
INFORMAL STAFF REPORT TO AGENDA COMMITTEE

SUBJECT:

Data Center Developments

EXECUTIVE SUMMARY:

This ISR provides a review of departmental policies and processes related to data centers within the City of Denton. Each department has provided a summary of their current state and any staff recommendations that City Council may desire to consider in the future.

BACKGROUND:

On June 2, 2026, Council Member Stevens proposed a future work session to discuss the possibility of creating a policy on how the City of Denton approaches AI data center applications moving forward. This would include, but is not limited to, a discussion on a temporary moratorium on future applications for the purpose of evaluating whether the projected infrastructure demand, environmental impact, and financial return associated with the two currently approved AI data facilities align with their projections once operational.

Given the confidential and proprietary nature of the City's Power Purchase Agreements with both Core Scientific, Inc. and WAHA/Qumulus Ai, responsive information specific to these entities will be discussed with City Council in closed session as part of this year's budget process. Electric and water usage data related to both entities is protected under federal and state law.

DISCUSSION:

What is a Data Center?

Data centers are generally classified into four types: (1) Enterprise – Internal IT operations; (2) Colocation – Shared hosting for multiple clients; (3) Hyperscale – Cloud services and AI workloads; and (4) Edge – Low latency local processing. These classifications are not mutually exclusive and overlapping commonly occurs. Over the last several years, there has been a significant decrease in internally hosted enterprise data centers due to increased reliance on cloud and collocated infrastructure. A High-Performance Computing (HPC) or AI data center may be classified as a colocation and/or a hyperscale data center. A Crypto Mining data center does not meet any of the above four categories.

Data centers are further standardized by the following rating system:

Comparison of
Uptime Institute
Data Center Tier Classifications

Feature	Tier I	Tier II	Tier III	Tier IV
Basic Description	Basic Capacity	Redundant Components	Concurrently Maintainable	Fault Tolerant
Uptime Guarantee	99.671%	99.741%	99.982%	99.995%
Redundancy	N (No redundancy)	N+1	N+1	2(N+1)
Maintenance Shutdown Required	Yes	Yes	No	No
Protection Against	Human Error Only	Human Error + Some Equipment Failure	Human Error + Equipment Failure	All Planned/Unplanned Events
Distribution Paths	Single	Single	Multiple	Multiple + Isolated
Fault Tolerance	None	Limited	Concurrent Maintenance	Full Fault Tolerance
Cooling Requirements	Dedicated Equipment	Redundant Cooling	Redundant + Maintainable	Continuous + Redundant
Key Components	UPS, Generator, Cooling	All Tier I + Redundant Power/Cooling	All Tier II + Multiple Paths	All Tier III + Physical Isolation
Typical Use Case	Small Business/Office	Growing Business	Enterprise	Mission-Critical Operations

Source: The Uptime Institute's Data Center Tier Classification

The above rating system was developed for traditional data centers and is generally not applicable to HPC/AI or Crypto Mining data centers. An unofficial, but commonly used rating of Tier 0, is generally applied to HPC/AI or Crypto Mining data centers even though components of these data centers may fall within the Tier I-IV ratings.

In the City of Denton (“the City”), the number of Enterprise data centers is unknown but are commonly found in organizations such as federal, state and local governments, and private companies operating in the city. The policies, processes or staff recommendations in this ISR do not apply to these common and small data centers, which are essential for daily operations in these organizations and incorporated into buildings already governed by other local regulations.

For the types of data centers (Colocation and Hyperscale) addressed in this ISR, there are two within its city limits: (1) Core Scientific, Inc. – HPC/AI data center; and (2) WAHA/Qumulus AI – Crypto Mining data center. Both data centers would be commonly referred to as Tier 0 data centers although components may fall within the Tier I-IV ratings. Core Scientific, Inc. data center has entered into a Power Purchase Agreement (PPA) with the City for a peak load power capacity up to 391 MWs including the acquisition of Renewable Energy Credits (RECs) for the full annual power consumption and leased approximately 78 acres of city-owned property. Construction of this data center is nearing completion although maximum capacity available is 297 MWs until local transmission overloads are resolved. The WAHA/Qumulus AI data center has entered into a PPA with the City for a peak load power capacity up to 20 MWs including the acquisition of RECs for the full annual power consumption and leased approximately 4 acres of city-owned property. Construction of this data center has not yet begun but is anticipated within 90 days. Both data centers pay 100% of power and transmission costs, including any transmission interconnection and improvement costs. Each data center has met all Denton Development Code requirements and has been classified as either a warehouse data center (Core Scientific, Inc.) or a modular data center (WAHA/Qumulus AI). Additional information regarding DDC requirements will be covered in the Development Services section of this ISR.

