



MEMORANDUM

DATE: August 17, 2017

TO: Todd Hileman, City Manager

FROM: Mark Nelson, Transportation Director

SUBJECT: 35Express and Denton Corridor Noise Walls

The 35Express Project is a 28-mile, \$4.4 billion transportation capacity project on Interstate 35E from Interstate 635 in Dallas to US 380 in Denton. Due to the cost of the project, TxDOT broke the project into two phases, Interim and Ultimate. The design, including environmental clearance, for the project was completed in 2012 and construction was initiated on the Interim Project (\$1.4 B) in October 2013. AGL, the Texas Department of Transportation (TxDOT) contractor for the 35Express Project, has indicated the project will be substantially complete in November 2017. The 28-mile 35Express Project has been separated into three sections; South Section I-635 to Sam Rayburn, Middle Section Sam Rayburn to Swisher Road (FM 2181) and the North Section Swisher Road to US 380. The City of Denton falls entirely in the North Section of the 35Express Project.

The intent of this report is to provide Council background on the establishment of noise walls as part of the 35Express North Section Project. Only one of five noise walls approved as part of the Ultimate Project will be constructed as part of the Phase I Interim Project, Noise Wall Five near the Murchison Performing Arts Center adjacent to the University of North Texas. This report will also outline the feasibility of the City constructing approved noise walls in advance of the Ultimate Project. There is currently no schedule on when the Ultimate Project will be initiated as funding has not been identified. Regional transportation officials believe the project could be initiated in the next five to seven years.

The design process for 35Express required TxDOT to complete an Environmental Assessment (EA) for the project. Noise level data used for this study was based on predicted noise levels in 2035, not current noise levels. A copy of an excerpt of the EA regarding Noise (5.2.13) has been attached for reference as Exhibit 1. The EA states that a noise wall is warranted if it is determined to be both feasible and reasonable. The EA further states "A noise impact occurs when either the absolute or relative criterion is met:

Absolute criterion: the predicted noise level at a receiver approaches, equals or exceeds the noise abatement criteria (NAC). "Approach" is defined as one dB(A) (decibel) below the NAC. For example, a noise impact would occur at a Category B residence if the noise level is predicted to be 66 dB(A) or above.

Relative criterion: the predicted noise level substantially exceeds the existing noise level at a receiver even though the predicted noise level does not approach, equal, or exceed the NAC. "Substantially exceeds" is defined as more than 10 dB(A). For example, a noise impact would occur at a Category B residence if the existing level is 54 dB(A) and the predicted level is 65 dB(A)."

If either case occurs, a wall is deemed "feasible" for noise abatement. Once that is determined, a calculation is done to determine if the wall is "reasonable."

The EA states "...before any abatement measure can be proposed for incorporation into the project, it must be both feasible and reasonable. In order to be "feasible," the abatement measure must be able to reduce the noise level at greater than 50% of impacted, first row receivers by at least five dB(A); and to be "reasonable," it must not exceed the cost-effectiveness criterion of \$25,000 for each receiver that would benefit by a reduction of at least five dB(A) and the abatement measure must be able to reduce the noise level (of) at least one impacted, first row receiver by at least seven dB(A)." If both criteria are not met, a wall cannot be included in the project. It is important to note that "Environmental Justice" precludes affluent communities from "purchasing" more mitigation while less affluent communities would be left exposed to any potential negative impacts.

It is staff's understanding that requests have been made by residents of the Denia Neighborhood to add noise walls in advance of the Ultimate or Phase II of the 35Express Project. This neighborhood is generally located northwest of the 35Express corridor between Ft. Worth Drive and North Texas Boulevard, Table 5-22 on pages 137-138 of Exhibit 2 demonstrates that noise receivers R12, R13, R14 and R17, located in the Denia Neighborhood, meet the requirements to establish noise walls. (Exhibit 2, demonstrates an area map showing location of noise receptors and noise walls approved as part of Phase II of the 35Expresss Project.)

The noise wall analysis in the 2011 EA was based on traffic that will exist in the 2035 timeframe and at the locations indicated by the ultimate schematic design based on where the main lanes will ultimately be constructed. Since the IH 35E Interim Project does not materially change the location of the main lanes, noise walls approved in the Ultimate Project are not required as part of the Interim Project. The exception to this is Noise Wall 5 (NW 5 depicted in Exhibit 2). NW 5 is located north of the frontage road on north bound 35E adjacent to the Murchison Performing Arts Center on the University of North Texas campus. Financial constraints of the Interim Project did not allow for the acquisition of all the necessary right of way for the Ultimate Project,

therefore the remaining noise walls will not be placed in the designed locations for the 35Express Ultimate Project as part of the Interim or Phase I Project.

