must comply with the requirements of these funding source entities. However, the City is not included in any other governmental "reporting entity," as defined in pronouncements by the Governmental Accounting Standards Board (GASB), as council members are elected by the public and have decision-making authority, the authority to levy taxes, the power to designate management, the ability to significantly influence operations, and primary accountability for fiscal matters.

The financial statements of the City have been prepared to conform to accounting principles generally accepted (GAAP) in the United States of America as applicable to state and local governments. Generally accepted accounting principles for local governments include principles prescribed by GASB, the accepted standard-setting body for establishing governmental accounting and financial reporting principles. The following is a summary of the more significant policies.

A. Reporting Entity

An elected seven-member council consisting of a mayor and six councilpersons govern the City. As required by accounting principles generally accepted in the United States of America, these financial statements present the City (the primary government) and its component units, which are entities for which the City is considered to be financially accountable. Blended component units, although legally separate entities, are, in substance, part of the City's operations, and so data from these units are combined with data of the primary government. A discretely presented component unit, on the other hand, is reported in a separate column in the government-wide financial statements to emphasize it is legally separate from the City. The City had no component units, discretely presented or blended, at September 30, 2023.

B. Government-wide and Fund Financial Statements

The basic financial statements include both government-wide (based on the City as a whole) and fund financial statements. The reporting focus is either the City as a whole (government-wide financial statements) or major individual funds (within the fund financial statements). The government-wide financial statements (i.e., the statement of net position and the statement of activities) report information on all non-fiduciary activities of the primary government. For the most part, the effect of inter-fund activity has been removed from these statements. Governmental activities, which normally are supported by taxes and intergovernmental revenues, are reported separately from business-type activities, which rely to a significant extent on fees and charges for support.

The government-wide statement of activities demonstrates the degree to which the direct expenses of a functional category (public safety, public works, etc.) or segment are offset by program revenues. Direct expenses are those that are clearly identifiable with a specific function or segment. Program revenues include (1) charges to customers or applicants who purchase, use or directly benefit from goods, services or privileges provided by a given function or segment; (2) grants and contributions that are restricted to meeting operational requirements of a particular function or segment; and (3) grants and contributions that are restricted to meeting the capital requirements of a particular function or segment. Taxes and other items not properly included among program revenues are reported instead as general revenues.

The net cost (by function or business-type activity) is normally covered by general revenue (property taxes, sales taxes, franchise fees, interest income, etc.).

Separate fund financial statements are provided for governmental funds and proprietary funds. Major governmental funds and major enterprise funds are reported as separate columns in the fund financial statements. GASB Statement No. 34 sets forth minimum criteria (percentage of assets, liabilities, revenues or expenditures/expenses of either fund category and for the governmental and enterprise funds combined) for the determination of major funds. Non-major funds are combined in a column in the fund financial statements.

Internal service funds, which traditionally provide services primarily to other funds of the government, are presented in summary form as part of the proprietary fund financial statements. The financial statements of internal service funds are allocated (based on the percentage of goods or services provided) between the governmental and business-type activities when presented at the government-wide level.

The government-wide focus is more on the sustainability of the City as an entity and the change in aggregate financial position resulting from the activities of the fiscal period. The focus of the fund financial statements is on the major individual funds of the governmental and business-type categories, as well as the fiduciary funds (by category). Each presentation provides valuable information that can be analyzed and compared to enhance the usefulness of the information.

C. Measurement Focus, Basis of Accounting and Financial Statement Presentation

The government-wide financial statements are reported using the economic resources measurement focus and the accrual basis of accounting, as are the proprietary fund statements. Revenues are recorded when earned, and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows. Property taxes are recognized as revenues in the year for which they are levied. Grants and similar items are recognized as revenue as soon as all eligibility requirements imposed by the provider have been met.

Governmental fund-level financial statements are reported using the current financial resources measurement focus and the modified accrual basis of accounting. Revenues are recognized, and susceptible to accrual, as soon as they are both measurable and available. Revenues are considered to be available when they are collectible within the current period or soon enough thereafter to pay liabilities of the current period. For this purpose, the government considers revenues to be available if they are collected within 60 days of the end of the current fiscal period. Any amounts collected beyond the 60 days are recorded as deferred inflows of resources. Expenditures generally are recorded when a liability is incurred, as under accrual accounting. However, debt service expenditures, as well as expenditures related to compensated absences and claims and judgments, are recorded only when payment is due.

The City reports the following major governmental funds:

The general fund is the City's primary operating fund. All general tax revenues and other receipts that are not allocated by law or contractual agreement to some other fund are accounted for in this fund. From the fund are paid general operating costs, fixed charges and capital improvement costs that are not paid through other funds.

The debt service fund accounts for the accumulation of financial resources for the payment of principal, interest and related costs on general long-term debt, paid primarily by taxes levied by the City. On a budgetary-basis, the debt service fund also accounts for pass-through debt service payments from the self-supporting proprietary funds.

The capital projects fund accounts for financial resources used for the acquisition or construction of capital other than those recorded in the enterprise funds and internal service funds.

The ARPA fund accounts for the federal resources received by the City from the American Rescue Plan Act of 2021 and used for the programs as outlined by the plan.

Other governmental funds are a summarization of all of the non-major governmental funds.

The City reports the following major proprietary funds:

The City utility system is made up of three separate funds as follows:

The electric fund accounts for electrical utility services to the residents and commercial establishments of the City. Activities necessary to provide such services are accounted for in the fund, including, but not limited to, administration, operations, maintenance, finance and related debt service.

The water fund accounts for water utility services to the residents and commercial establishments of the City. Activities necessary to provide such services are accounted for in the fund, including, but not limited to, administration, operations, maintenance, finance and related debt service.

The wastewater fund accounts for sewer and storm water services to the residents and commercial establishments of the City. Activities necessary to provide such services are accounted for in the fund, including, but not limited to, administration, operations, maintenance, finance and related debt service.

The City provides additional services through the following funds:

The solid waste fund accounts for the provision of solid waste services to the residents of the City. Activities necessary to provide such services are accounted for in the fund, including, but not limited to, administration, operations, maintenance, finance and related debt service.

The airport fund accounts for the airport services to the public and is funded through operational and gas well revenues. Activities necessary to provide such services are accounted for in the fund, including, but not limited to, administration, operations, maintenance, and finance.

The City additionally reports the following funds:

Internal service funds are used to account for the financing of materials and services provided by one department of the City to other departments of the City on a cost-reimbursement basis.

The materials management fund accounts for the financing of the goods and services of the purchasing department as well as the management and inventory of the City warehouse activities.

The fleet services fund accounts for the financing of goods and services provided by the activities of the City garage and machine shop to other departments.

The health insurance fund accounts for the accumulation of resources for the self-insurance activities of the City for employee medical insurance as well as other employee insurance benefits including long-term disability, short-term disability, and dental and vision insurances.

The risk retention fund accounts for the accumulation of resources for the payment of activities associated with providing general liability insurance coverage and self-funded activities for City departments.

The technology services fund accounts for financing and management of technology equipment, software, and services such as programming, support, training, maintenance, and office services to City departments.

The engineering services fund accounts for providing engineering, real estate, public works inspection, and development review services primarily to City departments although some services are provided to and paid by external entities.

The customer service fund accounts for providing customer service activities to residents and businesses for City departments. Services include bill pay, utility service requests, connect/disconnect services, maintenance of customer accounts, utility billing, operator calls, collections, accounts receivable, and cash handling.

The facilities fund accounts for the maintenance of all city-owned facilities and vertical construction projects.

The City does not have any fiduciary funds as of fiscal year ending September 30, 2023.

Proprietary funds distinguish operating revenues and expenses from non-operating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with a proprietary fund's principal ongoing operations. The principal operating revenues of the City's electric, water, wastewater, solid waste, and airport funds are charges to customers for services. Operating expenses for the enterprise funds and internal service funds include the cost of sales and services, administrative expenses and depreciation on capital assets. All revenues and expenses not meeting this definition are reported as non-operating revenues and expenses.

When both restricted and unrestricted resources are available for use, it is the City's policy to use restricted resources first, then unrestricted resources as they are needed.

D. Budgetary Information

The City Council follows these procedures, as prescribed by City Charter, in establishing the budgets reflected in the financial statements:

1. Within the time period required by law, the City Manager submits to the City Council a proposed budget for the fiscal year beginning on the following October 1. The operating budget includes proposed expenditures and the means of financing them.
2. Public hearings are conducted prior to the adoption of the budget in order to obtain taxpayer comments.
3. The annual budget adopted by the City Council covers the general fund, non-major special revenue funds (Recreation Fund, Police Confiscation Fund, Tourist and Convention Fund, Gas Well Revenues Fund, Street Improvement Fund, and the Citizens' Park Trusts), the debt service fund, the enterprise funds, and internal service funds. The budget is legally enacted by the City Council through passage of an ordinance prior to the beginning of the fiscal year. The basic financial statements reflect the legal level of control, (i.e. the level at which expenditures cannot legally exceed the appropriated amount) which is established at the total fund level as approved by City Council.
4. The City Charter provides for the City Manager to transfer any part of the unencumbered appropriation balance or the entire balance thereof between programs or general classifications of expenditures within an office, department, agency or organizational unit. (The City Council defines an organizational unit as set forth in Article VIII, Section 8.07 of the City Charter, to be a fund that has been appropriated by the City Council.) City Council approval is not required up to the fund level. The Charter also provides that at any time during the year, at the request of the City Manager, City Council may by resolution transfer any part of the unencumbered appropriation balance or the entire balance thereof from one office, department, agency, or organizational unit to another, as well as make any increases in fund appropriations.

Budgets are adopted on a basis for the governmental funds and the budgeted special revenue funds that is generally consistent with generally accepted accounting principles. Budgets for enterprise funds are prepared on the full accrual basis, except certain noncash transactions such as depreciation expense and amortization on debt issuance costs where it is not budgeted, and debt service payments where it is budgeted. Also, during the budgetary process, amounts are included in all fund budgets to recognize administrative transfers between funds for goods or services. These amounts are not included in the reporting of actual activity for the funds. For funds reporting required budget-to-actual comparisons, these administrative transfers are included as adjustments – budgetary basis.

Appropriations in all budgeted funds lapse at the end of the fiscal year even if they have related encumbrances. Encumbrances are commitments related to unperformed contracts for goods or services (i.e., purchase orders and contracts). While all appropriations and encumbrances lapse at year end, valid outstanding encumbrances are re-appropriated against the subsequent year's budget, reducing the available appropriations for additional expenditures.

E. Assets, Liabilities and Net Position or Equity

1. Cash, cash equivalents and investments

The City's cash and cash equivalents are considered to be cash on hand, demand deposits and short-term investments with original maturities of three months or less from the date of acquisition. Investments are carried at fair value, except for the position in local government investment pools. Fair value is determined as the price at which two willing parties would complete an exchange.

The City uses a pooled cash and investment fund to hold and account for all of the City's investments. For financial reporting purposes, the investment balances in the pooled fund are allocated back to the individual funds based on their respective share of the pooled total. Interest earned on investments is also allocated back and recorded directly to the individual funds on a monthly basis.

2. Receivables

Outstanding balances between funds are reported as "interfund receivables/payables." Any residual balances between governmental activities and business-type activities are reported in the government-wide statements as "internal balances."

Trade, property tax receivables, and municipal court receivables are shown net of an allowance for uncollectible accounts. The City accrues amounts for utility services provided in September, but not billed at September 30, 2023.

3. Inventories

Inventories of supplies are maintained at the City warehouse for use by all City funds and are accounted for by the consumption method. Cost is determined using a moving average method. No inventories exist in the governmental fund types.

4. Prepaid items

Certain costs applicable to future accounting periods are recorded as prepaid items. Most of these balances are due to payments into an account for energy settlements in the Electric Fund and health claims in the Employee Insurance Fund.

5. Other Assets

Certain costs applicable to future accounting periods are recorded as other assets. In a prior fiscal year the City fully impaired its TMPA prepaid purchase power due to a permanent closure in generation and subsequent sale of the plant. The impaired amount was recorded as an Other Asset (regulatory) to be amortized over 7.5 years in the electric fund, of which 2.5 years is remaining in the electric fund to be recovered through rate revenues. See note IV.F. for more information on Other Assets and V.E. *Agreement with TMPA* for further information regarding TMPA.

6. Restricted assets

Certain proceeds of the City's governmental and proprietary fund general obligation bonds and certificates of obligation, as well as certain resources set aside for their repayment, are classified as restricted assets on the balance sheet because their use is limited by applicable bond covenants. Assets collected from impact fees are limited by state statute in use and also shown as restricted on the balance sheet of the Water and Wastewater funds.

7. Capital assets

Capital assets, which include property, plant, equipment and infrastructure assets (e.g., roads, bridges, sidewalks and similar items) are reported in applicable governmental or business-type activities columns in the government-wide financial statements and in the proprietary fund financial statements. The City defines capital assets as assets with an initial, individual cost of more than $5,000 and an estimated useful life in excess of one year. Such assets are recorded at historical cost or estimated historical cost if

purchased or constructed. Donated capital assets are recorded at acquisition value, which is the price that would be paid to acquire an asset with equivalent service potential at the acquisition date. Major outlays for capital assets and improvements are capitalized as projects are constructed.

Capital assets are depreciated using the straight-line method over the following useful lives:

Assets	Years
Buildings	40
Infrastructure	20 – 40
General improvements	10
Machinery and equipment	10 – 20
Furniture and office equipment	10
Computer equipment/software	3 – 10
Plant and equipment	5
Underground pipe	40
Water storage rights	50 – 100
Water recreation rights	50
Communication equipment	5
Vehicles	3 – 10
Leases	1 – 100
Subscription-based IT agreement	1 – 5

Renewals and betterments of property and equipment are capitalized, whereas normal repair and maintenance are charged to expense as incurred.

8. Compensated absences

The City allows full-time employees to accumulate unused vacation time without a maximum balance. Upon termination, accumulated vacation time up to 320 hours (480 for civil service fire employees) will be paid to an employee. Generally, sick leave is not paid upon termination except for civil service fire fighters and police officers. Firefighters and police officers accumulate for payout unused sick leave up to a maximum of 1080 hours and 720 hours, respectively. All other employees are paid only upon illness or other valid sick leave uses while employed by the City. Accumulated vacation and sick leave is accrued when incurred in the government-wide and proprietary fund financial statements. A liability for these amounts is reported in governmental funds only if they have matured, for example, as a result of employee resignations and retirements but have not been paid this amount at the end of the fiscal year. The General Fund and Other Governmental Funds are used to record any payout expenditures of the governmental funds' employees and related liability, while proprietary fund payouts for their employees are recorded as reductions to the liabilities in those funds.

9. Arbitrage

Arbitrage involves the investment of the proceeds from the sale of tax-exempt bonds in taxable instruments and securities authorized by the Public Funds Investment Act (Texas Government Code, Chapter 2256) that yield a higher rate, resulting in interest revenue in excess of interest costs. Federal tax code requires that these excess earnings be rebated to the federal government. The Capital Projects Fund has been used in prior years to liquidate governmental funds' related liability. There were no arbitrage payments in the current fiscal year.

10. Pensions

For purposes of measuring the net pension liability, pension-related deferred outflows and inflows of resources, and pension expense, information about the Fiduciary Net Position of the Texas Municipal

Retirement System (TMRS) and the Firemen's Relief and Retirement Fund (FRRF) and additions to/deductions from TMRS's and the FRRF's Fiduciary Net Position have been determined on the same basis as they are reported by TMRS and the FRRF. For this purpose, plan contributions are recognized in the period that compensation is reported for the employee, which is when contributions are legally due. Benefit payments and refunds are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

11. Other post-employment benefits

The City participates in a single-employer, unfunded, defined benefit group-term life insurance plan operated by the Texas Municipal Retirement System (TMRS) known as the Supplemental Death Benefit Fund (SDBF). The City elected, by ordinance, to provide group-term life insurance coverage to both current and retired employees. The funding policy for the SDBF program is to assure that adequate resources are available to meet all death benefit payments for the upcoming year rather than prefunding. Benefit payments are treated as being equal to the City's yearly contribution for retirees. For purposes of measuring the total SDBF OPEB liability, related deferred outflows and inflows of resources, and expense, City specific information about its total SDBF liability and additions to/deductions from the City's total SDBF liability have been determined on the same basis as they are reported by TMRS. The SDBF expense and deferred (inflows)/outflows of resources related to SDBF, primarily result from changes in the components of the total SDBF liability. Most changes in the total SDBF liability will be included in SDBF expense in the period of the change. For example, changes in the total SDBF liability resulting from current-period service cost, interest on the Total OPEB Liability, and changes of benefit terms are required to be included in SDBF expense immediately. Changes in the total SDBF liability that have not been included in SDBF expense are required to be reported as deferred outflows of resources or deferred inflows of resources related to SDBF.

The City provides post-employment medical care (Medical OPEB) for retired employees through a single-employer defined benefit medical plan. The plan provides medical benefits for eligible retirees, their spouses, and their dependents through the City's group health insurance plans. By providing retirees with access to the City's healthcare plans based on the same rates it charges to active employees, the City is in effect providing a subsidy to retirees. This implied subsidy exists because, on average, retiree healthcare costs are higher than active employee healthcare costs. By the City not contributing anything toward the plan in advance, the City employs a pay-as-you-go method through paying the higher rate for active employees each year. The City also contributes up to $200 per month, based on years of service, toward the cost of retiree coverage. As an irrevocable trust has not been established, the plan is not accounted for as a trust fund. For this purpose, plan contributions are recognized in the period that the direct and indirect subsidies are paid by the City. Total OPEB liability, OPEB-related deferred outflows and inflows of resources, and OPEB expense is based on the actuarial measurement dates.

12. Long-term obligations

In the government-wide financial statements and proprietary fund types in the fund financial statements, long-term obligations are reported as liabilities. Bond premiums and discounts are deferred and amortized over the life of the bonds. Bonds payable are reported net of the applicable bond premium or discount. Gain/loss on refunding are reported as deferred outflow/inflow and recognized as a component of interest expense over the remaining life of the old debt or life of the new debt, whichever is shorter.

In the fund financial statements, governmental fund types recognize bond premiums and discounts, as well as bond issuance costs, during the current period. The face amount of debt issued is reported as other financing sources. Premiums received on debt issuances are reported as other financing sources while discounts on debt issuances are reported as other financing uses. Issuance costs, whether or not withheld from the actual debt proceeds received, are reported as debt service expenditures.

13. Fund equity

The City follows GASB Statement No. 54, "Fund Balance Reporting and Governmental Fund Type Definitions", and in accordance with the statement, the classifications of governmental fund balances are presented as follows:

*Nonspendable fund balance*s – includes amounts not in a spendable form or are legally or contractually required to be maintained intact. Examples include inventory or endowments.

Restricted fund balance – includes amounts that can be spent only for the specific purposes stipulated by external resource providers, creditors, grantors, and contributors or through enabling legislation.

Committed fund balance – includes amounts that can be used only for the specific purposes determined by the City Council through an ordinance and may only be changed or lifted through another ordinance. The ordinance must either adopt or rescind the commitment, as applicable, prior to the last day of the fiscal year for which the commitment is made. The amount subject to the constraint may be determined in the subsequent period.

Assigned fund balance - comprises amounts intended to be used for specific purposes. Intent can be expressed by the City Council, or per the policy adopted by an ordinance by the City Council, the City Manager or the City Manager's designee (assistant city manager) may also make an assignment. In governmental funds other than the general fund, assigned fund balance represents the amount that is not restricted or committed and, at a minimum, is intended for the purpose of that fund.

Unassigned fund balance – is the residual classification of the general fund and includes all amounts not constrained in the other classifications. Unassigned amounts are technically available for any purpose. The General Fund is the only fund to report a positive unassigned fund balance amount. However, other governmental funds may report a negative unassigned fund balance as necessary if expenditures incurred for specific purposes exceed the amounts restricted, committed, or assigned for those purposes.

When multiple categories of fund balance are available for expenditure and approved for use by the City Council, the City will start with the most restricted category and spend those funds first before moving down to the next category with available funds. Normally this would result in the use of restricted, then committed, then assigned, and lastly, unassigned fund balance.

14. Minimum fund balance policy

It is the goal of the City to achieve and maintain an unassigned fund balance in the General Fund equal to 20% of budgeted expenditures. An additional 5% resiliency reserve (25% combined total) may be maintained to safeguard against unusual financial circumstances or economic downturns.

15. Net position

Net position represents the difference between assets, deferred inflows, deferred outflows, and liabilities. Net investment in capital assets consists of capital assets net of accumulated depreciation and the outstanding balances of any borrowing spent for the acquisition, construction or improvements of those assets. Net position is reported as restricted when there are limitations imposed on their use either through the enabling legislation adopted by the City or through external restrictions imposed by creditors, grantors or laws or regulations of other governments.

16. Deferred outflows and inflows of resources

In addition to assets, the statement of net position and/or balance sheet will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, deferred outflows of resources, represents a consumption of net assets that applies to future periods and will not be

recognized as an outflow of resources, either expenses or expenditures, until that time. The City reports the following items qualifying for this category:

- Deferred loss on refunding reported in the statements of net position - A deferred charge on refunding results from the difference in the carrying value of refunded debt and its reacquisition price and is amortized over the shorter of the life of the refunded or refunding debt.
- Deferred pension actuarial losses reported in the statement of net position – A deferred charge is recorded for the difference between actual experience and expected experience during the period between two actuarial valuations and is amortized over future periods.
- Deferred pension and other postemployment benefit plan contributions reported in the statement of net position – A deferred charge is recorded for pension contribution amounts paid by the City after the current year's measurement date (December 2022) and will be fully recognized as a reduction of the respective liability in the next period on the next measurement date (December 2023).
- Deferred pension and other postemployment benefit plan actuarial assumption changes – A deferred charge is recorded for the difference due to assumption changes and amortized over future periods.

In addition to liabilities, the statement of net position and/or balance sheet will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, deferred inflows of resources, represents an acquisition of net assets that applies to future periods and will not be recognized as an inflow of resources, or revenues, until that time. The City reports the following items qualifying for reporting in this category:

- Deferred gain on refunding reported in the statements of net position - A deferred charge on refunding results from the difference in the carrying value of refunded debt and its reacquisition price and is amortized over the shorter of the life of the refunded or refunding debt.
- Deferred pension excess earnings reported in the statement of net position – A deferred charge is recorded for the difference between actual investment earnings and expected investment earnings during the period and is amortized over future periods.
- Deferred pension and other postemployment benefit plan actuarial gains reported in the statement of net position – A deferred charge is recorded for the difference between actual experience and expected experience during the period between two actuarial valuations and is amortized over future periods.
- Deferred pension and other postemployment benefit plan actuarial assumption changes – A deferred charge is recorded for the difference due to assumption changes and amortized over future periods.
- Deferred amounts related to leases are reported for leases in which the City is the lessor – A deferred amount recorded to initially offset the total lease receivable recorded at lease commencement and is subsequently amortized as lease revenue over the life of the lease term.
- Deferred unavailable revenues reported on the balance sheet of the governmental funds – A deferred amount is recorded for the billed revenues not yet collected or available. These amounts are deferred and recognized as inflow of resources in the period the amounts become available.

17. Leases

A lease is defined as a contract conveying control of the right to use another entity's nonfinancial asset as specified in the contract for a period of greater than one year, in an exchange or exchange-like transaction.

City as lessee

The City is currently a lessee for noncancelable leases of land, buildings, equipment, or other assets. The City recognized a lease liability and an intangible right-to-use leased asset (lease asset) in the Government-wide and Proprietary Fund financial statements. Reporting includes lease assets with

depreciable capital assets and lease liabilities with long-term liabilities. At the commencement of a lease, the City measured the lease liability at the present value of payments expected to be made over the course of the lease term. Subsequently, the lease liability is reduced by the principal portion of the lease payments. The lease asset is measured as the initial amount of the lease liability, adjusted for lease payments made at or before the lease commencement date, plus certain initial direct costs. Subsequently, the lease asset is amortized on a straight-line basis over the remaining lease term. Variable lease payments based on usage of the underlying assets are not included in the lease liability calculations but are recognized as outflows of resources in the period in which obligations are incurred.

Key estimates and judgements related to leases in which the City would be a lessee are as follows:

- The lease term includes the noncancelable period of the lease. Extension options are included in the lease term unless it is reasonably certain that they will not be exercised.
- The City uses the interest rate charged by the lessor as the discount rate. When the interest rate charged by the lessor is not provided, the City uses its estimated incremental borrowing rate as the discount rate for leases.
- Leases with payments depending on an index or rate, such as the Consumer Price Index or market rate, are initially measured using the index or rate as of the commencement of the lease term.
- Leases with periodic percentage payment increases or flat rate payment increases specified in the lease terms are included in the measurement of the lease liability.

The City monitors changes in the circumstances requiring remeasurement of its leases and will remeasure the lease assets and liabilities if certain changes occur that are expected to significantly affect the amount of the lease liabilities.

City as lessor

The City is a lessor for noncancelable leases of land, buildings, and equipment. The City recognizes a lease receivable and a deferred inflow of resources in the Government-wide, Governmental, and Proprietary Fund financial statements. At the commencement of a lease, the City measures the lease receivable at the present value of payments expected to be received over the life of the lease term. Subsequently, the lease receivable is reduced by the principal portion of lease payments received. The deferred inflow of resources is measured as the initial amount of the lease receivable, adjusted for lease payments received at or before the lease commencement date. Subsequently, the deferred inflow of resources is recognized as revenue over the lease term.

Key estimates and judgements related to leases in which the City is a lessor are as follows:

- The lease term includes the noncancelable period of the lease. Extension options are included in the lease term unless it is reasonably certain that they will not be exercised.
- The City uses its incremental borrowing rate as the discount rate for leases.
- Leases with payments depending on an index or rate, such as the Consumer Price Index or market rate, are initially measured using the index or rate as of the commencement of the lease term.
- Leases with periodic percentage payment increases or flat rate payment increases specified in the lease terms are included in the measurement of the lease receivable.

The City monitors changes in circumstances requiring a remeasurement of its leases and will remeasure the lease receivables and deferred inflows of resources if certain changes occur that are expected to significantly affect the amount of the lease receivables.

18. Subscription-Based Information Technology Agreements (SBITA)

GASB 96 defines a SBITA as a contract that conveys control of the right to use another party's information technology (IT) software, alone or in combination with tangible capital assets, as specified in the contract for a period in an exchange or exchange-like transaction. The City recognizes a subscription liability and an intangible subscription right-of-use asset at the beginning of the subscription term that have a term exceeding one year and the cumulative future payments on the contract exceed

$100,000 unless the contract is considered a short-term SBITA. A SBITA asset is measured based on the net present value of subscription payments expected to be made during the subscription term, using the incremental borrowing rate, and is amortized using the straight-line method over the shorter of the subscription term or the useful life of the underlying IT assets. Re-measurement of a subscription liability occurs when there is a change in the contract term and/or other changes that are likely to have a significant impact on the subscription liability.

F. Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses/expenditures during the reporting period. Actual results could differ from those estimates.

II. RECONCILIATION OF GOVERNMENT-WIDE AND FUND FINANCIAL STATEMENTS

Explanation of certain differences between the governmental fund statement of revenues, expenditures and changes in fund balances and the government-wide statement of activities

An element of that reconciliation states, "Bond proceeds provide current financial resources to governmental funds, but issuing debt increases long-term liabilities in the statement of net position. Repayment of bond principal is an expenditure in the governmental funds, but the repayment reduces long-term liabilities in the statement of net position. This is the amount by which proceeds exceeded payments." The details of this ($37,564,497) difference are as shown on the following page:

Debt issued or incurred:	
Issuance of general obligation debt	$ (40,485,000)
Issuance of certificates of obligation	(29,810,000)
Principal repayments:	
General obligation debt principal retirement	13,580,789
Certificates of obligation principal retirement	8,975,000
Refunded debt principal	10,174,714
Net adjustment to decrease net changes in fund balances - total governemental funds to arrive at changes in net position of governmental activities	$ (37,564,497)

Another element of that reconciliation states, "The net effect of various miscellaneous transactions involving capital assets (i.e., subscription-based IT agreements, leases, sales, trade-ins and donations) is to decrease net position." The details of this ($5,250,530) difference are as follows:

Net effect of transactions involving asset retirements/disposals	$(14,045,731)
Donations of capital assets increase net position in the statement of activities but do not appear in the governmental funds because they are not financial resources	8,795,201
Net adjustment to increase net changes in fund balances - total governmental funds	$ (5,250,530)

Another element of that reconciliation states, "Certain expenses reported in the statement of activities do not require the use of current financial resources and therefore are not reported as expenditures in governmental funds." The details of the ($2,894,878) difference are as follows:

Change in:		
Compensated absences	$	(242,695)
Net pension liability		(56,211,506)
Municipal pension deferred actuarial gains/losses		52,772,711
Municipal pension deferred contributions		1,374,743
Municipal pension deferred assumption changes		(751,392)
Municipal pension deferred economic differences		1,212,547
Total OPEB liability		5,083,946
OPEB deferred contributions		112,846
OPEB deferred assumption changes		(6,203,078)
OPEB deferred economic differences		190,028
Accrued interest		(233,028)
Net adjustment to decrease net changes in fund balances - total governmental funds to arrive at changes in net position of governmental activities	$	(2,894,878)

III. STEWARDSHIP, COMPLIANCE AND ACCOUNTABILITY

A. Deficit Fund Equity

The Materials Management, Risk Retention, Engineering Services, Customer Service, and Facilities Management internal service funds had deficit net positions of ($551,594), ($4,664,170), ($3,383,908), ($1,685,966), and ($92,440), respectively, due to the implementation of GASB Statement No. 68 "*Accounting and Financial Reporting for Pensions-an amendment of GASB Statement No. 27"* and GASB Statement No.75 *"Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions"(OPEB)* which resulted in an increase in the net pension liability and the total OPEB liability in the prior years during implementation.

IV. DETAILED NOTES ON ALL FUNDS

A. Deposits and Investments

In order to facilitate effective cash management practices, the operating cash of all funds is pooled into a common account for the purpose of increasing income through combined investment activities. At year-end, the City had $194,955,299 in cash and cash equivalents of which $13,018 is in petty cash.

The Public Funds Investment Act (Texas Government Code) authorizes the City to invest in obligations of the U.S. Treasury, U.S. agencies, fully collateralized repurchase agreements, public fund investment pools, SEC-registered no-load money market mutual funds, municipal securities of any state rated A or better, certificates of deposit (fully collateralized, insured, and standby letters of credit backed), and commercial paper rated not less than A-1 or P-1 with a stated maturity of no more than 365 days. The City's investment policy may further restrict those investment options. The investments reported on September 30, 2023 were similar to those held during the fiscal year.

The City reports all investments in the financial statements at fair value. At September 30, 2023, the City's investments carried a fair value of $763,544,853, of which $177,435,217 was in a local governmental

investment pool which the City classifies in the financial statements as cash equivalents, resulting in $586,109,636 of investment balances reported in the financial statements.

The City categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. GASB Statement No. 72, Fair Value Measurement and Application establishes an authoritative definition of fair value, sets a framework for measuring fair value, and requires additional disclosures about fair value measurements. The fair value hierarchy categorizes the inputs to valuation techniques used to measure fair value into three levels.

- Level 1 inputs are quoted prices (unadjusted) for identical assets or liabilities in active markets a government can access at the measurement date.
- Level 2 inputs are inputs, other than quoted prices included within Level 1, observable for an asset or liability, either directly or indirectly.
- Level 3 inputs are unobservable inputs for an asset or liability.

The fair value hierarchy gives the highest priority to Level 1 inputs and the lowest priority to Level 3 inputs. If a price for an identical asset or liability is not observable, a government should measure fair value using another valuation technique maximizing the use of relevant observable inputs and minimizing the use of unobservable inputs. If the fair value of an asset or a liability is measured using inputs from more than one level of the fair value hierarchy, the measurement is considered to be based on the lowest priority level input significant to the entire measurement.

At September 30, 2023, the City had the following recurring fair value investments:

		Fair Value Measurement Method			
	9/30/2023	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Percent of Total Investments	Weighted Average Maturity (Days)
Investments Measured at Amortization Cost:					
TexSTAR - Investment Pool	77,435,217			10.14%	1
TexPool - Investment Pool	100,000,000			13.10%	1
Investments by Fair Value Level:					
Debt Securities:					
U.S. Treasury Securities	231,087,093	-	231,087,093	30.27%	259
U.S. Treasury Securities - Discount	49,432,220	-	49,432,220	6.47%	78
U.S. Agency Securities	173,366,538	-	173,366,538	22.71%	269
U.S. Agency Securities - Callable	48,760,690	-	48,760,690	6.39%	571
Commercial Paper	83,463,095	-	83,463,095	10.93%	114
Municipal Bonds - Coupon	-	-	-	0.00%	0
Total Investments	763,544,853	-	586,109,636		
Total Cash and Investments	763,544,853	-	586,109,636		
Portfolio Weighted Average Maturity					194

Of the investments recorded at fair value, the U.S treasuries, the U.S. agency securities, commercial paper, and municipal bonds are valued based upon observable inputs, including but not limited to, model prices for similar assets, benchmark yield curves, and matrix pricing.

Interest rate risk. In accordance with its investment policy, the City manages its exposure to declines in fair values due to interest rate fluctuations by limiting the weighted average maturity of its investment portfolio to less than twenty-four months.

Credit risk. The City's investment policy limits investments to obligations of the United States of America and its agencies, investment quality obligations of the State of Texas (including agencies, municipalities, counties, and other political subdivisions) with a rating not less than AA, certificates of deposits and savings

deposits (fully insured, collateralized, or standby letter of credit backed), fully collateralized repurchase agreements, local public fund investment pools with a dollar weighted average maturity of 60 days or less, U.S. government money market mutual funds with a dollar weighted average maturity of 60 days or less and a stable net asset value of $1 for each share, and commercial paper that has a maturity of 270 days or less and a minimum rating of A-1, P-1, or an equivalent rating by at least two nationally recognized rating agencies. The City's investments in TexSTAR and TexPool were rated "AAAm" by Standard & Poor's, the highest rating a local government investment pool can achieve.

Custodial credit risk. This is the risk that in the event of a bank or counterparty failure, the City's deposits may not be returned. The policy states that all bank deposits of City funds shall be secured by pledged collateral with a market value equal to no less than 102 percent of the principal plus accrued interest less an amount insured by FDIC. As of September 30, 2023, the bank balance for deposits was $19,080,872 and was fully collateralized by the City's third-party custodian, BNY Mellon.

Concentration of Credit Risk. The City's investment policy minimizes the risk of potential loss by diversifying investment types according to the following limitations based on value: U.S. Treasury bills/notes/bonds (100%), U.S. Agencies and Instrumentalities (100%), State of Texas Obligations – including agencies and local governments (15%), local government investment pools (50% in government securities and 15% in prime securities), repurchase agreements (20%), certificates of deposit (35%), savings deposits (15%), U.S. Money Market Mutual Funds (50%), callable U.S. Agencies and Instrumentalities (20%), and commercial paper (20%).

Local Government Investment Pools. During the year, the City invested in two public fund investment pools, TexSTAR and TexPool. The fair value of the position of TexSTAR is measured at net asset value, and the fair value of the position of TexPool is measured at amortized cost. Each pool's governing body is comprised of individuals who are employees, officers, or elected officials of participants in the funds or who do not have a business relationship with the fund and are qualified to advise. Investment objective and strategies of the pools are to seek preservation of principal, liquidity and current income through investment in a diversified portfolio of short-term marketable securities. Pools offer same day access to investment funds, which may be redeemed daily. As the redemption period is only one day or less, the City classifies these balances in the financials as cash equivalent. The pools may only impose restrictions on redemptions in the event of a general suspension of trading on major securities markets, a general banking moratorium, or a national state of emergency affecting the pool's liquidity. The City has no unfunded commitments related to the investment pool.

Cash, cash equivalents and investments, at fair value are reported together on the financial statements. Investments, at fair value, by fund were as follows:

	General Fund	Debt Service	Capital Projects	Other Governmental Funds
Unrestricted investments	29,868,832	840,271	167,698,617	35,375,364
Change in fair value	(168,545)	(4,742)	(946,296)	(199,617)
Restricted investments	-	-	-	-
Change in fair value	-	-	-	-
Total	29,700,287	835,529	166,752,321	35,175,747

	Electric	Water	Wastewater	Solid Waste
Unrestricted investments	27,656,115	41,520,024	31,546,798	12,552,906
Change in fair value	(156,059)	(234,291)	(178,014)	(70,834)
Restricted investments	73,509,420	60,359,345	60,997,836	26,466,256
Change in fair value	(414,802)	(340,598)	(344,201)	(149,345)
Total	100,594,674	101,304,480	92,022,419	38,798,983

Unrestricted investments	Airport	Internal Service Funds	Total City Investments
Change in fair value	2,462,726	12,617,086	362,138,739
Restricted investments	(13,897)	(71,197)	(2,043,492)
Change in fair value	2,459,839	3,504,293	227,296,989
Total	(13,880)	(19,774)	(1,282,600)
	4,894,788	16,030,408	586,109,636

B. Property Tax Revenue

Property taxes attach as an enforceable lien on property as of January 1st. Taxes are levied on October 1st and are due and payable at that time; therefore, the legally enforceable claim arises on October 1st. A receivable is recorded at that time. All unpaid taxes levied October 1st become delinquent February 1st of the following year.

Property taxes at the fund level are recorded as receivables and revenue in the period they become available. Current-year revenues recognized are those Ad valorem taxes collected within the current period or soon enough thereafter to pay current liabilities, which is sixty days after year-end. All other outstanding receivables are adjusted from revenue and recognized as deferred inflows of resources for future collections. Current tax collections for the year ended September 30, 2023 were 99.44% of the tax levy. An allowance is provided for delinquent taxes not expected to be collected in the future.

At September 30, 2023, the City had a tax rate of $0.560682 per $100 valuation. Based upon the maximum Ad valorem tax of $2.50 per $100 valuation imposed by Texas Constitutional law, the City had a tax rate margin of $1.939318. Additional revenues up to $321,246,329 could be raised per year based on the current year's certified assessed value of $16,564,912,437 before the limit is reached.

On December 7, 2010, the City Council approved a Tax Increment Financing Reinvestment Zone (TIRZ #1) for the purpose of dedicating the increase in tax revenues generated within the TIRZ district for development in the downtown area of the City for a total of 30 years. The tax increment to be paid is 100% of the increment in years 1-5, 95% in years 6-10, 90% in years 11-20, and 85% in years 21-30. In fiscal year 2023, the total assessed value of $249,149,564 after supplemental adjustments for TIRZ #1 was an increase of $169,792,710

over the base fiscal year 2011 assessed value and resulted in $856,797 of property tax revenue recorded in the TIRZ Fund as part of All Other Special Revenue Funds.

On December 18, 2012, the City Council approved a Tax Increment Financing Reinvestment Zone (TIRZ #2) for the purpose of dedicating 40% of the increase in tax revenues generated within the TIRZ district for development in the Westpark Industrial District for a total of 25 years. In fiscal year 2023, the assessed value of $270,388,646 after supplemental adjustments was an increase of $270,269,188 over the base fiscal year 2014 assessed value and resulted in $606,140 of property tax revenue recorded in the TIRZ Fund as part of All Other Special Revenue Funds. Denton County participates in the zone and based on their tax rate and a participation contribution of 40% of the County's tax rate, $235,181 of property tax revenue was generated for Fiscal Year 2023.

The City created the Rayzor Ranch Public Improvement District No. 1 in 2014 for the undertaking and financing of public improvements authorized by Chapter 372 of the Texas Local Government Code. The project is located on the City's northern sector, east of Interstate 35, and encompasses approximately 229.693 contiguous acres. The estimated costs of the proposed public improvements total $40 million. The authorized improvement costs will be apportioned 100% to the District. The method of assessment will impose equal shares of the costs of the proposed public improvements on parcels that are similarly benefited. No City property will be assessed, and the City will not be obligated to pay any assessments.

C. Receivables

Receivables at September 30, 2023 for the City's individual major funds and other funds (non-major funds, internal service funds and fiduciary funds), including the applicable allowances for uncollectible accounts, are as follows:

	General	Debt Service	Capital Projects	ARPA	Other Governmental Funds	Electric
Receivables:						
Taxes	11,246,488	622,961	-	-	306,645	-
Accounts	312,373	-	-	-	72,363	15,236,531
Accrued interest	198,376	5,581	1,113,782	9,744	234,947	671,898
Unbilled utility service	-	-	-	-	-	10,813,193
Lease	123,492	-	-	-	-	1,329,065
Other	10,672,033	-	-	-	91,991	8,092,653
Gross receivables	22,552,762	628,542	1,113,782	9,744	705,946	36,143,340
Less: Allowance for uncollectibles	(9,760,211)	(247,128)	-	-	(46,104)	(906,871)
Net Total receivables	$ 12,792,551	$ 381,414	$ 1,113,782	$ 9,744	$ 659,842	$ 35,236,469

	Water	Wastewater	Solid Waste	Airport	Internal Service Funds	Total
Receivables:						
Taxes	-	-	-	-	-	12,176,094
Accounts	4,308,502	2,154,173	1,888,013	84,696	412,229	24,468,880
Accrued interest	676,639	614,641	259,149	32,693	107,070	3,924,520
Unbilled utility service	3,131,546	2,067,728	1,904,806	-	-	17,917,273
Lease	-	-	700,620	-	1,177,603	3,330,780
Other	-	979	2,632	13,181	-	18,873,469
Gross receivables	8,116,687	4,837,521	4,755,220	130,570	1,696,902	80,691,016
Less: Allowance for uncollectibles	(335,358)	(193,420)	(158,301)	(10,790)	(51,820)	(11,710,003)
Net Total receivables	$ 7,781,329	$ 4,644,101	$ 4,596,919	$ 119,780	$ 1,645,082	$ 68,981,013

D. Capital Assets

Capital asset balances and transactions for the year ended September 30, 2023 are summarized below and on the following page.

Governmental activities:	Balance at October 1, 2022	Transfers and Increases	Transfers and Decreases	Balance at September 30, 2023
Capital assets not being depreciated/amortized:				
Land	$ 30,864,802	$ 16,721,390	$ (107,348)	$ 47,478,844
Construction in progress	330,271,457	110,216,057	(117,691,850)	322,795,664
Total capital assets not being depreciated/amortized	361,136,259	126,937,447	(117,799,198)	370,274,508
Capital assets being depreciated/amortized:				
Buildings	102,555,355	14,504,360	-	117,059,715
Infrastructure	364,541,522	71,266,549	(10,969,103)	424,838,968
Machinery, equipment, and other improvements	151,522,783	17,914,798	(2,637,071)	166,800,510
SBITA assets	-	12,220,566	-	12,220,566
Lease Assets	-	300,845	-	300,845
Total capital assets being depreciated/amortized	618,619,660	116,207,118	(13,606,174)	721,220,604
Less accumulated depreciation/amortization for:				
Buildings	36,769,426	2,568,574	-	39,338,000
Infrastructure	217,122,431	15,771,228	(117,932)	232,775,727
Machinery, equipment, and other improvements	101,353,960	10,338,980	(2,034,785)	109,658,155
SBITA assets	-	3,270,121	-	3,270,121
Lease Assets	-	56,408	-	56,408
Total accumulated depreciation/amortization	355,245,817	32,005,311	(2,152,717)	385,098,411
Total capital assets, being depreciated/amortized, net	263,373,843	84,201,807	(11,453,457)	336,122,193
Governmental activities capital assets, net	$ 624,510,102	$ 211,139,254	$ (129,252,655)	$ 706,396,701

(continued)

Business-type activities:	Balance at October 1, 2022	Increases	Transfers and Decreases	Balance at September 30, 2023
Capital assets not being depreciated/amortized:				
Land	$ 76,043,810	$ 12,182,990	$ -	$ 88,226,800
Construction in progress	227,112,189	160,674,552	(77,882,531)	309,904,210
Total capital assets not being depreciated/amortized	303,155,999	172,857,542	(77,882,531)	398,131,010
Capital assets being depreciated/amortized:				
Buildings	40,462,722	273,763	(388,582)	40,347,903
Landfill improvements	32,574,421	135,575	-	32,709,996
Water rights	69,883,098	-	-	69,883,098
Infrastructure	689,000,039	47,306,324	-	736,306,363
Plant, machinery, equipment, and other improvements	902,991,747	40,904,977	(26,433,366)	917,463,358
SBITA assets	-	4,000,312	-	4,000,312
Total capital assets being depreciated/amortized	1,734,912,027	92,620,951	(26,821,948)	1,800,711,030
Less accumulated depreciation/amortization for:				
Buildings	12,984,804	1,078,123	(388,582)	13,674,345
Landfill improvements	28,719,279	1,632,696	-	30,351,975
Water rights	23,230,246	695,990	-	23,926,236
Infrastructure	228,706,937	18,609,020	114,830	247,430,787
Plant, machinery, equipment, and other improvements	301,532,014	33,879,007	- (20,793,751)	314,617,270
SBITA assets	-	968,645	-	968,645
Total accumulated depreciation/amortization	595,173,280	56,863,481	(21,067,503)	630,969,258
Total capital assets, being depreciated/amortized, net	1,139,738,747	35,757,470	(5,754,445)	1,169,741,772
Business-type activities capital assets, net	$ 1,442,894,746	$ 208,615,012	$ (83,636,976)	$ 1,567,872,782

Depreciation and amortization expense was charged to activities of funds/functions/programs as follows:

Governmental activities:	
General government	$ 7,704,676
Public Safety	4,985,900
Public Works	11,711,986
Parks & Recreation	2,960,853
Capital assets held by the internal service funds are charged to the various functions based upon usage	4,641,896
Total depreciation expense - governmental activities	$ 32,005,311
Business-type activities:	
Electric	$ 27,500,779
Water	10,201,146
Wastewater	10,912,258
Solid Waste	7,135,414
Airport	1,113,884
Total depreciation expense - business-type activities	$ 56,863,481

Construction commitments:

The City has several major construction/capital projects planned or in progress as of September 30, 2023. These projects are evidenced by contractual commitments with contractors and include:

Project	Spent-to-Date	Remaining Commitment
2019 Street Reconstruction	51,323,245.88	29,427,301.38
Bonnie Brae	60,095,762.75	24,770,844.31
I-35N 380 to Milam	4,256,060.10	18,805,628.10
Mayhill at DCTA Bridge	13,738,128.83	13,734,263.81
Hickory Substation Reconstruct	35,309,052.81	12,453,532.36
Northwest Water Transmission Line	4,687,175.43	10,313,855.83
Hickory Creek Road	42,097,564.98	9,443,151.27
TxDOT I-35N Wastewater Line Relocation	606,700.25	8,008,749.52
FY22/23 Transformers	4,624,481.32	7,389,440.81
Lake Lewisville Water Treatment Plant	119,082.35	6,091,198.42
Fire Station 9	7,642,565.13	4,413,509.31
Hickory Creek Interceptor	11,835,940.42	3,821,867.71
PSA-Power Engineers-Prg Mngmnt	197,601.86	3,607,861.99
Solids Handling Improvements	11,542,831.82	3,446,071.16
Robson Ranch Sewer	3,194,890.26	3,137,472.60
NBHD 1B - Water/Wastewater/Sidewalks/Streets	12,331.08	3,076,950.72
PSA - Teague, Nall & Perkins	85,353.17	3,015,549.58

E. Interfund Receivables, Payables and Transfers

A summary of interfund receivables and payables (in thousands) at September 30, 2023, is as follows:

	Interfund Receivables:				
	Governmental Major Funds	Business-Type Major Funds			
Interfund Payables:	General Fund	Electric	Water	Wastewater	Total
Non-Major Governmental Funds	$ 988	$ -	$ -	$ -	$ 988
Internal Service Funds	925	14,583	1,845	347	17,700
Total	$ 1,913	$ 14,583	$ 1,845	$ 347	$ 18,688

The more significant interfund receivables and payables include the following:

Interfund receivables	Interfund payables	Amount
Electric fund	Internal service funds-materials management	$ 14,582,614
Water fund	Internal service funds-materials management	$ 1,845,326
General fund	Internal service funds-materials management	$ 925,159
General fund	Non-Major Governmental Funds	$ 988,305
Wastewater fund	Internal service funds-materials management	$ 346,901

The outstanding balances between the Electric, Water, Wastewater, and General Fund related to the Materials Management Fund are a result of the cash position in the Materials Management Fund due to inventory purchases. The outstanding balance between the General Fund and the Non-Major Governmental Funds is due to reimbursement timing from outside sources.