Finally, in ERCOT, data centers for Crypto Mining and HPC/AI are generally considered Large Loads if they are one or more facilities at a single site with an aggregate peak demand of 75 MW or more behind one or more common points of interconnection. A Large Load could also be an industrial or manufacturing facility, a Hydrogen and Electrofuel production facility, an Oil and Gas field electric infrastructure, and historical industrial loads like chemical plants and steel mills. These Large Loads must apply to ERCOT for interconnection, but the process is initiated by the Transmission Service Provider (TSP). For Large Loads below 75 MWs, the interconnection process is handled by the TSP. In the majority of the City, DME is the TSP although Oncor and TMPA (Texas Municipal Power Agency) also own and operate transmission assets in the area.

DISCUSSION:

Denton Municipal Electric

Beginning in 2021, data center development for Crypto Mining began in earnest in the United States due to prohibitions in China. Texas became an attractive location due to the availability of land, low electric prices, favorable business climate, and ample natural resources. For DME, like many other electric utilities (private and public), data center development had always been an attractive load due to their high load factors and stable power consumptions. In the case of Crypto Mining data centers, these loads also offered the ability to “throttle down” during power scarcity periods due to their high price sensitivity and, in an “energy only” market like ERCOT, served as catalysts for further power generation development in the State. However, like other electric utilities, processes and rates/tariffs were not in place to systematically address these large loads so the use of PPAs became a strategic solution along with incorporating lessons learned by others that were early implementers and the use of external legal advisers with experience in data center developments. Additionally, given DME’s must-serve obligation and, at that time, ample electric infrastructure capacity, the two current data centers were brought forward to City Council for

consideration. Since that time, and certainly accelerated by these developments, known transmission system overloads have since posed a limitation to serving additional large loads. As of the writing of this ISR, DME has submitted to ERCOT proposed transmission projects totaling \$300 million to resolve these overload issues. If approved, DME and either TMPA or Oncor would jointly construct these projects with an anticipated completion date of 2031, at the earliest. The projects would be reimbursable under the Transmission Cost of Service (TCOS) Tariff, and would be socialized across all of ERCOT and the City would earn a 6.21% rate of return in TCOS revenue. These details have been communicated to large load prospects with loads above 20 MWs and in most cases, interest by those prospects has all but disappeared. Lastly, ongoing state-wide and regional initiatives by ERCOT (known as the Batch Process) have further caused uncertainty in the data center market, along with generation supply considerations that would be required to meet these loads. According to ERCOT, there are currently over 410 GW of Large Loads (350 GW are data centers of which 80 GW in the DFW area) seeking interconnection and approximately 450 GW of active generation seeking interconnection (Battery, 177 GW; Solar, 162 GW; Wind, 48 GW; and Gas, 60 GW). Without additional generation, these large loads will not be interconnected.

Staff Recommendations (subject to legal review):

1. Formalized application process and the associated fees for data centers.
2. Unless superseded by State Law, PUCT regulations or ERCOT protocols, require data centers to pay 100% of all transmission and/or distribution interconnection costs and engineering studies.
3. When interconnecting into the local transmission system, require data centers to construct and operate onsite substations for internal load management.
4. Require that data center prospects provide evidence of site ownership or control.
5. Require that data center prospects provide evidence of an end use customer and that the development not be for speculation.
6. Require that data center prospects agree to a power security/collateral based on their MWh power consumption.
7. Require that data center prospects agree to make a one-time payment equal to one year's estimated energy consumption to fund a dedicated and restricted energy reserve. Such reserve will be created by the City Council and use restricted to protecting ratepayers in the event of revenue shortfalls from data center customers. Data center customers will not be entitled to this reserve, nor will payment be refundable.
8. Require that data center prospects be subject to any power curtailment mandated by ERCOT consistent with all other DME customers.
9. In conjunction with the FY 26/27 budget process, DME to propose a publicly available base rate tariff(s) based on a cost-of-service study for HPC/AI data centers.
10. For Crypto Mining data centers, if any, continue the use of a PPA to better negotiate mark-up costs but require that 100% of power and transmission costs be covered.
11. Create a confidential developer agreement that will govern proprietary and critical infrastructure operations between the developer and DME.

Economic Development

Data center prospects are evaluated like any other development prospects and eligibility for city incentives are evaluated on a case-by-case basis.

Staff Recommendations:

None

Water & Wastewater

The two data centers currently approved are projected to use water that is either less or similar to other comparable users. This is due to their use of a closed loop cooling system or an air cooling system. For wastewater discharge, both data centers are subject to all city requirements applicable to any other development.