Feasibility

Staff has initiated efforts to determine the potential of establishing noise walls as part of the current Interim Project. Specifically, can the City of Denton fund the requisite costs for constructing noise walls along the Denia Neighborhood corridor of the 35Express Project and seek reimbursement for these costs from TxDOT as part of the Ultimate or Phase II Project.

City of Denton transportation consultant ITS has engaged the TxDOT Dallas District to check with TxDOT Austin Environmental Division if it is possible to build two of the four remaining noise walls without triggering environmental justice issues. (Environmental justice could be called to question if noise attenuation is provided for some but not all, equity.) The two walls in question would be, NW 2 and NW 3 depicted in Exhibit 2. As of August 10, 2017, ITS has yet to receive an answer from TxDOT on this request. If the answer is no, then all four remaining walls in the City of Denton corridor of the North Section will have to be constructed to meet environmental justice.

Financial

The EA estimated the cost of all five walls to be \$3,020,148 in 2012. Using that cost as the basis, and adding 3% inflation per year, the two subject walls (NW 2 and NW 4) are estimated to cost \$2,052,020. The City would also incur the cost to acquire all the necessary right of way (ROW) for the IH 35E Ultimate Project, not just for the sound walls, but for any project related components in the identified segment to include utility relocations and drainage enhancements. TxDOT's position during the Interim Project was to acquire all of the ROW needed from individual land owners for the Ultimate Project if only a portion was needed for the Interim Project. This was done so that impacted property owners are not subjected to the ROW process twice.

At the time of the development of the Interim Project, the total estimated cost of ROW for the entire 28-mile segment was in excess of \$1 Billion. The northern segment of IH 35E, within Denton city limits, would most likely be a fourth of that cost, or \$250 million in 2012 dollars. Without additional information from TxDOT, it is easily anticipated the ROW for the walls in question, NW 2 and NW 3, would in the 10's of millions of dollars.

This preliminary estimate is based on the fact that since 35E is an Interstate Highway, any utility that would require relocation would be eligible for reimbursement. It is difficult to determine the exact amount of utilities requiring relocation, but a visual inspection of the existing corridor indicates significant utilities exist in and immediately behind the current ROW line for IH- 35E. Utilities typically resist partial relocation of their infrastructure. In other words, the City should expect to assume responsibility to relocate utilities outside of the limits needed for the noise walls in question to maintain continuity of the subject utility. The City should anticipate that utility relocations would run into the 10's of millions of dollars as part of the proposal to

establish noise walls as part of the Interim Project. Finally, additional funding would be needed to relocate all impacted frontage roads as the proposed noise walls work as system, no gaps, to abate noise.

Constructability

Issues impacting the constructability of the two noise walls prior to the ultimate project relate primarily to two areas. First, the walls are proposed to be constructed between the main lanes and the frontage roads, placing them well-off of the proposed ROW line. The proposed locations for the walls place them behind the existing frontage roads. Since the viability of the walls are predicated on having no gaps, the wall segments will overlap. This will require constructing the future frontage roads in order to maintain access to existing adjacent facilities as well as the tie-ins for local roadways (access to neighborhoods), further increasing the cost of the project.

Second, in reviewing the approved schematic for IH 35E Ultimate, it indicates the proposed grade of IH 35E is different than the existing grade and will need to be addressed. This may require additional improvements such as grading and drainage infrastructure to accommodate the noise walls prior to the ultimate construction of IH 35E.

Conclusion:

It is highly unlikely that TxDOT would agree to reimburse the City for its upfront costs on the noise walls or any portion of the project that was not in its permanent location. It is probable that due to constructability, TxDOT may deem it more efficient to remove the proposed walls constructed by the City and reconstruct the entire noise wall project as originally planned. This would make the advance placement of walls unreasonable and ineligible for reimbursement due to cost.

Staff will continue to work with TxDOT on a formal response as to whether NW 2 and NW 4 would be authorized for construction in advance of the Ultimate Phase II Project or whether NW 1 and 3 would also be required to meet environmental justice standards. Should NW 1 and NW 3 be required, substantial costs estimates will need to be developed. Unless directed otherwise, staff will target the September Mobility Committee for follow up on this issue.

Attachments:

- 1. 35 Express Noise Environmental Assessment dated August 2011**
- 2. Figure 20, Proposed Noise Wall and Receiver Locations**

ENVIRONMENTAL ASSESSMENT

FOR

IH 35E NORTH SECTION

FROM: FM 2181

TO: US 380

DENTON COUNTY, TEXAS

CSJs: 0195-03-050, 0195-03-071, 0195-03-075, 0196-01-056, and 0196-01-074

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
and
TEXAS DEPARTMENT OF TRANSPORTATION**

August 2011

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aesthetic impacts. Additional aesthetic design concepts would be dependent on additional funding from local governments, interest groups, and organizations.