Transfers between funds (in thousands) during the year were as follows:

	Transfers Out:									
	Governmental Major Funds			Business-Type Major Funds						
Transfers In:	General Fund	Capital Projects Fund	Non-Major Governmental Funds	Electric Fund	Water Fund	Wastewater Fund	Solid Waste	Airport Fund	Internal Service Funds	Total
Governmental Major Funds:										
General Fund	$ -	$ 16	$ 10	$ -	$ -	$ -	$ -	$ -	$ -	$ 26
Debt Service Fund	-	-	-	-	-	-	-	718	-	718
Capital Projects Fund	3,968	-	17,442	-	-	-	-	-	430	21,840
Non-Major Governmental Funds	7,961	7	-	898	1,242	1,166	-	50	-	11,324
Electric Fund	-	-	-	-	-	-	-	-	-	-
Wastewater Fund	-	-	-	-	-	-	235	-	-	235
Solid Waste Fund	-	-	56	-	-	-	-	-	-	56
Internal Service Funds	-	102	-	-	-	-	-	-	-	102
Total	$ 11,929	$ 125	$ 17,508	$ 898	$ 1,242	$ 1,166	$ 235	$ 768	$ 430	$34,301

The more significant transfers include the following:

Transfers from fund	Transfers to fund	Amount
Other - SRF	Capital Projects	10,986,003
General Fund	Non-Major Gov't – Recreation Fund	5,688,179
Non-Major Gov't – Street Improvement Fund	Capital Projects	5,581,500
General Fund	Capital Projects	4,537,024
Water, Wastewater and Debtservice	Other - SRF	4,273,127
Business-type Major Funds (Electric, Water, and Wastewater)	Non-Major Gov't – Street Improvement Fund	1,306,035
Business-type Major Funds - Airport	Debt Service Fund	717,980

Transfers from Other-Special Revenue Funds (SRF) were to fund road capital projects. Transfers from the General Fund to the Non-Major Governmental Fund – Recreation was an operating subsidy as part of centralizing Park recreation programs all within the Recreation Fund. Transfers from the Non-Major Governmental Fund – Street Improvement Fund and from the General Fund were to fund capital projects such as streets, building renovations, equipment, and park improvements. Transfers from the Business-type Major Funds (Electric, Water, and Wastewater) to the Non-Major Governmental Fund – Street Improvement Fund were for bond savings costs related to the issuance of certificates of obligation, which fund street maintenance operations in the Street Improvements Fund. Transfers from Business-type Major Funds – Airport to the Debt Service Fund were to pay for Airport-related debt payments previously paid by property taxes.

F. Other Assets

In March 2010, the City issued Combination Tax & Electric Utility System Revenue Refunding Bonds, Series 2010 with a maturity of 15 years for prepaying certain contractual obligations to TMPA. The principal amount of the bonds was $58,820,000 with a reoffering premium and other bond issuance costs of $3,835,015 for a total of $62,655,015. As the proceeds of this debt issuance were placed with Texas Municipal Power Agency (TMPA) and the City received an economic benefit over a period of years, an Other Asset was recorded in the Electric Fund Statement of Net Position in the amount of $62,655,015. The City is amortizing the Other Asset over a period of 15 years with a half year convention the first and last years. See footnote V.E. for more information on TMPA.

In August 2014, the City issued General Obligation Refunding Bonds, Series 2014A with a maturity of 10 years for prepaying certain contractual obligations to TMPA. The principal amount of the bonds was $11,570,000 with a reoffering premium and other bond issuance costs of $1,848,651 for a total of $13,418,651. As the proceeds of this debt issuance were placed with TMPA and the City received an economic benefit over a period of years, an Other Asset was recorded in the Electric Fund Statement of Net Position in the amount of $13,418,651. The City is amortizing the Other Asset over a period of 10 years.

In August 2015, the City issued General Obligation Refunding Bonds, Series 2015A with a maturity of 9 years for prepaying certain contractual obligations to TMPA. The principal amount of the bonds was $2,955,000 with a reoffering premium and other bond issuance costs of $462,133 for a total of $3,417,133. As the proceeds of this debt issuance were placed with TMPA and the City received an economic benefit over a period of years, an Other Asset was recorded in the Electric Fund Statement of Net Position in the amount of $3,417,133. The City is amortizing the Other Asset over a period of 9 years.

In September 2017, the City impaired 37.9% of the of these Other Assets, for a total of $26,930,415. This was due to TMPA closing its power generation operations to seasonal activities only. The impaired portion was recorded as a GASB 62 Regulatory Asset in Other Assets to be amortized over the existing timelines originally established, through mid-year of fiscal year 2025.

In June 2019, TMPA notified Electric Reliability Council of Texas (ERCOT) of the plan to move the generation plant, Gibbons Creek, to a status of decommissioned and retired. The official effective date was

October 2019. In September 2019, the City impaired the remaining portion of the Other Asset. The remaining impaired portion of the original Other Assets were recorded as a GASB 62 Regulatory Asset in Other Assets to also be amortized over the existing timelines originally established, through mid-year of fiscal year 2025.

In February 2021, the State of Texas experienced unprecedented freezing temperatures that put pressure on the availability of electric power (the "Weather Event"). The price for power increased dramatically during this period due to high demand and limited availability that resulted in Utilities, including the City of Denton Electric Fund, utilizing financial reserves to pay ERCOT for the cost of purchased power to service customers during this period. Due to the unparalleled dollar amount of the purchased power, the City of Denton issued $140 million of commercial paper to provide temporary funding for immediate cash flow needs. In September 2021, the City issued $141,990,000 of revenue refunding bonds to convert the outstanding commercial paper principal plus interest to debt to be paid over a period of 30 years. The Electric Fund recorded $140,000,000 of this purchased power expense as a regulatory asset in Other Assets to be amortized over the period of 30 years, starting with fiscal year ending September 30, 2023.

Capitalized Interest-GASB Statement No. 89, "Accounting for Interest Cost incurred before the end of a Construction Period", was implemented in FY 2022 to eliminate interest associated with the construction of capital assets. As these interest costs add to the full capitalized costs associated with the plant and infrastructure assets and provide an economic benefit over a period of years, a regulatory asset was established to continue capitalized interest for the Electric Fund. The regulatory asset recorded addition an addition of $1,621,039 in FY 2022 and $2,007,873 in FY 2023. These amounts will be amortized over the life of related assets to align with the recovery of costs through rates.

To qualify to utilize GASB 62, the following must apply:

- The regulated business-type activity's rate for regulated services provided to its customers are established by or are subject to approval of
- an independent, third-party regulator or by its own governing board empowered by statute or contract to establish rates that bind customers.
- The regulated rates are designed to recover the specific regulated business-type activity's costs of providing the regulated services.

In view of the demand for the regulated services or products and the level of competition, direct and indirect, it is reasonable to assume that rates set at levels that will recover the regulated business-type activity's costs can be charged to and collected from customers. This criterion requires consideration of anticipated changes in levels of demand or competition during the recovery period for any capitalized costs.

The City of Denton qualifies to utilize GASB 62 due to:

- State and local statues empower the City of Denton City Council to establish retail rates.
- The City of Denton specific costs are recovered through City of Denton retail rates.

Current and projected customer demand support the recovery of City of Denton cost of service.

	Balance at October 1, 2022	Increases	Amortization	Balance at September 30, 2023	Years Remaining
Regulatory Assets:					
2010 TMPA Obligation	$ 10,442,503	$ -	$ 4,177,001	$ 6,265,502	1.5
2014 TMPA Obligation	2,683,730	-	1,341,865	1,341,865	1
2015 TMPA Obligation	759,362	-	379,681	379,681	1
2021 Weather Event	135,560,501	-	4,776,063	130,784,438	28
Capitalized Interest	1,621,039	2,007,873	140,359	3,488,553	5-40
Total Other Assets	$ 151,067,135	$ 2,007,873	$10,814,969	$ 142,260,039	

G. Long-term Debt

Long-term liabilities transactions for the year ended September 30, 2023 are summarized as follows below and on the following pages:

	Balance at October 1, 2022	Increases / Transfer	Decreases / Transfers	Balance at September 30, 2023	Due Within One Year
Governmental Activities:					
General obligation bonds	$ 236,288,240	$ 40,485,000	$ 18,768,240	$ 258,005,000	$ 14,985,000
Certificates of obligation	118,055,000	31,160,000	14,585,000	134,630,000	10,590,000
Compensated absences payable	17,038,863	9,945,971	9,625,855	17,358,979	8,490,308
Claims and judgement payable	6,898,411	30,410,397	28,502,541	8,806,267	4,773,339
Net pension liability	25,220,055	68,237,934	-	93,457,989	-
Other post employment benefits	36,613,908	-	6,424,970	30,188,938	-
Leases payable	-	247,072	-	247,072	-
SBITA payable	-	8,255,975	-	8,255,975	-
Unamortized premium/(discounts)	24,952,600	7,013,914	3,289,034	28,677,480	3,301,775
Total governmental activities long-term liabilities	$ 465,067,077	$ 195,756,263	$ 81,195,640	$ 579,627,700	$ 42,140,422

	Balance at October 1, 2022	Increases	Decreases / Transfers	Balance at September 30, 2023	Due Within One Year
Business-type Activities:					
Revenue bonds	$ 332,955,000	$ -	$ 12,435,000	$ 320,520,000	$ 12,905,000
General obligation bonds	99,701,760	32,140,000	19,941,760	111,900,000	20,080,000
Certificates of obligation	506,945,000	117,980,000	51,640,000	573,285,000	17,230,000
Compensated absences payable	3,173,084	2,970,573	2,585,877	3,557,780	2,633,849
Claims and judgement payable	2,700,000	-	-	2,700,000	-
Net pension liability	16,890,481	27,541,086	-	44,431,567	-
Other post employment benefits	18,028,957	-	3,003,438	15,025,519	-
Notes payable	-	7,500,000	-	7,500,000	-
SBITA payable	-	2,670,421	-	2,670,421	-
Landfill closure/post-closure	11,051,945	1,012,793	-	12,064,738	-
Unamortized premium/(discounts)	57,106,692	10,225,185	8,458,463	58,873,414	7,172,864
Total business-type activities	1,048,552,919	202,040,058	98,064,538	1,152,528,439	60,021,713
Total long-term liabilities	$ 1,513,619,996	$ 397,796,321	$ 179,260,178	$ 1,732,156,139	$ 102,162,135

For Internal Service funds, long-term liabilities are included as part of the above totals for governmental activities. Compensated absences payables and net pension liability balances and payments are based on the assignment of an employee within a fund. Other postemployment benefits are liquidated from the Health Insurance internal service fund, with the retiree subsidy amounts paid predominantly by the General Fund. Claims payable represents an estimate of self-insured claims liability outstanding in the Health Insurance and

Risk Retention internal service funds as well as one possible litigation payable in the Electric Fund. Subscription-Based IT Arrangements (SBITA) and Lease liabilities represent GASB 96 and GASB 87 entries, respectively.

General Bonded Debt - General bonded debt at September 30, 2023, is comprised of the following:

General Obligation Bonds and Certificates of Obligation Debt	Interest Rate (%)	Issue Date	Final Maturity	Original Amount of Issue	Gross Amount Outstanding at September 30, 2023
General obligation refunding	2.0 to 3.5	2014	2034	$ 7,165,000	$ 2,515,000
General obligation refunding	3.0 to 5.0	2015	2035	36,110,000	21,215,000
General obligation refunding	3.0 to 5.0	2016	2036	27,635,000	17,940,000
General obligation refunding	3.0 to 5.0	2017	2037	27,825,000	12,840,000
General obligation	3.0 to 5.0	2018	2038	19,235,000	15,920,000
General obligation refunding	3.0 to 5.0	2019	2039	18,015,000	15,475,000
General obligation refunding	2.0 to 5.0	2020	2040	27,675,000	24,175,000
General obligation refunding	2.0 to 5.0	2020A	2031	1,415,000	1,155,000
General obligation	2.0 to 5.0	2021	2041	54,710,000	51,065,000
General obligation	4.0 to 5.0	2022	2042	57,805,000	55,220,000
General obligation	4.0 to 5.0	2023	2043	40,485,000	40,485,000
Total general obligation bonds				318,075,000	258,005,000
Certificates of obligation	2.0 to 5.0	2014	2034	8,635,000	4,645,000
Certificates of obligation	2.0 to 5.0	2015	2035	7,420,000	2,355,000
Certificates of obligation	3.0 to 5.0	2016	2036	7,190,000	2,895,000
Certificates of obligation	3.0 to 5.0	2017	2037	17,000,000	7,765,000
Certificates of obligation	3.0 to 5.0	2018	2038	9,555,000	4,990,000
Certificates of obligation	3.375 to 5.0	2018	2038	28,170,000	22,315,000
Certificates of obligation	3.0 to 5.0	2019	2039	9,390,000	4,980,000
Certificates of obligation	2.0 to 5.0	2020	2040	24,020,000	20,200,000
Certificates of obligation	2.0 to 5.0	2021	2041	24,735,000	21,825,000
Certificates of obligation	4.0 to 5.0	2022	2044	12,565,000	11,500,000
Certificates of obligation	4.0 to 5.0	2023	2044	31,160,000	31,160,000
Total certificates of obligation				179,840,000	134,630,000
Total general bonded debt				$497,915,000	$ 392,635,000

[These amounts do not include net unamortized premiums/ (discounts) of $28,677,480 nor net deferred gain/ (loss) on refunding of ($228,768).]

Proceeds of general obligation bonded debt are restricted to the uses for which they were approved in the bond elections or, in the case of a refunding issuance, to the uses for which the certificates of obligation were originally issued. The City Charter expressly prohibits the use of bond proceeds to fund operating expenses. The general obligations are collateralized by the full faith and credit of the City and, primarily, payable from property taxes.

In July 2023, the City issued $72,625,000 ($32,140,000 of which is included as part of business-type activities) in general obligation refunding bonds. Of this amount, $31,185,000 was issued to pay the costs of bond election capital improvements for streets in the Capital Projects fund. The remaining $41,440,000 was issued to refund outstanding debt obligations. The reacquisition price was below the net carrying amount of

the old debt by $675,562 ($609,268 of which is reported as a deferred gain in business-type activities). This amount is being amortized over the remaining life of the refunded debt, which is the same as the life of the new debt issued. The current refunding was undertaken to reduce total debt service payments over 10 years by $1,080,510 and resulted in a net present value savings of $952,653.

In July 2023, the City issued $149,140,000 ($117,980,000 of which is included as part of business-type activities) in certificates of obligation. The debt was issued to pay the costs of various capital improvements in the Capital Projects Fund ($29,810,000), the Electric Fund ($68,255,000), the Water Fund ($19,575,000), the Wastewater Fund ($15,330,000), the Solid Waste Fund ($14,820,000), the Fleet Fund ($1,200,000), and the Technology Fund ($150,000).

On September 30, 2023, the City had no general obligation bonds or certificates of obligation considered defeased but still outstanding.

Business-type Revenue Bonds – Revenue bond debt at September 30, 2023, is comprised of the following issues:

Revenue Bonds	Interest Rate (%)	Issue Date	Final Maturity	Original Amount of Issue	Gross Amount Outstanding at September 30, 2023
Utility system	3.25 to 5.0	2017	2037	$ 214,890,000	$ 182,160,000
Utility system Refunding	0.27 to 5.7	2021	2036	141,990,000	138,360,000
Total revenue bonds				$ 356,880,000	$ 320,520,000

[These amounts do not include net unamortized premiums/ (discounts) of $16,677,583.]

The revenue bonds are collateralized by the revenue of the Denton utility system funds (System) and the related interest and sinking fund. The ordinance provides that the revenue of the System is to be used first to pay operating and maintenance expenses of the System and second to establish and maintain the revenue bond funds. Any remaining revenues may then be used for any lawful purpose. The ordinance also contains provisions, which among other items restrict the issuance of additional revenue bonds unless certain financial ratios are met. Management believes the City is in compliance with all significant requirements. The interest and sinking fund had a net position balance of $15,734,523 as of September 30, 2023 and is restricted for debt service. On September 30, 2023, the City had no revenue bonds considered defeased but still outstanding.

Business-type General Obligation Bonds and Certificates of Obligation – General obligation bonds and certificates of obligation issued for electric, water, wastewater, and solid waste funds at September 30, 2023, is comprised of the following:

General Obligation Bonds and Certificates of Obligation Debt	Interest Rate (%)	Issue Date	Final Maturity	Original Amount of Issue	Gross Amount Outstanding at September 30, 2023
General obligation refunding	3.0 to 5.0	2014A	2025	$ 27,155,000	$ 5,795,000
General obligation refunding	3.0 to 5.0	2015	2035	1,530,000	385,000
General obligation refunding	4.0 to 5.0	2015A	2026	33,945,000	1,480,000
General obligation refunding	3.0 to 5.0	2016	2028	1,295,000	655,000
General obligation refunding	3.0 to 5.0	2016A	2030	38,425,000	21,300,000
General obligation refunding	3.0 to 5.0	2017	2022	1,280,000	-
General obligation refunding	3.0 to 5.0	2019	2039	26,325,000	9,665,000
General obligation refunding	2.0 to 5.0	2020	2040	34,405,000	20,120,000
General obligation refunding	2.0 to 5.0	2020A	2031	12,735,000	10,320,000
General obligation refunding	4.0 to 5.0	2022	2042	13,480,000	10,040,000
General obligation refunding	4.0 to 5.0	2023	2043	32,140,000	32,140,000
Total general obligation bonds				222,715,000	111,900,000
Certificates of obligation	2.0 to 5.0	2014	2044	80,545,000	58,875,000
Certificates of obligation	2.0 to 5.0	2015	2045	85,595,000	65,290,000
Certificates of obligation	3.0 to 5.0	2016	2046	76,115,000	59,150,000
Certificates of obligation	3.0 to 5.0	2017	2047	73,800,000	56,720,000
Certificates of obligation	3.375 to 5.0	2018	2028	1,375,000	760,000
Certificates of obligation	3.0 to 5.0	2019	2049	19,365,000	17,045,000
Certificates of obligation	2.0 to 5.0	2020	2050	34,060,000	31,590,000
Certificates of obligation	2.0 to 5.0	2021	2041	72,300,000	68,490,000
Certificates of obligation	4.0 to 5.0	2022	2044	99,590,000	97,385,000
Certificates of obligation	4.0 to 5.0	2022	2044	117,980,000	117,980,000
Total certificates of obligation				660,725,000	573,285,000
Total business-type G.O./C.O. bonds				$ 883,440,000	$ 685,185,000

[These amounts do not include net unamortized premiums/ (discounts) of $42,195,831 nor net deferred gain/ (loss) on refunding of $252,499.]

Schedule of Long-term Debt Maturities

Aggregate maturities of the long-term debt (principal and interest) for the years subsequent to September 30, 2023 are shown below:

Governmental Activities:

	General Obligation		Certificates of Obligation		Total	
Fiscal Year	Principal	Interest	Principal	Interest	Principal	Interest
2024	$ 14,985,000	$ 9,881,230	$ 10,590,000	$ 5,386,537	$ 25,575,000	$ 15,267,767
2025	14,875,000	9,115,393	10,015,000	4,829,856	24,890,000	13,945,249
2026	14,885,000	8,474,656	9,675,000	4,373,606	24,560,000	12,848,262
2027	14,935,000	7,832,156	9,205,000	3,923,456	24,140,000	11,755,612
2028	14,105,000	7,185,975	8,285,000	3,496,550	22,390,000	10,682,525
2029-2033	72,295,000	26,808,166	36,390,000	12,418,475	108,685,000	39,226,641
2034-2038	70,485,000	13,190,731	34,545,000	5,520,772	105,030,000	18,711,503
2039-2043	41,440,000	2,932,744	15,925,000	1,098,806	57,365,000	4,031,550
2044-2048	-	-	-	-	-	-
2049-2053	-	-	-	-	-	-
Total	$258,005,000	$ 85,421,051	$134,630,000	$ 41,048,058	$ 392,635,000	$ 126,469,109

Business-Type Activities:

	General Obligation		Certificates of Obligation		Revenue		Total	
Fiscal Year	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest
2024	$ 20,080,000	$ 4,838,289	$ 17,230,000	$ 23,195,182	$ 12,905,000	$ 12,395,313	$ 50,215,000	$ 40,428,784
2025	18,450,000	3,886,875	18,220,000	22,072,676	13,400,000	11,898,018	50,070,000	37,857,569
2026	12,190,000	3,169,725	18,900,000	21,212,676	13,900,000	11,395,282	44,990,000	35,777,683
2027	12,335,000	2,594,125	19,570,000	20,310,525	14,440,000	10,858,300	46,345,000	33,762,950
2028	11,500,000	2,034,350	20,120,000	19,354,625	15,045,000	10,255,530	46,665,000	31,644,505
2029-2033	37,345,000	3,431,275	113,840,000	81,767,204	66,950,000	34,246,510	218,135,000	119,444,989
2034-2038	-	-	128,890,000	56,313,525	101,970,000	24,519,626	230,860,000	80,833,151
2039-2043	-	-	133,045,000	30,738,709	25,290,000	10,831,062	158,335,000	41,569,771
2044-2048	-	-	69,975,000	11,238,997	29,470,000	6,642,486	99,445,000	17,881,483
2049-2053	-	-	33,495,000	2,768,800	27,150,000	1,740,676	60,645,000	4,509,476
Total	$111,900,000	$ 19,954,639	$573,285,000	$ 288,972,919	$ 320,520,000	$ 134,782,803	$ 1,005,705,000	$ 443,710,361

[These amounts do not include net unamortized premiums/ (discounts) of $87,550,894 nor net deferred gain/ (loss) on refunding of $23,731.]

Bonds Authorized and Unissued

General obligation bonds authorized but unissued as of September 30, 2023 amounted to $54,500,000. When issued, the proceeds will be allocated to the applicable street, drainage, police facilities, and parks projects.

All bonds were issued publicly through negotiated or competitive terms with no direct placements. There is no acceleration of maturity of the bonds in the event of default, and the City has never defaulted on the payment of bonds.

Claims and Judgements Payable

Claims and judgements payable include claims payables as part of the City's self-insurance plan, which can be found in note V.D. It also includes a judgement liability of $4,000,000 recorded in the electric fund. Based on the trial court's final reduced jury judgment by the application of statutory caps on damages, the City has accrued the $2.7 million as a long-term liability in the Electric fund. It is possible that the judgment may be reversed or modified on appeal. Additional information regarding the judgement can be found in note V.G. for further information.

H. Landfill Closure and Post-Closure Cost

State and federal laws and regulations require the City to place a final cover on its Mayhill Road landfill site upon closure and to perform certain maintenance and monitoring functions at the site for thirty years after closure. Although closure and post-closure care costs will be paid only upon anticipated closure, the City reports a portion of these costs as an operating expense in each period based on landfill capacity used as of each balance sheet date. Based on an updated model created by a 2022 engineering study, total landfill closure and post-closure cost as of September 30, 2023 was $55,649,845. The $12,064,738 reported as landfill closure and post-closure care liability as of September 30, 2023 is a $1,012,793 increase from the $11,051,945 liability reported on September 30, 2022. This liability represents the cumulative amount incurred to date based on the use of 21.68% of the estimated capacity of the entire landfill at September 30, 2023. The change in estimated capacity decreased due to the remaining life increasing from updated Permit 1590B approval in August 2021.

Based on this estimate, the remaining potential estimated liability for closure and post-closure care of the entire landfill $43,585,107. The City will recognize the remaining estimated cost of closure and post-closure care as the remaining capacity is filled. These amounts are based on what it would cost to perform closure and post-closure care in 2023. Actual cost may fluctuate due to inflation, changes in technology, or changes in regulations. The landfill has a remaining life of 33 years, and the City expects to close the landfill in fiscal year 2056.

The solid waste fund has provided for a reservation and designation of cash and investments of $13,947,040 at September 30, 2023 and anticipates increasing the reserve in future periods as the closure and post-closure activities are carried out.

I. Leases

The City is a lessor in various noncancelable leases of land, building, and equipment. During fiscal year 2023, the City recognized $197,884 in lease revenue and $53,136 in interest revenue.

As of September 30, 2023, the City's lease receivable balance of $3,330,780 was comprised of the following:

Governmental Activities	
One building lease with rents received totaling in $16,659 during the fiscal year 2023, at an interest rate of 1.20%, with a remaining lease term of 7 years	$ 123,492
One equipment lease with rents received totaling in $44,201 during the fiscal year 2023, at an interest rate of .58%, with a remaining lease term of 3 years	318,440
One land leases with rents received totaling $18,186 during the fiscal year 2023, at an interest rate of 1.88% with remaining lease terms of 45 years	859,162
Business-type Activities	
Various land leases with rents received totaling $137,010 during the fiscal year 2023, at an interest rate of 1.47 to 1.85% to with remaining lease terms ranging from 12 to 25 years	2,029,686
	$3,330,780

The lease receivables are expected to be received in subsequent years as follows:

	Governmental Activities		Business-Type Activities	
Fiscal Year	Principal	Interest	Principal	Interest
2024	$ 95,352	$ 18,932	$ 124,351	$ 31,670
2025	96,195	18,269	126,281	29,740
2026	96,864	17,600	128,241	27,780
2027	50,625	16,995	130,232	25,789
2028	17,425	16,735	682,128	97,975
2029 - 2033	55,491	80,589	491,547	46,757
2034 - 2038	31,424	77,841	150,226	25,377
2039 - 2043	51,692	73,963	164,782	10,822
2044 - 2048	76,533	67,970	31,898	296
2049 - 2053	106,786	59,393	-	-
2054 - 2058	143,427	47,678	-	-
2059 - 2063	187,597	32,174	-	-
2064 - 2068	240,627	12,110	-	-
2069	51,056	7	-	-
	$ 1,301,094	$ 540,256	$ 2,029,686	$ 296,206

The City has various aeronautical leasing agreements for land leases (54 agreements, 5 Licenses, 72 buildings) and hangar space (27) at Denton Enterprise Airport. These qualify as regulated leases and are not included in the measurement of lease receivables, in accordance with the requirements of GASB Statement No. 87. The City recognized $777,020 (Land Lease) and $157,544 (Hangar Lease) in lease revenue during fiscal year 2023 for these leases, which have CPI increases that range from 1-5 years, dependent on the lease terms ranging from 1-30 years, with some leases having additional options that range from 5-20 years. As of October 1, 2023, the minimum payments expected to be received over the next five years is shown in the table below:

Fiscal Year	
2024	$ 877,754
2025	990,761
2026	1,015,491
2027	1,050,948
2028	1,077,185

Additionally, on January 1, 2023, City of Denton, TX entered into a 48-month lease as Lessee for the use of Employee Health Clinic. An initial lease liability was recorded in the amount of $300,845. As of September 30, 2023, the value of the lease liability is $247,072. The City of Denton, TX is required to make monthly fixed payments of $6,018. The lease has an interest rate of 0.2130%. The value of the right to use asset as of September 30, 2023 of $300,845 with accumulated amortization of $56,408. The City has one extension option(s), each for 12 months.

J. Subscription-Based Information Technology Agreements (SBITA)

The City entered into SBITA contracts involving various desktop and server software, electronic workflows and document management software along with other departmental specific operations management systems to assist in operations. As of September 30, 2023, all SBITA have fixed, periodic, payments over

the subscription periods, which range from 1 to 5 years and expire no later than fiscal year 2028. In addition, some of these agreements are cancellable with a 30 or 60-day notice. There are no commitments or outflows of resources related to SBITA that are not yet effective.

The future subscription payments as of September 30, 2023, as follows:

	Governmental Activities		Business-Type Activities	
Fiscal Year	Principal	Interest	Principal	Interest
2025	$1,651,195	$ 38,668	$ 534,084	$ 11,422
2026	1,651,195	38,668	534,084	11,422
2027	1,651,195	38,667	534,084	11,421
2028	1,651,195	38,667	534,084	11,421
2029	1,651,195	38,667	534,085	11,421
	$8,255,975	$193,337	$2,670,421	$ 57,107

V. OTHER INFORMATION

A. Pension Plans

Employee Retirement Plans

The City of Denton participates in two pension plans; Texas Municipal Retirement System (TMRS), an agent-multiple employer traditional, joint contributory, hybrid defined benefit pension plan; and the Denton Firemen's Relief and Retirement Fund (FRRF), a single employer, contributory, defined benefit plan. Both plans are described in detail below. Aggregate amounts for the two pension plans are as follows:

	TMRS	FRRF	Total
Pension liability	$ 642,301,045	$ 152,376,252	$ 794,677,297
Pension assets	519,984,941	136,802,800	656,787,741
Net pension liability	$ 122,316,104	$ 15,573,452	$ 137,889,556
Deferred outflows of resources	$ 64,042,157	$ 12,265,779	$ 76,307,936
Deferred inflows of resources	-	(375,549)	(375,549)
Pension expense	28,999,071	2,336,612	31,335,683

Texas Municipal Retirement Plan

Plan Description

The City of Denton participates as one of 901 plans in the defined benefit cash-balance plan administered by the Texas Municipal Retirement System (TMRS). TMRS is statewide public retirement plan created by the State of Texas and administered in accordance with the TMRS Act, Subtitle G, Title 8, Texas Government Code (the TMRS Act) as an agent multiple-employer retirement system for employees of Texas participating cities. The TMRS Act places the general administration and management of the System with a six-member, Governor-appointed board of trustees; however, TMRS is not fiscally dependent on the State of Texas. TMRS issues a publicly-available annual comprehensive financial report obtainable at www.tmrs.com.

All eligible employees of the city are required to participate in TMRS.

Benefits Provided

TMRS provides retirement, disability, and death benefits. Benefit provisions are adopted by the governing body of the City, within the options available in the state statutes governing TMRS.

At retirement, the employee's benefit is calculated based on the sum of the employee's contributions with interest, and the city-financed monetary credits with interest. Employees may choose to receive their retirement benefit in one of seven payments options. Employees may also choose to receive a portion of their benefit as a Partial Lump Sum Distribution in an amount equal to 12, 24, or 36 monthly payments, which cannot exceed 75% of the employee's deposits and interest.

Upon retirement, the employee's retirement benefits are calculated based on the sum of the employee's contributions, with interest, and the City-financed monetary credits, with interest. City-financed monetary credits are composed of three sources: prior service credits, current service credits, and updated service credits.

- Prior service credit, granted by each city joining TMRS, is a monetary credit equal to the accumulated value of the percentage of prior service credit selected by the City, multiplied by an employee's contributions that would have been made, based on the average salary prior to TMRS participation, for the number of months the employee was employed by the City before joining TMRS, accruing 3% annual interest and including the matching ratio adopted by the City.
- Current Service Credit is a monetary credit for service performed by an employee after the City joined TMRS and is based on a percent (200%) of the employee's total contributions and interest credits (commonly referred to as the City's matching ratio). Each participating city designates the rate the employee contributions (7% for the City) and interest is credited on contribution balances annually at a guaranteed minimum 5% rate. Any change in the matching ratio would be applied prospectively.
- Updated Service Credits (USC) is an optional monetary credit granted on an annually repeated basis by the City, and it may increase an employee's monthly retirement benefit. In calculating USC, TMRS looks at the changes in the employee's salary over their career and any changes the City has made to its TMRS plan, such as the employee contribution rate or the City's matching ratio. Although USC may increase the employee's retirement benefit, USC does not affect the amount of contributions in an employee's account or the amount an employee will receive if they refund.

The plan provisions also include an annually repeating basis cost of living adjustments for retires equal to 70% of the change in the consumer price index. If an employee terminates employment and refunds their account, the employee will receive their total contributions, plus credited interest. The employee will not receive any of the city-financed monetary credits. An employee can retire at ages 60 and above with 5 or more years of service or with 20 years of service regardless of age. A member is vested after five years.

Employees Covered by Benefit Terms

At the December 31, 2022 valuation and measurement date, the following employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits	884
Inactvie employees entitled to but not yet receiving benefits	851
Active employees	1,355
Total	3,090

Contributions

The contribution rates for employees in TMRS are either 5%, 6%, or 7% of employee gross earnings, and the city matching percentages are either 100%, 150%, or 200%, both as adopted by the City Council. Under the state law governing TMRS, the contribution rate for each city is determined annually by the actuary, using the Entry Age Normal (EAN) actuarial cost method. The City's contribution rate is based on the liabilities

created from the benefit plan options selected by the City and any changes in benefits or actual experience over time.

Employees for the City were required to contribute 7% of their annual gross earnings during the fiscal year. The contribution rates for the City were 17.87% and 18.15% in calendar years 2022 and 2023, respectively. The City's contributions to TMRS for the year ended September 30, 2023 were $21,104,072 and were equal to the required contributions.

Net Pension Liability

The City's Net Pension Liability (NPL) was measured as of December 31, 2022, and the Total Pension Liability (TPL) used to calculate the Net Pension Liability was determined by an actuarial valuation as of that date.

Actuarial Assumptions

The Total Pension Liability in the December 31, 2022 actuarial valuation was determined using the following actuarial assumptions:

Inflation	2.50% per year
Overall payroll growth	3.50% per year
Investment Rate of Return	6.75%, net of pension plan investment expense, including inflation

Salary increases were based on a service-related table. Mortality rates for active members are based on the PUB(10) mortality tables with the Public Safety table used for males and the General Employee table used for females. Mortality rates for healthy retirees and beneficiaries are based on the gender-distinct 2019 Municipal Retirees of Texas mortality tables. The rates for actives, healthy retirees and beneficiaries are projected on a fully generational basis by Scale UMP to account for future mortality improvements. For disabled annuitants, the same mortality tables for healthy retirees are used with a 4-year set-forward for males and a 3-year set-forward for females. In addition, a 3.5% and 3.0% minimum mortality rate is applied, for males and females respectively, to reflect the impairment for younger members who become disabled. The rates are projected on a fully generational basis by Scale UMP to account for future mortality improvements subject to the floor.

The actuarial assumptions were developed primarily from the actuarial investigation of the experience of TMRS over the four-year period from December 31, 2014 to December 31, 2018. They were adopted in 2019 and first used in the December 31, 2019 actuarial valuation. The post-retirement mortality assumption for healthy annuitants and Annuity Purchase Rate (APRs) are based on the Mortality Experience Investigation Study covering 2009 through 2011 and dated December 31, 2013. Plan assets are managed on a total return basis with an emphasis on both capital appreciation as well as the production of income in order to satisfy the short-term and long-term funding needs of TMRS.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target allocation and best estimates of real rates of return for each major asset class in fiscal year 2023 are summarized in the following table:

Asset Class	Target Allocation	Long-Terrm Expected Real Rate of Return (Arithmetic)
Global Equity	35%	7.7%
core Fixed Income	6%	4.9%
Non-Core Fixed Income	20%	8.7%
Real Return	12%	8.1%
Real Estate	12%	5.8%
Absolute Return	5%	6.9%
Private Equity	10%	11.8%
Total	100%	

Discount Rate

The discount rate used to measure the Total Pension Liability was 6.75%. The projection of cash flows used to determine the discount rate assumed that employee and employer contributions will be made at the rates specified in statute. Based on that assumption, the pension plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current active and inactive employees. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability.

Changes in the Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balance at 12/31/2021	$ 600,289,185	$ 560,080,718	$ 40,208,467
Changes for the year:			
Service cost	19,111,021	-	19,111,021
Interest	40,284,903	-	40,284,903
Change of benefit terms	-	-	-
Difference between expected and actual experience	8,678,564	-	8,678,564
Changes of assumptions	-	-	-
Contributions - employer	-	19,140,875	(19,140,875)
Contributions - employee	-	7,670,708	(7,670,708)
Net investment income	-	(40,913,118)	40,913,118
Benefit payments, including refunds of employee contributions	(26,062,628)	(26,062,628)	-
Administrative expense	-	(353,785)	353,785
Other changes	-	422,171	(422,171)
Net changes	42,011,860	(40,095,777)	82,107,637
Balance at 12/31/2022	$ 642,301,045	$ 519,984,941	$ 122,316,104

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability of the City, calculated using the discount rate of 6.75%, as well as what the City's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (5.75%) or 1-percentage-point higher (7.75%) than the current rate:

	1% Decrease in Discount Rate (5.75%)	Current Discount Rate (6.75%)	1% Increase in Discount Rate (7.75%)
City's net pension liability	$ 216,545,504	$ 122,316,104	$ 45,501,845

Pension Plan Fiduciary Net Position

Detailed information about the pension plan's Fiduciary Net Position is available in the Schedule of Change in Fiduciary Net Position, by Participating City, separately-issued TMRS financial report. That report may be obtained on the Internet at *www.tmrs.com*.

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

For the year ended September 30, 2023, the City recognized pension expense of $7,836,233. This amount is included as part of personnel services expenses.

At September 30, 2023, the City reported deferred outflows of resources and deferred inflows of resources related to TMRS pension from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between projected and actual investment earnings	$ 35,798,004	$ -
Contributions subsequent to the measurement date	15,417,601	-
Differences between expected and actual economic experience	12,641,610	-
Difference in assumption changes	184,942	-
Total	$ 64,042,157	$ -

$15,417,601 reported as deferred outflows of resources related to pensions resulting from contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability for the City's fiscal year ending September 30, 2024. Other amounts reported as deferred outflows and inflows of resources related to pensions will be recognized in pension expense (income) as follows:

For the Year Ended September 30,	Net Deferred Outflows/(Inflows)
2023	$ 6,707,832
2024	12,989,176
2025	12,449,041
2026	16,478,507
2027	-
Total	$ 48,624,556

Denton Firemen's Relief and Retirement Plan

Plan Description

The City contributes to the retirement plan for firefighters in the Denton Fire Department known as the Denton Firemen's Relief and Retirement Fund (the Fund). The Fund is a single employer, contributory, defined benefit plan. The benefit provisions of the Fund are authorized by the Texas Local Fire Fighters' Retirement Act (TLFFRA). TLFFRA provides the authority and procedure to amend benefit provisions. The plan is administered by the Board of Trustees of the Denton Firemen's Relief and Retirement Fund. The City does not have access to nor can it utilize assets within the retirement plan trust. The Fund issues a stand-alone report pursuant to GASB Statement No. 67, which may be obtained by writing the Denton Firemen's Relief and Retirement Fund at P.O. Box 2375, Denton, Texas 76202. See that report for all information about the plan fiduciary net position.

Benefits Provided

Firefighters in the Denton Fire Department are covered by the Denton Firemen's Relief and Retirement Fund which provides service retirement, death, disability, and withdrawal benefits. These benefits fully vest after 20 years of credited service. Firefighters may retire at age 50 with 20 years of service. A partially vested benefit is provided for firefighters who terminate employment with at least 10 but less than 20 years of service. If a terminated firefighter has a partially vested benefit, the firefighter may retire starting on the date they would have both completed 20 years of service if they had remained a Denton firefighter and attained age 50. The present plan effective January 1, 2011 provides a monthly normal service retirement benefit, payable in a Joint and Two-Thirds to Spouse form of annuity, equal to 2.59% of Highest 36-Month Average Salary for each year of service.

A retiring firefighter who is at least age 52 with at least 22 years of service has the option to elect the Retroactive Deferred Retirement Option Plan (RETRO DROP) which will provide a lump sum benefit and a reduced monthly benefit. The reduced monthly benefit is based on the service and Highest 36-Month Average Salary as if the firefighter had terminated employment on their selected RETRO DROP benefit calculation date, which is no earlier than the later of the date the firefighter meets the age 52 and 22 years of service requirements and the date four years prior to the date the firefighter actually retires. Upon retirement, the employee will receive, in addition to the monthly retirement benefit, a lump sum equal to the sum of (1) the amount of monthly contributions the member has made to the Fund after the RETRO DROP benefit calculation date plus (2) the total of the monthly retirement benefits the member would have received between the RETRO DROP benefit calculation date and the date retired under the plan. There are no account balances. The lump sum is calculated at the time of retirement and distributed as soon as administratively possible.

There is no provision for automatic postretirement benefit increases. The Fund has the authority to provide, and has periodically in the past provided, ad hoc postretirement benefit increases.

Employees Covered by Benefit Terms

In the December 31, 2021 actuarial valuation, the following numbers of members were covered by the Fund:

Inactive employees or beneficiaries currently receiving benefits	92
Inactive employees entitled to but not yet receiving benefits	7
Active employees	211
Total	310

Contributions

The contribution provisions of the Fund are authorized by TLFFRA. TLFFRA provides the authority and procedure to change the amount of contributions determined as a percentage of pay by each firefighter and a percentage of payroll by the City.

The contribution policy of the Denton Firemen's Relief and Retirement Fund requires contributions equal to 12.6% of pay by the firefighters, the rate elected by the firefighters according to TLFFRA. The City began contributing in December 2017 according to a new City funding policy. The ordinance defining it includes an actuarially determined contribution rate over a closed 25-year amortization period, a contribution rate of 18.5% for several years, a minimum rate standard, and City review and approval of each actuarial valuation. The December 31, 2022 actuarial valuation includes the assumption the City contribution rate will be 18.5% over the unfunded liability amortization period. The costs of administering the plan are paid from the Fund assets. The City's contributions to the Fund for the year ended September 30, 2023 were $4,804,198.

Ultimately, the funding policy also depends upon the total return of the Fund's assets, which varies from year to year. Investment policy decisions are established and maintained by the board of trustees. For the calendar year ending December 31, 2022, the money-weighted rate of return on pension plan investments was 17.93%. This measurement of the investment performance is net of investment-related expenses, reflecting the effect of the timing of the contributions received and the benefits paid during the year.

While the contribution requirements are not actuarially determined, state law requires that each change in plan benefits adopted by the Fund must first be approved by an eligible actuary, certifying the contribution commitment by the firefighters and the assumed city contribution rate together provide an adequate contribution arrangement. Using the entry age actuarial cost method, the plan's normal cost contribution rate is determined as a percentage of payroll. The excess of the total contribution rate over the normal cost contribution rate is used to amortize the plan's unfunded actuarial accrued liability (UAAL). The number of years needed to amortize the plan's UAAL is actuarially determined using an open, level percentage of payroll method.

Net Pension Liability

The City of Denton's net pension liability was measured as of December 31, 2022, and the total pension liability used to calculate the net pension liability was determined based on the actuarial valuation as of December 31, 2022.

Total pension liability	$ 152,376,252
Plan fiduciary net position	136,802,800
City's net pension liability	$ 15,573,452
Plan fiduciary net position as a percentage of the total pension liability	89.8%

Actuarial Assumptions

The total pension liability in the December 31, 2021 actuarial valuation was determined using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.50% per year
Overall payroll growth	3.00% per year, plus promotion, step and longevity increases that vary by service
Investment Rate of Return	6.75%, net of pension plan investment expense, including inflation

Mortality rates were based on the PubS-2010 (public safety) total dataset mortality tables employees and for retirees (sex distinct), projected for mortality improvement generationally using the projection scale MP-2019.