Staff Recommendations:

To reduce water usage, a closed loop cooling system should be required of all HPC/AI data centers. An air-cooling system may be better suited for Crypto Mining data centers and uses little to no water.

Development Services

In the Spring of 2022, the Development Code Review Committee (DCRC) held discussions regarding proposed Code amendments related to data center uses. Following discussion, the DCRC recommended the draft regulations be forwarded to the Planning and Zoning Commission and City Council for consideration. On September 20, 2022, the City Council voted to approved amendments to the DDC, incorporating land use regulations related to data centers and establishing the following regulations.

Zoning Regulations

The Denton Development Code (DDC) classifies data centers into two categories: Modular data centers and warehouse data centers.

Modular data centers are generally defined as the long-term storage of specialized computing systems and hardware within modular structure(s) including but not limited to pods, shipping containers, cargo containers, and similar storage containers that are used for the sole purpose of remote storing, gathering, processing, and/or analyzing large amounts of data information. Modular data centers are allowed with approval of a Specific Use Permit (SUP) in the Light Industrial (LI), Heavy Industrial (HI) and Public Facilities (PF) Zoning Districts.

Warehouse data centers are generally defined as a building or buildings intended for large-scale storage of specialized computing systems and hardware that are used for the sole purpose of remote storing, gathering, processing, and/or analyzing large amounts of data information. Warehouse data centers are permitted by right in the General Office (GO), Light Industrial (LI), Heavy Industrial (HI) and Public Facilities (PF) Zoning Districts, and are allowed with approval of a SUP in the Mixed-Use Regional (MR), Suburban Corridor (SC) and Highway Corridor (HC) Zoning Districts.

Both modular and warehouse data centers are considered to be Industrial Uses and are subject to Use-Specific Standards in the DDC.

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	
Industrial Uses																	
Data Center																	
Data Center, Modular														S+	S+	S+	5.3.6I
Data Center, Warehouse										S+	S+	S+	P+	P+	P+	P+	5.3.6J

Use-Specific Standards applicable to modular data centers include:

- Additional landscaping requirements, including at least two elements from DDC Table 7.E: Landscape Area Point System, Section A Right-of-Way Elements be provided along all public rights-of-way.

Use-Specific Standards applicable to warehouse data centers include:

- Limited building size to a maximum of 55,000 square feet of gross floor area per lot in the Mixed-Use Regional and Suburban Corridor Zoning Districts.
- Requirements that all buildings comply with the design standards established in DDC Section 7.10.5: Nonresidential and Mixed-Use Building Site and Building Design.

Use-Specific Standards applicable to all data center uses include:

- Requirements that any modular structures, on-site electrical equipment, and any associated outdoor storage be screened from the public right-of-way and any adjacent residential use or zoning district.

- Requirements that any modular structures, on-site electrical equipment, and any associated outdoor storage area be setback no less than 100 feet from an adjacent residential zoning district or existing residential use, measured from the property line.
- Noise Regulations:
 - An environmental noise and vibration assessment is required with the initial application for all data center requests.
 - Data center operations, including any on-site equipment, shall not cause any noise more than 60 decibels measured at the property line *or* shall not cause an increase in the ambient noise level of the area more than 3 decibels.
- Any on-site electric substations are required to comply with DDC Section 7.13.7: Electric Substation Design.

There are no lighting specific standards for data centers. DDC Section 7.11.3.C has lighting standards specific to developments and the impact to adjacent properties. New developments in the City shall not exceed one foot-candle of light past the property line except in a few specific instances.

Moratorium

House Bill 2559 took effect on September 1, 2025 and changes the rules regarding development moratoriums for cities. The Texas Municipal League stated in their [Second-Called Special Session Update](#) published on August 29, 2025: “The effect of these changes is to make moratoria harder to adopt and sustain. Cities must now prepare for a months-long process involving extended notice, two hearings, multiple ordinance readings, and a supermajority vote before development can be paused due to a shortage of essential public facilities. Even if adopted, moratoria are capped at 180 days and cannot be repeated in the same area for two years”. For data centers, , this means the City would need to present evidence for a justification under Texas Government Code 212.135, 212.1351, or 212.1352 demonstrating a need to prevent the shortage of essential public facilities and follow the procedures for adopting the moratorium.