5.2.13 Noise

No-Build Alternative

Highway traffic is the dominant source of noise in developed areas adjacent to IH 35E. The predicted increase in future traffic volumes on IH 35E would likely increase future ambient noise levels.

Build Alternative

This analysis was accomplished in accordance with TxDOT's (FHWA approved) Guidelines for Analysis and Abatement of Highway Traffic Noise.

Sound from highway traffic is generated primarily from a vehicle's tires, engine, and exhaust. It is commonly measured in decibels and is expressed as "dB."

Sound occurs over a wide range of frequencies. However, not all frequencies are detectable by the human ear; therefore, an adjustment is made to the high and low frequencies to approximate the way an average person hears traffic sounds. This adjustment is called A-weighting and is expressed as "dB(A)."

Also, because traffic sound levels are never constant due to the changing number, type and speed of vehicles, a single value is used to represent the average or equivalent sound level and is expressed as "Leq."

The traffic noise analysis typically includes the following elements:

- Identification of land use activity areas that might be impacted by traffic noise.
- Determination of existing noise levels.
- Prediction of future noise levels.
- Identification of possible noise impacts.
- Consideration and evaluation of measures to reduce noise impacts.

The FHWA has established the following Noise Abatement Criteria (NAC) in **Table 5-21** for various land use activity areas that are used as one of two means to determine when a traffic noise impact would occur.

TABLE 5-21. FHWA NOISE ABATEMENT CRITERIA

Activity Category	FHWA dB(A) Leq	TxDOT dB(A) Leq	Description of Land Use Activity Areas
A	57 (exterior)	56 (exterior)	Lands on which serenity and quiet are of extra-ordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	66 (exterior)	Residential
C	67 (exterior)	66 (exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings
D	52 (interior)	51 (interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios
E	72 (exterior)	71 (exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F.
F	--	--	Agricultural, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	--	Undeveloped lands that are not permitted.
NOTE: primary consideration is given to <u>exterior</u> areas (Category A, B, C, or E) where frequent human activity occurs. However, <u>interior</u> areas (Category D) are used if exterior areas are physically shielded from the roadway, or if there is little or no human activity in exterior areas adjacent to the roadway.			

A noise impact occurs when either the absolute or relative criterion is met:

Absolute criterion: the predicted noise level at a receiver approaches, equals or exceeds the NAC. "Approach" is defined as one dB(A) below the NAC. For example, a noise impact would occur at a Category B residence if the noise level is predicted to be 66 dB(A) or above.

Relative criterion: the predicted noise level substantially exceeds the existing noise level at a receiver even though the predicted noise level does not approach, equal, or exceed the NAC. "Substantially exceeds" is defined as more than 10 dB(A). For example, a noise impact would occur at a Category B residence if the existing level is 54 dB(A) and the predicted level is 65 dB(A).

When a traffic noise impact occurs, noise abatement measures must be considered. A noise abatement measure is any positive action taken to reduce the impact of traffic noise on an activity area.

The FHWA traffic noise modeling software was used to calculate existing and predicted traffic noise levels. The model primarily considers the number, type and speed of vehicles; highway alignment and grade; cuts, fills and natural berms; surrounding terrain features; and the locations of activity areas likely to be impacted by the associated traffic noise.

Existing and predicted traffic noise levels were modeled at receiver locations (**Table 5-22** and **Appendix C, Figure C-20**) that represent the land use activity areas adjacent to the proposed project that might be impacted by traffic noise and potentially benefit from feasible and reasonable noise abatement.

TABLE 5-22. TRAFFIC NOISE LEVELS (DB(A) LEQ)

Representative Receiver	NAC Category	NAC Level	Existing	Predicted 2030	Change (+/-)	Noise Impact
R1 Residential	B	67	66	67	+1	Yes
R1A Residential	B	67	62	64	+2	No
R2 Residential	B	67	62	62	0	No
R3 Residential	B	67	62	62	0	No
R3A Retail	F	--	--	--	--	--
R3B Medical facility	D	52	47	49	+2	No
R3C Medical facility	D	52	48	50	+2	No
R3D Medical facility	D	52	48	50	+2	No
R3E Retail	F	--	--	--	--	--
R3F Medical facility	D	52	44	46	+2	No
R3G Motels and Restaurant	E	72	66	69	+3	No
R4 Multifamily Residential	B	67	48	50	+2	No
R4A Medical facility	D	52	46	48	+2	No
R5 Residential	B	67	70	74	+4	Yes
R6 Residential	B	67	68	72	+4	Yes
R7 Residential	B	67	69	72	+3	Yes
R8 Residential	B	67	71	73	+2	Yes
R8A Offices	E	72	67	70	+3	No
R8B Motel	E	72	68	70	+2	No
R9 Multifamily Residential	B	67	61	65	+4	No
R9A Motel	E	72	68	70	+2	No
R10 Multifamily Residential	B	67	62	64	+2	No
R10A Medical facility	D	52	47	50	+3	No
R10B Motel	E	72	67	70	+3	No
R11 Residential	B	67	67	74	+7	Yes
R12 Residential	B	67	67	72	+5	Yes
R13 Residential	B	67	65	69	+4	Yes
R13A Motel	E	72	66	70	+4	No
R14 Residential	B	67	61	68	+7	Yes
R15 Residential	B	67	65	73	+8	Yes