The long-term expected rate of return on pension plan investments is reviewed for each biennial actuarial valuation and was determined using a building-block method in which expected future net real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These components are combined to produce the long-term expected rate of return by weighting the expected future net real rates of return by the target asset allocation percentage (currently resulting in 4.96%) and by adding expected inflation (2.5%). In addition, the final 6.75% assumption was selected by "rounding down" and thereby reflects a reduction of 0.71% for adverse deviation. The target allocation and expected arithmetic net real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (Arithmetic)
Equities		
Large Cap Domestic	40.0%	6.00%
Small/Mid Cap Domestic	10.0%	6.50%
International Developed	10.0%	6.50%
Alternatives		
Master Limited Partnerships	8.0%	6.50%
Real Estate	15.0%	4.50%
Fixed Income	15.0%	1.00%
Cash	2.0%	0.00%
Total	100.0%	
Weighted Average		4.96%

Discount Rate

The discount rate used to measure the total pension liability was 6.75%. No projection of cash flows was used to determine the discount rate because the December 31, 2022 actuarial valuation showed expected contributions would pay the normal cost and amortize the unfunded actuarial accrued liability (UAAL) in 9 years. Because of the 9-year amortization period of the UAAL, the pension plan's fiduciary net position is expected to be available to make all projected future benefit payments of current active and inactive members. Therefore, the long-term expected rate of return on pension plan investments of 6.75%was applied to all periods of projected benefit payments as the discount rate to determine the total pension liability.

Changes in the Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balance at 12/31/2021	$ 142,439,646	$ 140,537,577	$ 1,902,069
Changes for the year:			
Service cost	4,965,768	-	4,965,768
Interest	9,787,310	-	9,787,310
Change of benefit terms	-	-	-
Difference between expected and actual experience	-	-	-
Contributions - employer	-	4,545,905	(4,545,905)
Contributions - employee	-	3,096,130	(3,096,130)
Net investment income	-	(6,446,061)	6,446,061
Benefit payments, including refunds of employee contributions	(4,816,472)	(4,816,472)	-
Administrative expense	-	(114,279)	114,279
Net changes	9,936,606	(3,734,777)	13,671,383
Balance at 12/31/2022	$ 152,376,252	$ 136,802,800	$ 15,573,452

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability of the City of Denton, calculated using the discount rate of 6.75%, as well as what the city's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (5.75%) or 1-percentage-point higher (7.75%) than the current rate:

	1% Decrease in Discount Rate (5.75%)	Current Discount Rate (6.75%)	1% Increase in Discount Rate (7.75%)
City's net pension liability	$ 35,273,538	$ 15,573,452	$ (884,561)

Pension Plan Fiduciary Net Position

The plan fiduciary net position reported above is the same as reported by the Fund. Detailed information about the plan fiduciary net position is available in the Fund's separately issued audited financial statements, which are reported using the economic resources measurement focus and the accrual basis of accounting in conformity with accounting principles generally accepted in the United States of America. Revenues are recorded when earned, and expenses are recorded when a liability is incurred, regardless of the timing of the related cash flows. Investments are reported at fair value, the price that would be recognized to sell an asset in an orderly transaction between market participants at the measurement date.

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

For the year ended September 30, 2023, the City recognized negative pension expense of $2,336,612. Amounts recognized in the fiscal year represent changes between the current and prior year measurement dates. This amount is included as part of personnel services expenses.

At September 30, 2023, the City reported deferred outflows of resources and deferred inflows of resources related to the Fund from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between projected and actual investment earnings	$ 933,280	$ -
Contributions subsequent to the measurement date	3,506,747	-
Differences between expected and actual economic experience	5,407,801	(375,549)
Difference in assumption changes	2,417,951	-
Total	$ 12,265,779	$ (375,549)

Deferred outflows of resources related to pensions resulting from contributions subsequent to the measurement date of $3,506,747. will be recognized as a reduction of the net pension liability for the measurement year ending December 31, 2023, and the City's fiscal year ending September 30, 2024. Other amounts reported as deferred outflows and inflows of resources related to pensions will be recognized in pension expense (income) as follows:

For the Year Ended September 30,	Net Deferred Outflows/(Inflows)
2024	$ (1,057,188)
2025	780,350
2026	1,812,996
2027	4,392,413
2028	1,042,326
Thereafter	1,412,586
Total	$ 8,383,483

B. Post-employment Benefits Other than Pensions (OPEB)

The City of Denton provides for two post-employment benefit (OPEB) plans; one provides for post-employment medical care through a single-employer defined benefit medical plan (Medical OPEB), and the other is the Texas Municipal Retirement System Supplemental Death Benefits Fund (TMRS SDBF), a single-employer defined benefit OPEB plan. Both plans are described in detail following.

Aggregate amounts for the two OPEB plans are as follows:

	Medical OPEB	TMRS SDBF	Total
Total OPEB liability	$ 41,482,438	$ 3,732,019	$ 45,214,457
Deferred outflows of resources	$ 5,630,418	$ 1,014,418	$ 6,644,836
Deferred inflows of resources	12,622,440	1,895,755	14,518,195
OPEB expense	3,228,576	265,055	3,493,631

Medical Benefits

Plan Description

The City of Denton provides post-employment medical care (OPEB) for retired employees through a single-employer defined benefit medical plan. The plan provides medical benefits for eligible retirees, their spouses and dependents though the City's group health insurance plans, which covers both active and retired members. The benefits, benefit levels, and contribution rates are recommended annually by the City management as part of the budget process. Any changes in rate subsidies for retirees are approved by the City Council. Since an irrevocable trust has not been established, the plan is not accounted for as a trust fund. The plan does not issue a separate financial report.

Benefits Provided

The City provides post-employment medical, dental, and vision care benefits to its retirees. To be eligible for benefits, an employee must qualify for retirement under the Texas Municipal Retirement System or the Denton Firemen's Relief and Retirement Plan. Retirees must make a one-time irrevocable decision to choose benefits at the time of retirement, after that their eligibility for the benefits ceases. However, retirees can move between plans and can add and drop dependents based on qualifying events.

All medical care benefits are provided through the City's self-insured health plan. The benefit levels are the same as those afforded to active employees.

Employees Covered by the Benefit Terms

In the December 31, 2022, actuarial valuation, the following number of employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits	249
Active employees	1,540
Total	1,789

Funding Policy

The plan premium rates are recommended annually by City management and approved by the City Council as part of the annual budget. The retiree's contribution is the full amount of the actuarially determined blended premium rate less a subsidy dependent upon years of service at retirement. By providing retirees with access to the City's healthcare plans based on the same rates it charges to active employees, the City is in effect providing a subsidy to retirees. This implied subsidy exists because, on average, retiree health care costs are higher than active employee healthcare costs. By the City not contributing anything toward this plan in advance, the City employs a pay-as-you-go method through paying the higher rate for active employees each year. The City contributes $40 per month for each five-year increment of service, up to $200 per month, toward the cost of retiree coverage. The full cost for dental and vision is paid by the retiree. Retirees are required to enroll in Medicare Part B once eligible (age 65) and are moved into a fully-insured Medicare Supplement plan at that time. The same City contribution level applies to the supplement.

Medical OPEB Liability

The City's medical OPEB liability of $41,482,438 was measured as of December 31, 2022, the same date as the actuarial valuation.

Actuarial Methods and Assumptions

The medical OPEB liability in the December 31, 2022 actuarial valuation was determined using the following actuarial assumptions and other inputs, applied to all periods included in the measurement date, unless otherwise specified.

Significant method and assumptions used for this fiscal year valuation were as follows:

	Actuarial Assumptions
	12/31/2022
Valuation date	December 31,2021
Actuarial cost method	Individual Entry-Age Normal Method
Discount Rate	2.75% as of December 31, 2019 1.84% as of December 31, 2021 4.05% as of December 31, 2022
Inflation rate	2.50% per annum
Projected salary increases	3.50% to 11.50% for TMRS, including inflation 3.00% to 9.18% for Fire, including inflation
Healthcare trend rates	Initial rate of 7.00% declining to an ultimate rate of 4.15% after 13 years
Mortality	**TMRS:** For healthy retirees, the gender-distinct 2019 Municipal Retirees of Texas mortality tables are used. The rates are projected on a fully generational basis using the ultimate mortality improvement rates in the MP tables to account for future mortality improvements. **Firefighters:** The gender-distinct PubS-2010 (safety employees) total data set mortality are used. The rates are projected on a fully generational basis using the projection scale MP-2019.
Participation Rates	65% for employees retiring at age 65 or older; 45% for employees retiring between the ages of 50 and 64; 5% for employees retiring between the ages of 45 and 49; 0% for employees retiring before the age 45.

Changes in the Medical OPEB Liability

	Total Medical OPEB Liability
Balance at 12/31/2021	$ 49,266,518
Changes for the year:	
Service cost	3,282,530
Interest	921,256
Difference between expected and actual experience	(42,650)
Changes of assumptions	(10,266,201)
Benefit payments	(1,679,015)
Net changes	(7,784,080)
Balance at 12/31/2022	$ 41,482,438

Total OPEB liability as a percentage of covered payroll was 30.13%.

Sensitivity of the Medical OPEB Liability to Changes in the Discount Rate

The following schedule shows the impact of the medical OPEB liability if the discount rate used was 1% less than (3.05%) and 1% greater than (4.05%) the discount rate that was used (5.05%) in measuring the medical OPEB liability:

	1% Decrease (3.05%)	Current Discount Rate (4.05%)	1% Increase (5.05%)
Total SDBF OPEB liability	$ 45,753,482	$ 41,482,438	$ 37,735,595

Sensitivity of the Medical OPEB Liability to Changes in the Healthcare Cost Trend Rate Assumption

The following schedule shows the impact of the medical OPEB liability if the healthcare trend cost rate used was 1% less than (6.00%) and 1% more than (8.00%) the healthcare cost trend rate that was used (7.00%) in measuring the medical OPEB liability:

	1% Decrease (6.00%)	Current Healthcare Cost Trend Rate Assumption (8.00%)	1% Increase (7.00%)
Total SDBF OPEB liability	$ 38,111,505	$ 41,482,438	$ 45,474,336

Medical OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Medical OPEB

For the year ended September 30, 2023, the City recognized medical OPEB expense of $265,055. At September 30, 2023, the City reported deferred outflows of resources and deferred inflows of resources related to medical OPEB from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual economic experience	$ 217,802	$ 1,914,043
Changes in actuarial assumptions	3,890,791	10,708,397
Contributions subsequent to the measurement date	1,521,825	-
Totals	$ 5,630,418	$ 12,622,440

Deferred outflows of resources related to OPEB contributions subsequent to the measurement date of $1,521,825 will be recognized as a reduction of the medical OPEB liability for the City's fiscal year ending September 30, 2024. Other amounts reported as deferred outflows of resources related to the medical OPEB will be recognized in OPEB expense as follows:

Year Ending September 30,	Net Deferred Outflows/(Inflows)
2024	$ (975,210)
2025	(975,210)
2026	(983,003)
2027	(1,198,753)
2028	(994,385)
Thereafter	(3,387,286)
Total	$ (8,513,847)

TMRS Supplemental Death Benefit Fund

Plan Description

The City of Denton voluntarily participates in the Texas Municipal Retirement System Supplemental Death Benefits Fund (TMRS SDBF). The SDBF is a defined benefit group-term life insurance Other Postemployment Benefit (OPEB) plan as defined by GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. No assets are accumulated in a trust that meets the criteria in paragraph 4 of GASB Statement No. 75. It is established and administered in accordance with the TMRS Act identically to the City's pension plan.

Benefits Provided

The SDBF provides group-term life insurance to City employees who are active members in TMRS, including or not including retirees. The City Council opted into this system via an ordinance, and may terminate coverage under, and discontinue participation in, the SDBF by adopting an ordinance before November 1st of any year to be effective the following January 1st.

Payments from this fund are similar to group-term life insurance benefits and are paid to the designated beneficiaries upon the receipt of an approved application for payment. The death benefit for active employees provides a lump-sum payment approximately equal to the employee's annual salary (calculated based on the employee's actual earnings for the 12-month period preceding the month of death). The death benefit for retirees is considered an "other postemployment benefit" (OPEB) and is a fixed amount of $7,500. As the SDBF covers both active and retiree participants with no segregation of assets, the SDBF is considered to be an unfunded OPEB plan.

Employees Covered by the Benefit Terms

In the December 31, 2022 actuarial valuation, the following number of employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits	675
Inactive employees entitled to but not yet receiving benefits	251
Active employees	1,355
Total	2,281

Contributions

The City contributes to the SDBF at a contractually required rate as determined by an annual actuarial valuation, which was 0.28% for 2023 and 0.18% for 2022, of which 0.10% for 2023 and 0.09% for 2022, represented the retiree-only portion for each year, as a percentage of annual covered payroll. The rate is equal to the cost of providing one-year term life insurance. The funding policy for the SDBF program is to assure that adequate resources are available to meet all the death benefit payments for the upcoming year; the intent is not to prefund retiree term life insurance during employees' entire careers. The City's contribution to the SDBF for two years ended September 30, 2023 and 2022 were $300,164 and $190,063 respectively, representing contributions for both active and retiree coverage, which equaled the required contribution each year.

Actuarial Methods and Assumptions

The SDBF OPEB liability in the December 31, 2022 actuarial valuation was determined using the following actuarial assumptions:

	12/31/2022
Inflation rate	2.50% per annum
Discount rate	4.05%
Actuarial cost method	Entry Age Normal Method
Projected salary increases	3.50% to 11.5% including inflation

Salary increases were based on a service-related table. Mortality rates for active members, retirees, and beneficiaries were based on the following:

Mortality rates for active members, retirees, and beneficiaries were based on the gender-distinct 2019 Municipal Retirees of Texas mortality tables. The rates are projected on a fully generational basis by scale UMP to account for future mortality improvements. For disabled annuitants, the gender-distinct 2019 Municipal Retirees of Texas mortality tables are used with a 4-year set forward for males and a 3-year set forward for females. In addition, a 3.5% and 3% minimum mortality rate is applied to reflect the impairment for younger members who became disabled for males and females, respectively. The rates are projected on a fully generational basis by scale UMP BB to account for the future mortality improvements subject to the floor. Administrative expenses for the SDBF are paid through the TMRS Pension Trust Fund and are wholly accounted for under the provisions of GASB Statement No. 68.

Changes in assumptions reflect the annual change in the municipal bond rate. The actuarial assumptions used in the December 31, 2022 valuation were based on the results of an actuarial experience study for the period December 31, 2014 to December 31, 2018.

Discount Rate

The SDBF program is treated as an unfunded OPEB plan because the SDBF trust covers both actives and retirees and the assets are not segregated for these groups. As such, a single discount rate of 1.84% was used to measure the SDBF OPEB Liability. Because the plan is essentially a "pay-as-you-go" plan, the single

discount rate is equal to the prevailing municipal bond rate. The source of the municipal bond rate was fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-year Municipal GO AA Index" as of December 31, 2021.

Sensitivity of the SDBF OPEB Liability to Changes in the Discount Rate

The following schedule shows the impact of the SDBF OPEB liability if the discount rate used was 1% less than (3.05%) and 1% greater than 4.05%) the discount rate that was used (5.05%) in measuring the medical OPEB liability:

	1% Decrease (3.05%)	Current Discount Rate (4.05%)	1% Increase (5.05%)
Total SDBF OPEB liability	$ 4,485,461	$ 3,732,019	$ 3,149,220

OPEB Liabilities, OPEB Expense, and Deferred Outflows of Resources Related to OPEBs

At September 30, 2023 the City reported a liability of $3,732,019 for its Total SDBF OPEB liability. The total SDBF liability was determined by an actuarial valuation as of December 31, 2022. For the year ended September 30, 2023, the City recognized SDBF OPEB expense of $265,055. There were no changes of benefit terms that affected measurement of the Total SDBF Liability during the measurement period.

Changes in the SDBF OPEB Liability

	Total SDBF OPEB Liability
Balance at 12/31/2021	$ 5,376,347
Changes for the year:	
Service cost	284,912
Interest	100,639
Difference between expected and actual experience	46,933
Changes of assumptions	(1,978,189)
Benefit payments	(98,623)
Net changes	(1,644,328)
Balance at 12/31/2022	$ 3,732,019

Total OPEB liability as a percentage of covered payroll was 3.41%.

At September 30, 2023, the City reported deferred outflows of resources and deferred inflows of resources related to other SDBF post-employment benefits from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual economic experience	$ 66,833	$ 213,335
Changes in actuarial assumptions	706,011	1,682,420
Contributions subsequent to the measurement date	241,574	-
Totals	$ 1,014,418	$ 1,895,755

Other amounts reported as deferred outflows of resources related to SDBF OPEB will be recognized in OPEB expense as follows:

Year Ending September 30	Net Deferred Outflows/(Inflows)
2024	$ (160,412)
2025	(153,807)
2026	(215,944)
2027	(323,506)
2028	(269,241)
Thereafter	-
Total	$ (1,122,910)

C. Deferred Compensation Plan

The City offers its employees a deferred compensation plan created in accordance with Internal Revenue Code Section 457. For the calendar years 2022 and 2023 the plan, available to all permanent City employees, permitted them to defer, until future years, up to $20,500 and $22,500 respectively. Employees who are age 50 or older may contribute an additional amount of $7,500, the total not to exceed $30,000 in 2023. Employees who are within three years of retirement eligibility may elect to participate in a catch-up provision allowed by Section 457, which has an annual maximum contribution amount of $41,000 in 2022 and $46,000 in 2023. The withdrawal of deferred compensation funds is only available to employees by loan, termination, retirement, death, or unforeseeable emergency.

All amounts of compensation deferred under the plan, all property and rights purchased with those amounts, and all income attributable to those amounts, property or rights are, until paid or made available to the employee or other beneficiary, solely the property and rights of the employees. Accordingly, the assets and associated liability of the plan are not included in the City’s financial statements.

It is the opinion of the City's legal counsel that the City has no liability for losses under the plan.

D. Self-insurance Plan

The City has established a self-insurance plan for liability and workers' compensation claims in the Risk Retention Fund. Accrued claims payable include provisions for claims reported and claims incurred but not reported. The provision for reported claims is determined by estimating the amount which will ultimately be paid for each claimant. The provision for claims incurred but not yet reported is estimated based on actuarial studies.

It is the practice of the City of Denton not to purchase commercial insurance for workers' compensation claims or general liability. Commercial liability insurance coverage is purchased for general liability, aviation

ground operations liability, auto liability and physical damage, public officials' liability, professional liability for emergency medical service operations, employment practices liability, law enforcement professional liability, cyber, and commercial crime (employee theft and dishonesty).

Additionally, excess insurance is purchased for general liability, flood (for specific properties), and workers' compensation exposures. The City reports liabilities when it is probable that a loss has occurred and the amount of that loss can be reasonably estimated to meet the deductible for the policy. Liabilities include an amount for claims that have been incurred but not reported. Because actual claim liabilities depend on such complex factors as inflation, changes in legal doctrines, and damage awards, the process used in computing claims liability does not necessarily result in an exact amount.

In January 2008, the City started a self-insured group employee health insurance plan. Claims are paid from the Health Insurance Fund, which has an annually negotiated stop loss provision.

The City's costs associated with the self-insurance plans are interfund transactions. Accordingly, they are treated as operating revenues of the Internal Service Risk Retention Fund and Health Insurance Fund and operating expenditures (expenses) of the other funds and employee payroll deductions.

Claims liabilities are re-evaluated periodically to take into consideration settlement of claims, new claims and other factors. As of September 30, 2023, the estimated value of these liabilities was $8,806,267. Changes in balances of claims liabilities during fiscal years 2023 and 2022 were as shown as follows:

	Claims Liability Beginning of Fiscal Year	Claims and Change in Estimates	Claim Payments	Claims Liability End of Fiscal Year
Worker's Compensation				
2023	$ 2,877,836	$ 1,485,823	$ 1,311,546	$ 3,052,113
2022	$ 2,570,673	$ 1,460,256	$ 1,153,093	$ 2,877,836
General Liability				
2023	$ 1,506,465	$ 567,336	$ 271,641	$ 1,802,160
2022	$ 1,226,589	$ 550,502	$ 270,626	$ 1,506,465
Health Insurance				
2023	$ 2,514,110	$28,357,238	$26,919,354	$ 3,951,994
2022	$ 1,962,033	$25,052,103	$24,500,026	$ 2,514,110

On September 30, 2023, the City of Denton had a negative unrestricted net position of $4,664,170 the Risk Retention Fund and an additional positive net position of $1,832,461 in the Health Insurance Fund for payment of claims, both in addition to the liability balances recorded. There were no significant reductions in insurance coverage from coverage in the prior year, and the amount of settlements did not exceed insurance coverage in the current year or in any of the past three fiscal years.

E. Commitments and Contingencies

Agreement with TMPA

In 1976, the City, along with the cities of Bryan, Greenville, and Garland, Texas (the Cities) entered into a Power Sales Contract with the Texas Municipal Power Agency (TMPA). TMPA was created through concurrent ordinances of the Cities and is governed by a Board of Directors consisting of eight members, two appointed by the governing body of each city. Under the terms of the agreement, TMPA agreed to construct or acquire electric generating plants to supply energy and power to the Cities for a period of not less than 35

years. The Cities in turn agreed to purchase all future power and energy requirements in excess of the amounts generated by their systems from TMPA at prices intended to cover operating costs and retirement of debt. In the event that revenues were insufficient to cover all costs and retire the outstanding debt, each of the cities guaranteed a portion of the unpaid debt based, generally, upon the pro rata share.

TMPA, a municipal corporation, is governed by a Board of Directors consisting of eight members. The governing body of each of the four Cities appoints two members to the Board. An affirmative vote of five Directors, plus a weighted majority vote based on the respective energy usage of the Cities, is required for major decisions.

The City pays TMPA a pro-rated monthly charge based on the City's contractual portion of TMPA's annual fixed operating costs and debt service payments, which is currently 21.3%. As of September 30, 2023, total TMPA long-term debt outstanding was approximately $209,448,000, all of which was transmission debt and has no effect on the term of the contract. All outstanding generation debt was paid off on September 1, 2018.

Effective September 1, 2016, TMPA and the Member Cities entered into a Joint Operating Agreement (JOA). In general, the purposes of the JOA include: (i) funding TMPA operations such as mine reclamation, transmission service, and plant decommissioning following expiration of the Power Sales Contract (PSC); (ii) subject to certain exceptions, requiring Member City approval for the issuance of new debt, the execution of certain significant contracts, and the sale of property exceeding $10 million in value; (iii) specifying provisions for determining how costs of TMPA and proceeds from the sale of assets are to be allocated among the Member Cities; (iv) providing for the establishment by TMPA of reserve funds for the decommissioning of the plant and the indemnification of TMPA Board Members and Member City officials, employees, contractors, and agents; and (v) dividing the operations of TMPA into three business functions (mine, generation, and transmission) and requiring separate budgets and books for each business function.

The PSC provides upon dissolution of TMPA, the assets of TMPA automatically being transferred to the Member Cities, with each Member City receiving an undivided interest in the assets of TMPA in proportion to the amount paid by the Member City to TMPA. The JOA requires TMPA to periodically make this calculation for each business unit and sets out formulas for making these calculations. Under the JOA, these ownership calculations are relevant not only to the allocation of assets upon dissolution of TMPA, but also to the allocation of certain proceeds from the sale of assets, and in some cases, the allocation of TMPA costs.

At the request of a majority of the Member Cities, TMPA is required by the JOA to transfer a divided interest in the transmission system to each Member City. Under this partition process, the objective is for each City to receive ownership of transmission facilities in the vicinity of the Member City, and in proportion to the Member City's ownership interest in the transmission business. Any such transfer of transmission assets must be in compliance with relevant bond covenants, including those requiring defeasance of all or a portion of transmission debt.

The JOA included a reclamation plan for the mine, required the development of a decommissioning plan, and set out standards for environmental remediation. TMPA is required to comply with these plans and standards.

Under the JOA, in discharging its contractual obligations, including mine reclamation, decommissioning, transmission service, environmental remediation, indemnification, and other obligations, TMPA is rendering services to the Member Cities. The JOA obligates each Member City to pay the cost of these services, and to collect rates and charges for electric service sufficient to enable it to pay to TMPA all amounts due under the JOA for these services. The City's payment obligations under the JOA are payable exclusively from such electric utility revenues and constitute an operating expense of the electric system.

Unless terminated earlier through the mutual consent of all parties, the JOA remains in effect until the dissolution of TMPA and the winding up of its affairs.

Effective September 1, 2016, the JOA was amended (Amendment No. 1). The primary purposes of the amendment were to authorize the sale of Gibbons Creek and the sale of the Southern 345 kV Transmission System and to authorize the issuance of refunding bonds in connection with such sales. As the sale contemplated by Amendment No. 1 did not occur, by its own terms, Amendment No. 1 ceased to have any

force or effect. Effective September 22, 2017, the JOA was amended a second time (Amendment No. 2). The purposes of this amendment are to: continue TMPA's authority to issue mine reclamation bonds as had been contemplated in Amendment No. 1; revise the dates on which the separate budgets of the JOA become effective; authorize TMPA to sell certain mining and transmission assets, provided the sales do not exceed in value certain financial thresholds, and provided the sales comply with bond covenants; and allow for an extension to the term of the PSC, applicable only to the cities notifying TMPA of the extension, in order to complete a period of seasonal operation in 2018, or such other period of time as desired by the notifying cities. Pursuant to this provision, the City extended the PSC from September 1, 2018 to September 30, 2018, in order to complete the period of 2018 seasonal operation. As of September 30, 2018, the PSC had expired for all member cities.

On September 17, 2019, the JOA was amended (Amendment No. 3). The amendment defined portions specific to the generation business that had been tied to the expired PSC and clarified all board members may vote on matters involving decommissioning and the sale of the plant. It exempted financial commitments related to bonding from the requirement to obtain approval of all Member Cities relating to certain budget increases. This is to address concerns by the Attorney General of Texas that a potential situation could arise where a Member City could interfere with TMPA's existing bond deposit requirement obligations ("bond reserve equivalent") should that obligation require a 20% increase over the previous year's budget. The amendment also allows for the sale of mine tracts only after the completion of mine reclamation. This would permit the sale of a mine tract subject to bonding provided that the conveyance reserves easements, leases, or other property rights are reserved to enable TMPA to complete reclamation.

On June 28, 2021, the JOA was amended (Amendment No. 4). This amendment modified the agreement to make it unambiguous that in the event that all mining assets are sold, all Member Cities shall remain responsible for the costs of closing the mining operation according to each's percentage share and that these are included: "all obligations are discharged with respect to mine reclamation bonds, surety bonds, banking agreements, letters of credit, and other financial commitments related to providing financial security or assurance for TMPA's mine reclamation responsibilities." Additionally, it modified the agreement by removing the cap on sales of the mining assets and allowed for the sale of the mine as a whole.

Effective September 26, 2017, Gibbons Creek transitioned into a seasonal operations mode, operating during the summer months only (May-September). Due to the significant decline in service utility of the generation assets, such assets were deemed largely impaired as of September 30, 2017. On June 1, 2019, the TMPA Board of Directors voted to permanently retire the generation facility. The City also wholly impaired its TMPA prepaid purchase power due to the retirement and had a remaining balance recorded of $7,987,048 in Other Assets in the Electric fund to be amortized over the remaining 1.5 remaining years. See note IV.F. for more information.

In 2019, TMPA issued a request for proposal involving only the sale of generation assets. Proposals were received in August 2019, and TMPA entered into negotiations with one of the proposers. On December 10, 2020, the TMPA Board of Directors approved a fully negotiated Asset Purchase Agreement (APA) with Gibbons Creek Environmental Redevelopment Group LLC (GCERG). As required by the TMPA Joint Operating Agreement, each TMPA member city was required to approve the APA. On January 26, 2021, the City Council approved the APA with GCERG. On February 10, 2021, TMPA and GCERG closed on the sale of the Gibbons Creek Steam Generation Plant and property. Through the sale, GCERG acquired 6,200 acres including the plant, CCR (coal combustion residuals) units, and reservoir. GCERG must decommission the plant and remediate all CCR units to TCEQ/EPA standards. GCERG provides independent financial security to TMPA for remediation/decommissioning and post closure activities and certain land use limits imposed on CCR containing parcels. The City's Electric fund had a liability recorded for TMPA's decommissioning obligation of $21,167,124 as of September 30, 2020. As part of the sale of Gibbons Creek, the City paid $6,037,368 of this liability in February 2021. The remaining liability of $15,129,756 was recognized as a gain in other non-operating revenues. This sale to GCERG only includes the generation assets and TMPA retained the approximate 11,000 acres associated with the mine land and all transmission assets.

On July 15, 2021, the TMPA Board of Directors authorized the Gibbons Creek Lignite Mine with approximately 11,000 acres to be sold with the sale being finalized in December 2021. The City received its portion of the sale in the amount of $15,174,089 which was recorded as revenues in the Electric fund for the fiscal year ending September 30, 2022. Following the closing, TMPA will continue to conduct mine reclamation activities pursuant to a reclamation easement that will remain in effect until all bonded areas are released from bond.

Selected financial statement information of TMPA is as follows:

	September 30 (Unaudited)	
	2023	2022
	(000s)	(000s)
Operating revenues	$ 34,889	$ 34,281
Operating expenses	16,172	16,855
Operating income	18,717	17,426
Other non-operating sources (uses)	921	(108)
Current unrestricted assets	23,730	24,063
Total assets and deferred outflows	210,205	214,339
Long-term debt – Noncurrent	202,668	205,963
Total liabilities and deferred inflows	235,411	238,321
Total net position	(25,206)	(23,982)

Financial statements for TMPA are available from the TMPA website www.texasmpa.org.

Power Purchase Agreements

Following is a list of power purchase agreements in effect as of the publication date of these financial statements. The information provided is all that is allowed under the confidentiality provision(s) of the particular agreements.

NextEra - In 2009, the City entered into a power purchase agreement for firm energy and associated renewable energy credits with NextEra Energy Power Marketing, LLC.

Santa Rita, Wind - In 2016, the City entered into a 20-year power purchase agreement for wind energy, capacity, and environmental attributes with Santa Rita Wind Energy, LLC.

NextEra - In 2015, the City entered into a 20-year power purchase agreement with Bluebell Solar Energy, LLC, a subsidiary of NextEra Energy, Inc. Under the agreement, the City purchases solar energy, capacity, and environmental attributes commencing from the commercial operation date which was November 2018.

Engie - In 2018, the City entered into a 15-year power purchase agreement with Engie Long Draw Solar, LLC. Under the agreement, which is scheduled to end June 2035, the City will purchase 75 MW of solar generation and environmental attributes. The in-service date was December 29, 2020.

NextEra - In 2018, the City entered into a 15-year power purchase agreement with Bluebell Solar II Energy, LLC, a subsidiary of NextEra Energy, Inc. Under the agreement, the City will purchase 100 MW of solar generation and environmental attributes. Commercial operation was achieved on December 28, 2020.

Samson Solar - In 2018, City of Denton entered into a 15-year power purchase agreement with Samson Solar Energy, LLC. Under the agreement, which was scheduled to end in 2037, the city would purchase 75 MW of solar generation and environmental attributes. Samson Solar Energy LLC alleged various Force Majeure events that impacted the project and ultimately defaulted on the agreement. While the company was in default

of its obligations, the company sent notice to terminate the agreement to the City of Denton. The City is currently in legal proceedings to recover all of its damages.

Encumbrances

As discussed in note I.D., Budgetary information, encumbrances are utilized to the extent necessary to assure effective budgetary control and accountability and to facilitate effective cash planning and control. At year end the total amount encumbered in governmental funds expected to be honored upon performance by the vendor in the next year were as follows:

General Fund	$ 2,232,140
Capital Projects Fund	78,212,667
ARPA Fund	1,986,197
Nonmajor Governmental Funds	4,627,611
Total	$ 87,058,615

F. Tax Abatements

The City enters into economic development incentive agreements with entities to promote development and redevelopment within the City, stimulate commercial activity, generate additional sales tax, and enhance the property tax base and economic vitality of the City. Some agreements provide for an abatement of property taxes, while others provide for a rebate of a portion of sales and use tax or a portion of ad valorem (property) tax, as established per the agreements. The incentives are performance-based, and the City generally expects to receive increased revenue because of the agreements. These incentive agreements require approval by a City Council ordinance and are authorized under Chapter 312 (Property Redevelopment and Tax Abatement Act) of the Texas Tax Code and Chapter 380 of the Texas Local Government Code.

Property Tax Abatements

Tax abatements under Chapter 312 of the Texas Tax Code allow the City to designate tax reinvestment zones and negotiate tax abatement agreements with applicants. In 1990, the City Council adopted a resolution setting guidelines and criteria for granting abatements in the reinvestment zones which specifically notes incentives are limited to companies which create new wealth and do not adversely affect existing businesses operating within the City. The City is required to renew/adopt a Tax Abatement Policy every two years in accordance with Chapter 312 of the Texas Tax Code. The last policy was adopted in May of 2022. The abatement agreements authorize the appraisal districts to reduce the assessed value of the taxpayer's property by a percentage specified in the agreement, and the taxpayer will pay taxes on the lower assessed value during the term of the agreement. For the fiscal year ended September 30, 2023, the City abated property taxes totaling $31,318 under this program, as detailed in the following agreements:

- Peterbilt – In 2016, a 70% tax abatement agreement for a term of eight years was granted to Peterbilt Motors on new capital investments, including the construction of a new stand-alone 102,000 square foot building. In the event of a failure to meet the conditions of the agreement, an increased assessed value of real property of at least $18.5 million, the agreement provides for a full refund of all abatements previously granted plus interest. Peterbilt did not meet the $18,500,000 required threshold for tax year 2022.
- West Gate Business Park (WGBP) – In 2016, a 60% tax abatement agreement for a term of ten years was granted to WGBP on new capital investments only to include Buildings 2 and 3 in the business park. WGBP could receive an additional 10% abatement for the location of a supplier to an existing primary industry and/or an additional 5% for the location of a national headquarters for a total abatement of up to 75%. In the event of a failure to meet the conditions of the agreement, an increased assessed value of real property of at least $3 million, the agreement provides for a full refund of all

abatements previously granted plus interest. The abatement amount for the current fiscal year was $31,318.

The City has an additional abatement agreement not listed above for Tyson Sales and Distribution. The grantee has contracted their expansions in the current economic climate and has not met the timely completion requirements in the Agreement for the construction of the facility. The project will likely be terminated, or the Agreement amended.

Chapter 380 Agreements

The City Council has the authority under Chapter 380 of the Texas Local Government Code to grant or loan City funds to accomplish specific economic development goals. These incentives are considered on a case-by-case basis. The City has target industry sectors for recruitment that will be given priority consideration: aviation/aerospace, advanced manufacturing, renewable energy, research and development, information technology, supply chain for existing primary employers, and significant consumers of municipal utilities. Consideration may also be given for projects causing infill redevelopment or other desirable development objectives and/or any other activity which the City Council determines meets a specific public purpose for economic development.

Eight agreements are based on the contribution in sales, property, and/or hotel tax. For the fiscal year ended September 30, 2023, the City rebated sales taxes totaling $3,129,346 property taxes totaling $1,344,386 ($862,709 of which was paid out of the Westpark TIRZ No. Two), and hotel occupancy taxes totaling $972,652.

Two active agreements are based on Job-based and Expansion/Relocation Grants. For the fiscal year that ended September 30, 2023, the City provided cash grant reimbursements totaling $45,289 for Job-based Grants and Expansion/relocation Grants as detailed in the following agreements:

- Unicorn Lake – In 2004, an agreement was approved for Unicorn Lake, an urban-style mixed-use development. The grantee receives one-third of the City sales tax, or 0.5%, generated by the project for a maximum of fifteen years as reimbursement for public improvement costs related to the project not to exceed $6,664,901 plus accrued interest. The tax rebates initiated in 2010 and will terminate in 2025. The tax rebate amount for the current fiscal year was $85,782.

- Rayzor Ranch – In 2007, an agreement was approved for the Rayzor Ranch mixed-use development. The 410-acre project will have over one million square feet of retail and will be built in two phases. The agreement provides a sales tax reimbursement of one half of the City sales tax, or 0.75%, generated by the project for public improvement costs, which include the widening of a state highway bisecting the project. The grantee will receive a maximum of $20 million over a 15-year term for phase one and a maximum of $48 million over a term of 20 years for phase two. An additional 15% of the City sales tax, or 0.225%, was added to both phases to offset the hotel and convention center costs until $5 million is reached. In the current fiscal year, the tax rebate amount for phase one was $1,579,014 and the tax rebate amount for phase two was $1,048,175.

- Golden Triangle Mall – In 2011, an agreement was approved for a major renovation of the Golden Triangle Mall. A threshold of a minimum $45 to $65 million was required as an investment into the property to receive a one-half share of the sales tax resulting from the renovations, less a monthly mall baseline amount established at $95,898. The total grant payments may not exceed 15.83% of the required investment. GTM Development has invested $49.5 million in the development. Tenant investments in the property amounted to $8.8 million, for a total invest of $58.3 million. Based on this total investment the total grant payment should not exceed $9.2 million. The tax rebates initiated in 2016 and will terminate in 2035. The tax rebate amount for the current fiscal year was $37,963.

- Mayday Manufacturing – In 2012, an agreement was approved for Mayday Manufacturing/Tailwind Technologies for the relocation of the business and expansion of a manufacturing facility. The agreement provides a 75% tax rebate on the increment of property tax revenue generated above the base valuation for a period of ten years. In the event of a failure to meet the conditions of the agreement, an increased assessed value of real property of at least $3 million, the agreement provides for a 50% refund of all rebates previously granted. The tax rebate amount for the current fiscal year was $36,458.
- West Gate Business Park (WGBP) – In 2015, an agreement was approved for West Gate Business Park (WGBP) for industrial development and provided for a 70% rebate of increased City property tax revenue generated for a period of ten years. WGBP includes three multi-tenant buildings totaling 413,000 square feet of new industrial/manufacturing space in the City. In 2016 the agreement was amended to include a 70% rebate on Building 1 improvements and to add a one-time grant payment in the amount of $50,000. The tax rebate amount for the current fiscal year was $35,620.
- WinCo Foods – In 2015, an agreement was approved for WinCo Foods for a $135 million, 800,000 square foot distribution facility expected to create 165 jobs with an annual payroll of around $7.2 million. In the event of a failure to meet the conditions of the agreement, the agreement provides for a 20-50% refund of all rebates previously granted, depending on the timing of a failure. WinCo received reimbursement for infrastructure financing from Water and Wastewater funds and a local sales and use tax grant for the construction and equipping of the facility in prior fiscal years, completing those portions of the agreement. The active portion of the agreement provides for the following:
    - A grant equal to 100% of the incremental property tax generated by the property and paid into the Tax Increment Fund by both the City and the County, paid annually until the full reimbursement of the project costs for public improvements is reached. The tax rebate amount out of the Westpark TIRZ No. Two for the current fiscal year was $862,709 with $621,550 being the City portion of the tax rebate and $241,160 being the County portion of the tax rebate.
    - A grant equal to 60% of City property taxes attributable to improvements resulting in an increase of assessed value of real property improvements and tangible personal property, paid annually until full reimbursement of the project costs for public improvements is reached. Once this full reimbursement is reached, the 60% property tax rebate will continue for a period of four years as long as the increase in investment in improvements is $50 million excluding purchase price of the property. The tax rebate amount for the current fiscal year was $220,338.
- O'Reilly Hotel Partners Denton – In 2015, an agreement was approved for O'Reilly Hotel Partners Denton for a convention center with a hotel and restaurant located in the Rayzor Ranch Town Center. The agreement includes a 100% rebate of the property tax (excluding land, inventory, vehicles, and supplies), hotel occupancy tax, and sales tax generated by the project. The term is for a maximum of 25 years or a combined principal ($28 million) and interest ($26 million) amount of $54 million is reached, whichever comes first. The agreement also includes 100% rebate of the construction sales tax up to $850,000, then 50% thereafter. The construction sales tax rebate portion of the agreement was completed in fiscal year 2017-2018. In the event of a failure to meet the conditions of the agreement, the agreement provides for a 100% refund of all rebates granted in the previous year. The sales tax, property tax, and hotel occupancy tax rebate amounts for the current fiscal year were $71,236, $189.261, and $972,652.08, respectively.

- Buc-ee's Travel Center – In 2015, an agreement was approved for Buc-ee's Travel Center. The agreement provides a sales tax reimbursement of one half of the City sales tax, or 0.75%, generated from businesses located within the property boundaries for a five-year period. At the conclusion of the sales tax reimbursement term, the City has agreed to a one-time cash grant payment of $2 million minus the total sales tax previously reimbursed, only if the grantee has not received a full $2 million in sales tax reimbursements. In addition, at the conclusion of the sales tax reimbursement term, the agreement provides a sales tax reimbursement infrastructure grant of one half of the City sales tax, or 0.75%, generated by the Buc-ee's Travel Center and developed outparcels that contain sit-down restaurants or retail establishments for a period of twenty years. The City has also agreed to pay the grantee one quarter of the City sales tax, or 0.375%, generated by outparcels not included in the previously mentioned infrastructure grant, including fast food restaurants and drive-through uses. The tax rebate amount for the current fiscal year was $307,175.
- TeamOfDefenders– In 2020 an agreement was approved for TeamOfDefenders. The agreement consists of a performance-based five-year expansion grant up to $50,000 to be provided as a reimbursement of actual costs. In addition, the company was awarded a stratified Job-based Grant based on annual wages of new employees, not to exceed $29,500. They were awarded an additional $500 residency bonus for new employees, not to exceed $27,000. The total incentive package is not to exceed $106,500. The Job-based Grant initiated in 2020, but there were no new jobs added this fiscal year. The Expansion Grant payment made for the current fiscal year was $45,289.
- Safran– In 2021 an agreement was approved for Safran. The agreement consists of a performance-based five-year expansion grant up to $50,000 to be provided as a reimbursement of actual costs. In addition, the company was awarded a stratified Job-based Grant based on annual wages of new employees, not to exceed $101,500. They were awarded an additional $300 residency grant for new resident employees and $700 bonus for new established resident employees, not to exceed $23,625. The total incentive package is not to exceed $175,125.

The City has two additional Chapter 380 Expansion/relocation and Job-based Grants that will come online in future fiscal years for From the Future and DynaGrid. The City has one additional Chapter 380 abatement agreement for United States Cold Storage (USCS). The Agreement with USCS was terminated on February 20, 2023, as the grantee failed to meet conditions of the Agreement by not obtaining a Texas Direct Pay Permit and the City could not verify the sales taxes for the construction and equipping of the facility.

G. Litigation

Various claims and lawsuits are pending against the City. In accordance with GAAP, those judgments considered "probable" are accrued (see case below), while those claims and judgments considered "reasonably possible" are disclosed but not accrued. In the opinion of City management and legal counsel, the maximum amount of all significant claims considered reasonably possible, excluding condemnation proceedings and the item described following, is approximately $500,000 as of September 30, 2023. Potential losses after insurance coverage on all probable claims and lawsuits will not have a material effect on the City's financial position as of September 30, 2023.

Michael Grim and Jim Maynard v. City of Denton

This case is a whistleblower retaliation lawsuit that was tried before a Dallas County jury. After a lengthy trial, involving disputed issues of law that were properly preserved for appeal, the jury awarded roughly $4.0 million in damages to the two plaintiffs, and the City filed an appeal. Plaintiffs alleged that their terminations were in retaliation for their report to the City Attorney of an individual City Council member's release of proprietary vendor data to the press. The City's position was that Plaintiffs were fired at will for lying to management about their participation in hunting and fishing trips with the vendors who ultimately won the bids on a city project. Based on the trial court's final reduced jury judgment by the application of statutory

caps on damages, the City has accrued the $2.7 million as a long-term liability in the Electric fund. It is possible that the judgment may be reversed or modified on appeal.

H. Subsequent Events

The City has evaluated all events or transactions that occurred after September 30, 2023 up through March 12, 2024, the date the financial statements were issued.

The City called the 2023 Bond Program to an election and voters approved seven of the eight propositions totaling $291.0 million. Approved propositions include streets, drainage and flood control, parks, public safety, affordable housing, a new active adults center, and a new South Branch Library.

The City issued a request for proposal for a letter of credit to satisfy with ERCOT credit protocol changes. Wells Fargo was selected and is working with the City to finalize not to exceed $60.0 million line of credit.

I. New Accounting Pronouncements

The Governmental Accounting Standards Board (GASB) issued the following statement which became effective for the fiscal year ending September 30, 2023.

Statement No. 91 "*Conduit Debt Obligations*" - The statement provides a single method of reporting conduit debt obligations by issuers and eliminate diversity in practice associated with 1) commitments extended by issuers, 2) arrangements associated with conduit debt obligations, and 3) related note disclosures. The requirements of this statement were originally effective for reporting periods beginning after December 15, 2020; however, issuance of GASB Statement No. 95, Postponement of the Effective Dates of Certain Authoritative Guidance (GASB 95), extended the effective date of GASB 91 to reporting periods beginning after December 15, 2021, with earlier application encouraged. The City has implemented this Statement in fiscal year 2023. The requirements of this Statement have no impact on the City's financial statements.