Staff Recommendations:

The City was proactive and adopted land use regulations around data centers in 2022 which was recommended by DCRC and P&Z and ultimately approved by City Council. Ft. Worth recently adopted regulations that increased landscaping requirements adjacent to residential neighborhoods, added regulations around lighting, and provide for distance requirements of specific mechanical equipment. There are not many areas of the City where this land use would be allowed with adjacency to residential, however, if City Council desired, City staff could add an item to the DCRC workplan to discuss additional changes to the use specific requirements for data centers.

Fire Inspections

The Denton Fire Department Fire Marshal’s Office (FMO) conducts plan reviews and inspections on all building permits issued for data centers. Additionally, the FMO reviews and issues fire permits, and conducts associated fire permit inspections. Fire permits that are typically required

(depending on site configuration, water availability, and building size) include permits for fire alarms, fire suppression systems, a fire pump, standpipes, private fire hydrants, and emergency responder radio coverage. Chapter 12 of the 2021 International Fire Code specifically regulates energy storage systems, fire suppression, and separation requirements for large battery banks, a critical component of data center infrastructure. Future iterations of the International Fire Code will include a specialized guideline (G12 – Data Center Guideline) for standardizing the design and construction practices of large data centers.

One of the most frequently documented challenges with data centers has been the lack of emergency apparatus access, particularly during construction. This challenge has also resulted in many staff hours conducting code checks that failed and subsequent follow-up inspections.

Staff Recommendations:

All City staff and community partners involved in data center projects should set clear expectations with developers that all adopted codes and ordinances shall be strictly followed. Developers should create an access plan for each phase of construction to ensure emergency access will be provided.

Streets Department

Data centers follow the same process for right of way improvements and street impact fees as any other development.

Staff Recommendations:

None.

Solid Waste

There is no significant impact to Solid Waste Operations. These facilities are consistent with other large commercial projects that during the construction phase utilize the roll-off service for construction related debris. During operation, they generate very little solid waste.

Staff Recommendations:

None.

Finance

Data centers represent a significant investment of capital and provide an opportunity for increased revenues for all local taxing jurisdictions, including the City. Applications for new data centers should include projected real and business property valuations, sales tax, land lease, franchise fee, and other economic benefits reasonably expected. This information provides staff and City Council a foundation for fiscally responsible decision making. Information regarding the status of property

tax assessments and projected revenues specific to the two existing data centers will be presented as part of the upcoming budget process. Preliminary assessed values have been provided by the Denton Central Appraisal District (DCAD), and staff are working to verify and analyze the data.

Staff Recommendations:

Finance recommends formalizing specific financial information requirements in the application process and explore thresholds for capital investment, job creation, and revenue expectations to ensure the scale and economic benefit is aligned with the financial risk.

Environmental Services

Construction-Environmental

May create noise, traffic congestion, dust, loss of green space, and aesthetic changes to the area. These items may be associated with general construction and are not specific to data centers.

Operational-Environmental

May include energy demand, water demand, air emissions noise, and adjacent/nearby property impacts. Energy and Water demand both are tied to overarching greenhouse gas emissions. Additionally, energy demand concerns include generation/distribution and water demand concerns include impacts on the local water supply. Air emission concerns include aesthetically matching the area and possible disruption of the natural areas. Cooling water system discharge to the sanitary sewer after pressure test, possible system maintenance, and ultimate system decommissioning. Business personal property (servers, batteries, etc.) reuse, recycling and disposal.

1. Air Emissions – The Texas Commission on Environmental Quality (TCEQ) regulations cover emergency power generators and include annual hour usage limitations and emission standards. The City, as part of the DFW Metro Ozone Nonattainment Area is covered by more stringent TCEQ regulations.
2. Natural Areas – The City has ordinances that protect environmentally sensitive areas, protect existing trees, and require landscaping to enhance the natural area.
3. Wastewater Discharge – The City has ordinances that regulate discharges to the wastewater collection system according to Federal, State, and local requirements.
4. Electronic Waste – TCEQ regulations cover the recycling and disposal of electronic waste and batteries.

Staff Recommendations

None.

CONCLUSION

At the direction of the Agenda Committee, staff will schedule a work session discussion with the City Council to review the above information and staff recommendations.

STAFF CONTACT:

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REQUESTOR:

Council Member Stevens

STAFF TIME TO COMPLETE REPORT:

<i>Department</i>	<i>Staff Time (Hours)</i>
Electric	6.0
Economic Development	0.5
Water/Wastewater	0.5
Fire Inspections	0.5
Streets	0.5
Solid Waste	0.5
Development Services	3.0
Environmental Services	3.0
Finance	1.0

PARTICIPATING DEPARTMENTS:

Electric, Economic Development, Water/Wastewater, Fire Inspections, Streets, Solid Waste, Development Services, Finance and Environmental Services.