Statement No. 94 "*Public-Private and Public-Public Partnerships and Availability Payment Arrangements*" – The primary objective of this Statement is to improve financial reporting by addressing issues related to public-private and public-public partnership arrangements (PPPs). As used in this Statement, a PPP is an arrangement in which a government (the transferor) contracts with an operator (a governmental or nongovernmental entity) to provide public services by conveying control of the right to operate or use a nonfinancial asset, such as infrastructure or other capital asset (the underlying PPP asset), for a period in an exchange or exchange-like transaction. This Statement also provides guidance for accounting and financial reporting for availability payment arrangements (APAs). As defined in this Statement, an APA is an arrangement in which a government compensates an operator for services that may include designing, constructing, financing, maintaining, or operating an underlying nonfinancial asset for a period in an exchange or exchange-like transaction. The requirements of this Statement are effective for fiscal years beginning after June 15, 2022 and was implemented by the City in fiscal year 2023.

Statement No. 96 "*Subscription-Based Information Technology Arrangements (SBITA)*" –
This Statement provides guidance on accounting and financial reporting for subscription-based information technology arrangements (SBITAs) for government end users (governments). This Statement (1) defines a SBITA; (2) establishes that a SBITA results in a right-to-use subscription asset—an intangible asset—and a corresponding subscription liability; (3) provides the capitalization criteria for outlays other than subscription payments, including implementation costs of a SBITA; and (4) requires note disclosures regarding a SBITA. To the extent relevant, the standards for SBITAs are based on the standards established

in Statement No. 87, Leases, as amended. The requirements of this Statement are effective for fiscal years beginning after June 15, 2022 and was implemented by the City in fiscal year 2023.

The following statements for the GASB are effective for future fiscal years ending as listed below. The City is in the process of reviewing and evaluating these statements and their potential impact on the City's financial statements.

Statement No. 99 "*Omnibus 2022*" - This Statement is intended to enhance comparability in accounting and financial reporting and improves the consistency of authoritative literature by addressing (1) practice issues that have been identified during implementation and application of certain GASB Statements and (2) accounting and financial reporting for financial guarantees. The requirements of this Statement related to extension of use of London Interbank Offered Rate (LIBOR), accounting for Supplemental Nutrition Assistance Program (SNAP) distributions, disclosures of nonmonetary transactions, pledges of future revenues by pledging governments, clarification of certain provisions in Statement No. 34, as amended and terminology updates related to Statements No. 53 and 63 are effective immediately and implemented in the prior fiscal year. All other requirements of this Statement have been implemented in fiscal year 2023.

Statement No. 100 "*Accounting Changes and Error Corrections - An Amendment of GASB Statement No. 62*" - This statement to enhance accounting and financial reporting requirements for accounting changes and error corrections to provide more understandable, reliable, relevant, consistent, and comparable information for making decisions or assessing accountability. The requirements of this Statement are effective for fiscal years beginning after June 15, 2023 and is effective for the City's fiscal year ending September 30, 2024.

Statement No. 101 "*Compensated Absences*" - This statement is intended to better meet the information needs of financial statement users by updating the recognition and measurement guidance for compensated absences. That objective is achieved by aligning the recognition and measurement guidance under a unified model and by amending certain previously required disclosures. The requirements of this Statement are effective for fiscal years beginning after December 31, 2023 and is effective for the City's fiscal year ending September 30, 2025.

Statement No. 102 "*Certain Risk Disclosures*" - This Statement requires a government to assess whether a concentration or constraint makes the primary government reporting unit or other reporting units that report a liability for revenue debt vulnerable to the risk of a substantial impact. Additionally, this Statement requires a government to assess whether an event or events associated with a concentration or constraint that could cause the substantial impact have occurred, have begun to occur, or are more likely than not to begin to occur within 12 months of the date the financial statements are issued. The requirements of this Statement are effective for fiscal years beginning after June 15, 2024.

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CITY OF DENTON

CITY OF DENTON, TEXAS
REQUIRED SUPPLEMENTARY INFORMATION
TEXAS MUNICIPAL RETIREMENT SYSTEM
SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS
LAST NINE FISCAL YEARS (PREVIOUS YEARS ARE NOT AVAILABLE)[1]

Exhibit XI

	Measurement Year 2014	Measurement Year 2015	Measurement Year 2016	Measurement Year 2017	Measurement Year 2018
Total pension liability:					
Service Cost	$ 10,667,694	$ 12,615,957	$ 13,925,238	$ 14,514,171	$ 14,990,529
Interest (on the total pension liability)	25,182,941	26,905,700	27,656,654	29,543,513	31,468,411
Difference between expected and actual experience	(171,241)	(1,525,911)	763,589	1,514,980	1,255,443
Change of assumptions	-	(428,789)	-	-	-
Benefit payments, including refunds of employee contributions	(11,387,617)	(12,697,735)	(13,023,330)	(16,349,644)	(18,238,039)
Net change in total pension liability	24,291,777	24,869,222	29,322,151	29,223,020	29,476,344
Total pension liability - beginning	360,116,261	384,408,038	409,277,260	438,599,411	467,822,431
Total pension liability - ending (a)	$ 384,408,038	$ 409,277,260	$ 438,599,411	$ 467,822,431	$ 497,298,775
Plan fiduciary net position:					
Contributions - employer	$ 13,065,763	$ 13,615,410	$ 14,046,860	$ 14,821,752	$ 15,107,443
Contributions - employee	4,991,415	5,365,231	5,712,464	6,014,227	6,175,407
Net investment income (loss)	16,867,596	469,530	21,947,635	48,954,660	(12,175,765)
Benefit payments, including refunds of employee contributions	(11,387,617)	(12,697,735)	(13,023,330)	(16,349,644)	(18,238,039)
Administrative expense	(176,083)	(285,957)	(247,766)	(253,578)	(235,169)
Other	(14,477)	(14,123)	(13,349)	(12,851)	(12,287)
Net change in plan fiduciary net position	23,346,597	6,452,356	28,422,514	53,174,566	(9,378,410)
Plan fiduciary net position - beginning	294,819,596	318,166,193	324,618,549	353,041,063	406,215,629
Plan fiduciary net position - ending (b)	$ 318,166,193	$ 324,618,549	$ 353,041,063	$ 406,215,629	$ 396,837,219
Net pension liability - ending (a) - (b)	$ 66,241,845	$ 84,658,711	$ 85,558,348	$ 61,606,802	$ 100,461,556
Plan fiduciary net position as a percentage of total pension liability	82.77%	79.32%	80.49%	86.83%	79.80%
Covered payroll	$ 71,025,494	$ 76,646,157	$ 81,481,789	$ 85,227,078	$ 88,179,581
Net pension liability as a percentage of covered payroll	93.26%	110.45%	105.00%	72.29%	113.93%

(continued on the following page)

[1]Schedule is intended to present information for ten years. Additional years of information will be presented as they become available.

CITY OF DENTON, TEXAS
REQUIRED SUPPLEMENTARY INFORMATION
TEXAS MUNICIPAL RETIREMENT SYSTEM
SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS
LAST NINE FISCAL YEARS (PREVIOUS YEARS ARE NOT AVAILABLE)1

Exhibit XI

	Measurement Year 2019	Measurement Year 2020	Measurement Year 2021	Measurement Year 2022
Total pension liability:				
Service Cost	$ 16,283,811	$ 18,685,981	$ 17,667,234	$ 19,111,021
Interest (on the total pension liability)	33,434,342	35,523,156	37,617,145	40,284,903
Difference between expected and actual experience	2,005,979	2,636,510	8,560,080	8,678,564
Change of assumptions	1,438,798	-	-	-
Benefit payments, including refunds of employee contributions	(20,234,184)	(26,603,058)	(24,025,384)	(26,062,628)
Net change in total pension liability	32,928,746	30,242,589	39,819,075	42,011,860
Total pension liability - beginning	497,298,775	530,227,521	560,470,110	600,289,185
Total pension liability - ending (a)	$ 530,227,521	$ 560,470,110	$ 600,289,185	$ 642,301,045
Plan fiduciary net position:				
Contributions - employer	$ 16,255,126	$ 18,613,464	$ 17,849,684	$ 19,140,875
Contributions - employee	6,693,287	7,536,737	7,095,275	7,670,708
Net investment income (loss)	61,399,432	34,987,709	64,564,009	(40,913,118)
Benefit payments, including refunds of employee contributions	(20,234,184)	(26,603,058)	(24,025,384)	(26,062,628)
Administrative expense	(346,657)	(226,230)	(298,515)	(353,785)
Other	(10,413)	(8,826)	2,046	422,171
Net change in plan fiduciary net position	63,756,591	34,299,796	65,187,115	(40,095,777)
Plan fiduciary net position - beginning	396,837,219	460,593,810	494,893,606	560,080,721
Plan fiduciary net position - ending (b)	$ 460,593,810	$ 494,893,606	$ 560,080,721	$ 519,984,944
Net pension liability - ending (a) - (b)	$ 69,633,711	$ 65,576,504	$ 40,208,464	$ 122,316,101
Plan fiduciary net position as a percentage of total pension liability	86.87%	88.30%	93.30%	80.96%
Covered payroll	$ 95,618,386	$ 107,576,172	$ 101,361,066	$ 109,581,543
Net pension liability as a percentage of covered payroll	72.82%	60.96%	39.67%	111.62%

(concluded)

[1]Schedule is intended to present information for ten years. Additional years of information will be presented as they become available.

CITY OF DENTON

CITY OF DENTON, TEXAS **Exhibit XII**
REQUIRED SUPPLEMENTARY INFORMATION
TEXAS MUNICIPAL RETIREMENT SYSTEM
SCHEDULE OF CONTRIBUTIONS
LAST TEN FISCAL YEARS (Unaudited)

Fiscal Year	(a) Actuarially Determined Contributions	(b) Contributions in Relation to the Actuarially Determined Contributions	(c) Contribution Excess (Deficiency) (b) - (a)	(d) Covered Payroll	Contributions as a Percentage of Covered Payroll (b)/(d)
2014	12,912,746	12,911,461	(1,285)	69,872,024	18.48%
2015	13,507,272	13,507,272	-	75,379,632	17.92%
2016	14,435,638	14,435,638	-	83,127,601	17.37%
2017	14,648,606	14,648,606	-	84,753,377	17.28%
2018	14,931,800	14,931,800	-	86,832,074	17.20%
2019	16,035,042	16,035,042	-	94,158,313	17.03%
2020	17,562,597	17,562,597	-	101,964,029	17.22%
2021	17,794,920	17,794,920	-	101,641,023	17.51%
2022	18,471,103	18,471,103	-	105,519,237	17.50%
2023	19,140,875	19,140,875	-	109,581,543	17.47%

Notes to Schedule:
Actuarial determined contribution rates are calculated as of December 31st and become effective in January, 13 months later.
Contributions above do not include contributions into the supplemental death benefit fund.

Methods and assumptions used to determine contribution rate for 2023:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	24 Years (Equivalent Single Amortization Period of 13.9 years)
Asset Valuation Method	10 Year Smoothed Market; 12% Soft Corridor
Inflation	2.50%
Salary Increases	3.50% to 11.50% including inflation
Investment Rate of Return	6.75%
Retirement Age	Experience-based table of rates that are specific to the City's plan of benefits. Last updated for the 2019 valuation pursuant to an experience study of the period 2014 - 2018.
Mortality	Post-retirement: 2019 Municipal Retiress of Texas Mortality Tables. The rates are projected on a fully generational basis with scale UMP. Pre-retirement: PUB(10) mortality tables, with the Public Safety table used for males and the General Employees table used for females. The rates are projected on a fully generational basis with scale UMP.
Other	There were not benefit changes during the year

CITY OF DENTON, TEXAS

Exhibit XIII

REQUIRED SUPPLEMENTARY INFORMATION

DENTON FIREMEN'S RELIEF AND RETIREMENT FUND

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

LAST NINE FISCAL YEARS (PREVIOUS YEARS ARE NOT AVAILABLE)[1]

	Measurement Year 2014	Measurement Year 2015	Measurement Year 2016	Measurement Year 2017	Measurement Year 2018
Total pension liability:					
Service Cost	$ 2,747,253	$ 2,836,263	$ 3,089,911	$ 3,182,608	$ 3,615,495
Interest (on the total pension liability)	5,685,396	5,998,959	6,135,588	6,493,255	7,049,261
Changes of benefit terms	-	-	-	-	-
Difference between expected and actual experience	-	(2,063,421)	-	2,040,716	-
Change of assumptions	-	2,331,908	-	-	-
Benefit payments, including refunds of employee contributions	(4,036,009)	(4,048,358)	(4,270,006)	(3,768,829)	(4,055,856)
Net change in total pension liability	4,396,640	5,055,351	4,955,493	7,947,750	6,608,900
Total pension liability - beginning	80,490,694	84,887,334	89,942,685	94,898,178	102,845,928
Total pension liability - ending (a)	$ 84,887,334	$ 89,942,685	$ 94,898,178	$ 102,845,928	$ 109,454,828
Plan fiduciary net position:					
Contributions - employer	$ 2,566,875	$ 2,567,219	$ 2,759,844	$ 2,979,807	$ 3,434,007
Contributions - employee	1,745,419	1,803,064	1,997,155	2,142,990	2,338,837
Net investment income (loss)	4,411,066	(3,287,188)	6,935,215	8,793,234	(183,148)
Benefit payments, including refunds of employee contributions	(4,036,009)	(4,048,358)	(4,270,006)	(3,768,829)	(4,055,856)
Administrative expense	(81,005)	(76,538)	(94,175)	(63,669)	(87,899)
Net change in plan fiduciary net position	4,606,346	(3,041,801)	7,328,033	10,083,533	1,445,941
Plan fiduciary net position - beginning	66,412,172	71,018,518	67,976,717	75,304,750	85,388,283
Plan fiduciary net position - ending (b)	$ 71,018,518	$ 67,976,717	$ 75,304,750	$ 85,388,283	$ 86,834,224
Net pension liability - ending (a) - (b)	$ 13,868,816	$ 21,965,968	$ 19,593,428	$ 17,457,645	$ 22,620,604
Plan fiduciary net position as a percentage of total pension liability	83.66%	75.58%	79.35%	83.03%	79.33%
Covered payroll	$ 14,238,486	$ 14,310,032	$ 15,850,437	$ 17,007,857	$ 18,562,198
Net pension liability as a percentage of covered payroll	97.40%	153.50%	123.61%	102.64%	121.86%

(continued on the following page)

[1]Schedule is intended to present information for ten years. Additional years of information will be presented as they become available.

CITY OF DENTON, TEXAS
REQUIRED SUPPLEMENTARY INFORMATION
DENTON FIREMEN'S RELIEF AND RETIREMENT FUND
SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS
LAST NINE FISCAL YEARS (PREVIOUS YEARS ARE NOT AVAILABLE)1

Exhibit XIII

	Measurement Year 2019	Measurement Year 2020	Measurement Year 2021	Measurement Year 2022
Total pension liability:				
Service Cost	$ 3,723,960	$ 4,252,475	$ 4,380,049	$ 4,965,768
Interest (on the total pension liability)	7,497,583	8,293,527	8,791,959	9,787,310
Changes of benefit terms	-	-	1,074,140	-
Difference between expected and actual experience	1,526,958	-	4,783,943	-
Change of assumptions	3,446,011	-	-	-
Benefit payments, including refunds of employee contributions	(4,206,975)	(5,655,539)	(4,923,273)	(4,816,472)
Net change in total pension liability	11,987,537	6,890,463	14,106,818	9,936,606
Total pension liability - beginning	109,454,828	121,442,365	128,332,828	142,439,646
Total pension liability - ending (a)	$ 121,442,365	$ 128,332,828	$ 142,439,646	$ 152,376,252
Plan fiduciary net position:				
Contributions - employer	$ 3,639,740	$ 4,069,311	$ 4,249,769	$ 4,545,905
Contributions - employee	2,478,958	2,771,532	2,894,437	3,096,130
Net investment income (loss)	15,141,275	12,313,949	21,206,371	(6,446,061)
Benefit payments, including refunds of employee contributions	(4,206,975)	(5,655,539)	(4,923,273)	(4,816,472)
Administrative expense	(71,427)	(116,909)	(87,866)	(114,279)
Net change in plan fiduciary net position	16,981,571	13,382,344	23,339,438	(3,734,777)
Plan fiduciary net position - beginning	86,834,224	103,815,795	117,198,139	140,537,577
Plan fiduciary net position - ending (b)	$ 103,815,795	$ 117,198,139	$ 140,537,577	$ 136,802,800
Net pension liability - ending (a) - (b)	$ 17,626,570	$ 11,134,689	$ 1,902,069	$ 15,573,452
Plan fiduciary net position as a percentage of total pension liability	85.49%	91.32%	98.66%	89.78%
Covered payroll	$ 19,674,270	$ 21,996,287	$ 22,971,722	$ 24,572,460
Net pension liability as a percentage of covered payroll	89.59%	50.62%	8.28%	63.38%

(concluded)

[1]Schedule is intended to present information for ten years. Additional years of information will be presented as they become available.

CITY OF DENTON, TEXAS **Exhibit XIV**
REQUIRED SUPPLEMENTARY INFORMATION
FIREMEN'S RELIEF AND RETIREMENT FUND
SCHEDULE OF CONTRIBUTIONS
LAST TEN FISCAL YEARS (Unaudited)

Fiscal Year	(a) Annual Required Contributions	(b) Contributions in Relation to the Annual Required Contributions	(c) Contribution Excess (Deficiency) (b) - (a)	(d) Covered Payroll	Contributions as a Percentage of Covered Payroll (b)/(d)
2014	2,576,652	2,576,652	-	13,828,070	18.63%
2015	2,535,719	2,535,719	-	14,029,051	18.07%
2016	2,819,046	2,819,046	-	15,540,826	18.14%
2017	2,924,757	2,924,757	-	16,747,217	17.46%
2018	3,310,248	3,310,248	-	18,080,014	18.31%
2019	3,610,711	3,610,711	-	19,517,358	18.50%
2020	3,838,014	3,838,014	-	20,746,026	18.50%
2021	4,158,368	4,158,368	-	22,477,667	18.50%
2022	4,440,025	4,440,025	-	24,000,134	18.50%
2023	4,804,198	4,804,198	-	25,968,636	18.50%

Notes to Schedule:
Annual required contributions are not actuarially determined. In accordance with city ordinance since 2017, the City has contributed to the Firemen's Relief and Retirement Fund at the rate of 18.5%, the assumed actuarial valuation rate over the unfunded liability amortization period.

While the contribution requirements are not actuarially determined, state law requires an actuary certify the assumed City contribution rate is adequate. Methods and assumptions used to contribution adequacy in the December 31, 2021 actuarial valuation:

Actuarial Cost Method	**Entry Age**
Amortization Method	**Level Percentage of Payroll, Open**
Remaining Amortization Period	**9.1 Years**
Asset Valuation Method	**5-year smoothing**
Inflation	**2.50%**
Salary Increases	**3.00% annual general compensation increase plus promotion, step, and longevity increases which average 1.98% per year over a 30-year career**
Investment Rate of Return	**6.75%, net of pension plan investment expense, including inflation**
Retirement Age	**Average expected age at retirement of 57**
Mortality	**PubS-2010 (public safety) total dataset mortality tables for employees and for retirees (sec distinct), projected for morality improvement generationally using the projection scale MP-2019**

CITY OF DENTON, TEXAS **Exhibit XV**
REQUIRED SUPPLEMENTARY INFORMATION
MEDICAL OTHER POST-EMPLOYMENT BENEFITS
SCHEDULE OF CHANGES IN TOTAL OPEB LIABILITY AND RELATED RATIOS
LAST FIVE FISCAL YEARS (PREVIOUS YEARS ARE NOT AVAILABLE)[1,2]

	Measurement Year 2018	Measurement Year 2019	Measurement Year 2020	Measurement Year 2021	Measurement Year 2022
Total OPEB liability:					
Service Cost	$ 1,995,008	$ 2,052,606	$ 2,884,792	$ 3,554,317	$ 3,282,530
Interest (on the total OPEB liability)	1,329,949	1,507,925	1,186,428	995,640	921,256
Changes of benefit terms	-	-	-	-	-
Difference between expected and actual experience	(150,485)	(1,512,289)	329,072	(1,283,436)	(42,650)
Change of assumptions or other inputs	(1,724,923)	1,444,810	3,664,984	(1,091,668)	(10,266,201)
Benefit payments	(899,361)	(1,126,992)	(1,695,382)	(1,826,367)	(1,679,015)
Net change in total OPEB liability	550,188	2,366,060	6,369,894	348,486	(7,784,080)
Total OPEB liability - beginning	39,631,890	40,182,078	42,548,138	48,918,032	49,266,518
Total OPEB liability - ending	$ 40,182,078	$ 42,548,138	$ 48,918,032	$ 49,266,518	$ 41,482,438
Covered-employee payroll	$ 104,783,403	$ 109,480,718	$ 118,063,295	$ 130,944,182	$ 137,686,788
Net pension liability as a percentage of covered-employee payroll	38.35%	38.86%	41.43%	37.62%	30.13%

[1]Schedule is intended to present information for ten years. Additional years of information will be presented as they become available.

[2]There are no assets accumlated in a trust that meets the criteria in Paragraph 4 of GASB Statement No. 75 to pay related benefits.

Methods and assumptions used to determine contribution rate for 2023:

Actuarial cost method	Individual Entry-Age Normal
Discount rate	4.05% (Based on the Fidelity Index's "20-Year Municipal GO AA Index" rates as of December 31, 2022.) The prior year discount rate was 1.84%.
Inflation rate	2.50%
Projected salary increases	3.5% to 11.5% for TMRS and 3.00% to 9.18% for Fire, including inflation
Demographic assumptions	Based on the experience study covering the four-year period ending December 31, 2018 as conducted for the Texas Municipal Retirement System (TMRS) and the assumptions used in the December 31, 2021 actuarial valuation for the Denton Firemen's Relief and Retirement Fund.
Healthcare trend rates	Initial rate of 7.00% declining to an ultimate rate of 4.15% after 13 years.
Mortality	TMRS: For healthy retirees, the gender-distinct 2019 Municipal Retirees of Texas mortality tables are used. The rates are projected on a fully generational basis using the ultimate mortality improvement rates in the MP tables published through 2019 to account for future mortality improvements. Fire: For healthy retirees, the gender-distinct PubS-2010 (safety employees) total data set mortality tables are used. The rates are projected on a fully generational basis using the project scale MP-2019.
Participation rates	65% for employees retiring at age 65 or older; 45% for employees retiring between the ages of 50 and 64; 5% for employees retiring between the ages of 45 and 49; 0% for employees retiring before the ages of 45.

CITY OF DENTON, TEXAS

Exhibit XVI

REQUIRED SUPPLEMENTARY INFORMATION

TEXAS MUNICIPAL RETIREMENT SYSTEM - SUPPLEMENTAL DEATH BENEFIT FUND

SCHEDULE OF CHANGES IN TOTAL OPEB LIABILITY AND RELATED RATIOS

LAST FIVE FISCAL YEARS (PREVIOUS YEARS ARE NOT AVAILABLE)[1,2]

	Measurement Year 2018	Measurement Year 2019	Measurement Year 2020	Measurement Year 2021	Measurement Year 2022
Total OPEB liability:					
Service Cost	$ 176,359	$ 152,989	$ 236,668	$ 233,130	$ 284,912
Interest (on the total OPEB liability)	110,831	130,143	115,434	103,668	100,639
Difference between expected and actual experience	155,143	(284,991)	(28,782)	(158,830)	46,933
Change of assumptions or other inputs	(247,941)	680,198	720,927	172,092	(1,978,189)
Benefit payments	(17,636)	(28,686)	(32,273)	(81,089)	(98,623)
Net change in total OPEB liability	176,756	649,653	1,011,974	268,971	(1,644,328)
Total OPEB liability - beginning	3,268,993	3,445,749	4,095,402	5,107,376	5,376,347
Total OPEB liability - ending	$ 3,445,749	$ 4,095,402	$ 5,107,376	$ 5,376,347	$ 3,732,019
Covered-employee payroll	$ 85,227,078	$ 88,179,581	$ 95,618,386	$ 107,576,172	$ 137,686,788
Net pension liability as a percentage of covered-employee payroll	4.04%	4.64%	5.34%	5.00%	2.71%

[1]Schedule is intended to present information for ten years. Additional years of information will be presented as they become available.

[2]There are no assets accumlated in a trust that meets the criteria in Paragraph 4 of GASB Statement No. 75 to pay related benefits.

Methods and assumptions used to determine contribution rate for 2023:

Inflation rate	2.50% per annum
Discount rate	6.75% (Based on the Fidelity Index's "20-Year Municipal GO AA Index" rates as of December 31, 2021.) The prior year discount rate was 1.84%.
Actuarial cost method	Entry Age Normal
Projected salary increases	3.5% to 11.5% including inflation
Retirees' share of benefit-related	$0
Administrative expenses	All administrative expenses are paid through the Pension Trust and accounted for under reporting requirements under GASB No. 68.
Mortality rates - service retirees	2019 Municipal Retirees of Texas Mortality Tables. The rates are projected on a fully generational basis with scale UMP.
Mortality rates - disabled retirees	2019 Municipal Retirees of Texas Mortality Tables with a 4 year set-forward for males and a 3 year set-forward for females. In addition, a 3.5% and 3% minimum mortality rate will be applied to reflect the impairment for younger members who become disabled for males and females, respectively. The rates are projected on a fully generational basis by Scale UMP to account for future mortality improvements subject to the floor.

CITY OF DENTON, TEXAS **Exhibit XVII**

SCHEDULE OF REVENUES, EXPENDITURES AND
CHANGES IN FUND BALANCES - BUDGET TO ACTUAL
DEBT SERVICE FUND
FOR THE YEAR ENDED SEPTEMBER 30, 2023

	Budgeted Amounts		Actual	Adjustments - Budgetary	Actual on a Budgetary	Variance with Final Budget - Positive
	Original	Final	Amounts	Basis	Basis	(Negative)
REVENUES:						
Taxes	$ 32,605,476	$ 32,605,476	$ 32,733,509	$ -	$ 32,733,509	$ 128,033
Investment revenue (loss)	100,000	100,000	764,351	-	764,351	664,351
Total revenues	32,705,476	32,705,476	33,497,860	-	33,497,860	792,384
EXPENDITURES:						
Debt service:						
Principal, interest and fiscal charges	96,605,257	96,605,257	35,310,358	60,488,661	95,799,019	806,238
Bond refunding	-	-	178,390	(178,390)	-	-
Bond issuance costs	-	-	55,015	(55,015)	-	-
Total expenditures	96,605,257	96,605,257	35,543,763	60,255,256	95,799,019	806,238
Excess (deficiency) of revenues over (under) expenditures	(63,899,781)	(63,899,781)	(2,045,903)	(60,255,256)	(62,301,159)	1,598,622
OTHER FINANCING SOURCES (USES):						
Refunding bonds issued	-	-	9,300,000	(9,300,000)	-	-
Payment to refunded bond agent	-	-	(10,156,875)	10,156,875	-	-
Premium on debt issuance	-	-	911,669	(911,669)	-	-
Transfers in	61,829,824	61,829,824	717,980	60,488,661	61,206,641	(623,183)
Total other financing sources (uses)	61,829,824	61,829,824	772,774	60,433,867	61,206,641	(623,183)
Net change in fund balance	(2,069,957)	(2,069,957)	(1,273,129)	178,611	(1,094,518)	975,439
Fund balance at beginning of year	2,411,532	2,411,532	2,411,532	-	2,411,532	-
Fund balance at end of year	$ 341,575	$ 341,575	$ 1,138,403	$ 178,611	$ 1,317,014	$ 975,439

Adjustments - Budgetary Basis are pass-through debt service payments budgeted as transfers in from enterprise and internal service funds.
Other Financing Sources (Uses) related to refunding are adjusted out as they are non-budgeted items reducing future debt service payments.

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APPENDIX C

FORMS OF BOND COUNSEL'S OPINIONS

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Proposed Form of Opinion of Bond Counsel

An opinion in substantially the following form will be delivered by McCall, Parkhurst & Horton L.L.P., Bond Counsel, upon the delivery of the Certificates, assuming no material changes in facts or law.

[Issue Date]

CITY OF DENTON, TEXAS
CERTIFICATES OF OBLIGATION
SERIES 2024
DATED JUNE 1, 2024
IN THE AGGREGATE PRINCIPAL AMOUNT OF $_____

AS BOND COUNSEL FOR THE CITY OF DENTON, TEXAS (the "*Issuer*") in connection with the issuance of the Certificates of Obligation described above (the "*Certificates*"), we have examined into the legality and validity of the Certificates, which bear interest from the dates and mature on the dates, and are subject to redemption, in accordance with the terms and conditions stated in the text of the Certificates. Terms used herein and not otherwise defined shall have the meaning given in the Ordinance of the Issuer authorizing the issuance and sale of the Certificates (the "*Ordinance*").

WE HAVE EXAMINED the Constitution and laws of the State of Texas, certified copies of the proceedings of the City Council of the Issuer relating to the issuance of the Certificates, including the Ordinance and other documents authorizing and relating to the issuance of the Certificates; and we have examined various certificates and documents executed by officers and officials of the Issuer upon which certificates and documents we rely as to certain matters stated below. We have also examined one of the executed Certificates (Number T-1).

BASED ON SAID EXAMINATION, IT IS OUR OPINION that the Certificates have been duly authorized, issued and delivered, all in accordance with law; and that, except as may be limited by laws applicable to the Issuer relating to bankruptcy, reorganization, and other similar matters affecting creditors' rights generally, or by general principles of equity or governmental immunity of political subdivisions which permit the exercise of judicial discretion, the Certificates will constitute valid and legally binding obligations of the Issuer, and ad valorem taxes sufficient to provide for the payment of the interest on and principal of the Certificates have been levied and pledged for such purpose, within the limit prescribed by law, and that the Certificates are additionally secured by and payable from limited surplus revenues (not to exceed $1,000) of the Issuer's Utility System (consisting of the Issuer's combined waterworks system, sanitary sewer system, drainage system and electric light and power system), remaining after payment of all operation and maintenance expenses thereof, and all debt service, reserve, and other requirements in connection with all of the Issuer's revenue bonds or other obligations (now or hereafter outstanding), which are payable from all or any part of the Net Revenues of the Issuer's Utility System.

IT IS FURTHER OUR OPINION that, except as discussed below, under the statutes, regulations, published rulings, and court decisions existing on the date of this opinion, for federal income tax purposes, the interest on the Certificates (i) is excludable from the gross income of the owners thereof and (ii) the Certificates will not be treated as "specified private activity bonds" the interest on which would be included as an individual alternative minimum tax preference item under section 57(a)(5) of the Internal Revenue Code of 1986 (the "*Code*"). In expressing the aforementioned opinions, we have relied on certain representations, the accuracy of which we have not independently verified, and assume compliance with certain covenants regarding the use and investment of the proceeds of the Certificates and the use of the property financed

therewith. We call your attention to the fact that if such representations are determined to be inaccurate or if the Issuer fails to comply with such covenants, interest on the Certificates may become includable in gross income retroactively to the date of issuance of the Certificates.

EXCEPT AS STATED ABOVE, we express no opinion as to any other federal, state, or local tax consequences of acquiring, carrying, owning, or disposing of the Certificates, including the amount, accrual or receipt of interest on, the Certificates. Owners of the Certificates should consult their tax advisors regarding the applicability of any collateral tax consequences of owning the Certificates.

WE CALL YOUR ATTENTION TO THE FACT that the interest on tax-exempt obligations, such as the Certificates, may be includable in a corporation's adjusted financial statement income for purposes of determining the alternative minimum tax imposed on certain corporations by section 55 of the Code.

WE EXPRESS NO OPINION as to any insurance policies issued with respect to the payments due for the principal of and interest on the Certificates, nor as to any such insurance policies issued in the future.

OUR SOLE ENGAGEMENT in connection with the issuance of the Certificates is as Bond Counsel for the Issuer, and, in that capacity, we have been engaged by the Issuer for the sole purpose of rendering an opinion with respect to the legality and validity of the Certificates under the Constitution and laws of the State of Texas, and with respect to the exclusion from gross income of the interest on the Certificates for federal income tax purposes, and for no other reason or purpose. The foregoing opinions represent our legal judgment based upon a review of existing legal authorities that we deem relevant to render such opinions and are not a guarantee of a result. We have not been requested to investigate or verify, and have not independently investigated or verified any records, data, or other material relating to the financial condition or capabilities of the Issuer, or the disclosure thereof in connection with the sale of the Certificates, and have not assumed any responsibility with respect thereto. We express no opinion and make no comment with respect to the marketability of the Certificates and have relied solely on certificates executed by officials of the Issuer as to the current outstanding indebtedness of, and assessed valuation of taxable property within, and the sufficiency of the pledged surplus net revenues of, the Issuer. Our role in connection with the Issuer's Official Statement prepared for use in connection with the sale of the Certificates has been limited as described therein.

OUR OPINIONS ARE BASED ON EXISTING LAW, which is subject to change. Such opinions are further based on our knowledge of facts as of the date hereof. We assume no duty to update or supplement our opinions to reflect any facts or circumstances that may thereafter come to our attention or to reflect any changes in any law that may thereafter occur or become effective. Moreover, our opinions are not a guarantee of result and are not binding on the Internal Revenue Service (the "*Service*"); rather, such opinions represent our legal judgment based upon our review of existing law and in reliance upon the representations and covenants referenced above that we deem relevant to such opinions. The Service has an ongoing audit program to determine compliance with rules that relate to whether interest on state or local obligations is includable in gross income for federal income tax purposes. No assurance can be given whether or not the Service will commence an audit of the Certificates. If an audit is commenced, in accordance with its current published procedures the Service is likely to treat the Issuer as the taxpayer. We observe that the Issuer has covenanted not to take any action, or omit to take any action within its control, that if taken or omitted, respectively, may result in the treatment of interest on the Certificates as includable in gross income for federal income tax purposes.

Respectfully,

Proposed Form of Opinion of Bond Counsel

An opinion in substantially the following form will be delivered by McCall, Parkhurst & Horton L.L.P., Bond Counsel, upon the delivery of the Bonds, assuming no material changes in facts or law.

[Issue Date]

CITY OF DENTON, TEXAS
GENERAL OBLIGATION REFUNDING AND IMPROVEMENT BONDS
SERIES 2024
DATED JUNE 1, 2024
IN THE PRINCIPAL AMOUNT OF $_____

AS BOND COUNSEL FOR THE CITY OF DENTON, TEXAS (the "*Issuer*") in connection with the issuance of the bonds described above (the "*Bonds*"), we have examined into the legality and validity of the Bonds, which bear interest from the dates and mature on the dates, and are subject to redemption, in accordance with the terms and conditions stated in the text of the Bonds. Terms used herein and not otherwise defined shall have the meaning given in the Ordinance of the Issuer authorizing the issuance and sale of the Bonds (the "*Ordinance*").

WE HAVE EXAMINED the Constitution and laws of the State of Texas, certified copies of the proceedings of the City Council of the Issuer relating to the issuance of the Bonds, including the Ordinance and other documents authorizing and relating to the issuance of the Bonds; and we have examined various certificates and documents executed by officers and officials of the Issuer upon which certificates and documents we rely as to certain matters stated below. We have also examined one of the executed Bonds (Number T-1).

BASED ON SAID EXAMINATION, IT IS OUR OPINION that the Bonds have been duly authorized, issued and delivered, all in accordance with law; and that, except as may be limited by laws applicable to the Issuer relating to bankruptcy, reorganization and other similar matters affecting creditors' rights generally, or by general principles of equity or governmental immunity of political subdivisions which permit the exercise of judicial discretion, the Bonds will constitute valid and legally binding obligations of the Issuer, and ad valorem taxes sufficient to provide for the payment of the interest on and principal of the Bonds have been levied and pledged for such purpose, within the limit prescribed by law.

IT IS FURTHER OUR OPINION that, except as discussed below, under the statutes, regulations, published rulings, and court decisions existing on the date of this opinion, for federal income tax purposes, the interest on the Bonds (i) is excludable from the gross income of the owners thereof and (ii) the Bonds will not be treated as "specified private activity bonds" the interest on which would be included as an individual alternative minimum tax preference item under section 57(a)(5) of the Internal Revenue Code of 1986 (the "*Code*"). In expressing the aforementioned opinions, we have relied on certain representations, the accuracy of which we have not independently verified, and assume compliance with certain covenants regarding the use and investment of the proceeds of the Bonds and the use of the property financed and refinanced therewith. We call your attention to the fact that if such representations are determined to be inaccurate or if the Issuer fails to comply with such covenants, interest on the Bonds may become includable in gross income retroactively to the date of issuance of the Bonds.

EXCEPT AS STATED ABOVE, we express no opinion as to any other federal, state, or local tax consequences of acquiring, carrying, owning, or disposing of the Bonds, including the amount, accrual or receipt of interest on, the Bonds. Owners of the Bonds should consult their tax advisors regarding the applicability of any collateral tax consequences of owning the Bonds.

WE CALL YOUR ATTENTION TO THE FACT that the interest on tax-exempt obligations, such as the Bonds, may be includable in a corporation's adjusted financial statement income for purposes of determining the alternative minimum tax imposed on certain corporations by section 55 of the Code.

WE EXPRESS NO OPINION as to any insurance policies issued with respect to the payments due for the principal of and interest on the Bonds, nor as to any such insurance policies issued in the future.

OUR SOLE ENGAGEMENT in connection with the issuance of the Bonds is as Bond Counsel for the Issuer, and, in that capacity, we have been engaged by the Issuer for the sole purpose of rendering an opinion with respect to the legality and validity of the Bonds under the Constitution and laws of the State of Texas, and with respect to the exclusion from gross income of the interest on the Bonds for federal income tax purposes, and for no other reason or purpose. The foregoing opinions represent our legal judgment based upon a review of existing legal authorities that we deem relevant to render such opinions and are not a guarantee of a result. We have not been requested to investigate or verify, and have not independently investigated or verified any records, data, or other material relating to the financial condition or capabilities of the Issuer, or the disclosure thereof in connection with the sale of the Bonds, and have not assumed any responsibility with respect thereto. We express no opinion and make no comment with respect to the marketability of the Bonds and have relied solely on certificates executed by officials of the Issuer as to the current outstanding indebtedness of, and assessed valuation of taxable property within, the Issuer. Our role in connection with the Issuer's Official Statement prepared for use in connection with the sale of the Bonds has been limited as described therein.

OUR OPINIONS ARE BASED ON EXISTING LAW, which is subject to change. Such opinions are further based on our knowledge of facts as of the date hereof. We assume no duty to update or supplement our opinions to reflect any facts or circumstances that may thereafter come to our attention or to reflect any changes in any law that may thereafter occur or become effective. Moreover, our opinions are not a guarantee of result and are not binding on the Internal Revenue Service (the "*Service*"); rather, such opinions represent our legal judgment based upon our review of existing law and in reliance upon the representations and covenants referenced above that we deem relevant to such opinions. The Service has an ongoing audit program to determine compliance with rules that relate to whether interest on state or local obligations is includable in gross income for federal income tax purposes. No assurance can be given whether or not the Service will commence an audit of the Bonds. If an audit is commenced, in accordance with its current published procedures the Service is likely to treat the Issuer as the taxpayer. We observe that the Issuer has covenanted not to take any action, or omit to take any action within its control, that if taken or omitted, respectively, may result in the treatment of interest on the Bonds as includable in gross income for federal income tax purposes.

Respectfully,

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Municipal Advisory Services
Provided By

HilltopSecurities
Investment Banking Solutions

ORDINANCE NO. 24-____

AN ORDINANCE OF THE CITY OF DENTON CONSIDERING ALL MATTERS INCIDENT AND RELATED TO THE ISSUANCE, SALE AND DELIVERY OF UP TO $262,330,000 IN PRINCIPAL AMOUNT OF "CITY OF DENTON CERTIFICATES OF OBLIGATION, SERIES 2024"; AUTHORIZING THE ISSUANCE OF THE CERTIFICATES; DELEGATING THE AUTHORITY TO CERTAIN CITY OFFICIALS TO EXECUTE CERTAIN DOCUMENTS RELATING TO THE SALE OF THE CERTIFICATES; APPROVING AND AUTHORIZING INSTRUMENTS AND PROCEDURES RELATING TO SAID CERTIFICATES; ENACTING OTHER PROVISIONS RELATING TO THE SUBJECT; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City Council of the City of Denton, Texas (the "Issuer"), deems it advisable to issue Certificates of Obligation in the amount of up to $262,330,000 for the purposes hereinafter set forth; and

WHEREAS, the Certificates of Obligation hereinafter authorized and designated are to be issued and delivered for cash pursuant to Subchapter C of Chapter 271, Texas Local Government Code, Subchapter B, Chapter 1502, Texas Government Code and Chapter 1371, Texas Government Code; and

WHEREAS, the City Council has heretofore passed two ordinances authorizing and directing the City Secretary to give notice of intention to issue Certificates of Obligation, and said notices have been duly published in a newspaper of general circulation in said Issuer, said newspaper being a "newspaper" as defined in Section 2051.044, Texas Government Code; and

WHEREAS, the Issuer received no petition from the qualified electors of the Issuer protesting the issuance of such Certificates of Obligation; and

WHEREAS, no bond proposition to authorize the issuance of bonds for the same purpose as any of the projects being financed with the proceeds of the Certificates of Obligation was submitted to the voters of the Issuer during the preceding three years and failed to be approved; and

WHEREAS, the Issuer is an "issuer" within the meaning of Section 1371.001(4)(P), Texas Government Code, having (i) a principal amount of at least $100 million in outstanding long-term indebtedness, in long-term indebtedness proposed to be issued, or in a combination of outstanding or proposed long-term indebtedness and (ii) some amount of long-term indebtedness outstanding or proposed to be issued that is rated in one of the four highest rating categories for long-term debt instruments by a nationally recognized rating agency for municipal securities, without regard to the effect of any credit agreement or other form of credit enhancement entered into in connection with the obligation; and

WHEREAS, it is officially found, determined, and declared that the meeting at which this Ordinance has been adopted was open to the public and public notice of the time, place and subject matter of the public business to be considered and acted upon at said meeting, including this Ordinance, was given, all as required by the applicable provisions of Texas Government Code Chapter 551; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. RECITALS, AMOUNT, PURPOSE AND DESIGNATION OF THE CERTIFICATES.

(a) The recitals set forth in the preamble hereof are incorporated herein and shall have the same force and effect as if set forth in this Section.

(b) The term "Certificates" as used in this Ordinance shall mean and include collectively the certificate of obligation initially issued and delivered pursuant to this Ordinance (the "Initial Certificate") and all substitute certificates of obligation exchanged therefor, as well as all other substitute certificates of obligation and replacement certificates of obligation issued pursuant hereto, and the term "Certificate" shall mean any of the Certificates.

(c) The Certificates of Obligation of the City of Denton, Texas (the "Issuer") are hereby authorized to be issued and delivered in the maximum aggregate principal amount of $262,330,000 for the purpose of paying all or a portion of the Issuer's contractual obligations incurred pursuant to contracts for the purchase, construction and acquisition of certain real and personal property, to wit: up to $177,560,000 in principal amount for the purpose of: (i) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the Issuer's waterworks and wastewater system; and (ii) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the Issuer's electric light and power system; and also for the purpose of paying all or a portion of the Issuer's contractual obligations for professional services, including engineers, architects, attorneys, map makers, auditors, and financial advisors, in connection with said projects and said Certificates of Obligation; and up to $84,770,000 in principal amount for the purpose of: (i) renovating, constructing, expanding, improving and equipping existing municipal service center building; (ii) acquisition of vehicles and equipment for the fire, police, building inspections, community improvement services, animal services, streets and traffic control, facilities management, airport, technology services, fleet management, warehouse management, and parks and recreation departments; (iii) renovations to, and equipping of, existing municipal buildings, including the acquisition and installation of replacement heating, venting and air conditioning equipment, roofing and flooring; (iv) acquiring, expanding, constructing, renovating, improving and equipping parking facilities; (v) acquiring, constructing and installing building security systems, including security system technology equipment and software, for municipal buildings; (vi) constructing, reconstructing, renovating, installing and equipping municipal parks; (vii) renovations to and equipping existing municipal vehicle maintenance facility; (viii) acquisition and installation of technology equipment, including radio equipment, computer equipment and software, for various municipal departments; (ix) constructing and improving streets, including traffic signalization, landscaping, drainage, sidewalks, utility line relocations and the acquisition of land and rights-of-way therefor; (x) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the Issuer's drainage and storm sewer systems; and (kxi acquisition of vehicles and equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the Issuer's solid waste disposal system; and also for the purpose of paying all or a portion of the Issuer's contractual obligations for professional services, including engineers, architects, attorneys, map makers, auditors, and financial advisors, in connection with said projects and said Certificates of Obligation (collectively, the "Projects").

(d) Each Certificate issued pursuant to this Ordinance shall be designated: "CITY OF DENTON CERTIFICATE OF OBLIGATION, SERIES 2024," and initially there shall be issued, sold, and delivered hereunder fully registered certificates, without interest coupons, payable to the respective registered owners thereof (with the Initial Certificate being made payable to the Purchaser as described in Section 10 hereof), or to the registered assignee or assignees of said Certificates or any portion or portions thereof (in each

case, the "Registered Owner"). The Certificates shall be in the respective principal amounts, shall be numbered, shall mature and be payable on the date or dates in each of the years and in the principal amounts, and shall bear interest to their respective dates of maturity or redemption prior to maturity at the rates per annum, as set forth in the Pricing Certificate.

SECTION 2. DELEGATION TO PRICING OFFICER.

(a) As authorized by Section 1371.053, Texas Government Code, as amended, the City Manager or the Chief Financial Officer (the "Pricing Officer") is hereby authorized to act on behalf of the Issuer in selling and delivering the Certificates and carrying out the other procedures specified in this Ordinance, including, determining the date of the Certificates, any additional or different designation or title by which the Certificates shall be known, the price at which the Certificates will be sold, the years in which the Certificates will mature, the principal amount to mature in each of such years, the rate of interest to be borne by each such maturity, the interest payment and record dates, the price and terms upon and at which the Certificates shall be subject to redemption prior to maturity at the option of the Issuer, as well as any mandatory sinking fund redemption provisions, and all other matters relating to the issuance, sale, and delivery of the Certificates, including without limitation, obtaining municipal bond insurance for all or any portion of the Certificates (including in connection therewith the execution of any commitment agreements, membership agreements in mutual insurance companies, and other similar agreements) and providing for the terms and provisions thereof applicable to the Certificates, all of which shall be specified in the Pricing Certificate; provided that:

(i) the aggregate original principal amount of the Certificates shall not exceed the amount set forth in Section 1(c) hereof;

(ii) the maximum stated maturity of the Certificates shall not exceed February 15, 2054;

(iii) the Certificates shall bear interest at a fixed rate, and the net effective interest rate on the Certificates shall not exceed 5.00%;

(iv) the delegation made hereby shall expire if not exercised by the Pricing Officer through execution of the Pricing Certificate on or prior to December 4, 2024; and

(v) on or prior to delivery, the Certificates shall be rated by a nationally recognized rating agency for municipal securities in one of the four highest categories for long-term obligations.

(b) In establishing the aggregate principal amount of the Certificates, the Pricing Officer shall establish an amount not exceeding the aggregate principal amount authorized in Subsection (a) hereof, and not exceeding the respective amounts set forth in Section 1(c) hereof for each group of Projects, which shall be sufficient in amount to provide for the purposes for which the Certificates are authorized and to pay costs of issuing the Certificates. The Certificates shall be sold with and subject to such terms as set forth in the Pricing Certificate.

SECTION 3. CHARACTERISTICS OF THE CERTIFICATES.

(a) Registration, Transfer, Conversion and Exchange; Authentication. The Issuer shall keep or cause to be kept at the principal corporate trust office of BOKF, NA, Dallas, Texas (the "Paying Agent/Registrar") books or records for the registration of the transfer, conversion and exchange of the Certificates (the "Registration Books"), and the Issuer hereby appoints the Paying Agent/Registrar as its registrar and transfer agent to keep such books or records and make such registrations of transfers,

conversions and exchanges under such reasonable regulations as the Issuer and Paying Agent/Registrar may prescribe; and the Paying Agent/Registrar shall make such registrations, transfers, conversions and exchanges as herein provided. The Paying Agent/Registrar shall obtain and record in the Registration Books the address of the Registered Owner of each Certificate to which payments with respect to the Certificates shall be mailed, as herein provided; but it shall be the duty of each Registered Owner to notify the Paying Agent/Registrar in writing of the address to which payments shall be mailed, and such interest payments shall not be mailed unless such notice has been given. The Issuer shall have the right to inspect the Registration Books during regular business hours of the Paying Agent/Registrar, but otherwise the Paying Agent/Registrar shall keep the Registration Books confidential and, unless otherwise required by law, shall not permit their inspection by any other entity. The Issuer shall pay the Paying Agent/Registrar's standard or customary fees and charges for making such registration, transfer, conversion, exchange and delivery of a substitute Certificate or Certificates. Registration of assignments, transfers, conversions and exchanges of Certificates shall be made in the manner provided and with the effect stated in the FORM OF CERTIFICATE set forth in this Ordinance. Each substitute Certificate shall bear a letter and/or number to distinguish it from each other Certificate.

Except as provided in Section 3(c) of this Ordinance, an authorized representative of the Paying Agent/Registrar shall, before the delivery of any such Certificate, date and manually sign said Certificate, and no such Certificate shall be deemed to be issued or outstanding unless such Certificate is so executed. The Paying Agent/Registrar promptly shall cancel all paid Certificates and Certificates surrendered for conversion and exchange. No additional ordinances, orders, or resolutions need be passed or adopted by the governing body of the Issuer or any other body or person so as to accomplish the foregoing conversion and exchange of any Certificate or portion thereof, and the Paying Agent/Registrar shall provide for the printing, execution, and delivery of the substitute Certificates in the manner prescribed herein, and said Certificates shall be printed or typed on paper of customary weight and strength. Pursuant to Chapter 1201, Government Code, as amended, the duty of conversion and exchange of Certificates as aforesaid is hereby imposed upon the Paying Agent/Registrar, and, upon the execution of said Certificate, the converted and exchanged Certificate shall be valid, incontestable, and enforceable in the same manner and with the same effect as the Certificates that initially were issued and delivered pursuant to this Ordinance, approved by the Attorney General of the State of Texas (the "Attorney General") and registered by the Comptroller of Public Accounts of the State of Texas (the "Comptroller").

(b) Payment of Certificates and Interest. The Issuer hereby further appoints the Paying Agent/Registrar to act as the paying agent for paying the principal of and interest on the Certificates, all as provided in this Ordinance. The Paying Agent/Registrar shall keep proper records of all payments made by the Issuer and the Paying Agent/Registrar with respect to the Certificates, and of all conversions and exchanges of Certificates, and all replacements of Certificates, as provided in this Ordinance. However, in the event of a nonpayment of interest on a scheduled payment date, and for thirty (30) days thereafter, a new record date for such interest payment (a "Special Record Date") will be established by the Paying Agent/Registrar, if and when funds for the payment of such interest have been received from the Issuer. Notice of the past due interest shall be sent at least five (5) business days prior to the Special Record Date by United States mail, first-class postage prepaid, to the address of each Registered Owner appearing on the Registration Books at the close of business on the last business day next preceding the date of mailing of such notice.

(c) In General. The Certificates (i) shall be issued in fully registered form, without interest coupons, with the principal of and interest on such Certificates to be payable only to the Registered Owners thereof, (ii) may or shall be redeemed prior to their scheduled maturities (notice of which shall be given to the Paying Agent/Registrar by the Issuer at least 45 days prior to any such redemption date), (iii) may be converted and exchanged for other Certificates, (iv) may be transferred and assigned, (v) shall have the characteristics, (vi) shall be signed, sealed, executed and authenticated, (vii) the principal of and interest on

the Certificates shall be payable, and (viii) shall be administered and the Paying Agent/Registrar and the Issuer shall have certain duties and responsibilities with respect to the Certificates, all as provided, and in the manner and to the effect as required or indicated, in the FORM OF CERTIFICATE set forth in this Ordinance (as modified in the Pricing Certificate). The Initial Certificate is not required to be, and shall not be, authenticated by the Paying Agent/Registrar, but on each substitute Certificate issued in conversion of and exchange for any Certificate or Certificates issued under this Ordinance the Paying Agent/Registrar shall execute the Paying Agent/Registrar's Authentication Certificate, in the form set forth in the FORM OF CERTIFICATE.

(d) Paying Agent/Registrar for the Certificates. The Issuer covenants with the Registered Owners of the Certificates that at all times while the Certificates are outstanding the Issuer will provide a competent and legally qualified bank, trust company, financial institution, or other entity to act as and perform the services of Paying Agent/Registrar for the Certificates under this Ordinance, and that the Paying Agent/Registrar will be a single entity. The Issuer reserves the right to, and may, at its option, change the Paying Agent/Registrar upon not less than 60 days written notice to the Paying Agent/Registrar, to be effective not later than 60 days prior to the next principal or interest payment date after such notice. In the event that the entity at any time acting as Paying Agent/Registrar (or its successor by merger, acquisition, or other method) should resign or otherwise cease to act as such, the Issuer covenants that promptly it will appoint a competent and legally qualified bank, trust company, financial institution, or other agency to act as Paying Agent/Registrar under this Ordinance. Upon any change in the Paying Agent/Registrar, the previous Paying Agent/Registrar promptly shall transfer and deliver the Registration Books (or a copy thereof), along with all other pertinent books and records relating to the Certificates, to the new Paying Agent/Registrar designated and appointed by the Issuer. Upon any change in the Paying Agent/Registrar, the Issuer promptly will cause a written notice thereof to be sent by the new Paying Agent/Registrar to each Registered Owner of the Certificates, by United States mail, first-class postage prepaid, which notice also shall give the address of the new Paying Agent/Registrar. By accepting the position and performing as such, each Paying Agent/Registrar shall be deemed to have agreed to the provisions of this Ordinance, and a certified copy of this Ordinance shall be delivered to each Paying Agent/Registrar.

(e) Authentication. Except as provided below, no Certificate shall be valid or obligatory for any purpose or be entitled to any security or benefit of this Ordinance unless and until there appears thereon the Paying Agent/Registrar's Authentication Certificate substantially in the form provided in this Ordinance, duly authenticated by manual execution of the Paying Agent/Registrar. It shall not be required that the same authorized representative of the Paying Agent/Registrar sign the Paying Agent/Registrar's Authentication Certificate on all of the Certificates. In lieu of the executed Paying Agent/Registrar's Authentication Certificate described above, the Initial Certificate delivered on the closing date shall have attached thereto the Comptroller's Registration Certificate substantially in the form provided in this Ordinance, manually executed by the Comptroller or by her duly authorized agent, which certificate shall be evidence that the Initial Certificate has been duly approved by the Attorney General and that it is a valid and binding obligation of the Issuer, and has been registered by the Comptroller.

(f) Book-Entry-Only System. The Certificates issued in exchange for the Initial Certificate shall be initially issued in the form of a separate single fully registered Certificate for each of the maturities thereof. Upon initial issuance, the ownership of each such Certificate shall be registered in the name of Cede & Co., as nominee of The Depository Trust Company, New York, New York ("DTC"), and except as provided in subsection (g) hereof, all of the outstanding Certificates shall be registered in the name of Cede & Co., as nominee of DTC.

With respect to Certificates registered in the name of Cede & Co., as nominee of DTC, the Issuer and the Paying Agent/Registrar shall have no responsibility or obligation to any securities brokers and dealers, banks, trust companies, clearing corporations and certain other organizations on whose behalf DTC

was created ("DTC Participant") to hold securities to facilitate the clearance and settlement of securities transactions among DTC Participants or to any person on behalf of whom such a DTC Participant holds an interest in the Certificates. Without limiting the immediately preceding sentence, the Issuer and the Paying Agent/Registrar shall have no responsibility or obligation with respect to (i) the accuracy of the records of DTC, Cede & Co. or any DTC Participant with respect to any ownership interest in the Certificates, (ii) the delivery to any DTC Participant or any other person, other than a Registered Owner of Certificates, as shown on the Registration Books, of any notice with respect to the Certificates, or (iii) the payment to any DTC Participant or any other person, other than a Registered Owner of Certificates, as shown in the Registration Books of any amount with respect to principal of or interest on the Certificates. Notwithstanding any other provision of this Ordinance to the contrary, the Issuer and the Paying Agent/Registrar shall be entitled to treat and consider the person in whose name each Certificate is registered in the Registration Books as the absolute owner of such Certificate for the purpose of payment of principal and interest with respect to such Certificate, for the purpose of registering transfers with respect to such Certificate, and for all other purposes whatsoever. The Paying Agent/Registrar shall pay all principal of and interest on the Certificates only to or upon the order of the Registered Owners, as shown in the Registration Books as provided in this Ordinance, or their respective attorneys duly authorized in writing, and all such payments shall be valid and effective to fully satisfy and discharge the Issuer's obligations with respect to payment of principal of and interest on the Certificates to the extent of the sum or sums so paid. No person other than a Registered Owner, as shown in the Registration Books, shall receive a Certificate evidencing the obligation of the Issuer to make payments of principal and interest pursuant to this Ordinance. Upon delivery by DTC to the Paying Agent/Registrar of written notice to the effect that DTC has determined to substitute a new nominee in place of Cede & Co., and subject to the provisions in this Ordinance with respect to interest checks being mailed to the Registered Owner at the close of business on the Record Date, the words "Cede & Co." in this Ordinance shall refer to such new nominee of DTC.

The previous execution and delivery of the Blanket Issuer Letter of Representations with respect to obligations of the Issuer is hereby ratified and confirmed; and the provisions thereof shall be fully applicable to the Certificates.

(g) Successor Securities Depository; Transfers Outside Book-Entry-Only System. In the event that the Issuer determines that DTC is incapable of discharging its responsibilities described herein and in the Blanket Issuer Letter of Representations to DTC or that it is in the best interest of the beneficial owners of the Certificates that they be able to obtain certificated Certificates, the Issuer shall (i) appoint a successor securities depository, qualified to act as such under Section 17A of the Securities and Exchange Act of 1934, as amended, notify DTC and DTC Participants of the appointment of such successor securities depository and transfer one or more separate Certificates to such successor securities depository or (ii) notify DTC and DTC Participants of the availability through DTC of Certificates and transfer one or more separate certificated Certificates to DTC Participants having Certificates credited to their DTC accounts. In such event, the Certificates shall no longer be restricted to being registered in the Registration Books in the name of Cede & Co., as nominee of DTC, but may be registered in the name of the successor securities depository, or its nominee, or in whatever name or names Registered Owners transferring or exchanging Certificates shall designate, in accordance with the provisions of this Ordinance.

(h) Payments to Cede & Co. Notwithstanding any other provision of this Ordinance to the contrary, so long as any Certificate is registered in the name of Cede & Co., as nominee of DTC, all payments with respect to principal of and interest on such Certificate and all notices with respect to such Certificate shall be made and given, respectively, in the manner provided in the Blanket Issuer Letter of Representations to DTC.

(i) Cancellation of Initial Certificate. On the closing date, the Initial Certificate, representing the entire principal amount of the Certificates, payable in stated installments to the Purchaser designated in Section 10 or its designee, executed by manual or facsimile signature of the Mayor and City Secretary of the Issuer, approved by the Attorney General, and registered and manually signed by the Comptroller, will be delivered to such Purchaser or its designee. Upon payment for the Initial Certificate, the Paying Agent/Registrar shall cancel the Initial Certificate and deliver to DTC on behalf of such Purchaser one registered definitive Certificate for each year of maturity of the Certificates, in the aggregate principal amount of all of the Certificates for such maturity. To the extent that the Paying Agent/Registrar is eligible to participate in DTC's FAST System, pursuant to an agreement between the Paying Agent/Registrar and DTC, the Paying Agent/Registrar shall hold the definitive Certificates in safekeeping for DTC.

(j) Conditional Notice of Redemption. With respect to any optional redemption of the Certificates, unless the prerequisites to such redemption required by this Ordinance have been met and moneys sufficient to pay the principal of and premium, if any, and interest on the Certificates to be redeemed shall have been received by the Paying Agent/Registrar prior to the giving of such notice of redemption, such notice shall state that said redemption may, at the option of the Issuer, be conditional upon the satisfaction of such prerequisites and receipt of such moneys by the Paying Agent/Registrar on or prior to the date fixed for such redemption, or upon any prerequisite set forth in such notice of redemption. If a conditional notice of redemption is given and such prerequisites to the redemption and sufficient moneys are not received, such notice shall be of no force and effect, the Issuer shall not redeem such Certificates and the Paying Agent/Registrar shall give notice, in the manner in which the notice of redemption was given, to the effect that the Certificates have not been redeemed.

SECTION 4. FORM OF CERTIFICATES. The form of the Certificates, including the form of Paying Agent/Registrar's Authentication Certificate, the form of Assignment and the form of Comptroller's Registration Certificate to be attached to the Certificates initially issued and delivered pursuant to this Ordinance, shall be, respectively, substantially as follows, with such appropriate variations, omissions or insertions as are permitted or required by this Ordinance, and with the Form of Certificate to be modified pursuant to, and completed with information set forth in, the Pricing Certificate.

(a) [Form of Certificate]

NO. R-	UNITED STATES OF AMERICA STATE OF TEXAS CITY OF DENTON CERTIFICATE OF OBLIGATION SERIES 2024	PRINCIPAL AMOUNT $_____

Interest Rate	Dated Date	Maturity Date	CUSIP No.
	_____, 2024	February 15, 20__	

REGISTERED OWNER:

PRINCIPAL AMOUNT: DOLLARS

ON THE MATURITY DATE specified above, the City of Denton, in Denton County, Texas (the "Issuer"), being a political subdivision and municipal corporation of the State of Texas, hereby promises to pay to the Registered Owner specified above, or registered assigns (hereinafter called the "Registered

Owner"), on the Maturity Date specified above, the Principal Amount specified above. The Issuer promises to pay interest on the unpaid principal amount hereof (calculated on the basis of a 360-day year of twelve 30-day months) from the Delivery Date at the Interest Rate per annum specified above. Interest is payable on _____, 20__ and semiannually on each _____ and _____ thereafter to the Maturity Date specified above, or the date of redemption prior to maturity; except, if this Certificate is required to be authenticated and the date of its authentication is later than the first Record Date (hereinafter defined), such Principal Amount shall bear interest from the interest payment date next preceding the date of authentication, unless such date of authentication is after any Record Date but on or before the next following interest payment date, in which case such principal amount shall bear interest from such next following interest payment date; provided, however, that if on the date of authentication hereof the interest on the Certificate or Certificates, if any, for which this Certificate is being exchanged is due but has not been paid, then this Certificate shall bear interest from the date to which such interest has been paid in full.

THE PRINCIPAL OF AND INTEREST ON this Certificate are payable in lawful money of the United States of America, without exchange or collection charges. The principal of this Certificate shall be paid to the Registered Owner hereof upon presentation and surrender of this Certificate at maturity, or upon the date fixed for its redemption prior to maturity, at the principal corporate trust office of BOKF, NA, Dallas, Texas, which is the "Paying Agent/Registrar" for this Certificate. The payment of interest on this Certificate shall be made by the Paying Agent/Registrar to the Registered Owner hereof on each interest payment date by check or draft, dated as of such interest payment date, drawn by the Paying Agent/Registrar on, and payable solely from, funds of the Issuer required by the ordinance authorizing the issuance of this Certificate (the "Certificate Ordinance") to be on deposit with the Paying Agent/Registrar for such purpose as hereinafter provided; and such check or draft shall be sent by the Paying Agent/Registrar by United States mail, first-class postage prepaid, on each such interest payment date, to the Registered Owner hereof, at its address as it appeared on the last business day of the month preceding each such date (the "Record Date") on the Registration Books kept by the Paying Agent/Registrar, as hereinafter described. In addition, interest may be paid by such other method, acceptable to the Paying Agent/Registrar, requested by, and at the risk and expense of, the Registered Owner. In the event of a non-payment of interest on a scheduled payment date, and for 30 days thereafter, a new record date for such interest payment (a "Special Record Date") will be established by the Paying Agent/Registrar, if and when funds for the payment of such interest have been received from the Issuer. Notice of the Special Record Date and of the scheduled payment date of the past due interest (which shall be 15 days after the Special Record Date) shall be sent at least five business days prior to the Special Record Date by United States mail, first-class postage prepaid, to the address of each Registered Owner of a Certificate appearing on the Registration Books at the close of business on the last business day next preceding the date of mailing of such notice.

ANY ACCRUED INTEREST due at maturity or upon the redemption of this Certificate prior to maturity as provided herein shall be paid to the Registered Owner upon presentation and surrender of this Certificate for redemption and payment at the principal corporate trust office of the Paying Agent/Registrar. The Issuer covenants with the Registered Owner of this Certificate that on or before each principal payment date, interest payment date, and accrued interest payment date for this Certificate it will make available to the Paying Agent/Registrar, from the "Interest and Sinking Fund" created by the Certificate Ordinance, the amounts required to provide for the payment, in immediately available funds, of all principal of and interest on the Certificates, when due.

IF THE DATE for the payment of the principal of or interest on this Certificate shall be a Saturday, Sunday, a legal holiday or a day on which banking institutions in the city where the principal corporate trust office of the Paying Agent/Registrar is located are authorized by law or executive order to close, then the date for such payment shall be the next succeeding day that is not such a Saturday, Sunday, legal holiday or day on which banking institutions are authorized to close; and payment on such date shall have the same force and effect as if made on the original date payment was due.

THIS CERTIFICATE is one of a series of Certificates dated _____, 2024, authorized in accordance with the Constitution and laws of the State of Texas in the principal amount of $262,330,000 for the purpose of paying all or a portion of the Issuer's contractual obligations incurred pursuant to contracts for the purchase, construction and acquisition of certain real and personal property, to wit: $177,560,000 for the purpose of: (i) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the Issuer's waterworks and wastewater system; and (ii) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the Issuer's electric light and power system; and also for the purpose of paying all or a portion of the Issuer's contractual obligations for professional services, including engineers, architects, attorneys, map makers, auditors, and financial advisors, in connection with said projects and said Certificates; and $84,770,000 for the purpose of: (i) renovating, constructing, expanding, improving and equipping existing municipal service center building; (ii) acquisition of vehicles and equipment for the fire, police, building inspections, community improvement services, animal services, streets and traffic control, facilities management, airport, technology services, fleet management, warehouse management, and parks and recreation departments; (iii) renovations to, and equipping of, existing municipal buildings, including the acquisition and installation of replacement heating, venting and air conditioning equipment, roofing and flooring; (iv) acquiring, expanding, constructing, renovating, improving and equipping parking facilities; (v) acquiring, constructing and installing building security systems, including security system technology equipment and software, for municipal buildings; (vi) constructing, reconstructing, renovating, installing and equipping municipal parks; (vii) renovations to and equipping existing municipal vehicle maintenance facility; (viii) acquisition and installation of technology equipment, including radio equipment, computer equipment and software, for various municipal departments; (ix) constructing and improving streets, including traffic signalization, landscaping, drainage, sidewalks, utility line relocations and the acquisition of land and rights-of-way therefor; (x) acquisition of equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the Issuer's drainage and storm sewer systems; and (xi) acquisition of vehicles and equipment for, and acquiring, constructing, installing and equipping additions, extensions, renovations and improvements to, the Issuer's solid waste disposal system; and also for the purpose of paying all or a portion of the Issuer's contractual obligations for professional services, including engineers, architects, attorneys, map makers, auditors, and financial advisors, in connection with said projects and said Certificates.

ON _____, 20__, or on any date thereafter, the Certificates of this series may be redeemed prior to their scheduled maturities, at the option of the Issuer, with funds derived from any available and lawful source, as a whole, or in part, and, if in part, the particular Certificates, or portions thereof, to be redeemed shall be selected and designated by the Issuer (provided that a portion of a Certificate may be redeemed only in an integral multiple of $5,000), at a redemption price equal to the principal amount to be redeemed plus accrued interest to the date fixed for redemption.

[THE CERTIFICATES scheduled to mature on _____ in the years ____ and ____ (the "Term Certificates") are subject to scheduled mandatory redemption by the Paying Agent/Registrar by lot, or by any other customary method that results in a random selection, at a price equal to the principal amount thereof, plus accrued interest to the redemption date, out of moneys available for such purpose in the interest and sinking fund for the Certificates, on the dates and in the respective principal amounts, set forth in the following schedule:

Term Certificate Maturity: February 15, 20__	Term Certificate Maturity: February 15,20__

Mandatory Redemption Date	Principal Amount	Mandatory Redemption Date	Principal Amount
February 15,20__	$ _____	February 15,20__	$_____
February 15,20__	_____	February 15,20__	_____
February 15,20__	_____	February 15,20__	_____
February 15,20__ (maturity)	_____	February 15,20__ (maturity)	_____

The principal amount of Term Certificates of a stated maturity required to be redeemed on any mandatory redemption date pursuant to the operation of the mandatory sinking fund redemption provisions shall be reduced, at the option of the Issuer, by the principal amount of any Term Certificates of the same maturity which, at least 50 days prior to a mandatory redemption date (1) shall have been acquired by the Issuer at a price not exceeding the principal amount of such Term Certificates plus accrued interest to the date of purchase thereof, and delivered to the Paying Agent/Registrar for cancellation, (2) shall have been purchased and canceled by the Paying Agent/Registrar at the request of the Issuer at a price not exceeding the principal amount of such Term Certificates plus accrued interest to the date of purchase, or (3) shall have been redeemed pursuant to the optional redemption provisions and not theretofore credited against a mandatory redemption requirement.]

AT LEAST 30 days prior to the date fixed for any redemption of Certificates or portions thereof prior to maturity a written notice of such redemption shall be sent by the Paying Agent/Registrar by United States mail, first-class postage prepaid, to the Registered Owner of each Certificate to be redeemed at its address as it appeared on the 45th day prior to such redemption date; provided, however, that the failure of the Registered Owner to receive such notice, or any defect therein or in the sending or mailing thereof, shall not affect the validity or effectiveness of the proceedings for the redemption of any Certificate. By the date fixed for any such redemption due provision shall be made with the Paying Agent/Registrar for the payment of the required redemption price for the Certificates or portions thereof that are to be so redeemed. If such written notice of redemption is sent and if due provision for such payment is made, all as provided above, the Certificates or portions thereof that are to be so redeemed thereby automatically shall be treated as redeemed prior to their scheduled maturities, and they shall not bear interest after the date fixed for redemption, and they shall not be regarded as being outstanding except for the right of the Registered Owner to receive the redemption price from the Paying Agent/Registrar out of the funds provided for such payment. If a portion of any Certificate shall be redeemed, a substitute Certificate or Certificates having the same maturity date, bearing interest at the same rate, in any denomination or denominations in any integral multiple of $5,000, at the written request of the Registered Owner, and in aggregate principal amount equal to the unredeemed portion thereof, will be issued to the Registered Owner upon the surrender thereof for cancellation, at the expense of the Issuer, all as provided in the Certificate Ordinance.

IF AT THE TIME OF MAILING of notice of optional redemption there shall not have either been deposited with the Paying Agent/Registrar or legally authorized escrow agent immediately available funds sufficient to redeem all the Certificates called for redemption, such notice may state that it is conditional, and is subject to the deposit of the redemption moneys with the Paying Agent/Registrar or legally authorized escrow agent at or prior to the redemption date or any prerequisite set forth in such notice of redemption. If such redemption is not effectuated, the Paying Agent/Registrar shall, within five days thereafter, give notice in the manner in which the notice of redemption was given that such moneys were not so received or such prerequisites were not met and shall rescind the redemption.

ALL CERTIFICATES OF THIS SERIES are issuable solely as fully registered certificates, without interest coupons, in the denomination of any integral multiple of $5,000. As provided in the Certificate Ordinance, this Certificate may, at the request of the Registered Owner or the assignee or assignees hereof, be assigned, transferred, converted into and exchanged for a like aggregate principal amount of fully

registered Certificates, without interest coupons, payable to the appropriate Registered Owner, assignee or assignees, as the case may be, having the same denomination or denominations in any integral multiple of $5,000 as requested in writing by the appropriate Registered Owner, assignee or assignees, as the case may be, upon surrender of this Certificate to the Paying Agent/Registrar for cancellation, all in accordance with the form and procedures set forth in the Certificate Ordinance. Among other requirements for such assignment and transfer, this Certificate must be presented and surrendered to the Paying Agent/Registrar, together with proper instruments of assignment, in form and with guarantee of signatures satisfactory to the Paying Agent/Registrar, evidencing assignment of this Certificate or any portion or portions hereof in any integral multiple of $5,000 to the assignee or assignees in whose name or names this Certificate or any such portion or portions hereof is or are to be registered. The Form of Assignment printed or endorsed on this Certificate may be executed by the Registered Owner to evidence the assignment hereof, but such method is not exclusive, and other instruments of assignment satisfactory to the Paying Agent/Registrar may be used to evidence the assignment of this Certificate or any portion or portions hereof from time to time by the Registered Owner. The Paying Agent/Registrar's reasonable standard or customary fees and charges for assigning, transferring, converting and exchanging any Certificate or portion thereof will be paid by the Issuer. In any circumstance, any taxes or governmental charges required to be paid with respect thereto shall be paid by the one requesting such assignment, transfer, conversion or exchange, as a condition precedent to the exercise of such privilege. The Paying Agent/Registrar shall not be required to make any such transfer, conversion, or exchange (i) during the period commencing with the close of business on any Record Date and ending with the opening of business on the next following principal or interest payment date, or (ii) with respect to any Certificate or any portion thereof called for redemption prior to maturity, within 45 days prior to its redemption date.

IN THE EVENT any Paying Agent/Registrar for the Certificates is changed by the Issuer, resigns, or otherwise ceases to act as such, the Issuer has covenanted in the Certificate Ordinance that it promptly will appoint a competent and legally qualified substitute therefor, and cause written notice thereof to be mailed to the Registered Owners of the Certificates.

IT IS HEREBY certified, recited and covenanted that this Certificate has been duly and validly authorized, issued and delivered; that all acts, conditions and things required or proper to be performed, exist and be done precedent to or in the authorization, issuance and delivery of this Certificate have been performed, existed and been done in accordance with law; and that annual ad valorem taxes sufficient to provide for the payment of the interest on and principal of this Certificate, as such interest comes due and such principal matures, have been levied and ordered to be levied against all taxable property in said Issuer, and have been pledged for such payment, within the limit prescribed by law; and that this Certificate is additionally secured by and payable from a limited pledge (not to exceed $1,000) of the surplus revenues derived by the Issuer from the ownership and operation of the Issuer's Utility System (consisting of the Issuer's combined waterworks system, sanitary sewer system, and electric light and power system), all as provided in the Certificate Ordinance.

THE ISSUER HAS RESERVED THE RIGHT to issue, in accordance with law, and in accordance with the Certificate Ordinance, other and additional obligations, and to enter into contracts, payable from ad valorem taxes and/or revenues of the Issuer's Utility System, on a parity with, or with respect to said revenues, superior in lien to, this Certificate.

THE ISSUER HAS RESERVED THE RIGHT to amend the Certificate Ordinance as provided therein, and under some (but not all) circumstances amendments thereto must be approved by the Registered Owners of a majority in aggregate principal amount of the outstanding Certificates.

BY BECOMING the Registered Owner of this Certificate, the Registered Owner thereby acknowledges all of the terms and provisions of the Certificate Ordinance, agrees to be bound by such terms

and provisions, acknowledges that the Certificate Ordinance is duly recorded and available for inspection in the official minutes and records of the governing body of the Issuer, and agrees that the terms and provisions of this Certificate and the Certificate Ordinance constitute a contract between each Registered Owner hereof and the Issuer.

IN WITNESS WHEREOF, the Issuer has caused this Certificate to be signed with the manual or facsimile signature of the Mayor of the Issuer (or in the Mayor's absence, of the Mayor Pro-Tem) and countersigned with the manual or facsimile signature of the City Secretary of said Issuer, and has caused the official seal of the Issuer to be duly impressed, or placed in facsimile, on this Certificate.

(signature)	(signature)
City Secretary	Mayor

(SEAL)

[INSERT BOND INSURANCE LEGEND, IF ANY]

(b) [Form of Paying Agent/Registrar's Authentication Certificate]

PAYING AGENT/REGISTRAR'S AUTHENTICATION CERTIFICATE
(To be executed if this Certificate is not accompanied by an executed Comptroller's Registration Certificate)

It is hereby certified that this Certificate has been issued under the provisions of the Certificate Ordinance described in the text of this Certificate; and that this Certificate has been issued in conversion or replacement of, or in exchange for, a certificate, certificates, or a portion of a certificate or certificates of a series that originally was approved by the Attorney General of the State of Texas and registered by the Comptroller of Public Accounts of the State of Texas.

Dated: _____

_____
BOKF, NA, Dallas, Texas
Paying Agent/Registrar

By:_____
Authorized Representative

(c) [Form of Assignment]

ASSIGNMENT

For value received, the undersigned hereby sells, assigns and transfers unto _____.

Please insert Social Security or Taxpayer Identification Number of Transferee

_____

(Please print or typewrite name and address, including zip code, of Transferee.)

_____

the within Certificate and all rights thereunder, and hereby irrevocably constitutes and appoints _____, attorney, to register the transfer of the within Certificate on the books kept for registration thereof, with full power of substitution in the premises.

Dated: _____

Signature Guaranteed:

NOTICE: Signature(s) must be guaranteed by an eligible guarantor institution participating in a securities transfer association recognized signature guarantee program.	NOTICE: The signature above must correspond with the name of the Registered Owner as it appears upon the front of this Certificate in every particular, without alteration or enlargement or any change whatsoever.

(d) [Form of Comptroller's Registration Certificate]

COMPTROLLER'S REGISTRATION CERTIFICATE: REGISTER NO. _____

I hereby certify that this Certificate of Obligation has been examined, certified as to validity and approved by the Attorney General of the State of Texas, and that this Certificate of Obligation has been registered by the Comptroller of Public Accounts of the State of Texas.

Witness my signature and seal this

_____
Comptroller of Public Accounts of the State of Texas

(COMPTROLLER'S SEAL)

(e) [Initial Certificate Insertions]

(i) The Initial Certificate shall be in the form set forth in paragraph (a) of this Section, except that:

A. immediately under the name of the Certificate, the headings "Interest Rate" and "Maturity Date" shall both be completed with the words "As shown below" and "CUSIP No. _____" shall be deleted.

B. the first paragraph shall be deleted and the following will be inserted:

"THE CITY OF DENTON, TEXAS, in Denton County, Texas (the "Issuer"), being a political subdivision and municipal corporation of the State of Texas, hereby promises to pay to the Registered Owner specified above, or registered assigns (hereinafter called the "Registered Owner"), on February 15 in each of the years, in the principal installments and bearing interest at the per annum rates set forth in the following schedule:

Years	Principal Installments ($)	Interest Rates (%)

(Information from Pricing Certificate to be inserted)

The Issuer promises to pay interest on the unpaid principal amount hereof (calculated on the basis of a 360-day year of twelve 30-day months) from the Delivery Date at the respective Interest Rate per annum specified above. Interest is payable on _____, 20__ and semiannually on each _____ and _____thereafter to the date of payment of the principal installment specified above, or the date of redemption prior to maturity; except, that if this Certificate is required to be authenticated and the date of its authentication is later than the first Record Date (hereinafter defined), such Principal Amount shall bear interest from the interest payment date next preceding the date of authentication, unless such date of authentication is after any Record Date but on or before the next following interest payment date, in which case such principal amount shall bear interest from such next following interest payment date; provided, however, that if on the date of authentication hereof the interest on the Certificate or Certificates, if any, for which this Certificate is being exchanged is due but has not been paid, then this Certificate shall bear interest from the date to which such interest has been paid in full."

C. The Initial Certificate shall be numbered "T-1."

SECTION 5. INTEREST AND SINKING FUND; SURPLUS REVENUES.

(a) A special Interest and Sinking Fund (the "Interest and Sinking Fund") is hereby created solely for the benefit of the Certificates, and the Interest and Sinking Fund shall be established and maintained by the Issuer at an official depository bank of the Issuer. The Interest and Sinking Fund shall be kept separate and apart from all other funds and accounts of the Issuer, and shall be used only for paying the interest on and principal of the Certificates. All ad valorem taxes levied and collected for and on account of the Certificates, together with any accrued interest received upon sale of the Certificates, shall be deposited, as collected, to the credit of the Interest and Sinking Fund. During each year while any of the Certificates or interest thereon are outstanding and unpaid, the governing body of the Issuer shall compute and ascertain a rate and amount of ad valorem tax which will be sufficient to raise and produce the money required to pay the interest on the Certificates as such interest becomes due, and to provide and maintain a sinking fund adequate to pay the principal of its Certificates as such principal matures or is scheduled for redemption (but never less than 2% of the original principal amount of the Certificates as a sinking fund each year). Said tax shall be based on the latest approval tax rolls of the Issuer, with full allowance being made for tax delinquencies and the cost of tax collection. Said rate and amount of ad valorem tax is hereby levied, and is hereby ordered to be levied, against all taxable property in the Issuer for each year while any of the Certificates or interest thereon are outstanding and unpaid; and said tax shall be assessed and collected each such year and deposited to the credit of the aforesaid Interest and Sinking Fund. Said ad valorem taxes sufficient to

provide for the payment of the interest on and principal of the Certificates, as such interest comes due and such principal matures or is scheduled for redemption, are hereby pledged for such payment, within the limit prescribed by law.

(b) The Certificates are additionally secured by revenues derived by the Issuer from the ownership and operation of the Issuer's Utility System (consisting of its combined waterworks system, sanitary sewer system, and electric light and power system) that remain after the payment of all maintenance and operation expenses thereof, and all debt service, reserve and other requirements in connection with all of the Issuer's revenue obligations (now or hereafter outstanding) or contractual obligations (now or hereafter existing) which are payable from all or any part of the net revenues of the Issuer's Utility System, constituting "Surplus Revenues", not to exceed $1,000. The Issuer shall deposit such Surplus Revenues to the credit of the Interest and Sinking Fund created pursuant to this Section, to the extent necessary to pay the principal and interest on the Certificates. Notwithstanding the requirements of this Section, if Surplus Revenues or other lawfully available moneys of the Issuer are actually on deposit or budgeted and appropriated to be deposited in the Interest and Sinking Fund in advance of the time when ad valorem taxes are scheduled to be levied for any year, then the amount of taxes that otherwise would have been required to be levied pursuant to subsection (a) of this Section may be reduced to the extent and by the amount of the Surplus Revenues or other lawfully available funds then on deposit or budgeted and appropriated to be deposited in the Interest and Sinking Fund. If Surplus Revenues are budgeted and appropriated for deposit into the Interest and Sinking Fund, the Issuer:

(i) shall transfer and deposit in the Interest and Sinking Fund each month an amount of not less than 1/12th of the annual debt service on the Certificates to be paid from Surplus Revenues until the amount on deposit in the Interest and Sinking Fund equals the amount required for annual debt service on the Certificates;

(ii) shall establish, adopt and maintain an annual budget that provides for either the monthly deposit of sufficient Surplus Revenues and/or tax revenues, the monthly deposit of any other legally available funds on hand at the time of the adoption of the annual budget, or a combination thereof, into the Interest and Sinking Fund for the repayment of the Certificates; and

(iii) shall at all times maintain and collect sufficient Utility System rates and charges in conjunction with any other legally available funds that, after payment of the costs of operating and maintaining the Utility System, produce revenues in an amount not less than the debt service requirements of all outstanding Utility System revenue bonds of the Issuer and other obligations of the Issuer which are secured in whole or in part by a pledge of revenues of the Utility System and for which the Issuer is budgeting the repayment of such obligations from the revenues of the Utility System, or the Issuer shall provide documentation which evidences the levy of an ad valorem tax rate dedicated to the Interest and Sinking Fund, in conjunction with any other legally available funds except Utility System rates and charges, sufficient for the repayment of Utility System debt service requirements.

(c) Chapter 1208, Texas Government Code, applies to the issuance of the Certificates and the pledge of the taxes and Surplus Revenues granted by the Issuer under this Section and Section 9, respectively, and is therefore valid, effective, and perfected. Should Texas law be amended at any time while the Certificates are outstanding and unpaid, the result of such amendment being that the pledge of the taxes and Surplus Revenues granted by the Issuer under this Section is to be subject to the filing requirements of Chapter 9, Texas Business & Commerce Code, in order to preserve to the Registered Owners of the Certificates a security interest in said pledge, the Issuer agrees to take such measures as it determines are reasonable and necessary under Texas law to comply with the applicable provisions of Chapter 9, Texas Business & Commerce Code and enable a filing of a security interest in said pledge to occur.

SECTION 6. DEFEASANCE OF CERTIFICATES.

(a) Any Certificate and the interest thereon shall be deemed to be paid, retired and no longer outstanding (a "Defeased Certificate") within the meaning of this Ordinance, except to the extent provided in subsection (d) of this Section, when payment of the principal of such Certificate, plus interest thereon to the due date (whether such due date be by reason of maturity or otherwise) either (i) shall have been made or caused to be made in accordance with the terms thereof, or (ii) shall have been provided for on or before such due date by irrevocably depositing with or making available to the Paying Agent/Registrar in accordance with an escrow agreement or other instrument (the "Future Escrow Agreement") for such payment (1) lawful money of the United States of America sufficient to make such payment or (2) Government Obligations that mature as to principal and interest in such amounts and at such times as will insure the availability, without reinvestment, of sufficient money to provide for such payment, and when proper arrangements have been made by the Issuer with the Paying Agent/Registrar for the payment of its services until all Defeased Certificates shall have become due and payable. At such time as a Certificate shall be deemed to be a Defeased Certificate hereunder, as aforesaid, such Certificate and the interest thereon shall no longer be secured by, payable from, or entitled to the benefits of, the ad valorem taxes herein levied and pledged as provided in this Ordinance, and such principal and interest shall be payable solely from such money or Government Obligations. Notwithstanding any other provision of this Ordinance to the contrary, it is hereby provided that any determination not to redeem Defeased Certificates that is made in conjunction with the payment arrangements specified in Subsection (a)(i) or (ii) of this Section shall not be irrevocable, provided that: (1) in the proceedings providing for such payment arrangements, the Issuer expressly reserves the right to call the Defeased Certificates for redemption; (2) gives notice of the reservation of that right to the Registered Owners of the Defeased Certificates immediately following the making of the payment arrangements; and (3) directs that notice of the reservation be included in any redemption notices that it authorizes.

(b) Any moneys so deposited with the Paying Agent/Registrar may at the written direction of the Issuer be invested in Government Obligations, maturing in the amounts and times as hereinbefore set forth, and all income from such Government Obligations received by the Paying Agent/Registrar that is not required for the payment of the Certificates and interest thereon, with respect to which such money has been so deposited, shall be turned over to the Issuer, or deposited as directed in writing by the Issuer. Any Future Escrow Agreement pursuant to which the money and/or Government Obligations are held for the payment of Defeased Certificates may contain provisions permitting the investment or reinvestment of such moneys in Government Obligations or the substitution of other Government Obligations upon the satisfaction of the requirements specified in Subsection (a)(i) or (ii) of this Section. All income from such Government Obligations received by the Paying Agent/Registrar which is not required for the payment of the Defeased Certificates, with respect to which such money has been so deposited, shall be remitted to the Issuer or deposited as directed in writing by the Issuer.

(c) Unless modified in the Pricing Certificate, the term "Government Obligations" means any securities and obligations now or hereafter authorized by state law that are eligible to discharge obligations such as the Certificates, including (i) direct, noncallable obligations of the United States of America, including obligations that are unconditionally guaranteed by the United States of America., (ii) noncallable obligations of an agency or instrumentality of the United States of America, including obligations that are unconditionally guaranteed or insured by the agency or instrumentality and that, on the date the governing body of the Issuer adopts or approves the proceedings authorizing the financial arrangements, are rated as to investment quality by a nationally recognized investment rating firm not less than AAA or its equivalent, and (iii) noncallable obligations of a state or an agency or a county, municipality, or other political subdivision of a state that have been refunded and that, on the date the governing body of the Issuer adopts or approves the proceedings authorizing the financial arrangements, are rated as to investment quality by a nationally recognized investment rating firm not less than AAA or its equivalent.

(d) Until all Defeased Certificates shall have become due and payable, the Paying Agent/Registrar shall perform the services of Paying Agent/Registrar for such Defeased Certificates the same as if they had not been defeased, and the Issuer shall make proper arrangements to provide and pay for such services as required by this Ordinance.

(e) In the event that the Issuer elects to defease less than all of the principal amount of Certificates of a maturity, the Paying Agent/Registrar shall select, or cause to be selected, such amount of Certificates by such random method as it deems fair and appropriate.

SECTION 7. DAMAGED, MUTILATED, LOST, STOLEN, OR DESTROYED CERTIFICATES.

(a) Replacement Certificates. In the event any outstanding Certificate is damaged, mutilated, lost, stolen or destroyed, the Paying Agent/Registrar shall cause to be printed, executed and delivered, a new Certificate of the same principal amount, maturity and interest rate, as the damaged, mutilated, lost, stolen or destroyed Certificate, in replacement for such Certificate in the manner hereinafter provided.

(b) Application for Replacement Certificates. Application for replacement of damaged, mutilated, lost, stolen or destroyed Certificates shall be made by the Registered Owner thereof to the Paying Agent/Registrar. In every case of loss, theft or destruction of a Certificate, the Registered Owner applying for a replacement Certificate shall furnish to the Issuer and to the Paying Agent/Registrar such security or indemnity as may be required by them to save each of them harmless from any loss or damage with respect thereto. Also, in every case of loss, theft or destruction of a Certificate, the Registered Owner shall furnish to the Issuer and to the Paying Agent/Registrar evidence to their satisfaction of the loss, theft or destruction of such Certificate, as the case may be. In every case of damage or mutilation of a Certificate, the Registered Owner shall surrender to the Paying Agent/Registrar for cancellation the Certificate so damaged or mutilated.

(c) No Default Occurred. Notwithstanding the foregoing provisions of this Ordinance, in the event any such Certificate shall have matured, and no default has occurred that is then continuing in the payment of the principal of, redemption premium, if any, or interest on the Certificate, the Issuer may authorize the payment of the same (without surrender thereof except in the case of a damaged or mutilated Certificate) instead of issuing a replacement Certificate, provided security or indemnity is furnished as above provided in this Section.

(d) Charge for Issuing Replacement Certificates. Prior to the issuance of any replacement Certificate, the Paying Agent/Registrar shall charge the Registered Owner of such Certificate with all legal, printing, and other expenses in connection therewith. Every replacement Certificate issued pursuant to the provisions of this Section by virtue of the fact that any Certificate is lost, stolen or destroyed shall constitute a contractual obligation of the Issuer whether or not the lost, stolen or destroyed Certificate shall be found at any time, or be enforceable by anyone, and shall be entitled to all the benefits of this Ordinance equally and proportionately with any and all other Certificates duly issued under this Ordinance.

(e) Authority for Issuing Replacement Certificates. In accordance with Sec. 1206.022, Government Code, this Section 7 of this Ordinance shall constitute authority for the issuance of any such replacement Certificate without necessity of further action by the governing body of the Issuer or any other body or person, and the duty of the replacement of such Certificates is hereby authorized and imposed upon the Paying Agent/Registrar, and the Paying Agent/Registrar shall authenticate and deliver such Certificates in the form and manner and with the effect, as provided in Section 3(a) of this Ordinance for Certificates issued in conversion and exchange for other Certificates.

SECTION 8. CUSTODY, APPROVAL, AND REGISTRATION OF CERTIFICATES; BOND COUNSEL'S OPINION; CUSIP NUMBERS AND CONTINGENT INSURANCE PROVISION, IF OBTAINED; ENGAGEMENT OF BOND COUNSEL.

(a) The Mayor of the Issuer is hereby authorized to have control of the Initial Certificate and all necessary records and proceedings pertaining to the Initial Certificate pending its delivery and its investigation, examination, and approval by the Attorney General, and its registration by the Comptroller. Upon registration of the Initial Certificate said Comptroller (or a deputy designated in writing to act for said Comptroller) shall manually sign the Comptroller's Registration Certificate attached to such Certificate, and the seal of said Comptroller shall be impressed, or placed in facsimile, on such Certificate. The approving legal opinion of the Issuer's Bond Counsel and the assigned CUSIP numbers may, at the option of the Issuer, be printed on the Certificates issued and delivered under this Ordinance, but neither shall have any legal effect, and shall be solely for the convenience and information of the Registered Owners of the Certificates. In addition, if bond insurance is obtained, the Certificates may bear an appropriate legend as provided by the insurer.

(b) The obligation of the Purchaser to accept delivery of the Certificates is subject to the Purchaser being furnished with the final, approving opinion of McCall, Parkhurst & Horton L.L.P., bond counsel to the Issuer, which opinion shall be dated as of and delivered on the date of initial delivery of the Certificates to the Purchaser. The engagement of such firm as bond counsel to the Issuer in connection with the issuance, sale and delivery of the Certificates is hereby approved and confirmed. The execution and delivery of an engagement letter between the Issuer and such firm, with respect to such services as bond counsel, is hereby authorized in such form as may be approved by the Mayor, and the Mayor is hereby authorized to execute such engagement letter.

SECTION 9. COVENANTS REGARDING TAX EXEMPTION OF INTEREST ON THE CERTIFICATES.

(a) Covenants. The Issuer covenants to take any action necessary to assure, or refrain from any action that would adversely affect, the treatment of the Certificates as obligations described in section 103 of the Internal Revenue Code of 1986, as amended (the "Code"), the interest on which is not includable in the "gross income" of the holder for purposes of federal income taxation. In furtherance thereof, the Issuer covenants as follows:

(1) to take any action to assure that no more than 10 percent of the proceeds of the Certificates or the projects financed therewith (less amounts deposited to a reserve fund, if any) are used for any "private business use," as defined in section 141(b)(6) of the Code or, if more than 10 percent of the proceeds or the projects financed therewith are so used, such amounts, whether or not received by the Issuer, with respect to such private business use, do not, under the terms of this Ordinance or any underlying arrangement, directly or indirectly, secure or provide for the payment of more than 10 percent of the debt service on the Certificates, in contravention of section 141(b)(2) of the Code;

(2) to take any action to assure that in the event that the "private business use" described in subsection (1) hereof exceeds 5 percent of the proceeds of the Certificates or the projects financed therewith (less amounts deposited into a reserve fund, if any) then the amount in excess of 5 percent is used for a "private business use" that is "related" and not "disproportionate," within the meaning of section 141(b)(3) of the Code, to the governmental use;

(3) to take any action to assure that no amount that is greater than the lesser of $5,000,000, or 5 percent of the proceeds of the Certificates (less amounts deposited into a reserve fund, if any) is

directly or indirectly used to finance loans to persons, other than state or local governmental units, in contravention of section 141(c) of the Code;

(4) to refrain from taking any action that would otherwise result in the Certificates being treated as "private activity bonds" within the meaning of section 141(b) of the Code;

(5) to refrain from taking any action that would result in the Certificates being "federally guaranteed" within the meaning of section 149(b) of the Code;

(6) to refrain from using any portion of the proceeds of the Certificates, directly or indirectly, to acquire or to replace funds that were used, directly or indirectly, to acquire investment property (as defined in section 148(b)(2) of the Code) that produces a materially higher yield over the term of the Certificates, other than investment property acquired with::

(A) proceeds of the Certificates invested for a reasonable temporary period of 3 years or less or, in the case of a refunding bond, for a period of 90 days or less until such proceeds are needed for the purpose for which the bonds are issued,

(B) amounts invested in a bona fide debt service fund, within the meaning of section 1.148-1(b) of the rules and regulations of the United States Department of the Treasury ("Treasury Regulations"), and

(C) amounts deposited in any reasonably required reserve or replacement fund to the extent such amounts do not exceed 10 percent of the proceeds of the Certificates;

(7) to otherwise restrict the use of the proceeds of the Certificates or amounts treated as proceeds of the Certificates, as may be necessary, so that the Certificates do not otherwise contravene the requirements of section 148 of the Code (relating to arbitrage);

(8) to refrain from using the proceeds of the Certificates or proceeds of any prior bonds to pay debt service on another issue more than 90 days after the date of issue of the Certificates in contravention of the requirements of section 149(d) of the Code (relating to advance refundings); and

(9) to pay to the United States of America at least once during each five-year period (beginning on the date of delivery of the Certificates) an amount that is at least equal to 90 percent of the "Excess Earnings," within the meaning of section 148(f) of the Code and to pay to the United States of America, not later than 60 days after the Certificates have been paid in full, 100 percent of the amount then required to be paid as a result of Excess Earnings under section 148(f) of the Code.

(b) Rebate Fund. In order to facilitate compliance with the above covenant (a)(9), a "Rebate Fund" is hereby established by the Issuer for the sole benefit of the United States of America, and such Rebate Fund shall not be subject to the claim of any other person, including without limitation the Certificateholders. The Rebate Fund is established for the additional purpose of compliance with section 148 of the Code.

(c) Use of Proceeds. The Issuer understands that the term "proceeds" includes "disposition proceeds" as defined in the Treasury Regulations and, in the case of refunding bonds, transferred proceeds (if any) and proceeds of the refunded bonds expended prior to the date of issuance of the Certificates. It is the understanding of the Issuer that the covenants contained herein are intended to assure compliance with the Code and any regulations or rulings promulgated by the United States Department of the Treasury pursuant thereto. In the event that regulations or rulings are hereafter promulgated that modify or expand provisions

of the Code, as applicable to the Certificates, the Issuer will not be required to comply with any covenant contained herein to the extent that such failure to comply, in the opinion of nationally recognized bond counsel, will not adversely affect the exemption from federal income taxation of interest on the Certificates under section 103 of the Code. In the event that regulations or rulings are hereafter promulgated that impose additional requirements applicable to the Certificates, the Issuer agrees to comply with the additional requirements to the extent necessary, in the opinion of nationally recognized bond counsel, to preserve the exemption from federal income taxation of interest on the Certificates under section 103 of the Code. In furtherance of such intention, the Issuer hereby authorizes and directs the Mayor or the Pricing Officer to execute any documents, certificates or reports required by the Code and to make such elections, on behalf of the Issuer, that may be permitted by the Code as are consistent with the purpose for the issuance of the Certificates.

(d) Allocation of, and Limitation on, Expenditures for the Projects. The Issuer covenants to account for the expenditure of sale proceeds and investment earnings to be used for the construction and acquisition of the Projects on its books and records in accordance with the requirements of the Code. The Issuer recognizes that in order for the proceeds to be considered used for the reimbursement of costs, the proceeds must be allocated to expenditures within 18 months of the later of the date that (1) the expenditure is made, or (2) the Projects are completed; but in no event later than three years after the date on which the original expenditure is paid. The foregoing notwithstanding, the Issuer recognizes that in order for proceeds to be expended under the Code, the sale proceeds or investment earnings must be expended no more than 60 days after the earlier of (1) the fifth anniversary of the delivery of the Certificates, or (2) the date the Certificates are retired. The Issuer agrees to obtain the advice of nationally-recognized bond counsel if such expenditure fails to comply with the foregoing to assure that such expenditure will not adversely affect the tax-exempt status of the Certificates. For purposes hereof, the issuer shall not be obligated to comply with this covenant if it obtains an opinion that such failure to comply will not adversely affect the excludability for federal income tax purposes from gross income of the interest.

(e) Disposition of Projects. The Issuer covenants that the property constituting the Projects will not be sold or otherwise disposed in a transaction resulting in the receipt by the Issuer of cash or other compensation, unless any action taken in connection with such disposition will not adversely affect the tax-exempt status of the Certificates. For purposes of the foregoing, the Issuer may rely on an opinion of nationally-recognized bond counsel that the action taken in connection with such sale or other disposition will not adversely affect the tax-exempt status of the Certificates. For purposes of the foregoing, the portion of the property comprising personal property and disposed in the ordinary course shall not be treated as a transaction resulting in the receipt of cash or other compensation. For purposes hereof, the Issuer shall not be obligated to comply with this covenant if it obtains an opinion that such failure to comply will not adversely affect the excludability for federal income tax purposes from gross income of the interest.

(f) Reimbursement. This Ordinance is intended to satisfy the official intent requirements set forth in section 1.150-2 of the Treasury Regulations.

SECTION 10. SALE OF CERTIFICATES AND APPROVAL OF OFFICIAL STATEMENT; FURTHER PROCEDURES.

(a) The Certificates shall be sold and delivered subject to the provisions of Section 1 and Section 2 hereof through a negotiated sale, competitive sale or private placement and pursuant to the terms and provisions of a purchase contract or a notice of sale and official bid form (in either case, the "Purchase Agreement"), the terms and provisions of which are to be determined by the Pricing Officer in accordance with Section 2 hereof, and in which the purchaser or purchasers of the Certificates (the "Purchaser") shall be designated. The Pricing Officer is hereby authorized to execute and deliver the Purchase Agreement for

an on behalf of the Issuer. The Certificates shall initially be registered in the name of the Purchaser or its designee.

(b) The Issuer hereby approves the form and content of the draft preliminary official statement relating to the Certificates and any addenda, supplement or amendment thereto, and approves the distribution of such preliminary official statement in the reoffering of the Certificates by the Purchaser in final form, with such changes therein or additions thereto as the Pricing Officer may deem advisable. The Pricing Officer is hereby authorized, in the name and on behalf of the Issuer, to approve, distribute, and deliver a final preliminary official statement and a final official statement relating to the Certificates to be used by the Purchaser in the marketing of the Certificates.

(c) The Pricing Officer is authorized, in connection with effecting the sale of the Certificates, to obtain from a municipal bond insurance company so designated in the Pricing Certificate (the "Insurer") a municipal bond insurance policy (the "Insurance Policy") in support of the Certificates. To that end, should the Pricing Officer exercise such authority and commit the Issuer to obtain a municipal bond insurance policy, for so long as the Insurance Policy is in effect, the requirements of the Insurer relating to the issuance of the Insurance Policy as set forth in the Pricing Certificate are incorporated by reference into this Ordinance and made a part hereof for all purposes, notwithstanding any other provision of this Ordinance to the contrary. The Pricing Officer shall have the authority to execute any documents to effect the issuance of the Insurance Policy by the Insurer, including commitment agreements, membership agreements in mutual insurance companies and other similar agreements.

(d) The Mayor and Mayor Pro Tem, the City Manager, the Chief Financial Officer and City Secretary and all other officers, employees and agents of the Issuer, and each of them, shall be and they are hereby expressly authorized, empowered and directed from time to time and at any time to do and perform all such acts and things and to execute, acknowledge and deliver in the name and under the corporate seal and on behalf of the Issuer a Paying Agent/Registrar Agreement with the Paying Agent/Registrar and all other instruments, whether or not herein mentioned, as may be necessary or desirable in order to carry out the terms and provisions of this Ordinance, the Pricing Certificate, the Certificates, the sale of the Certificates, any Purchase Agreement and the Official Statement. In case any officer whose signature shall appear on any Certificate shall cease to be such officer before the delivery of such Certificate, such signature shall nevertheless be valid and sufficient for all purposes the same as if such officer had remained in office until such delivery.

SECTION 11. INTEREST EARNINGS ON CERTIFICATE PROCEEDS. Interest earnings derived from the investment of proceeds from the sale of the Certificates issued for the Projects shall be used along with other Certificate proceeds for the Projects; provided that after completion of such purpose, if any of such interest earnings remain on hand, such interest earnings shall be deposited in the Interest and Sinking Fund. It is further provided, however, that any interest earnings on Certificate proceeds that are required to be rebated to the United States of America pursuant to Section 9 hereof in order to prevent the Certificates from being arbitrage bonds shall be so rebated and not considered as interest earnings for the purposes of this Section.

SECTION 12. CONSTRUCTION FUND OR ACCOUNT; INVESTMENTS.

(a) The proceeds of sale of the Certificates, excluding any accrued interest received from the initial purchaser of the Certificates and any other amounts to be deposited into the Interest and Sinking Fund, and amounts to pay costs of issuance of the Certificates, shall be deposited in one or more construction funds or accounts for use, along with any investment earnings thereon, by the Issuer for payment of all lawful costs associated with the acquisition and construction of the Projects as hereinbefore provided. Upon payment of all such costs, any moneys remaining on deposit in said funds or accounts, including investment

earnings, shall be transferred to the Interest and Sinking fund. Amounts so deposited to the Interest and Sinking Fund shall be used in the manner described in Section 5 of this Ordinance.

(b) The Issuer may invest proceeds of the Certificates (including investment earnings thereon) issued for the Projects and amounts deposited into the Interest and Sinking Fund in investments authorized by the Public Funds Investment Act, Chapter 2256, Texas Government Code, as amended; provided, however, that the Issuer hereby covenants that the proceeds of the sale of the Certificates will be used as soon as practicable for the purposes for which the Certificates are issued.

(c) All deposits authorized or required by this Ordinance shall be secured to the fullest extent required by law for the security of public funds.

SECTION 13. COMPLIANCE WITH RULE 15c2-12.

(a) Definitions. As used in this Section, the following terms have the meanings ascribed to such terms below:

"*Financial Obligation*" means a (i) debt obligation, (ii) derivative instrument entered into in connection with or pledged as security or a source of payment for, an existing or planned debt obligation, or (iii) a guarantee of (i) or (ii); provided however, that a "financial obligation" shall not include municipal securities as to which a final official statement (as defined in the Rule) has been provided to the MSRB consistent with the Rule.

"MSRB" means the Municipal Securities Rulemaking Board.

"Rule" means SEC Rule 15c2-12, as amended from time to time.

"SEC" means the United States Securities and Exchange Commission.

(b) Annual Reports.

(i) The Issuer shall provide annually to the MSRB, in the electronic format prescribed by the MSRB, financial information and operating data (the "Annual Operating Report") with respect to the Issuer of the general type included in the final Official Statement authorized by this Ordinance, being the information described in the Pricing Certificate. The Issuer will additionally provide financial statements of the Issuer (the "Financial Statements"), that will be (i) prepared in accordance with the accounting principles described in the Pricing Certificate or such other accounting principles as the Issuer may be required to employ from time to time pursuant to State law or regulation and shall be in substantially the form included in the final Official Statement and (ii) audited, if the Issuer commissions an audit of such Financial Statements and the audit is completed within the period during which they must be provided. The Issuer will update and provide the Annual Operating Report within six months after the end of each fiscal year and the Financial Statements within 12 months of the end of each fiscal year, in each case beginning with the fiscal year ending in and after 2024. The Issuer may provide the Financial Statements earlier, including at the time it provides its Annual Operating Report, but if the audit of such Financial Statements is not complete within 12 months after any such fiscal year end, then the Issuer shall file unaudited Financial Statements within such 12-month period and audited Financial Statements for the applicable fiscal year, when and if the audit report on such Financial Statements becomes available. All documents provided to the MSRB pursuant to this Section shall be accompanied by identifying information as prescribed by the MSRB.

(ii) If the Issuer changes its fiscal year, it will notify the MSRB of the change (and of the date of the new fiscal year end) prior to the next date by which the Issuer otherwise would be required to provide financial information and operating data pursuant to this Section. The financial information and operating data to be provided pursuant to this Section may be set forth in full in one or more documents or may be included by specific reference to any document (including an official statement or other offering document, if it is available from the MSRB) that theretofore has been provided to the MSRB or filed with the SEC.

(c) Event Notices.

(i) The Issuer shall notify the MSRB in an electronic format as prescribed by the MSRB, in a timely manner (but not in excess of ten business days after the occurrence of the event) of any of the following events with respect to the Certificates, if such event is material within the meaning of the federal securities laws:

1. Non-payment related defaults;
2. Modifications to rights of holders of the Certificates;
3. Certificate calls;
4. Release, substitution, or sale of property securing repayment of the Certificates;
5. The consummation of a merger, consolidation, or acquisition involving the an obligated person or the sale of all or substantially all of the assets of the obligated person, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms;
6. Appointment of a successor or additional trustee or the change of name of a trustee; and
7. Incurrence of a Financial Obligation of the Issuer or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a Financial Obligation of the Issuer, any of which affect security holders.

(ii) The Issuer shall notify the MSRB in an electronic format as prescribed by the MSRB, in a timely manner (but not in excess of ten business days after the occurrence of the event) of any of the following events with respect to the Certificates, without regard to whether such event is considered material within the meaning of the federal securities laws:

1. Principal and interest payment delinquencies;
2. Unscheduled draws on debt service reserves reflecting financial difficulties;
3. Unscheduled draws on credit enhancements reflecting financial difficulties;
4. Substitution of credit or liquidity providers, or their failure to perform;
5. Adverse tax opinions or the issuance by the Internal Revenue Service of proposed or final determinations of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with respect to the tax-exempt status of the Certificates, or other material events affecting the tax-exempt status of the Certificates;
6. Tender offers;
7. Defeasances;
8. Rating changes;
9. Bankruptcy, insolvency, receivership or similar event of an obligated person; and
10. Default, event of acceleration, termination event, modification of terms, or other similar events under the terms of a Financial Obligation of the Issuer, any of which reflect financial difficulties.

(iii) The Issuer shall notify the MSRB, in a timely manner, of any failure by the Issuer to provide financial information or operating data in accordance with subsection (b) of this Section by the time required by such subsection.

(d) Limitations, Disclaimers, and Amendments.

(i) The Issuer shall be obligated to observe and perform the covenants specified in this Section for so long as, but only for so long as, the Issuer remains an "obligated person" with respect to the Certificates within the meaning of the Rule, except that the Issuer in any event will give notice of any deposit made in accordance with this Ordinance or applicable law that causes the Certificates no longer to be outstanding.

(ii) The provisions of this Section are for the sole benefit of the Registered Owners and beneficial owners of the Certificates, and nothing in this Section, express or implied, shall give any benefit or any legal or equitable right, remedy, or claim hereunder to any other person. The Issuer undertakes to provide only the financial information, operating data, financial statements, and notices which it has expressly agreed to provide pursuant to this Section and does not hereby undertake to provide any other information that may be relevant or material to a complete presentation of the Issuer's financial results, condition, or prospects or hereby undertake to update any information provided in accordance with this Section or otherwise, except as expressly provided herein. The Issuer does not make any representation or warranty concerning such information or its usefulness to a decision to invest in or sell Certificates at any future date.

(iii) UNDER NO CIRCUMSTANCES SHALL THE ISSUER BE LIABLE TO THE REGISTERED OWNER OR BENEFICIAL OWNER OF ANY CERTIFICATE OR ANY OTHER PERSON, IN CONTRACT OR TORT, FOR DAMAGES RESULTING IN WHOLE OR IN PART FROM ANY BREACH BY THE ISSUER, WHETHER NEGLIGENT OR WITHOUT FAULT ON ITS PART, OF ANY COVENANT SPECIFIED IN THIS SECTION, BUT EVERY RIGHT AND REMEDY OF ANY SUCH PERSON, IN CONTRACT OR TORT, FOR OR ON ACCOUNT OF ANY SUCH BREACH SHALL BE LIMITED TO AN ACTION FOR MANDAMUS OR SPECIFIC PERFORMANCE.

(iv) No default by the Issuer in observing or performing its obligations under this Section shall comprise a breach of or default under this Ordinance for purposes of any other provision of this Ordinance. Nothing in this Section is intended or shall act to disclaim, waive, or otherwise limit the duties of the Issuer under federal and state securities laws.

(v) Notwithstanding anything to the contrary in Section 14 hereof, the provisions of this Section may be amended by the Issuer from time to time to adapt to changed circumstances that arise from a change in legal requirements, a change in law, or a change in the identity, nature, status, or type of operations of the Issuer, but only if (1) the provisions of this Section, as so amended, would have permitted an underwriter to purchase or sell Certificates in the primary offering of the Certificates in compliance with the Rule, taking into account any amendments or interpretations of the Rule since such offering as well as such changed circumstances and (2) either (a) the Registered Owners of a majority in aggregate principal amount (or any greater amount required by any other provision of this Ordinance that authorizes such an amendment) of the outstanding Certificates consent to such amendment or (b) a person that is unaffiliated with the Issuer (such as nationally recognized bond counsel) determined that such amendment will not materially impair the interest of the Registered Owners and beneficial owners of the Certificates. The Issuer may also amend or repeal the provisions of this continuing disclosure agreement if the SEC amends or repeals the applicable

provision of the Rule or a court of final jurisdiction enters judgment that such provisions of the Rule are invalid, but only if and to the extent that the provisions of this sentence would not prevent an underwriter from lawfully purchasing or selling Certificates in the primary offering of the Certificates. If the Issuer so amends the provisions of this Section, it shall include with any amended financial information or operating data next provided in accordance with subsection (b) of this Section an explanation, in narrative form, of the reason for the amendment and of the impact of any change in the type of financial information or operating data so provided.

(e) Amendment of the Rule. The provisions of this Section shall be revised by the Pricing Officer to reflect the requirements of the Rule if the Rule is amended after the adoption of this Ordinance but prior to the delivery of the Certificates so as to permit an underwriter to purchase or sell Certificates in the primary offering of the Certificates in compliance with the Rule. Any such revisions shall be set forth in the Pricing Certificate and are incorporated by reference into this Ordinance and made a part hereof for all purposes, notwithstanding any other provision of this Ordinance to the contrary.

SECTION 14. METHOD OF AMENDMENT. The Issuer hereby reserves the right to amend this Ordinance subject to the following terms and conditions, to-wit:

(a) The Issuer may from time to time, without the consent of any holder, except as otherwise required by paragraph (b) below, amend or supplement this Ordinance in order to (i) cure any ambiguity, defect or omission in this Ordinance that does not materially adversely affect the interests of the holders, (ii) grant additional rights or security for the benefit of the holders, (iii) add events of default as shall not be inconsistent with the provisions of this Ordinance and that shall not materially adversely affect the interests of the holders, (iv) qualify this Ordinance under the Trust Indenture Act of 1939, as amended, or corresponding provisions of federal laws from time to time in effect, or (v) make such other provisions in regard to matters or questions arising under this Ordinance as shall not be inconsistent with the provisions of this Ordinance and that shall not in the opinion of the Issuer's Bond Counsel materially adversely affect the interests of the holders.

(b) Except as provided in paragraph (a) above, the holders of Certificates aggregating in principal amount a majority of the aggregate principal amount of then outstanding Certificates that are the subject of a proposed amendment shall have the right from time to time to approve any amendment hereto that may be deemed necessary or desirable by the Issuer; provided, however, that without the consent of 100% of the holders in aggregate principal amount of the then outstanding Certificates that are the subject of a proposed amendment, nothing herein contained shall permit or be construed to permit amendment of the terms and conditions of this Ordinance or in any of the affected Certificates so as to:

(1) Make any change in the maturity of any of the affected outstanding Certificates;

(2) Reduce the rate of interest borne by any of the affected outstanding Certificates;

(3) Reduce the amount of the principal of, or redemption premium, if any, payable on any affected outstanding Certificates;

(4) Modify the terms of payment of principal or of interest or redemption premium on affected outstanding Certificates or impose any condition with respect to such payment; or

(5) Change the minimum percentage of the principal amount of Certificates necessary for consent to such amendment.

(c) If at any time the Issuer shall desire to amend this Ordinance under this Section, the Issuer shall send by U.S. mail to each Registered Owner of the affected Certificates a copy of the proposed amendment and cause notice of the proposed amendment to be published at least once in a financial publication published in The City of New York, New York or in the State of Texas. Such published notice shall briefly set forth the nature of the proposed amendment and shall state that a copy thereof is on file at the office of the Issuer for inspection by all holders of such Certificates.

(d) Whenever at any time within one year from the date of publication of such notice the Issuer shall receive an instrument or instruments executed by the holders of at least a majority in aggregate principal amount of all of the Certificates then outstanding that are required for the amendment, which instrument or instruments shall refer to the proposed amendment and that shall specifically consent to and approve such amendment, the Issuer may adopt the amendment in substantially the same form.

(e) Upon the adoption of any amendatory Ordinance pursuant to the provisions of this Section, this Ordinance shall be deemed to be modified and amended in accordance with such amendatory Ordinance, and the respective rights, duties, and obligations of the Issuer and all holders of such affected Certificates shall thereafter be determined, exercised, and enforced, subject in all respects to such amendment.

(f) Any consent given by the holder of a Certificate pursuant to the provisions of this Section shall be irrevocable for a period of six months from the date of the publication of the notice provided for in this Section, and shall be conclusive and binding upon all future holders of the same Certificate during such period. Such consent may be revoked at any time after six months from the date of the publication of said notice by the holder who gave such consent, or by a successor in title, by filing notice with the Issuer, but such revocation shall not be effective if the holders of a majority in aggregate principal amount of the affected Certificates then outstanding, have, prior to the attempted revocation, consented to and approved the amendment.

For the purposes of establishing ownership of the Certificates, the Issuer shall rely solely upon the registration of the ownership of such Certificates on the Registration Books kept by the Paying Agent/Registrar.

SECTION 15. DEFAULT AND REMEDIES.

(a) Events of Default. Each of the following occurrences or events for the purpose of this Ordinance is hereby declared to be an Event of Default:

(i) the failure to make payment of the principal of or interest on any of the Certificates when the same becomes due and payable; or

(ii) default in the performance or observance of any other covenant, agreement or obligation of the Issuer, the failure to perform which materially, adversely affects the rights of the Registered Owners of the Certificates, including, but not limited to, their prospect or ability to be repaid in accordance with this Ordinance, and the continuation thereof for a period of 60 days after notice of such default is given by any Registered Owner to the Issuer.

(b) Remedies for Default.

(i) Upon the happening of any Event of Default, then and in every case, any Registered Owner or an authorized representative thereof, including, but not limited to, a trustee or trustees therefor, may proceed against the Issuer for the purpose of protecting and enforcing the rights of the Registered Owners under this Ordinance, by mandamus or other suit, action or special proceeding in equity or

at law, in any court of competent jurisdiction, for any relief permitted by law, including the specific performance of any covenant or agreement contained herein, or thereby to enjoin any act or thing that may be unlawful or in violation of any right of the Registered Owners hereunder or any combination of such remedies.

(ii) It is provided that all such proceedings shall be instituted and maintained for the equal benefit of all Registered Owners of Certificates then outstanding.

(c) Remedies Not Exclusive.

(i) No remedy herein conferred or reserved is intended to be exclusive of any other available remedy or remedies, but each and every such remedy shall be cumulative and shall be in addition to every other remedy given hereunder or under the Certificates or now or hereafter existing at law or in equity; provided, however, that notwithstanding any other provision of this Ordinance, the right to accelerate the debt evidenced by the Certificates shall not be available as a remedy under this Ordinance.

(ii) The exercise of any remedy herein conferred or reserved shall not be deemed a waiver of any other available remedy.

(iii) By accepting the delivery of a Certificate authorized under this Ordinance, such Registered Owner agrees that the certifications required to effectuate any covenants or representations contained in this Ordinance do not and shall never constitute or give rise to a personal or pecuniary liability or charge against the officers, employees or agents of the Issuer or the members of its governing body.

SECTION 16. APPROPRIATION. To pay the debt service coming due on the Certificates, if any, prior to receipt of the taxes levied to pay such debt service, there is hereby appropriated from current funds on hand, which are hereby certified to be on hand and available for such purpose, an amount, which together with capitalized interest received from the sale of the Certificates, if any, will be sufficient to pay such debt service, and such amount shall be used for no other purpose.

SECTION 17. EFFECTIVE DATE. In accordance with the provisions of Texas Government Code Section 1201.028, this Ordinance shall be effective immediately upon its adoption by the City Council.

SECTION 18. SEVERABILITY. If any section, article, paragraph, sentence, clause, phrase or word in this Ordinance, or application thereof to any persons or circumstances is held invalid or unconstitutional by a court of competent jurisdiction, such holding shall not affect the validity of the remaining portion of this Ordinance, despite such invalidity, which remaining portions shall remain in full force and effect.

The motion to approve this ordinance was made by _____ and seconded by _____. The ordinance was passed and approved by the following vote [__– __ – __]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this 4th day of June, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: Susan Keller

FY
2023-2024

City Council
Bond Ordinances

June 4, 2024 ID's 24-950; 24-951

GO Projects: 2019 Bond Program

Prop 1 Streets

Street Reconstruction	$	18,000,000
Hickory Creek Road		8,100,000
Ryan Road		4,000,000
Street Lighting		3,500,000
Sidewalks		2,000,000
Total	**$**	**35,600,000**

GO Projects: 2023 Bond Program

Ruddell, Mingo Roadway & Quiet Zones (Prop A)	$	5,000,000
Oakland Drainage & Upstream Detention Improvements (Prop B)		5,000,000
PEC 3&4 Drainage Improvements (Prop B)		5,000,000
Inclusive Playground (Prop C)		3,450,000
Trail Development (Prop C)		4,000,000
Aquatic Improvements (Prop C)		2,000,000
Fire Station # 5 (Prop D)		5,000,000
Fire Station # 6 (Prop D)		5,000,000
Linda McNatt Animal Care & Adoption Center (Prop D)		15,850,000
Public Art - Public Safety (Prop D)		320,000
South Branch Library (Prop G)		2,500,000
Total	**$**	**53,120,000**

2024 Debt Refunding

Average Interest Rate of Refunded Bonds	3.91%
Projected Interest Rate	3.70%

Refunding Bonds Opportunity		Principal Refunded	Maturities Refunded
General Obligation Refunding & Improvement Bonds, Series 2014	$	2,325,000	2024-2044
Certificates of Obligation, Series 2014	$	60,615,000	2025-2044
Total Refunding Opportunity	$	62,940,000	

Total Projected Savings*		
	$	1,620,530

General Obligation Refunding Bonds, Series 2014 Projected Savings*					
Total $1,620,530					
Savings by Debt Type					
General Fund	Airport	Solid Waste	Water	Wastewater	Electric
$153,355	$36,502	$108,347	$196,058	$140,080	$968,188

*Preliminary, subject to change

GO Bond Sale

2019 Bond Program Projects	$	35,600,000
2023 Bond Program Projects		53,120,000
2014 Refunding		62,940,000
Issuance Cost & Pricing Flexibility*		-
GO Bond Sale Total	**$**	**151,660,000**

*Covered by CO estimate

Notice of Intent to Issue COs

- Council approved April 2, 2024.
- Published in Denton Record Chronicle on April 11th and 18th.
- This Bond Ordinance to authorize the sale of COs is at least 46 day after the first publication per state law.

General Government COs

	NOI	BOND SALE
Fleet Building Addition Equipment and Furnishings	$2,000,000	$2,000,000
Fuel Control Hardware / Software Upgrade	650,000	650,000
End User Computing	664,500	664,500
Internal Service Total	**$3,314,500**	**$3,314,500**

	NOI	BOND SALE
Security Hardware Upgrade (Facilities)	$180,000	$180,000
Facilities ADA Upgrades (Facilities)	1,068,600	1,068,600
Facilities Capital Replacements (Facilities)	4,000,000	4,000,000
Facility Condition Maintenance (Facilities)	10,000,000	10,000,000
Standard Building Specifications (Facilities)	500,000	500,000
Adjacency Remodels (Facilities)	50,000	50,000
Service Center Renovation (Facilities)	9,000,000	9,000,000
Parking Lot Replacements (Facilities)	931,172	931,172
ADA Transition Plan Improvements (Parks)	309,000	309,000
Parkside Property Playground (Parks)	280,000	280,000
Traffic Signal Cabinets (Traffic)	208,000	208,000
Gridsmart Vehicle Detection (Traffic)	240,000	240,000
Traffic Signal Design and Rebuilds (Traffic)	1,950,000	1,950,000

General Government Continued on Next Slide

General Government COs Continued

	NOI	BOND SALE
Vehicle Replacement - General Fund (Motorpool)	5,498,000	5,498,000
Vehicle Additions - General Fund (Motorpool)	1,059,350	1,059,350
Infrastructure Replacement (Tech Services)	1,641,500	1,641,500
Radios & Modems (Tech Services)	725,653	725,653
Asset Management Software (Tech Services)	5,000,000	5,000,000
Citywide Fiber Replacement (Tech Services)	500,000	500,000
CAD/RMS Software Replacement (Tech Services)	4,000,000	4,000,000
Land Management Software (Tech Services)	5,000,000	5,000,000
Drainage Improvements (Drainage)	1,350,000	1,350,000
I35 TxDOT Merge Medallion Artwork (Streets)	1,500,000	671,665
Bonnie Brae 4B (Streets)	8,000,000	8,000,000
Bonnie Brae 5 (Streets)	2,000,000	2,000,000
Riney Road East (Streets)	6,000,000	6,000,000
McKinney Sidewalks (Streets)	5,500,000	5,500,000
Total - General Government	**$76,491,275**	**$75,662,940**
Grand Total General Government	**$79,805,775**	**$78,977,440**

Solid Waste CO Projects

	NOI	BOND SALE
Home Chemical Collection Storage Capacity	$ -	$ -
Fleet Shop at Solid Waste	2,000,000	2,000,000
Cell 5 & 6 Construction	-	-
Vehicles - New Additions	130,000	130,000
Vehicles - Replacements	2,069,730	1,709,730
Scalehouse	-	360,000
Solid Waste Total	**$ 4,199,730**	**$ 4,199,730**

Water Utility CO Projects

	NOI	BOND SALE
AMI/AMR Replacements	$ 2,000,000	$ 2,000,000
Sampling Station Upgrades	500,000	500,000
Distributor Replacement	4,320,572	4,320,572
LLRWPS Redundant Power	250,000	250,000
LLWTP Clarifiers Rehab	3,500,000	3,500,000
LLWTP Raw Water	1,500,000	1,500,000
Robson Ranch Water Line	400,000	400,000
RRWTP Capacity Rerate	8,000,000	8,000,000
RRWTP Disinfection	4,000,000	4,000,000
RRWTP Expansion #1	20,000,000	20,000,000
Supplement to Bond	12,200,000	12,200,000
Transmission Line	1,000,000	1,000,000
LLWTP Sludge Dewatering	500,000	500,000
Service Center Renovation	2,000,000	2,000,000
Water Total	**$ 60,170,572**	**$ 60,170,572**

Wastewater Utility CO Projects

	NOI	BOND SALE
12/15-inch Robson Ranch Interceptor (HC: O-4)	$ 2,361,900	$ 2,361,900
Clear Creek Water Reclamation Plant (CCWRP)	460,000	460,000
Collector Replacement Program	4,915,318	4,915,318
Hickory Creek Water Reclamation Plant Ph 1 (HC: O-1, O-2, O-3)	171,178	171,178
Milam Creek Basin Wastewater Line and Lift Station	5,752,000	5,752,000
PCWRP New 75 MGD Headworks	24,000,000	24,000,000
PCWRP Expansion to 26 MGD	6,300,000	6,300,000
Supplement to Bond Election 2019 Projects	8,000,000	8,000,000
Oversize Participation - Waterline Increases	4,000,000	4,000,000
Wastewater Total	**$ 55,960,396**	**$ 55,960,396**

Electric Utility CO Projects

	NOI	BOND SALE
Automated Meter Reading	$ 1,250,000	$ 1,250,000
Building Construction	5,000,000	5,000,000
Distribution Substations	6,980,000	6,980,000
Distribution Transformers	5,000,000	5,000,000
Feeder Extensions and Improve	6,902,100	6,902,100
New Residential & Commercial	5,269,000	5,269,000
Power Factor Improvement	150,000	150,000
Street Lighting	500,000	500,000
Transmission Lines	11,800,000	11,800,000
Transmission Substation	9,220,000	9,220,000
Technology - Hardware/Software	4,528,900	4,528,900
Electric - Relocations	3,400,000	3,400,000
Electric Total	**$ 60,000,000**	**$ 60,000,000**

CO Bond Sale Summary

General Government	$78,977,440
Solid Waste	4,199,730
Water	60,170,572
Wastewater	55,960,396
Electric	60,000,000
Subtotal	259,308,138
Issuance Cost & Pricing Flexibility*	3,021,862
Total	**$262,330,000**

*Shared with GO Bond Sale

2024 Bond Sale

General Obligations	$	151,660,000
Certificates of Obligations	$	262,330,000

Next Steps

- **June 12, 2024**
  - Date of Sale
- **July 17, 2024**
  - Preliminary date of close and delivery of funds

Questions

Randee Klingele
Treasury Manager

File #: ID 23-2407, **Version:** 1

AGENDA CAPTION

Consider adoption of an ordinance of the City of Denton amending Chapter 14, Article VIII of the Code of Ordinances (Non-Discrimination in Public Accommodations, Employment Practices, and Housing), to add a fair chance hiring provision to Section 14-203-5 setting hiring standards to limit employers' consideration of the criminal history on an initial job application; providing severability; providing a savings clause; providing for publication and codification; providing for a penalty; and providing an effective date.

City of Denton

City Hall
215 E. McKinney Street
Denton, Texas
www.cityofdenton.com

AGENDA INFORMATION SHEET

DEPARTMENT: **City Manager's Office**

CM/DCM/ACM: **Sara Hensley, City Manager**

DATE: **June 4, 2024**

SUBJECT

Consider adoption of an ordinance of the City of Denton amending Chapter 14, Article VIII of the Code of Ordinances (Non-Discrimination in Public Accommodations, Employment Practices, and Housing), to add a fair chance hiring provision to Section 14-203-5 setting hiring standards to limit employers' consideration of the criminal history on an initial job application; providing severability; providing a savings clause; providing for publication and codification; providing for a penalty; and providing an effective date.

BACKGROUND

On Aug. 2, 2022, Council Member McGee presented a 2-minute policy pitch to the Council requesting support for a work session to discuss an ordinance regulating the use of criminal history questions on job applications. As pitched, the ordinance would apply to employers citywide (except as referenced below) and, generally, could mirror similar "fair chance hiring" or "ban the box" ordinances adopted in other cities or states. A future work session on this topic was supported.

On Nov. 3, 2022, the City Council was provided with basic information regarding fair chance hiring ordinances and provided direction for staff to hold an additional work session discussion on ordinance components.

On Dec. 6, 2022, a second work session was held to outline components of a draft ordinance with no further direction being provided to staff.

On June 6, 2023, Council Member McGee presented a 2-minute policy pitch to the Council requesting the draft ordinance be brought to the Council at the next meeting for consideration and vote. That pitch received support from the Council and a proposed Fair Chance Hiring ordinance was brought forward for consideration on June 27, 2023. At that meeting, the Council postponed consideration of the ordinance until the first meeting in January 2024 and requested staff seek community and business feedback on the ordinance prior to that time.

On Jan. 9, 2024, a proposed Fair Chance Hiring ordinance was brought forward for consideration. Council postponed consideration of the ordinance for 120 days to allow for the Denton Chamber of Commerce to propose an alternative to an ordinance. The 120 days expired on May 8, 2024.

Fair Chance Hiring Overview

Fair chance hiring initiatives (also known as "ban the box" initiatives due to their goal of removing criminal history question boxes in job applications) generally refer to a policy or practice of not considering an applicant's criminal history in an employment application until later in the hiring process. This information

is then typically obtained once a conditional offer has been made. Importantly, these initiatives and their related ordinances, do not limit the authority of an employer to withdraw an employment offer for a lawful reason.

According to National Employment Law Project (NELP), 37 states and 150 cities/counties enacted fair chance laws for themselves as public employers. Of these, 15 states and 22 cities/counties extend these to private employers. Most cities and counties listed with NELP as having enacted fair chance hiring laws have only had those laws apply to their organization as an employer. An even greater number may utilize this practice outside of a formal ordinance, like the City of Denton.
In Texas, the following cities have enacted formal laws relating to fair chance hiring:

Applies Only to Organization	Applies Across Jurisdiction
Dallas County	City of Austin
City of San Antonio	City of DeSoto
Travis County	
Harris County (2022)	

Existing Laws and Statutes

Title VII of the Civil Rights Act of 1964, does not restrict employers from requesting criminal history information at any stage in the hiring process but they should be cautious that doing so does not have an adverse impact against a particular class of applicants. To avoid discrimination that denies equal employment opportunity to anyone on a protected basis, whether by intent or by unlawful disparate impact, employers conduct an individualized assessment of a candidate's criminal record and the position sought.

Additionally, some federal and state laws require a criminal background check to be performed for some positions. These include peace officers, Criminal Justice Information Services (CJIS) certifications, and certain positions in other sectors such as insurance, childcare, energy, etc. There is no requirement as to when a criminal background check should be performed under these statutes.

With respect to criminal history inquiries across all job types, no federal or State of Texas laws prohibit inquiring about an applicant's criminal history prior to a conditional employment offer, though the Equal Employment Opportunity Commission (EEOC) states that an employer that rejects *everyone* with a conviction from all employment opportunities is likely engaging in discrimination. Also, the EEOC states that an employment policy that rejects many more applicants of one race, national origin, or sex is discriminatory if the policy is not closely related to the job. The EEOC suggests employers consider waiting until later in the hiring process if they are going to ask criminal history questions.

Council received a legal status report on June 16, 2023, regarding local authority to regulate fair chance hiring.

Proposed Fair Chance Hiring Ordinance Structure

The ordinance presented incorporates fair chance hiring regulations into the current Comprehensive Non-Discrimination Ordinance (NDO), codified as Chapter 14, Article VIII of the code of ordinances. In this manner, employment protections already provided under the NDO would be extended to include persons with criminal histories under a new section. Additionally, new definitions specific to fair chance hiring would also be incorporated into the NDO. By including fair chance hiring regulations in the NDO, the same administrative and enforcement provisions would apply to fair chance hiring complaints in the same manner that they currently do for NDO complaints. Importantly, this would not add any protected classes to the NDO.

Regulated Fair Chance Hiring Practices

The fair chance hiring provisions prohibit employers from the following practices if they result in unlawful discrimination (whether such discrimination is intentional or through disparate impact):

1. Publishing information that states or implies that criminal history is an automatic disqualifier for employment
2. Soliciting or otherwise inquiring about criminal history on a job application
3. Soliciting criminal history information or considering criminal history prior to a conditional employment offer
4. Refusing to consider an applicant because criminal history was not provided prior to a conditional employment offer
5. Taking adverse action against an individual due to criminal history unless the individual is unsuitable for the job based on an individualized assessment

Staffing agencies may solicit criminal history information and perform an individualized assessment when the staffing agency has identified a job to which the individual will be employed or the individual is placed in a staffing pool.

Additionally, an employer who takes an adverse action based on criminal history must inform the individual in writing that the adverse action was based on the criminal history. The regulation also does not absolve the employer from any other federal or state requirements, as applicable, when withdrawing an offer of employment.

Applicability and Exclusions

The fair chance hiring regulations will apply to all employers in which the NDO is currently applied. This is generally all employers with 15 or more employees. Additionally, the same exemptions within the NDO would also be applied to the fair chance hiring regulations:

- Religious organizations
- The United States Government or its departments and agencies
- The State of Texas or its departments, agencies, and political subdivisions

An additional exemption specific to fair chance hiring regulations includes positions for which an individual may be disqualified based on criminal history under federal, state, or local law. This includes peace officers and certain positions in fields such as insurance, childcare, the energy sector, etc.

Administration and Enforcement

If fair chance hiring regulations are included in the NDO, all administrative and enforcement provisions currently applied to NDO complaints would also apply to fair chance hiring complaints. Just as the NDO directs that for complaints where the state or federal government has jurisdiction, those complainants be referred to those entities, fair chance hiring complainants will be referred to the Equal Employment Opportunity Commission or other applicable state or federal agency. Should such federal or state agency determine it does not have jurisdiction to investigate the complaint, the City may perform an investigation using the processes under the NDO. Since the NDO's discrimination regulations are the same as the EEOC, if the EEOC determines it has no jurisdiction, the City will almost certainly defer to the EEOC jurisdiction determination.

As with the NDO, staff has included a 120-day delay in the effective date of the ordinance to communicate the provision of the ordinance to the community.

Public Feedback and Engagement

At the June 27, 2023, City Council meeting, the Council postponed consideration of the ordinance until the first meeting in January 2024 and requested staff seek community and business feedback on the ordinance

prior to that time. Staff began the engagement period in early October 2023 with feedback and input being accepted through Dec. 5, 2023.

During this period, staff conducted three (3) in-person listening sessions, two (2) virtual listening sessions, and hosted a Discuss Denton project page. On the Discuss Denton page (www.discussdenton.com/fairchancehiring), members of the public were able to review information and FAQs on the proposed Fair Chance Hiring ordinance, leave comments, ask questions to be answered by staff, and voice their support or opposition for the proposed ordinance. Additionally, a public hearing was held at the Dec. 5, 2023, City Council meeting where members of the public gave live feedback directly to the City Council.

A complete report of the feedback and input received was provided to the Council on Dec. 22, 2023 (**attached**).

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

Jan. 9, 2024:	City Council Individual Consideration (Postponement)
Dec. 5, 2023:	City Council Public Hearing
June 27, 2023:	City Council Consideration (Postponement)
June 6, 2023:	Work Session (2-Minute Policy Pitch)
Dec. 6, 2022:	Work Session Discussion
Nov. 3, 2022:	Work Session Discussion
Aug. 2, 2022:	Work Session (2-Minute Policy Pitch)

EXHIBITS

1. Agenda Information Sheet
2. Presentation
3. ISR 2023-071 – Fair Chance Hiring Engagement Report
4. Proposed Ordinance
5. Comprehensive Non-Discrimination Ordinance

Respectfully submitted:
Kristi Fogle
Chief of Staff

Proposed Citywide Fair Chance Hiring Ordinance

June 4, 2024

ID 23-2407

Background

- August 2, 2022: 2-Minute Pitch
  - Council direction to research and provide information at a future work session
- November 1, 2022: Work Session direction to move forward
  - Council direction to further develop an ordinance
- December 6, 2022: Work Session
  - Draft ordinance presented, no direction to move forward
- June 6, 2023: 2-Minute Pitch
  - Council direction to bring draft ordinance for Council vote
- June 27, 2023: Council Meeting
  - Council direction to gather public input and consider ordinance in January 2024
  - Public engagement period held October through December 2023
- January 9, 2024: Council Meeting
  - Motion to postpone consideration of ordinance for 120 days to allow the Denton Chamber of Commerce to develop an alternative to ordinance

Refresher: Fair Chance Hiring

- Fair Chance Hiring aims to eliminate discriminatory employment practices by delaying a criminal history check, or consideration of an applicant's criminal history until later in the employment process.
- The Equal Employment Opportunity Commission (EEOC) recommends that a prospective employer not ask about, conduct a criminal history check, or consider an applicant's criminal history and warns that rejecting everyone with an arrest or conviction from all employment opportunities could be discriminatory

Proposed Ordinance Provisions

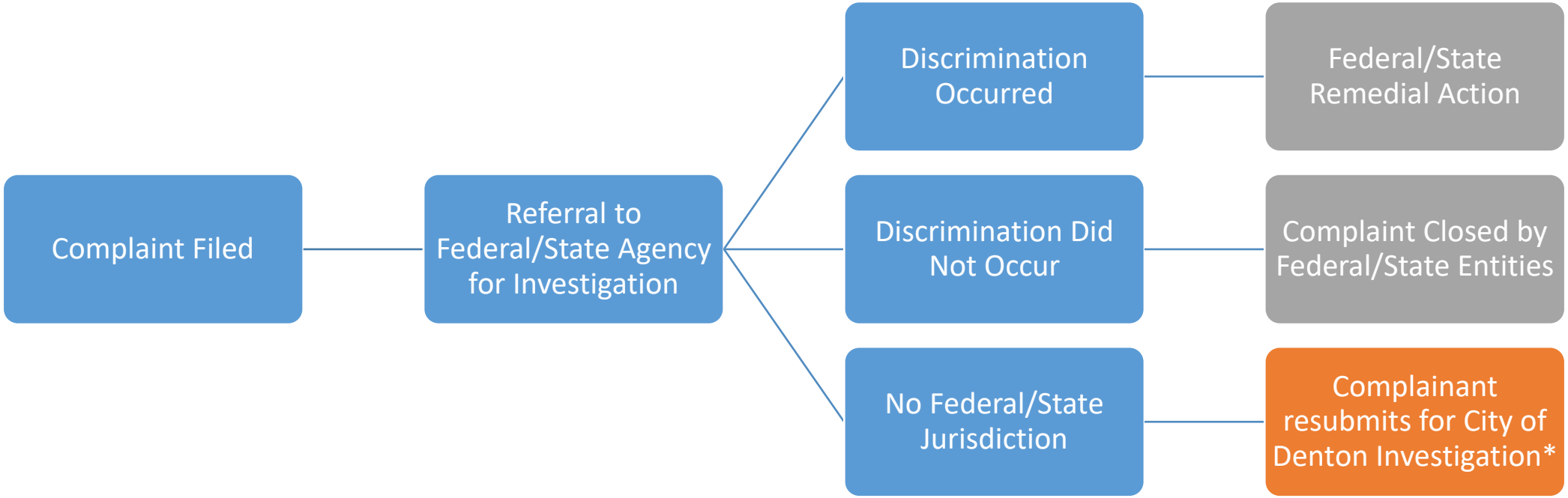
- The following are prohibited <u>if they result in discrimination</u>:
  - Stating or implying that a criminal history is an **automatic disqualifier**
  - Inquiring about criminal history in the **job application**
  - Inquiring about criminal history **before a conditional employment** offer
  - Employer **refusing to consider an applicant** because they did not provide criminal history before a conditional employment offer
  - Take adverse action based on criminal history **without an individualized assessment**
- Employers can inform applicants that a criminal history check is part of the process.

Proposed Ordinance Applicability

- Applies to:
  - Private employers with 15 or more employees

- Does not apply to:
  - Religious organizations
  - U.S. Government
  - State of Texas (including political subdivisions)
  - Jobs that require by federal or state law a criminal history or background check
    - e.g., childcare facilities, public safety positions, certain financial or insurance positions

Complaint Process



*Since the NDO's discrimination regulations are the same as the EEOC, if the EEOC determines it has no jurisdiction, the City will almost certainly defer to the EEOC jurisdiction determination.

Council Action

Option 1: Consider by Council vote the proposed ordinance.

Option 2: Consider by Council directive (postponement or withdrawal of the proposed ordinance) an alternative plan based on the Denton Chamber of Commerce proposal.

INFORMAL STAFF REPORT
TO MAYOR AND CITY COUNCIL

SUBJECT:
Proposed Fair Chance Hiring Ordinance Engagement Report

EXECUTIVE SUMMARY:
At the direction of the Denton City Council, staff engaged in a feedback and engagement period regarding the proposed Fair Chance Hiring ordinance. The results are provided below and in the attached documents.

BACKGROUND:
At the June 27, 2023 City Council meeting, the Council postponed consideration of the ordinance until the first meeting in January 2024 and requested staff seek community and business feedback on the ordinance prior to that time. Staff began the engagement period in early October 2023 with feedback and input being accepted through Dec. 5, 2023.

During this period, staff conducted three (3) in-person listening sessions, two (2) virtual listening sessions, and hosted a Discuss Denton project page. On the Discuss Denton page (www.discussdenton.com/fairchancehiring), members of the public were able to review information and FAQs on the proposed Fair Chance Hiring ordinance, leave comments, ask questions to be answered by staff, and voice their support or opposition for the proposed ordinance. Additionally, a public hearing was held at the Dec. 5, 2023, City Council meeting where members of the public gave live feedback directly to the City Council.

DISCUSSION:
A summary of the feedback and input received on the proposed ordinance is provided below and in the attached documents. Feedback opportunities were communicated through press releases, social media, through organizations like the United Way of Denton County and the Denton Chamber of Commerce. Additionally, several news media articles in the Denton Record-Chronicle provided additional visibility.

A flier outlining the public engagement opportunities is **attached**.

Listening Sessions
A total of 19 participants attended the three in-person listening sessions. While all sessions were conducted by City staff, two sessions were hosted by the Denton Chamber of Commerce and promoted to their members. These sessions were attended by 17 participants while the lone City-hosted session was attended by two participants.

The two virtual sessions were attended by two participants for the first, and zero participants for the second.

While all participants were encouraged to give direct feedback through the Discuss Denton platform, staff recorded general points of feedback expressed in the listening sessions. Overall,

listening session participants were supportive of initiatives that promoted the hiring of persons with criminal records, but did not support the proposed ordinance for the following reasons:

Costs/Competitiveness	Participants voiced concern that the proposed ordinance would make local businesses less competitive compared to other cities. Additionally, there was concern that businesses would incur greater costs in the hiring process if, in cases where a final candidate was not hired due to a criminal record, the hiring process had to be restarted.
Ill-Defined Problem	Participants felt that there was not a clearly established need for the program and that no data supported that there was a systemic issue that prevented persons with criminal records from being hired. Several felt this was a "solution in search of a problem".
Other Impacts	Other concerns raised included the possibility that businesses will be viewed as guilty before proven innocent and that the complaint process could be abused.

The participants favored voluntary programs or incentives to promote fair chance hiring or second chance hiring.

Staff will also report that communication of the requirements of the ordinance will be a significant challenge. Many provisions of the ordinance are conditioned on the outcome of a complaint and much of the time in the listening sessions was providing clarity on what the ordinance required of businesses and what it did not require.

Discuss Denton Project Page

The Fair Chance Hiring Discuss Denton project page (www.discussdenton.com/fairchancehiring) provided three key avenues that members of the public could provide their feedback on the proposed ordinance:

- Asking questions, and receiving responses;
- Taking a survey to note support or opposition; and
- Providing written commentary

The **attached** engagement report provides a summary and details of the feedback received through Discuss Denton. During the engagement period, the site recorded 512 visits.

Of the total visitors, 22 provided comments (provided in the report) on the proposed ordinance, with a further 74 reviewing those comments.

Five (5) members of the public submitted questions, each of which received a response from staff members.

A total of 29 members of the public took the poll to indicate their support or opposition to the proposed ordinance. Of that number 15 (51.7%) opposed the ordinance, 10 (34.5%) supported it, and 4 (13.7%) were unsure.

Other Feedback

The Denton Chamber of Commerce provided additional feedback in the form of the **attached** memo, summarizing its opposition to the proposed ordinance. Additionally, the Chamber collected feedback from Denton businesses that wished to provide input anonymously. That feedback is captured in a second **attached** memo.

Staff additionally reached out to Workforce Solutions of North Texas, the UNT Career Center, and local service providers (via United Way of Denton County) to encourage them to provide feedback on the Discuss Denton site.

Research and/or Studies

During the discussion on Dec. 5, it was recommended that staff gather any available data or research on this topic. Staff gathered available research regarding Fair Chance Hiring or "ban the box" initiatives and their effectiveness at increasing employment outcomes for persons with criminal records. While not exhaustive, the data staff found indicate that there is not a research consensus on the effectiveness of fair chance hiring initiatives.

The National Employment Law Project has compiled research that points to economic and social benefits that accrue when persons with criminal records gain employment. The resources provide case studies for the municipal organizations of Durham, NC, Washington, DC, Minneapolis, MN, and Atlanta, GA where positive employment outcomes for persons with criminal histories were observed. Importantly, these studies were in jurisdictions where these protections only applied to the government organization and did not extend to the private sector.

Other studies indicate a lack of effectiveness or, in some cases, unintended adverse outcomes:

- *Does Banning the Box Help Ex-Offenders Get Jobs? Evaluating the Effects of a Prominent Example* (Journal of Labor Economics)
- *Does "Ban the Box" Help or Hurt Low-Skilled Workers? Statistical Discrimination and Employment Outcomes When Criminal Histories are Hidden* (National Bureau of Economic Research)
    - This research is further described in study author Dr. Jennifer Doleac's testimony before the U.S. House Committee on Oversight and Government Reform.
- *Ban the Box, Criminal Records, and Racial Discrimination: A Field Experiment* (Quarterly Journal of Economics)

It is important to note that there is very little research available on this issue and even less that provides insight into the impacts of discrimination (the mitigation of which is a key component of the proposed Denton ordinance).

Staff further sought information from the City of DeSoto and City of Austin regarding any outcomes from their passage of their respective fair chance hiring ordinances. While the City of

DeSoto did not provide a response, the City of Austin met with staff to provide details of their implementation. In that conversation, Austin staff acknowledged that it did not have any formal data that would show the impact of their Fair Chance Hiring on the overall employment outcomes of persons with criminal records.

CONCLUSION:

This information is provided to inform the Council ahead of the consideration of the proposed Fair Chance Hiring ordinance on Jan. 9, 2024.

ATTACHMENTS:

1. Discuss Denton Detailed Engagement Report
2. Engagement Opportunities Flier
3. Denton Chamber of Commerce Board Memo
4. Denton Chamber of Commerce Business Feedback Memo
5. Proposed Fair Chance Hiring Ordinance

STAFF CONTACT:

Ryan Adams
Chief of Staff
Ryan.Adams@cityofdenton.com
(940) 349-8565

REQUESTOR: Staff Initiated
STAFF TIME TO COMPLETE REPORT: 6 hours
PARTICIPATING DEPARTMENTS:
City Manager's Office
City Attorney's Office

Project Report

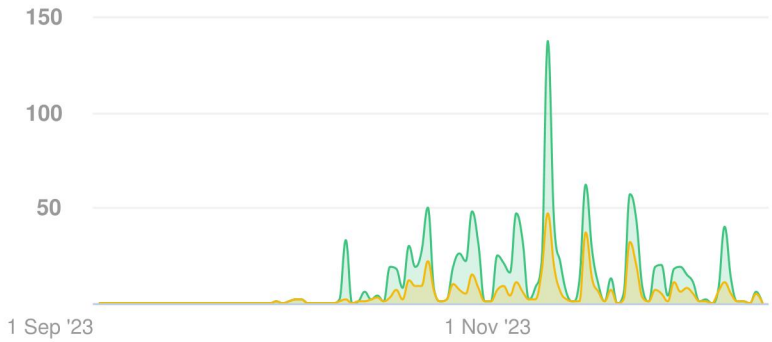
20 April 2021 - 11 December 2023

Discuss Denton

Fair Chance Hiring

BANG THE TABLE engagementHQ

Visitors Summary



Pageviews Visitors

Highlights

TOTAL VISITS	MAX VISITORS PER DAY
512	47

NEW REGISTRATIONS
28

ENGAGED VISITORS	INFORMED VISITORS	AWARE VISITORS
39	140	398

Aware Participants	398
Aware Actions Performed	Participants
Visited a Project or Tool Page	398

Informed Participants	140
Informed Actions Performed	Participants
Viewed a video	0
Viewed a photo	0
Downloaded a document	18
Visited the Key Dates page	16
Visited an FAQ list Page	27
Visited Instagram Page	0
Visited Multiple Project Pages	71
Contributed to a tool (engaged)	39

Engaged Participants	39		
Engaged Actions Performed	Registered	Unverified	Anonymous
Contributed on Forums	22	0	0
Participated in Surveys	0	0	0
Contributed to Newsfeeds	0	0	0
Participated in Quick Polls	29	0	0
Posted on Guestbooks	0	0	0
Contributed to Stories	0	0	0
Asked Questions	4	0	0
Placed Pins on Places	0	0	0
Contributed to Ideas	0	0	0

ENGAGEMENT TOOLS SUMMARY

1	0	1	3	0
FORUM TOPICS	SURVEYS	NEWS FEEDS	QUICK POLLS	GUEST BOOKS

0	1	0
STORIES	Q&A S	PLACES

Tool Type	Engagement Tool Name	Tool Status	Visitors	Contributors		
				Registered	Unverified	Anonymous
Forum Topic	Fair Chance Hiring Ordinance Feedback	Published	74	22	0	0
Newsfeed	New FAQ - Does the ordinance require a business to hire s...	Published	1	0	0	0
Qanda	Submit a Question	Published	28	4	0	0
Quick Poll	Do you support the proposed Fair Chance Hiring Ordinance?	Published	30	29	0	0
Quick Poll	Do you live or work in Denton?	Published	4	4	0	0
Quick Poll	What best describes you?	Published	4	4	0	0

INFORMATION WIDGET SUMMARY

4	0	0	1	0
DOCUMENTS	PHOTOS	VIDEOS	FAQS	KEY DATES

Widget Type	Engagement Tool Name	Visitors	Views/Downloads
Faqs	faqs	27	32
Key Dates	Key Date	16	26
Document	Proposed Fair Chance Hiring Ordinance.pdf	14	18
Document	Public Meeting Presentation	12	14
Document	Fair Chance Hiring Ordinance Public Input Flyer.pdf	8	8
Document	City of Denton Comprehensive Non-Discrimination Ordinance	7	8

FORUM TOPIC

Fair Chance Hiring Ordinance Feedback

Visitors 74	Contributors 22	CONTRIBUTIONS 95

15 October 23
Liam Gaume-Wakefield

AGREES	DISAGREES	REPLIES
3	2	0

This must be done because how can expect people to reintegrate society if they can't get a job.

16 October 23
Dave Collins

AGREES	DISAGREES	REPLIES
7	1	1

This is not a municipal concern. This would be a state legislature concern. My personal opinion is the city has no business trying to tell a business that they are prohibited from protecting their personnel and property by screening applicants.

18 October 23
Lincoln

AGREES	DISAGREES	REPLIES
3	2	0

You have no business forcing businesses to hire ex cons. You are adding costs to businesses.

19 October 23
kevans14

AGREES	DISAGREES	REPLIES
2	1	0

It seems to me that once someone has served their time, the punishment should be over. Ex-cons should be able to move on with their lives and improve themselves and society after paying for their crimes. I would be in favor of the 'fair chance' initiative. I see other comments talking about 'forcing' businesses to hire ex-cons, but that misrepresents what's going on. The idea is not to force any hire. It's just to Not force ex-cons to have to identify as having been convicts. Businesses can hire who they want, on the merits, but will do so without necessarily knowing a person's previous convict status. Do I have that right?

23 October 23
kevans14

AGREES	DISAGREES	REPLIES
1	0	0

Although I am in favor of the 'Fair Chance' ordinance in principle, I think you raise an interesting point about what level of government this should happen within. Maybe this should even be a federal concern... but why necessarily should it be a city concern? Again, I'm in favor, but it's a good point you raise.

FORUM TOPIC

Fair Chance Hiring Ordinance Feedback

26 October 23

KW

AGREES	DISAGREES	REPLIES
4	1	0

Do not think this is fair to smaller business. The cost and time put in for interviews, then finding out after the fact that someone does not fit, possible missing out on some one who was a better fit.

26 October 23

KW

AGREES	DISAGREES	REPLIES
3	0	0

If you have a business' that has lots of children and hires young teenagers, seems you would want to know if they had a sexual conviction.

26 October 23

Lazarus

AGREES	DISAGREES	REPLIES
4	0	0

While I think that low level misdemeanors and small convictions could be seen as a hindrance to people looking to get hired, because people have a unfair vision of anyone who has a conviction. But higher and more dangerous convictions should be disclosed to protect workers and others.

02 November 23

S Hunt

AGREES	DISAGREES	REPLIES
0	2	0

I want to thank city staff for doing their due diligence to develop this ordinance. I think that the ordinance effectively addresses a critical obstacle to citizens who are earnestly working towards gainful employment while putting criminal history behind them. People need to work and employers have many jobs that need to be filled. Not all laws or legal processes are just and not all punishments fit the crime. Our justice system is imperfect. The stigma of having a criminal background is heavy no matter how minor the crime. When people are unable to obtain an honest living due to discrimination, they have no choice but to pursue dishonest means of providing for themselves and their dependents. This ordinance doesn't compel any employer to hire ex-cons. I only wish there were a way to help more citizens come to this discussion with a better understanding of the realities of the hiring process, and without the fear-based misconception that a municipality would somehow be motivated to coerce employers to hire former criminals against their wishes. Comments to the effect of the city being the wrong level of government to address the issues strike me as NIMBY-ism. I think that should this ordinance be adopted and the local unemployment rate decrease, Denton will be well-regarded for its leadership and visionary approach.

FORUM TOPIC

Fair Chance Hiring Ordinance Feedback

05 November 23

KAS

AGREES	DISAGREES	REPLIES
2	0	0

We live in a wonderful society where you can get a first, second, third chance etc. if/when necessary. Those scenarios are entirely common, and as an employer in this county for decades, we have engaged in employing folks looking for opportunities, based on a criteria we have for public safety and our consumers. For context, the State of Texas, the City of Denton, Denton County and the entire business community in this State have and are participating in "At-Will" employer/employee relationships. Quite literally, this means that any entity and person seeking employment in/and doing business in the State of Texas are in a default employment relationship. Which interprets to that employers and employees can terminate or modify the employment at any time, for any reason, without notice or jurisdiction, unless prevented by law or express agreement. This quite literally gives them the governing bodies authority to discriminate based on their hiring and employment criteria for any reason or without, at any time. The same applies to commerce, you are free to conduct and engage in business with anyone in the product space you are pursuing, both as the offerors and the potential receivers of such goods or services. That's why Texas is booming and Fortune 500 companies are continually moving in and investing in Texas. The question is, will the governing bodies comply with the ordinance that is being proposed to the private business sector? And the answer is no. - From the private business side, there are costs that will effect the COGS of any business when efficiencies are compromised, including the hiring process. It's part of the general overhead, often overlooked, but the value is present regardless. And I have yet to see a successful business or organization that does not require efficiencies, regardless of their models. (In our personal business and corporate operations, we look for talent, but we assess every aspect of the hiring process to best fill a position for employment that represents the culture we are maintaining, developing and/or creating. That process includes people being up front honest and transparent about whatever offense they have committed. We as the employer maintain control to create the culture we want to best represent our core values and services. And that has historically included employing people with previous convictions, H1B visas, wherever the talent pool takes us. But ultimately, it's our process and our decision. And omitting information would be viewed as deceitful and not very helpful to the prospective applicant.) - Looking at it from the employee side, why would you want to apply and possibly work for an organization that has the potential to discriminate against you? Would it not be better for an individual to understand prior to application to know and understand that they may not be qualified for any various reason set forth for employment? Thus increasing their opportunity to be efficient in finding gainful employment. As prospective hire, if hired as an employee would you stand to gain by being in an uncomfortable work environment? If in the end the employer has a set of criteria, which will be made know in the process ultimately, and restricts your employment, would you not wish to know that as well? So as not to waste your time and be in the best position based off of your personal criteria to be successful in achieving gainful employment? - In conclusion, I personally feel that people who have paid their debt to society, have paid their debts when in compliance. I also find it extremely valuable to an employer to have the ability to create a job position or career opportunity based on whatever criteria they set. It's not up to the local municipality to decide how you run or operate your business, that's for you and the markets to decide. And if you develop a product that is beneficial to your community, you will be rewarded regardless of who the employee class is or were. I am curious to what the "prosecutorial commission to be created" (at taxpayers expense) would use as a criteria for "investigating" and potentially prosecuting local business owners for trying to create the best product they can for their communities safely and efficiently? Which prosecuting such "offense", in itself is a conflict of interest with the State of Texas and business practices. Prosecution in turn, which would pit the State (prosecuting municipal attorney), against the State of Texas and their adopted business laws. The municipalities have to either enforce exiting laws, engage in another losing legal battle, or seek relief through the legislative process. I would also suspect that a lawsuit would arise from the State itself and the business community, against this proposed ordinance if enacted, in which the taxpayers of the City of Denton will be left defending, and losing, wasting $million$ more, just as we have in recent legal losses that we are still on the hook for and are paying. I'm often reminded of that wastefulness engaged in when attempting to maneuver around or running over a pot hole, as many taxpaying citizens are as well. And then ask yourself, if the proposers of the ordinance were liable and the fiduciary protections were removed against elected officials, would they govern and behave the same way? The answer to that as well is no, the proposers will not risk personal wealth and treasures. Thanks as always for the opportunity to chime in and for the platform to do from.

FORUM TOPIC

Fair Chance Hiring Ordinance Feedback

06 November 23
Bob

AGREES	DISAGREES	REPLIES
3	0	0

If you are in a business employing high school and college age boys & girls, there must be some way of screening possible employees who might be either working along side or managing these other employees. You should not be restricted from finding out about questionable background right up front. Saves everyone time and disappointmen t.

06 November 23
Bob

AGREES	DISAGREES	REPLIES
4	0	0

I'm always guarded against accepting rules from authorities who will not accept the sa me rules themselves. What's good for the goose should also be good for the gander. M y understand is that our city departments will not be held to the same requirement(s) s et by the Fair Chance Employment rules & restrictions being discussed.

06 November 23
Bob

AGREES	DISAGREES	REPLIES
3	2	0

The members of a seven member City Council in a city like Denton, with two universiti es and a community college and literally hundreds of businesses should not have the a uthority to establish restrictions on what questions owners/managers can ask "up front " of a prospective employee. Such questions & answers could help determine saf ety factors, actions, environment or other key elements affecting their business, other employees, their operation and their business's performance. Too often, those governi ng members have little, or no, experience actually hiring employees themselves or dev eloping/running a business.

07 November 23
Ttocsdor

AGREES	DISAGREES	REPLIES
1	2	0

Quit virtue signaling. How about you fix streets, support law enforcement, decrease va grancy, & lower our taxes rather than waste time on on your pet social causes. W e have enough federal hiring guidelines to choke on. Stay in your lane. I own a financi al services business. Do you want a money launderer involved in handling your money ?

07 November 23
Denton

AGREES	DISAGREES	REPLIES
0	1	0

Why don’t you help people without criminal records get jobs? Why would you advertise for criminals to come work in our city? Then they move here then we have more crime.

13 November 23
Angela

AGREES	DISAGREES	REPLIES
2	1	0

I am wondering why the city of Denton really wants to pass this ordinance. Is it becaus e Austin passed it , so now we need to pass it? Why does our Denton leadership want to be the next Austin? We can see how left leaning policies have destroyed that city. Al so, why does Denton leadership want to control how small businesses operate ? They should be grateful that businesses provide tax dollars to fund their pursuits.

FORUM TOPIC

Fair Chance Hiring Ordinance Feedback

17 November 23

Mark

AGREES	DISAGREES	REPLIES
4	1	1

Any profession that requires a fiduciary relationship with others must be excepted. Also, many crimes involve violence or moral turpitude which could affect the duty of an employer to provide a safe workplace....unfairly placing other employees at risk and/or forcing an employer to be held accountable for not protecting other employees (in the event a workplace incident happens with an employee with such a history). Other criminal history (e.g. minor, with no violence or honesty issues) may not involve such risk to third parties. Finally, while we are at effectively full employment with many jobs going unfilled that may be by preference or choice of the unemployed, a compelling need for such an accommodation may not exist, meaning the risk may not be worth imposing such a regulation.

20 November 23

Franny

AGREES	DISAGREES	REPLIES
3	0	0

My office would have some concerns about this legislation. Everyone in our office has full access to hundreds of client's personal information, such as full names, social security numbers, addresses, and birthdates. We have to be very careful when hiring, and would not be able to hire someone with a criminal history.

21 November 23

Kels

AGREES	DISAGREES	REPLIES
3	1	0

I have concerns about the ordinance as written. My company does not generally take criminal history into account when hiring, however we do inquire about criminal history in our application. We do not make interviewing or hiring decisions based on this information, but we do consider whether an applicant can be honest in answering and appropriate in reflecting on the history. It is also the best opportunity to frankly discuss the criminal history productively with the applicant if there are concerns. I see the City saying that federal or state law requiring background checks supersedes this ordinance, but my staff fall outside those very specific jobs even though many have access to very sensitive personal and financial information, come into contact with children regularly as part of their duties, etc. If nothing else, prior knowledge of criminal history might affect the access and supervision given to a new staff member. Due to the nature of our business, there is not usually much, if any, of a waiting period between an offer of employment and starting in a position, so the idea of making a conditional offer and only then exploring criminal history is fairly unworkable for us. I understand that the City is trying to accomplish something positive here, but I think the actual result is going to be increasing the burden and management of hiring processes (which my company tries to keep simple and up-front) with no material gain to the stakeholders they are trying to assist. Having said all of that, upon closer reading, the City seems to be trying to sidestep certain complications by inserting the underlined section suggesting that the prohibited conduct is only prohibited if it results in unlawful discrimination. And if that's the case, then I am not really sure what the point of the ordinance is, as unlawful discrimination is already unlawful and this ordinance would simply add confusion to a hiring process that can already be burdensome for employers.

24 November 23

Shawash2

AGREES	DISAGREES	REPLIES
2	0	0

Businesses should be allowed to make hiring decisions for themselves and not have regulations put on them that restricts them. Who they choose to hire is their decision, and no one else's.

FORUM TOPIC

Fair Chance Hiring Ordinance Feedback

25 November 23

Eh

AGREES	DISAGREES	REPLIES
0	0	0

I was going to reply to this discussion but this gentleman's statement sums up what I w as going to express. The ordinance is nonsense!

26 November 23

Mark

AGREES	DISAGREES	REPLIES
1	1	0

He governs best who governs least. First requirement of creating laws is to do no harm . This proposal has a good motive, but the unintended consequences are legion and off set any substantive value. Second requirement for lawmaking is that a law should ONL Y be created to address a compelling need that cannot be resolved otherwise. That ne ed at a time of effective full employment has not been demonstrated.

QANDA

Submit a Question

Visitors 28	Contributors 4	CONTRIBUTIONS 5

Q Seanjake
13 October 23

Have you considered the unintended consequence, which has been documented following similar "ban the box" initiatives, that employers may simply avoid hiring anyone who seems like they may have had a criminal background, thus actually narrowing hiring opportunities instead of increasing them?

A Publicly Answered

Thank you for your feedback. One of the reasons the City is providing multiple opportunities for community and business input is to ensure we are considering any potential unforeseen and unintended consequences.

Q Seanjake
13 October 23

Will organizations and businesses that work with vulnerable communities (child care, pregnancy care, human trafficking recovery, etc.) still be able to require criminal background checks, even in the absence of federal regulations requiring them?

A Publicly Answered

A Fair Chance Hiring Ordinance does not prohibit an employer from inquiring about an applicant's criminal history if there are federal or state laws that require a criminal history check, or if a conviction of a criminal offense would disqualify a person from holding a particular position (e.g., child day care facilities, public safety positions, certain financial or insurance positions) Further, a criminal history check may still be performed, provided it does not result in illegal discrimination, including by a disparate impact of such checks.

QANDA

Submit a Question

Q

Glenda

19 October 23

So what is to prevent a convicted pedophile from applying for a job at a child care center? Do you think that is ok--really? Gee, what could go wrong?? This proposal is insane. This is government overreach, and we believe the City Council should BACK OFF and leave businesses alone. Glenda and Robert Kallman

A

Publicly Answered

There are laws that disqualify a person from holding a particular position due to a conviction for a certain offense (e.g., persons employed by child day care facilities, public safety positions, certain financial or insurance positions) so, employers for those positions would not violate the ordinance merely by performing a criminal history check unless they did so in a manner that was also in violation of federal or state law.

Q

GraceWeatherly

07 November 23

There is an exemption for jobs requiring a background check but who decides whether that exemption actually applies? Also how does this affect the affirmative defense created under state law for employers of service & delivery people whose job it is to go inside customer's homes?

A

Publicly Answered

The prospective employer in making its hiring decision will be responsible for determining whether an exemption applies. If a complaint is filed, and if the complaint is referred to the state or federal agency responsible for investigating employment discrimination complaints, that agency will determine whether an exemption applies. If the state/federal agency determines it does not have jurisdiction over the complaint, the complaint will be investigated by a third-party investigator hired by the City, who will be responsible for determining whether an exemption applies. If the investigator determines an exemption applies, the complaint will be closed. Regardless of who investigates the complaint, a prospective employer would be allowed to assert any affirmative defense allowed by law and a final determination on the merits of the complaint would be made by the investigating authority.

QANDA

Submit a Question

Q Denton

07 November 23

How can the city get involved in a private companies hiring practices? Especially having them waste their time intervie wing someone they will not hire because of there criminal back ground.

A Publicly Answered

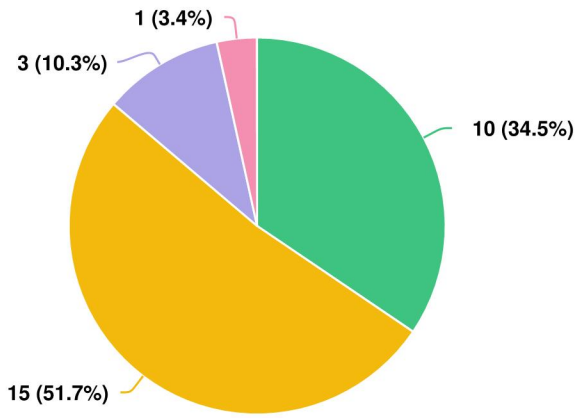
Local, state, and federal governments have the right to regulate, within certain parameters, the hiring practices of priv ate companies to protect individuals from illegal acts of an employer. For example, the United States Congress has p assed legislation that prohibits certain actions of an employer, such as child labor prohibitions and protections, and dis crimination in employment based upon being a member of a protected class, including but not limited to race, religion, national origin, age, and disability.

ENGAGEMENT TOOL: QUICK POLL

Do you support the proposed Fair Chance Hiring Ordinance?

Visitors 30	Contributors 29	CONTRIBUTIONS 29

Do you support the proposed Fair Chance Hiring Ordinance?



Question options

Yes No Unsure Unsure, and need more information

Mandatory Question (29 response(s))

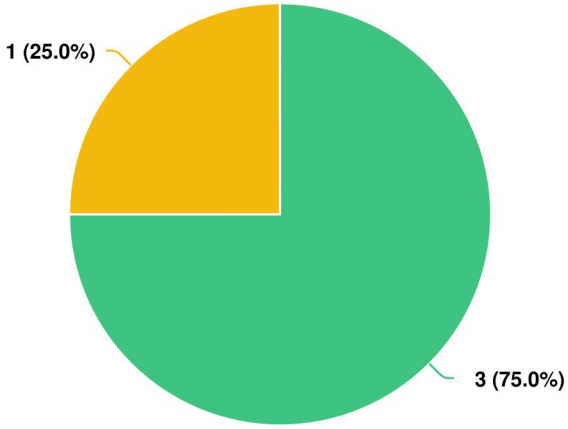
Question type: Radio Button Question

ENGAGEMENT TOOL: QUICK POLL

Do you live or work in Denton?

Visitors 4	Contributors 4	CONTRIBUTIONS 4

Do you live or work in Denton?



Question options

- Live and work in Denton
- Live, but do not work in Denton

Mandatory Question (4 response(s))

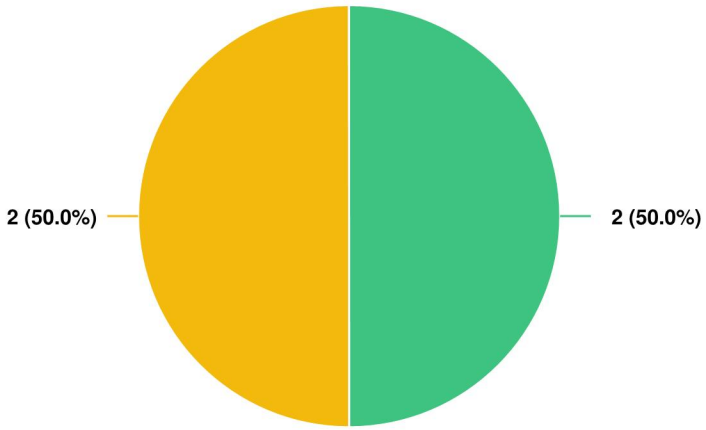
Question type: Radio Button Question

ENGAGEMENT TOOL: QUICK POLL

What best describes you?

Visitors 4	Contributors 4	CONTRIBUTIONS 4

What best describes you?



Question options

- Business owner/manager
- Not a business owner/manager

Mandatory Question (4 response(s))

Question type: Radio Button Question

Tell us what you think:
Fair Chance Hiring Ordinance Feedback

CITY OF DENTON

Feedback sessions hosted by the Denton Chamber of Commerce:

Tuesday, Oct. 24 | 4 p.m.

Wednesday, Nov. 8 | 4 p.m.

Development Services Center (401 N. Elm St.)

Virtual Community Meetings:

Thursday, Nov. 2 | 4 p.m.

Wednesday, Nov. 15 | 6 p.m.

Individuals can register to attend virtual community meetings on the City of Denton website at www.cityofdenton.com/virtualcommunitymeetings.

In-Person Town Hall:

Wednesday, Nov. 1 | 6 p.m.

Development Services Center (401 N. Elm St.)

For additional information, such as a summary, the draft ordinance, FAQs, and online feedback opportunitie:

www.discussdenton.com/fairchancehiring

Background: Fair chance hiring initiatives (also known as "ban the box" initiatives due to their goal of removing criminal history question boxes in job applications) generally refer to a policy or practice of not considering an applicant's criminal history in an employment application until later in the hiring process. The City of Denton will consider adopting a Fair Chance Hiring ordinance in January.

DENTON CHAMBER of COMMERCE

December 4, 2023

Denton City Council
Mayor Gerard Hudspeth
Mayor Pro Tempore Brian Beck
Councilmember Vicki Byrd
Councilmember Paul Meltzer
Councilmember Joe Holland
Councilmember Brandon Chase McGee
Councilmember Chris Watts

City Manager's Office
Attn: Sara Hensley, City Manager
City Hall
215 E. McKinney Street
Denton, TX 76201

Dear Mayor Hudspeth, Councilmembers Beck, Byrd, Meltzer, Holland, McGee, and Watts:

On behalf of the Chamber, its board of directors, and as an advocate for our 800 members and local businesses around Denton, we write and appear before you today to urge this council not to pass the Fair Chance Hiring Ordinance. We ask, urge, and implore you to instead select an opt-in Second Chance Hiring partnership with the Denton Chamber of Commerce and our local businesses to support America's Hidden Workforce.

While we recognize the City Council's attempt to foster equal employment opportunities, this ordinance will have unintended consequences that will adversely impact local business, criminalizing and penalizing the job interviewing process. We do not believe this is the role of our local government, nor is it the best use of our City's time and resources. Discriminatory hiring practices are illegal, and the EEOC exists to investigate such conduct. Passing an ordinance that allows the City to intervene in the local businesses' interviewing process and become an investigatory arm of the EEOC when the EEOC takes no action or has no jurisdiction is not a pro-business initiative. This initiative does not create more jobs nor higher wages. It will only hamstring our ability to attract more businesses and provide fuel for our neighbors and competitors who want to portray our City as an anti-business community.

We strongly encourage the Denton City Council to seek alternative means to incentivize, not criminalize, businesses for participating in second chance hiring initiatives. Together, we must focus on partnering businesses with potential employees, without the addition of burdens, penalties, or threats.

The Denton Chamber of Commerce implores you to not move forward with the Fair Chance Hiring Ordinance. The Denton business community deserves better.

Respectfully,

Erin Carter, President
Denton Chamber of Commerce

DENTON CHAMBER of COMMERCE

DATE: December 21, 2023

TO: Ryan Adams, City of Denton, Chief of Staff

FROM: Erin Carter, Denton Chamber of Commerce, Chamber President

SUBJECT: Fair Chance Hiring Ordinance, Membership Feedback

Mr. Adams,

Below you will find a summary of the feedback received from the Denton Chamber of Commerce membership and business community over the past 6 months as it relates to the proposed Fair Chance Hiring Ordinance.

The Chamber has taken a formal stance against the ordinance, instead supporting the creation of a second chance hiring program to support the incentivization, not criminalization, of hiring America's Hidden Workforce.

Summary of Membership Feedback:

- No current problem; creating a solution without necessity.
- City of Denton would not be subject to their own ordinance.
- Affects the competitiveness to attract new business to Denton. Competing with other cities in surrounding areas that do not have this ordinance would be a strong disadvantage.
- City of Denton has not been able to present any current issue that we are trying to correct; cannot cite current examples or employees/individuals with current known experiences – again, creating a solution without necessity.
- Most businesses' hiring policies do not deviate from the best practices proposed in the City of Denton's plan. The City has indicated that they would not be subject to the same ordinance because their processes already allow as proposed. If this is the case, a lot of businesses should be able to opt out for the same or similar reasons.
- Did the City do a survey/do they have any data showing how many businesses already do Fair Chance Hiring versus do not?
- If the City of Denton wants to build its reputation of being anti-business with too much red tape, pass more regulations like this ordinance and start meddling in the interviewing process. Or, incentivize businesses to interview and hire individuals with criminal histories. Don't pass an ordinance that imposes penalties.
- Criminal history is not a protected class, but this ordinance begins to push it into that category by treating it as such when seeking protection for such if discriminated against.
- Concern that some companies may not be set up for a scenario that would mean hiring someone with prior/past criminal convictions, and do not believe it's a pro-business stance to put a company unwilling in that position. Certainly, in favor of second chances, but opt-in and a partnership with the City, not a mandate. Not the stance the City should take.

- I am totally against not asking if there has been a felony conviction on the initial employment application. Coming from a family of recovered addictions, I am ALL FOR second chances! Having been a business owner for 40 years, the hiring process is already time-consuming and can be very costly. Adding this government overreach will only make it hard on small business owners. Not asking it up front, some employers may take a shortcut and not run a background check – assuming all is well – which could cause them millions of dollars and loss of public respect if an issue arises. If someone has a felony conviction that is a very long time ago, I think most employers will consider that fact and dive deeper into the interview process and give the individual a chance. I would rather see us have to ask "how long ago was the conviction" – than not having to ask at all or be mandated by an ordinance.
- The cost to me as a small business owner for additional insurance to employ someone with a criminal record has been what has stopped me. It's not that I do not believe in second chances – I do – it's that my insurance has not allowed me to take the next step. I think if it's going to cost me what it may, the City needs to consider that no matter the ordinance, it will not lead to expanded jobs, only greater disappointment on both sides – potential employees and employers who are both out longer looking for jobs and looking for individuals.
- Allowing the Chamber to work with potential second chance employers and helping job seekers in certain industry markets would better place individuals in jobs in Denton. Instead of asking all employers to change their hiring process, they could highlight companies that are in the financial position or organizational position to hire employees with a criminal background.
- The City getting involved in all businesses hiring process but not following the same process for their own hiring and interviewing process seems like a backwards way of imposing an ordinance for businesses, but not understanding what it takes to run a business in their own community. With the cost of running a business, this is not what we need added to the stress and financial concern right now. Hiring is difficult enough.
- Denton needs to focus on attracting businesses and not adding to reasons businesses aren't moving here.
- So many businesses have already closed this year from financial issues. Having the added cost of doing background checks so late in the process could be detrimental to those of us who are out here trying to survive day-to-day.
- I'm concerned about added confusion for businesses that have multi-locations and human resources based out of state – where their hiring takes place. This added layer of government isn't needed for business continuity and friendliness – let's make it easier, not harder, to do business here.
- I would love to be able to afford to hire an individual and provide a second chance to someone with a criminal record. But being able to walk through that process on my own and with my team is something that I, as a private business owner, should be allowed to do without the City creating an ordinance and attempting to change the process I use to hire my team.
- An ordinance will not decrease discrimination across hiring practices. It will, however, decrease the ability of business owners to control their private businesses and their interviewing processes. The City needs to understand their role in regulation and work with businesses, not against them.
- I am concerned that the City Council doesn't understand what it's like to hire and retain talent today. Please do not make this process harder. Stay in your lane and continue to allow private businesses to run how they wish.
- Second chance hiring has always been a practice that has benefited certain industries and employers. This ordinance will not increase opportunities for those deserving of a second chance. Instead, it will increase scrutiny and concern about the hiring process.

- This ordinance will only give individuals with a criminal background false hope and shine negative light on businesses in Denton, potentially leading to discriminatory lawsuits.
- I have read studies where "ban the box" laws have caused more racial discrimination by improving hiring opportunities for certain racial groups. I think this will work against the Council's agenda.
- Confusion about actual process/steps to determine if there was discrimination or not. If Council passes this, they will need to carve out time to educate every business owner that this impacts. Wording is incredibly confusing – how can we abide by this if we can't understand it?
- If my business is investigated, this becomes public record. This could be tarnishing to my business, even if I was proven innocent and no discrimination occurred. Is the City ready to be sued for defamation to my business and loss of customers?
- How much will this cost the City to hire someone to manage, maintain and keep up with this? Will this need to be a whole new department? Seems like an added cost for something that is not necessary, and provides additional threatening oversight.
- The entire process, should an issue arise, labels the business **guilty** until proven innocent.

As seen in the comments from the business community, the Denton Chamber of Commerce implores you not to move forward with the Fair Chance Hiring Ordinance, and instead opt-in for a positive second chance hiring partnership.

Sincerely,

Erin Carter

President, Denton Chamber of Commerce

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON AMENDING CHAPTER 14, ARTICLE VIII OF THE CODE OF ORDINANCES (NON-DISCRIMINATION IN PUBLIC ACCOMMODATIONS, EMPLOYMENT PRACTICES, AND HOUSING), TO ADD A FAIR CHANCE HIRING PROVISION TO SECTION 14-203-5 SETTING HIRING STANDARDS TO LIMIT EMPLOYERS' CONSIDERATION OF THE CRIMINAL HISTORY ON AN INITIAL JOB APPLICATION; PROVIDING SEVERABILITY; PROVIDING A SAVINGS CLAUSE; PROVIDING FOR PUBLICATION AND CODIFICATION; PROVIDING FOR A PENALTY; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of Denton recognizes that people with criminal histories suffer from pervasive discrimination in many areas of life, including employment, housing, education, and eligibility for many forms of social service benefits; and

WHEREAS, an employer's neutral policy (e.g., excluding applicants from employment based on certain criminal conduct) can disproportionately impact some individuals based on their race or national origin as described in the U.S. Equal Employment Opportunity Commission Enforcement Guidance on the Consideration of Arrest and Conviction Records in Employment Decisions under Title VII of the Civil Rights Act, EEOC Enforcement Guidance No. 915.002; and

WHEREAS, the City of Denton recognizes that legal protections extended to most protected classes under federal and state law do not apply to persons with criminal histories; and

WHEREAS, the City of Denton seeks to assist with the successful reintegration of formerly incarcerated people into the community after their release; and

WHEREAS, lack of employment is a principal factor for recidivism, with people who are employed proving significantly less likely to be re-arrested; and

WHEREAS, removal of obstacles to employment for people with criminal histories increases public health and safety by providing economic and social opportunities to large groups of citizens; and

WHEREAS, people with criminal histories represent a group of job seekers who are ready to contribute and add to the workforce; and

WHEREAS, the City Council finds that denying an employment opportunity to an otherwise qualified person based on the person's criminal history that is not relevant to the job under consideration is unjust; is detrimental to the health, safety, and welfare of the residents of the City; prevents the reintegration of the person into the community; creates a burden on public resources and law enforcement; contributes to crime and recidivism; and contributes to unemployment and harms the local economy; and

WHEREAS, the Council further finds that it is within the police power and the responsibility of the City to remedy the problems enumerated in herein; and

WHEREAS, the City Council declares it to be the public policy of the City that all persons subject to its jurisdiction should enjoy equal human rights, including the ability to earn wages through gainful employment, without being subject to discrimination based on their criminal history; NOW, THEREFORE,

THE CITY COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The findings and recitations contained in the preamble of this Ordinance are incorporated herein by reference to the body of this Ordinance as if fully set forth herein.

SECTION 2. The City Council finds that adopting this amendment to Chapter 14, Article VIII, that Section 14-203-5 of the City Code of Ordinances removes an obstacle to employment for people with criminal histories, increases public health and safety by providing economic and social opportunities to large groups of citizens, ameliorates the disproportionate impact of certain hiring practices on individuals based on their race or national origin, and enhance the quality of life of the citizens of the City of Denton and serves a compelling governmental interest.

SECTION 3. Chapter 14, Article VIII of the City of Denton Code of Ordinances, entitled "Non-Discrimination in Public Accommodations, Employment Practices, and Housing," is hereby amended to add Section 14-203-5(c), entitled "Fair Chance Hiring," and provided as follows:

"Sec. 14-203-5: Employment Practices

. . .

(c) Fair Chance Hiring

(1) Policy Declarations.

(a) The City of Denton celebrates its diverse population, and to that end, it is hereby declared to be the public policy of the City of Denton that all persons subject to its jurisdiction should enjoy equal human rights, including the ability to earn wages through gainful employment.

(b) The City of Denton recognizes that legal protections extended to most protected classes under federal and state law have not been extended to protect individuals with criminal histories, but that excluding applicants for employment based on criminal history may result in discrimination, whether by intent or by unlawful disparate impact, that denies equal employment opportunities due to an applicant's race, color, national origin, age, religion, disability, sex, sexual orientation, or gender identity.

(c) The City of Denton recognizes that an employer that rejects everyone with a criminal conviction from all employment opportunities is likely engaging in

discrimination, and that an employment policy that rejects many more applicants of one race, color, national origin, age, religion, disability, sex, sexual orientation, or gender identity is discriminatory if the policy is not closely related to the job.

(d) The City of Denton has determined that employers waiting until later in the hiring process to inquire about an applicant's criminal history will reduce discrimination, whether by intent or by unlawful disparate impact, that denies equal employment opportunities due to race, color, national origin, age, religion, disability, sex, sexual orientation, or gender identity.

(2) Definitions:

(a) In addition to the definitions in Section 14-203-2, the following definitions also apply to Subsection 14-203-5(c).

(b) In Subsection 14-203-5(c), the following words, terms, and phrases, when used, shall have the meanings ascribed to them, except where the context clearly indicates a different meaning:

Adverse Action means an employer's refusal to hire, a refusal to promote, or the revocation of an offer of employment.

Applicant means an individual who submits an initial job application or other documentation for employment.

Conditional Employment Offer means an oral or written offer by an employer to employ an individual in a job, or placement in an employment agency's staffing pool, that is conditioned on the employer's evaluation of the individual's criminal history.

Conviction means a record from any jurisdiction that includes information indicating that a person has been convicted of a felony or misdemeanor, provided that the conviction is one for which the person has been placed on probation, fined, imprisoned, or paroled.

Criminal History means an arrest, conviction, plea of nolo contendere, or deferred adjudication arising from a felony criminal accusation, or a Class A or Class B misdemeanor criminal accusation, made under state law, federal law, or a comparable law of another state of the United States.

Criminal History Report means any criminal history report, including, but not limited to, those produced by the Texas Department of Public Safety, National Crime Information Center (NCIC), Federal Bureau of Investigation, other law enforcement or police agencies, or courts, or by any consumer reporting agency or business or employment screening agency or business.

Employment means to work for an employer for pay. The term includes full time work, part time work, temporary or seasonal work, contract work, casual or contingent work, work through the services of a temporary or other employment agency, and participation in a vocational, apprenticeship, or educational training program.

Individualized Assessment means an evaluation of the criminal history of an individual that includes, at a minimum, the following factors:

(1) the nature and gravity of any offenses in the individual's criminal history;

(2) the length of time since the offense and completion of the sentence; and

(3) the nature and duties of the job for which the individual has applied.

Initial Job Application means the first written or oral expression of interest in a job by an individual made in compliance with the employer's established criteria for receiving expressions of interest.

Job means an employment position with an employer for which the employer has solicited or accepted applications and which the employer is currently attempting to fill.

Staffing Pool means a list of individuals retained by an employment agency before the assignment of a specific job to perform for another employer.

(3) Applicability

(a) Subsection 14-203-5(c) applies to an employer as defined in Section 14-203-2.

(b) Subsection 14-203-5(c) does not apply to employment for which an individual may be disqualified based on the individual's criminal history under a federal, state, or local law, or compliance with legally mandated insurance or bond requirement.

(c) Nothing in Subsection 14-203-5(c) limits an employer's authority to make a hiring decision for any lawful reason, including the determination that an individual is unsuitable for the job based on an individualized assessment of the applicant's criminal history.

(4) Fair Chance Hiring Practices

(a) An employer may not commit any of the following listed actions where such action results in discrimination, whether by intent or by unlawful disparate impact, that denies an applicant an equal employment opportunity due to race, color, national origin, age, religion, disability, sex, sexual orientation, or gender identity:

(1) An employer may not publish or cause to be published information about a job that states or implies that an individual's criminal history automatically disqualifies the individual from consideration for the job.

(2) An employer may not solicit or otherwise inquire about the criminal history of an individual in an initial job application for a job.

(3) An employer may not inquire in oral or written form about an applicant's criminal history, solicit a criminal history report about an applicant, or consider an applicant's criminal history before the employer has first made a conditional employment offer to the applicant. This does not preclude an employer from explaining to applicant, in writing, the individualized assessment process that the employer uses to consider criminal history.

(4) An employer may not refuse to consider employing an individual in a job because the individual did not provide criminal history information before the individual received a conditional employment offer.

(5) An employer may not take adverse action against an individual because of the individual's criminal history unless the employer has determined that the individual is unsuitable for the job based on an individualized assessment conducted by the employer.

(6) An employer who takes adverse action against an individual based on the individual's criminal history must inform the individual in writing that the adverse action was based on the individual's criminal history.

(7) Notwithstanding any other part of Subsection 14-203-5(c), an employment agency may solicit criminal history information about an individual and make an individualized assessment of an individual's criminal history before the staffing agency places the individual in a staffing pool or has identified a job to which the individual will be employed."

SECTION 4. This Ordinance shall be cumulative of all provisions of ordinances of the City of Denton, except where the provisions of this Ordinance are in direct conflict with the provisions

of such ordinances, in which event the conflicting provisions of such ordinances are hereby repealed.

SECTION 5. All other provisions of Chapter 14, Article VIII apply to Fair Chance Hiring except where there is a direct conflict with a specific provision of Section 14-203-5(c), in which case the specific provision of Section 14-203-5(c) shall control.

SECTION 6. It is hereby declared to be the intention of the City Council that the phrases, clauses, sentences, paragraphs, and sections of this Ordinance are severable, and if any phrase, clause, sentence, paragraph, or section of this Ordinance shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this Ordinance, since the same would have been enacted by the City Council without the incorporation in this Ordinance of any such unconstitutional phrase, clause, sentence, paragraph, or section.

SECTION 7. The City Secretary is hereby directed to record and publish the above regulations in the City's Code of Ordinances.

SECTION 8. Any person violating any provision of this Ordinance shall, upon conviction, be found guilty of a Class "C" misdemeanor and fined a sum not to exceed five hundred dollars ($500.00) for each violation.

SECTION 9. This Ordinance shall become effective one hundred-twenty (120) calendar days from the date of its passage, and the City Secretary is hereby directed to cause the caption of this Ordinance to be published twice in the *Denton Record-Chronicle*, the official newspaper of the City of Denton, Texas, within ten (10) days of the date of its passage.

The motion to approve this Ordinance was made by _____and seconded by _____; this Ordinance was passed and approved by the following vote [___- ___]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Chris Watts, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____day of _____, 2023.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
JESUS SALAZAR, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: _____

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF DENTON AMENDING CHAPTER 14, ARTICLE VIII OF THE CODE OF ORDINANCES (NON-DISCRIMINATION IN PUBLIC ACCOMMODATIONS, EMPLOYMENT PRACTICES, AND HOUSING), TO ADD A FAIR CHANCE HIRING PROVISION TO SECTION 14-203-5 SETTING HIRING STANDARDS TO LIMIT EMPLOYERS' CONSIDERATION OF THE CRIMINAL HISTORY ON AN INITIAL JOB APPLICATION; PROVIDING SEVERABILITY; PROVIDING A SAVINGS CLAUSE; PROVIDING FOR PUBLICATION AND CODIFICATION; PROVIDING FOR A PENALTY; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of Denton recognizes that people with criminal histories suffer from pervasive discrimination in many areas of life, including employment, housing, education, and eligibility for many forms of social service benefits; and

WHEREAS, an employer's neutral policy (e.g., excluding applicants from employment based on certain criminal conduct) can disproportionately impact some individuals based on their race or national origin as described in the U.S. Equal Employment Opportunity Commission Enforcement Guidance on the Consideration of Arrest and Conviction Records in Employment Decisions under Title VII of the Civil Rights Act, EEOC Enforcement Guidance No. 915.002; and

WHEREAS, the City of Denton recognizes that legal protections extended to most protected classes under federal and state law do not apply to persons with criminal histories; and

WHEREAS, the City of Denton seeks to assist with the successful reintegration of formerly incarcerated people into the community after their release; and

WHEREAS, lack of employment is a principal factor for recidivism, with people who are employed proving significantly less likely to be re-arrested; and

WHEREAS, removal of obstacles to employment for people with criminal histories increases public health and safety by providing economic and social opportunities to large groups of citizens; and

WHEREAS, people with criminal histories represent a group of job seekers who are ready to contribute and add to the workforce; and

WHEREAS, the City Council finds that denying an employment opportunity to an otherwise qualified person based on the person's criminal history that is not relevant to the job under consideration is unjust; is detrimental to the health, safety, and welfare of the residents of the City; prevents the reintegration of the person into the community; creates a burden on public resources and law enforcement; contributes to crime and recidivism; and contributes to unemployment and harms the local economy; and

WHEREAS, the Council further finds that it is within the police power and the responsibility of the City to remedy the problems enumerated in herein; and

WHEREAS, the City Council declares it to be the public policy of the City that all persons subject to its jurisdiction should enjoy equal human rights, including the ability to earn wages through gainful employment, without being subject to discrimination based on their criminal history; NOW, THEREFORE,

THE CITY COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The findings and recitations contained in the preamble of this Ordinance are incorporated herein by reference to the body of this Ordinance as if fully set forth herein.

SECTION 2. The City Council finds that adopting this amendment to Chapter 14, Article VIII, that Section 14-203-5 of the City Code of Ordinances removes an obstacle to employment for people with criminal histories, increases public health and safety by providing economic and social opportunities to large groups of citizens, ameliorates the disproportionate impact of certain hiring practices on individuals based on their race or national origin, and enhance the quality of life of the citizens of the City of Denton and serves a compelling governmental interest.

SECTION 3. Chapter 14, Article VIII of the City of Denton Code of Ordinances, entitled "Non-Discrimination in Public Accommodations, Employment Practices, and Housing," is hereby amended to add Section 14-203-5(c), entitled "Fair Chance Hiring," and provided as follows:

"Sec. 14-203-5: Employment Practices

. . .

(c) Fair Chance Hiring

(1) Policy Declarations.

(a) The City of Denton celebrates its diverse population, and to that end, it is hereby declared to be the public policy of the City of Denton that all persons subject to its jurisdiction should enjoy equal human rights, including the ability to earn wages through gainful employment.

(b) The City of Denton recognizes that legal protections extended to most protected classes under federal and state law have not been extended to protect individuals with criminal histories, but that excluding applicants for employment based on criminal history may result in discrimination, whether by intent or by unlawful disparate impact, that denies equal employment opportunities due to an applicant's race, color, national origin, age, religion, disability, sex, sexual orientation, or gender identity.

(c) The City of Denton recognizes that an employer that rejects everyone with a criminal conviction from all employment opportunities is likely engaging in

discrimination, and that an employment policy that rejects many more applicants of one race, color, national origin, age, religion, disability, sex, sexual orientation, or gender identity is discriminatory if the policy is not closely related to the job.

(d) The City of Denton has determined that employers waiting until later in the hiring process to inquire about an applicant's criminal history will reduce discrimination, whether by intent or by unlawful disparate impact, that denies equal employment opportunities due to race, color, national origin, age, religion, disability, sex, sexual orientation, or gender identity.

(2) Definitions:

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Staffing Pool means a list of individuals retained by an employment agency before the assignment of a specific job to perform for another employer.

(3) Applicability

(a) Subsection 14-203-5(c) applies to an employer as defined in Section 14-203-2.

(b) Subsection 14-203-5(c) does not apply to employment for which an individual may be disqualified based on the individual's criminal history under a federal, state, or local law, or compliance with legally mandated insurance or bond requirement.

(c) Nothing in Subsection 14-203-5(c) limits an employer's authority to make a hiring decision for any lawful reason, including the determination that an individual is unsuitable for the job based on an individualized assessment of the applicant's criminal history.

(4) Fair Chance Hiring Practices

(a) An employer may not commit any of the following listed actions where such action results in discrimination, whether by intent or by unlawful disparate impact, that denies an applicant an equal employment opportunity due to race, color, national origin, age, religion, disability, sex, sexual orientation, or gender identity:

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SECTION 4. This Ordinance shall be cumulative of all provisions of ordinances of the City of Denton, except where the provisions of this Ordinance are in direct conflict with the provisions

of such ordinances, in which event the conflicting provisions of such ordinances are hereby repealed.

SECTION 5. All other provisions of Chapter 14, Article VIII apply to Fair Chance Hiring except where there is a direct conflict with a specific provision of Section 14-203-5(c), in which case the specific provision of Section 14-203-5(c) shall control.

SECTION 6. It is hereby declared to be the intention of the City Council that the phrases, clauses, sentences, paragraphs, and sections of this Ordinance are severable, and if any phrase, clause, sentence, paragraph, or section of this Ordinance shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this Ordinance, since the same would have been enacted by the City Council without the incorporation in this Ordinance of any such unconstitutional phrase, clause, sentence, paragraph, or section.

SECTION 7. The City Secretary is hereby directed to record and publish the above regulations in the City's Code of Ordinances.

SECTION 8. Any person violating any provision of this Ordinance shall, upon conviction, be found guilty of a Class "C" misdemeanor and fined a sum not to exceed five hundred dollars ($500.00) for each violation.

SECTION 9. This Ordinance shall become effective one hundred-twenty (120) calendar days from the date of its passage, and the City Secretary is hereby directed to cause the caption of this Ordinance to be published twice in the *Denton Record-Chronicle*, the official newspaper of the City of Denton, Texas, within ten (10) days of the date of its passage.

The motion to approve this Ordinance was made by _____and seconded by _____; this Ordinance was passed and approved by the following vote [___- ___]:

	Aye	**Nay**	**Abstain**	**Absent**
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Jill Jester, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____day of _____, 2024.

_____
GERARD HUDSPETH, MAYOR

ATTEST:
LAUREN THODEN, CITY SECRETARY

BY: _____

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: _____

ORDINANCE NO. 22-407

AN ORDINANCE OF THE CITY OF DENTON AMENDING CHAPTER 14 OF THE CODE OF ORDINANCES (HEALTH & HUMAN SERVICES) TO ADD ARTICLE VIII, TITLED "NON-DISCRIMINATION IN PUBLIC ACCOMMODATIONS, EMPLOYMENT PRACTICES, AND HOUSING;" REPEALING CHAPTER 15 OF THE CODE OF ORDINANCES (HOUSING), PROVIDING SEVERABILITY; PROVIDING A SAVINGS CLAUSE; PROVIDING FOR A PENALTY; PROVIDING FOR PUBLICATION AND CODIFICATION; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of Denton celebrates its diverse population; and

WHEREAS, the City of Denton recognizes that legal protections extended to most protected classes under federal and state law have not been completely extended to protect individuals against discrimination based on their sexual orientation or gender identity; and

WHEREAS, the City of Denton declares it to be the public policy of the City that all persons subject to its jurisdiction should enjoy equal human rights, including the ability to earn wages through gainful employment, to obtain and enjoy goods, services, facilities and accommodations in all places of public accommodation, and to obtain housing, without being subject to discrimination based on race, color, national origin, age, religion, disability, sex, sexual orientation, or gender identity, which otherwise is detrimental to the peace, progress, and welfare of the City; NOW, THEREFORE,

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. The findings and recitations contained in the preamble of this Ordinance are incorporated herein by reference.

SECTION 2. The City Council finds that adopting a Non-Discrimination Ordinance that addresses public accommodations, employment practices, and housing, enhances the public welfare and quality of life for residents, visitors, and businesses in the City of Denton.

SECTION 3. Chapter 14 of the City of Denton Code of Ordinances, entitled "Health & Human Services," is hereby amended to add Article VIII, entitled "Non-Discrimination in Public Accommodations, Employment Practices, and Housing," as provided as follows:

ARTICLE VIII: NON-DISCRIMINATION IN PUBLIC ACCOMMODATIONS, EMPLOYMENT PRACTICES, AND HOUSING

Sec. 14-203-1. Equal rights policy.

(a) *Policy Declarations.*

(1) The City of Denton celebrates its diverse population, and to that end, it is hereby declared to be the public policy of the City of Denton that all persons subject to its jurisdiction

should enjoy equal human rights, including the ability to earn wages through gainful employment, to obtain and enjoy goods, services, facilities and accommodations in all places of public accommodation, and to obtain housing.

(2) It is policy of the City of Denton to ensure that no one is denied employment, public accommodations, or housing based on race, color, national origin, age, religion, disability, sex, sexual orientation, or gender identity.

(3) The City of Denton recognizes that legal protections extended to most protected classes under federal and state law have not been completely extended to protect individuals against discrimination based on their sexual orientation or gender identity.

Sec. 14-203-2. Definitions

(a) In this ordinance, the following words, terms, and phrases, when used, shall have the meanings ascribed to them, except where the context clearly indicates a different meaning:

(1) *Administrator* means the individual designated by the City Manager or their designee to receive, investigate, and conciliate complaints under this ordinance and includes the administrator's designated representatives.

(2) *Age* shall mean a person forty (40) or more years of age.

(3) *Business day* shall mean a day the City of Denton is open and conducts official business.

(4) *Complainant* shall mean a person who files a complaint pursuant to Section 14-203-11.

(5) *Conciliation* shall mean the attempted resolution of issues raised by a complaint or by the investigation of a complaint, through informal negotiations or mediation.

(6) *Conciliation agreement* shall mean a written agreement setting forth the resolution of issues pursuant to conciliation.

(7) *Disability* shall mean a physical or mental impairment that substantially limits one (1) or more major life activities of an individual, a record of such an impairment or being regarded as having such an impairment; it is to be construed to be in accordance with the Americans with Disabilities Act and the ADA Amendments Act of 2008.

(8) *Discrimination* shall mean any direct or indirect disparate, prejudicial, or unjust treatment, distinction, segregation, limitation, refusal, denial or other differentiation of a person or persons, based on a particular characteristic or by classifying or categorizing a person based on perceived or actual participation in a certain group of people with a particular characteristic.

(9) *Dwelling* shall mean:

a. A building, structure or part of a building or structure, that is occupied as, or designed or intended for occupancy as, a residence for one (1) or more persons;

b. Vacant land that is offered for sale or lease for the construction or location of a building, structure or part of a building or structure, described in subsection (a).

(10) *Educational institution* shall mean:

a. Any prekindergarten, kindergarten, primary, secondary, or postsecondary educational institution, supported in whole or in part by state tax funds;

b. A "private school" as defined by V.T.C.A., Education Code § 5.001(6-a);

c. An "open-enrollment charter school" as defined by V.T.C.A., Education Code § 5.001(6);

d. An "institution of higher education" as defined by V.T.C.A., Education Code § 61.003(8); or

e. A "private or independent institution of higher education" as defined by V.T.C.A., Education Code § 61.003(15).

(11) *Employee* shall mean any individual employed by an employer. The term does not include an elected official.

(12) *Employer* shall mean any person who has fifteen (15) or more employees for each working day in each of twenty (20) or more calendar weeks in the current or preceding calendar year and includes any agent of such person. The term does not include any person specifically excluded from this section.

(13) *Employment agency* shall mean any person, and any agent of a person, who regularly undertakes, with or without compensation, to procure:

a. Employees for an employer; or

b. Opportunities for a person to work for an employer.

(14) *Familial status* means one (1) or more individuals, who have not attained the age of eighteen (18) years, being domiciled with:

a. A parent or another person having legal custody of such individual or individuals; or

b. The designee of such parent or other person having such custody, with the written permission of such parent or other person; or

c. A person who is pregnant or is in the process of securing legal custody of any individual who has not attained the age of eighteen (18) years.

(15) *Family* includes a single individual.

(16) *Gender identity* shall mean a person's real or perceived gender identity as male, female, both, or neither, and/or an innate, deeply felt sense of gender, which may or may not correspond to the person's physical anatomy and also includes a person's gender expression through external characteristics and behaviors including, but not limited to, dress, grooming, mannerisms, speech patterns and social interactions, that are identified with a particular gender or sexual orientation.

(17) *Joint labor-management committee* shall mean an entity that controls apprenticeship or other training or retraining programs, including on-the-job training programs.

(18) *Labor organization* shall mean a labor organization and any of its agents, and includes:

a. Any organization, agency or employee representation committee, group, association, or plan in which employees participate and that exists for the purpose, in whole or in part, of dealing with employers concerning grievances, labor disputes, wages, rates of pay, hours or other terms and conditions of employment; and

b. Any conference, general committee, joint or system board or joint council so engaged, that is subordinate to a national or international labor organization.

(19) Non-profit organization shall mean an organization exempt from taxation as provided in Internal Revenue Code, 26 U.S.C. § 501(c).

(20) Person includes one (1) or more individuals, corporations, partnerships, associations, labor organizations, legal representatives, mutual companies, joint-stock companies, trusts, unincorporated organizations, trustees, trustees in bankruptcy, receivers, fiduciaries, and any other organization or entity of whatever character.

(21) Place of public accommodation means any of the following establishments if they are open to the general public and, for compensation, offer any product, service, or facility to the general public:

a. Any inn, hotel, motel, or other establishment that provides lodging to transient guests, other than an establishment:

1. Located within a building that contains not more than five rooms for rent or hire and that is actually occupied by the proprietor of the establishment as a residence; or

2. In which the majority of the occupants are permanent residents and maintain their fixed place of domicile in the establishment.

b. Any restaurant, cafeteria, lunchroom, lunch counter, soda fountain, or other facility principally engaged in selling food for consumption on the premises, including, but not limited to, any such facility located on the premises of a retail establishment or gasoline station;

c. Any motion picture house, theater, concert hall, sports arena, stadium, or other place of exhibition or entertainment;

d. Any bar, tavern, pub, drinking establishment, or facility where alcoholic beverages are served;

e. Any retail or wholesale establishment selling any kind of goods or services; or

f. Any public conveyance, including stations and terminals.

(22) *Public conveyance* shall mean any vehicle, or any other means of transport operated on land, water or in the air, which in fact caters to, or offers its goods, facilities, or services to, or solicits or accepts patronage from the general public. "Public conveyance" includes any person who is the owner, lessee, operator, proprietor, manager, superintendent, agent or employee or any public conveyance.

(23) *Protected employment characteristic* shall mean an individual's race, color, national origin, age, religion, disability, sex, sexual orientation, or gender identity.

(24) *Protected housing characteristic* shall mean an individual's race, color, national origin, age, religion, disability, familial status, sex, sexual orientation, gender identity, or a veteran's source of income.

(25) *Reasonable Accommodation* means a change, exception, or adjustment to a rule, policy, practice, or service that may be necessary for a person with disabilities to have an equal opportunity to use and enjoy a dwelling, including public and common use spaces, or to meet program requirements.

(26) *Reasonable Cause* means that there is sufficient evidence to allege that a respondent has violated this ordinance. Evidence is sufficient if a reasonable person would believe that further inquiry into whether a violation occurred is warranted.

(27) *Reasonable Modification* under the Fair Housing Act means a structural change made to existing premises, occupied or to be occupied by a person with a disability, in order to afford such person full enjoyment of the premises.

(28) *Religion* shall mean all aspects of religious observance and practice, as well as belief.

(29) *Religious organization* shall mean:

a. A religious corporation, association, or society; or

b. A school, college, university, or other educational institution or institution of learning, if:

1. The institution is, in whole or in substantial part, controlled, managed, owned, or supported by a religion, religious corporation, association, or society; or

2. The curriculum of the institution is directed toward the propagation of a religion.

(30) *Respondent* shall mean a person, organization, or entity against whom a complainant has filed a complaint pursuant to Section 14-203-11.

(31) *Sex* shall mean gender and the biological differences between men and women.

(32) *Sexual orientation* shall mean the actual or perceived status of a person with respect to their sexuality.

(33) *Source of income* means lawful, verifiable income paid directly to a tenant (child support, or spousal maintenance) or to a representative of a tenant, or paid to a housing owner or landlord on behalf of a tenant, including federal, state, or local public assistance, and

federal, state, or local housing subsidies, including, but not limited to, federal housing assistance vouchers issued under Section 8 of the United States Housing Act of 1937.

(34) *To rent* includes to lease, to sublease, to let and otherwise to grant for a consideration the right to occupy premises not owned by the occupant.

(35) *U.S. Department of Housing and Urban Development (HUD)-Veterans Affairs (VA) Supportive Housing Program (HUD-VASH)* is a collaborative program between HUD and VA combining HUD housing vouchers with VA supportive services to help homeless Veterans and their families find and sustain permanent housing.

(36) *Veteran* means a person who served in the active military, naval, or air service and who was discharged or released under conditions other than dishonorable.

Sec. 14-203-3: Exclusions

Except as required by state or federal law, this ordinance shall not apply to the following:

(a) Religious organizations;

(b) The United States government or any of its departments or agencies;

(c) The State of Texas, or any of its departments, agencies, or political subdivisions.

Sec. 14-203-4: Public Accommodations

(a) *Unlawful practice.* It shall be unlawful for any person with care, custody or control over the premises of a place of public accommodation or for any owner, employee or agent, of a place of public accommodation to discriminate against any person on the basis of race, color, national origin, age, religion, disability, sex, sexual orientation, or gender identity, to:

1. Directly or indirectly exclude, segregate, limit, refuse, or deny to any person any of the accommodations, advantages, facilities, benefits, services or goods, offered to the general public at a place of public accommodation; or

2. Circulate, issues, display, post, mail, or otherwise publish a statement, advertisement, or sign indicating that:

    a. A person will be denied accommodations, advantages, facilities, benefits, privileges, services, or goods at that place; or

    b. The patronage or presence of a person at that place is objectionable, unwelcome, unacceptable, undesirable, or unsolicited.

(b) *Defenses.*

1. It is a defense to prosecution under this subsection on the basis of disability that the discrimination resulted from a condition or structural feature that is in conformance with the law.

2. It is a defense to prosecution if the refusal to admit a person to a place of public accommodation or the expulsion of a person from a place of public accommodation was required by law.

(c) *Additional Exclusion.*

1. This section does not apply to a bona fide social, fraternal, educational, political, religious, or civic organization, including a private club, that is restricted to members of the organization/club and guests and is not open to the general public, when the profits of the accommodations, advantages, facilities, and services (above reasonable and necessary expenses) are solely for the benefit of the organization/club.

Sec. 14-203-5: Employment Practices

(a) *Unlawful practice.* It shall be unlawful for an employer to discriminate against any person on the basis of race, color, national origin, age, religion, disability, sex, sexual orientation, or gender identity by the following actions or inactions:

1. For an employer to fail or refuse to hire, or to discharge, any person;

2. For an employer to discriminate against any person with respect to compensation, terms, conditions, or privileges, of employment;

3. For an employer to limit, segregate or classify employees or applicants for employment in any way that would deprive or tend to deprive a person of employment or employment opportunities, or that would otherwise adversely affect a person's status as an employee;

4. For an employment agency to fail or refuse to refer for employment, or to otherwise discriminate against, any person because of a protected employment characteristic;

5. For an employment agency to classify or refer for employment any person, on the basis of a protected employment characteristic;

6. For a labor organization to exclude or expel from its membership, or to otherwise discriminate against, any person because of a protected employment characteristic;

7. For a labor organization to fail or refuse to refer for employment any person because of a protected employment characteristic;

8. For a labor organization to limit, segregate or classify its members or applicants for membership, in any way that would deprive or tend to deprive a person of employment or employment opportunities, or that would otherwise adversely affect a person's status as an employee or as an applicant for employment;

9. For a labor organization to cause or attempt to cause an employer to discriminate against a person in violation of this ordinance;

10. For an employer, a labor organization or a joint labor-management committee, to discriminate against any person because of a protected employment characteristic

in the admission to, or employment in, any program established to provide apprenticeship or other training;

11. For an employer to print or publish, or cause to be printed or published, any notice or advertisement relating to employment by the employer that indicates any preference, limitation, specification, or discrimination, based on a protected employment characteristic;

12. For an employment agency to print or publish, or cause to be printed or published, any notice or advertisement relating to membership in or any classification or referral for employment by the employment agency that indicates any preference, limitation, specification, or discrimination, based on a protected employment characteristic; or

13. For a joint labor-management committee to print or publish, or cause to be printed or published, any notice or advertisement relating to admission to, or employment in, any program established to provide apprenticeship or other training by the joint labor-management committee that indicates any preference, limitation, specification, or discrimination, based on a protected employment characteristic.

(b) *Additional Exclusions.*

1. Nothing in this subsection prohibits a notice or advertisement from indicating a preference, limitation, specification, or discrimination, based on a protected characteristic when a protected characteristic is a bona fide occupational qualification for employment.

2. This section does not apply to, and does not require, the provision of employee benefits to a person for the benefit of the person's domestic partner.

Sec. 14-203-6: Housing

(a) It is the policy of the City of Denton to provide, within constitutional limitations, for fair housing throughout the City by ensuring the opportunity for every person to obtain housing without regard to race, color, national origin, age, religion, disability, familial status, sex, sexual orientation, or gender identity.

(b) Fair Housing means the prohibition of discrimination based on race, color, national origin, religion, sex, familial status, or disability when renting or buying a home, getting a mortgage, seeking housing assistance, or engaging in other housing-related activities.

(c) *Unlawful practice.* It shall be unlawful for any person to discriminate against any person on the basis of race, color, national origin, age, religion, disability, familial status, sex, sexual orientation, or gender identity by engaging in the following housing practices:

1. *In the Sale and Rental of Housing.* A person engages in a prohibited discriminatory act if, because of race, color, national origin, age, religion, disability, familial status, sex, sexual orientation, or gender identity, they:

   a. Refuse to rent or sell a dwelling;

   b. Refuse to negotiate for the purchase or rental of a dwelling;

   c. Discourage the purchase or rental of a dwelling or otherwise make housing unavailable;

   d. Impose different sales prices or rental charges for the sale or rental of a dwelling; or

   e. Set different terms, conditions or privileges for sale or rental of a dwelling or in the provision of services or facilities therewith.

2. *Other Prohibited Discriminatory Acts.* A person engages in a prohibited discriminatory act if, because of race, color, national origin, age, religion, disability, familial status, sex, sexual orientation, or gender identity, they:

   a. Based on a person's disability, refuse to make a reasonable accommodation in rules, policies, practices, or services when such accommodations may be necessary to afford persons with disabilities an equal opportunity to use and enjoy a dwelling and public and common use areas;

   b. Based on a person's disability, refuse to permit, at the expense of the person with a disability, reasonable modifications of existing premises occupied or to be occupied by such person if such modifications may be necessary to afford such person full enjoyment of the premises;

   c. In publication, make, print or publish, or cause to be made, printed, or published, any notice, statement, or advertisement, relating to the sale or rental of a dwelling that indicates a preference, limitation, or discrimination, for a protected housing characteristic or an intention to make any preference, limitation, or discrimination, based on a protected housing characteristic;

   d. In inspection, represent to a person that a dwelling is not available for inspection, sale, or rental, when the dwelling is available for inspection, sale or rental;

   e. For profit, induce or attempt to induce a person to sell or rent, or to not sell or rent, a dwelling by representing that people of a particular protected characteristic are about to move into the neighborhood;

   f. In brokerage services, deny access to or membership in any multiple listing service or real estate brokers' organization or other service organization or facility;

g. In residential real-estate-related transactions, refuse to make a mortgage loan, provide other financial assistance for a dwelling, impose different terms or conditions in a real-estate-related transaction, or otherwise discriminate against a person in making a real-estate-related transaction available.

3. *Veteran Source of Income.* Except as prohibited by Texas Local Government Code, Section 250.007, as amended, it shall be a discriminatory practice to discriminate in housing based on a Veteran's source of income.

(d) *Additional Exclusions.*

1. This subsection does not apply to the following:

a. To the sale or rental of a single-family house if the owner does not own more than three (3) single-family houses at any one (1) time. Any such sale of a single-family house shall be limited to one (1) such sale within any twenty-four (24) month period if the owner is not the most recent resident of the house prior to the sale or does not live there at the time of the sale, and the owner did not use the services or facilities of a real estate broker, agent, or salesman, or their agents and employees, for the sale or to advertise the sale in violation of this subsection; or

b. To a rental of a dwelling containing living quarters occupied or intended to be occupied by no more than four (4) families living independently of each other if the owner actually maintains and occupies part of the dwelling as his residence.

c. Religious organizations and private clubs are allowed to give preference to their members as long as they do not discriminate in their membership.

2. Nothing in this article limits the applicability of any reasonable local, state, or federal restrictions regarding the maximum number of occupants permitted to occupy a dwelling.

3. Nothing in this article regarding discrimination based on familial status applies with respect to housing for older persons as set out and defined in the Fair Housing Act.

4. Nothing in this article prohibits conduct against a person because such person has been convicted by any court of competent jurisdiction of the illegal manufacture or distribution of a controlled substance as defined in section 102 of the Controlled Substances Act, 21 U.S.C. 802.

(e) *Housing Enforcement; complaints.*

1. Any person who claims to have been injured by a discriminatory housing practice or who believes that they will be irrevocably injured by a discriminatory housing practice that is about to occur, hereinafter referred to as the "person aggrieved," may request assistance from the administrator to file a complaint with the Fair Housing and Equal Opportunity Division of the Region VI office of the U.S.

Department of Housing & Urban Development. The administrator, if requested by the person aggrieved, may assist with preparation and submission of the complaint to the U.S. Department of Housing and Urban Development.

2. Whenever the administrator has reasonable cause to believe that any person or group of persons is engaged in a pattern or practice of resistance to the full enjoyment of any of the rights granted by this article or that any group of persons has been denied any of the rights granted by this article, administrator may prepare and file a complaint to the U.S. Department of Housing & Urban Development. setting forth the facts in his own name, and such complaint shall be treated in the same manner as a complaint filed by a person aggrieved.

3. The administrator shall receive and accept notification and referral complaints from the U.S. Attorney General and the Secretary of Housing and Urban Development pursuant to the provisions of Title VIII, Fair Housing Act of 1968, Public Law 90-284, as amended (42 U.S.C. 3610), and shall treat such complaints in the same manner as other complaints filed pursuant to this section.

Sec. 14-203-7: Unlawful Intimidation, Retaliation and Coercion

It shall be unlawful for any person to discriminate against, harass, threaten, harm, damage or otherwise penalize or retaliate against another person for opposing an unlawful practice, for filing a complaint, or for testifying, assisting or participating in any manner in an investigation, proceeding or hearing, in connection with an act of discrimination prohibited by this ordinance.

Sec. 14-203-8: Effect on Legal Remedies

(a) This ordinance shall not affect the right of any person to pursue any legal remedy for discriminatory practices available under federal or state law by filing a claim with the appropriate public agency or by filing a private civil action.

(b) This ordinance does not create a private cause of action.

(c) All of the regulations provided in this ordinance are hereby declared to be governmental and for the health, safety, and welfare of the general public. Any member of the City Council or any City official or employee charged with the enforcement of this ordinance, acting for the City of Denton in the discharge of their duties, shall not thereby render themselves personally liable; and they are hereby relieved from all personal liability for any damage that might accrue to persons or property as a result of any act required or permitted in the discharge of their said duties.

Sec. 14-203-9: Administration

The City Manager or their designee shall be responsible for implementing and administering this ordinance.

Sec. 14-203-10: Penalty

Any violation of the provisions or terms of this ordinance by any person, firm or corporation shall be a misdemeanor offense and shall be subject to a fine of up to $500 in accordance with Section 1-12(a)(4) of the City Code of Ordinances for each offense, as well as injunctive relief. Every day a violation continues shall constitute a separate offense. A violation shall be referred to the City Attorney's Office for prosecution if conciliation efforts are unsuccessful.

Sec. 14-203-11: Complaint Process

(a) A person who claims to have been discriminated against in violation of this ordinance may file a complaint with the City Manager or their designee. A complaint must be filed within ninety (90) calendar days after an alleged unlawful practice has occurred.

(b) A complaint shall be in writing on a form provided by the City Manager or their designee, made under oath or affirmation, and shall contain the following information:

1. Name and address of the respondent.
2. Name, address, email address, and signature of the complainant.
3. Date of occurrence of the alleged unlawful practice.
4. Statement of the facts upon which the allegation of an unlawful practice is based.

(c) Within ten (10) business days after the filing of a complaint, the City Manager or their designee shall review the complaint and notify the complainant in writing as to whether the city will:

1. Refer the complainant to another public agency pursuant to subsection (d) below;
2. Deny the complaint due to incomplete information;
3. Deny the complaint because it is legally deficient or untimely;
4. Accept the complaint for investigation.

(d) If the claim for discrimination is within the jurisdiction of a federal or state agency, the complainant shall be referred by the city to the appropriate public agency. The complainant shall be responsible for filing the discrimination complaint within timeframes set out in federal and state law and the city shall take no further action with regards to the complaint.

(e) If, and only if, a federal or state agency to which a claim for discrimination is referred pursuant to subsection (d) of this subpart refuses to materially investigate the claim based upon a lack of jurisdiction, the complainant shall have thirty (30) calendar days, running from the date the complainant receives notice from the federal or state agency, to

resubmit their complaint pursuant to subsection (b) of this section. If a complainant is resubmitting a complaint in accordance herewith, the complaint shall contain a copy of the correspondence or other documentation from the federal or state agency indicating its refusal to investigate or denial of the complaint based on jurisdictional grounds, in addition to the documentation required by subsection (b) of this subpart.

(f) The burden of proof shall be on the complainant that an unlawful act occurred.

Sec. 14-203-12: Investigation

(a) Promptly after a complaint that is not within the jurisdiction of a state or federal agency pursuant to Sec. 14-203-11 (d) or the complainant receives notice from the federal or state agency and has resubmitted their complaint pursuant to Sec. 14-203-11 (e) of this section, the City Manager shall commence an investigation.

(b) The City Manager or their designee shall, in writing:

1. Notify the respondent named in the complaint that a complaint alleging the commission of an unlawful practice has been filed against the respondent;
2. Furnish a copy of the complaint to the respondent; and
3. Advise the respondent of the procedural rights and obligations of the respondent, including the right to file a written, signed, and verified informal answer to the complaint within fifteen (15) business days after service of notice of the complaint.

(c) Not later than the 15th business day after service of the notice and copy of the complaint, a respondent may file an answer to the complaint. The answer must be in writing, made under oath or affirmation, and contain the following information:

1. Name, address, email address, telephone number, and signature of the respondent or the respondent's attorney, if any; and
2. Concise statement of facts in response to the allegations in the complaint, including facts of any defense or exception.

(d) The City Manager or their designee may dismiss a complaint at any time if they determine that:

1. The complaint was not filed within the required time;
2. The location of the alleged unlawful practice is not within the City's jurisdiction;
3. The alleged unlawful practice is not a violation of this ordinance;
4. The complainant refuses to cooperate in the investigation of the complaint or enforcement of an executed conciliation agreement;
5. A conciliation agreement has been executed by the complainant and the respondent.

The City Manager or their designee shall, in writing, notify the complainant and the respondent of the dismissal of the complaint and include a statement of the reason for the dismissal.

(e) The City Manager or their designee shall prepare a final investigative report showing, at a minimum, the names and dates of contacts with witnesses; a summary of correspondence and other contacts with the aggrieved person and the respondent showing the dates of the correspondence and contacts; a summary description of other pertinent records; and a summary of witness statements. A final report under this section may be amended if additional evidence is discovered. If there are legal questions involved, the complaint will be sent to the City Attorney's Office for review.

(f) After completion of the investigation, the administrator shall make available to the complainant and the respondent, at any time, information derived from the investigation and the final investigation report related to the investigation, except for information that is not subject to disclosure pursuant to state law, federal law, or common law privacy.

(g) The complaint, the investigative report, and any evidence collected therein, shall be subject to public disclosure pursuant to the Texas Public Information Act. Prior to any release, documents related to the complaint/investigation shall be reviewed by the City Attorney's Office to ensure information that is excepted from disclosure by state law, federal law, or common law privacy is redacted. If necessary, the City Attorney may submit the information to the Texas Attorney General's Office for an opinion.

Sec. 14-203-13: Conciliation

(a) If during or after the investigation, the City Manager or their designee determines that there is reasonable cause to believe discrimination occurred, the City shall attempt to conciliate the complaint. In conciliating a complaint, the City Manager or their designee shall try to achieve a just resolution and obtain assurances that the respondent will satisfactorily remedy any violation of the complainant's rights and take action to ensure the elimination of both present and future unlawful practices in compliance with this ordinance. This can include the voluntary discontinuance of the unlawful practice by the respondent and adequate assurances of future compliance with this ordinance combined with an educational component. Nothing said or done during the course of conciliation may be made public or be used as evidence in a subsequent proceeding under this ordinance. For these purposes, complaints and proceedings under this article shall be considered as litigation.

(b) A conciliation agreement executed under this section must be in writing in a form approved by the City Attorney and must be signed and verified by the respondent and the complainant. A conciliation agreement is executed upon its signing and verification by all parties to the agreement. An agreement shall be a public document, subject to any redactions required by state law, federal law, or common law privacy.

(c) A party to an executed conciliation agreement shall not be prosecuted in municipal court for the unlawful practice identified in the agreement unless the complaint notifies the City Manager or their designee within one (1) year of a violation of the agreement for

the same discriminatory practice addressed by the agreement and the City Attorney determines that the agreement has been violated.

(d) If a conciliation agreement cannot be reached, the matter may be reviewed for criminal enforcement pursuant to Section 14-203-10.

Sec. 14-203-14: Defenses

(a) Any applicable federal or state constitutional or statutory defense may be asserted by a person alleged to be in violation of this section.

(b) It is a defense that a person alleged to be in violation of this section was acting pursuant to a court order.

Sec. 14-204-15: Education and Public Information

In order to further the intent and objectives of this ordinance, the City Manager or their designee may conduct educational and public information programs.

SECTION 4. Chapter 15 of the City of Denton Code of Ordinances, entitled "Housing," is hereby repealed in its entirety.

SECTION 5. This Ordinance shall be cumulative of all provisions of ordinances of the City of Denton, except where the provisions of this Ordinance are in direct conflict with the provisions of such ordinances, in which event the conflicting provisions of such ordinances are hereby repealed.

SECTION 6. It is hereby declared to be the intention of the City Council that the phrases, clauses, sentences, paragraphs, and sections of this Ordinance are severable, and if any phrase, clause, sentence, paragraph, or section of this Ordinance shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this Ordinance, since the same would have been enacted by the City Council without the incorporation in this Ordinance of any such unconstitutional phrase, clause, sentence, paragraph, or section.

SECTION 7. The City Secretary is hereby directed to record and publish the attached rule, regulation, and policy in the City's Code of Ordinances as authorized by the Texas Local Government Code.

SECTION 8: This Ordinance shall become effective one hundred-twenty (120) calendar days from the date of its passage, and the City Secretary is hereby directed to cause the caption of this Ordinance to be published twice in the *Denton Record-Chronicle*, the official newspaper of the City of Denton, Texas, within ten (10) days of the date of its passage.

The motion to approve this Ordinance was made by Deb Armintor and seconded by Paul Mettzer; this Ordinance was passed and approved by the following vote [5 - 2]:

	Aye	Nay	Abstain	Absent
Gerard Hudspeth, Mayor:		✓		
Vicki Byrd, District 1:	✓			
Brian Beck, District 2:	✓			
Jesse Davis, District 3:		✓		
Alison Maguire, District 4:	✓			
Deb Armintor, At Large Place 5:	✓			
Paul Meltzer, At Large Place 6:	✓			

PASSED AND APPROVED this the 22nd day of March, 2022.

GERARD HUDSPETH, MAYOR

ATTEST:
ROSA RIOS, CITY SECRETARY

BY: _____

CITY OF DENTON
DENTON, TEXAS

APPROVED AS TO LEGAL FORM:
MACK REINWAND, CITY ATTORNEY

BY: _____