TABLE 5-22. TRAFFIC NOISE LEVELS (DB(A) LEQ)

Representative Receiver	NAC Category	NAC Level	Existing	Predicted 2030	Change (+/-)	Noise Impact
R15A Motel	E	72	65	70	+5	No
R16 Residential	B	67	64	70	+6	Yes
R17 Residential	B	67	69	75	+6	Yes
R18 Murchison Performing Arts Center ¹	B&D	67/52	63/38	66/41	+3	Yes/No
R18A Active Sports Area	C	67	61	64	+3	No
R19 Multifamily Residential	B	67	59	64	+5	No
R20 Multifamily Residential	B	67	57	65	+7	No
R20A Medical facility	D	52	40	44	+4	No
Note: 1. Category B outdoor activity area used by band students						

As indicated in **Table 5-22**, the proposed project would result in a traffic noise impact and the following noise abatement measures were considered: traffic management, alteration of horizontal and/or vertical alignments, acquisition of undeveloped property to act as a buffer zone and the construction of noise barriers.

Before any abatement measure can be proposed for incorporation into the project, it must be both feasible and reasonable. In order to be "feasible," the abatement measure must be able to reduce the noise level at greater than 50% of impacted, first row receivers by at least five dB(A); and to be "reasonable," it must not exceed the cost-effectiveness criterion of \$25,000 for each receiver that would benefit by a reduction of at least five dB(A) and the abatement measure must be able to reduce the noise level at least one impacted, first row receiver by at least seven dB(A).

Traffic management: control devices could be used to reduce the speed of the traffic; however, the minor benefit of one dB(A) per five mph reduction in speed does not outweigh the associated increase in congestion and air pollution. Other measures such as time or use restrictions for certain vehicles are prohibited on state highways.

Alteration of horizontal and/or vertical alignments: any alteration of the existing alignment would displace existing businesses and residences, require additional ROW and not be cost effective/reasonable.

Buffer zone: the acquisition of undeveloped property to act as a buffer zone is designed to avoid rather than abate traffic noise impacts and, therefore, is not feasible.

Noise barriers: this is the most commonly used noise abatement measure. Noise barriers were evaluated for each of the impacted receiver locations with the following results:

A noise barrier would not be feasible and reasonable for the following impacted receiver and, therefore, is not proposed for incorporation into the project.

R1: This receiver represents one residence with a driveway facing the roadway. A continuous noise barrier would restrict access to this residence. Gaps in a noise barrier would satisfy access requirements but the resulting non-continuous barrier segments would not be sufficient to achieve the minimum, feasible reduction of five dB(A).

Five noise barriers would be feasible and reasonable for the following impacted receivers and, therefore, are proposed for incorporation into the proposed project (see **Table 5-23** and **Appendix C, Figure C-20**). The total cost of the barriers would be \$3,020,148 for a total of \$17,870 per benefited receiver.

TABLE 5-23. PROPOSED NOISE WALLS

Noise Wall(NW) Number	Approximate Location	Impacted Receivers	# of Benefited Receivers	Length (feet)	Height (feet)
NW1	Pennsylvania Drive to Conway Lane along southbound (SB) ER and the mainlanes (ML).			1,417	14
	Woodbrook Drive to Pennsylvania Drive along SB ER and ML.			1,467	14
	NW1 Total	R5 – R8	26	2,884	14
NW2	From North Texas Boulevard to 70 feet north of Underwood Street along SB ER to SB ML			635	16
	From 120 feet north of Underwood Street to 130 feet north of Lindsey along the SB ER and SB ML.			803	14
	From 200 feet north of Lindsey Drive to approximately 500 feet north of Bernard Street along ML.			903	10
	NW2 Total	R12 – R14, and R17	43	4,231	10 – 18
NW3	Approximately 500 feet west of Fort Worth Drive to approximately 400 feet west of Lindsey Street along the northbound (NB) ER.			726	18
	From 200 feet north of Lindsey Street to 500 feet south of Lindsey along the SB ML.			320	18
	NW3 Total	R11	26	1,046	18
NW4	From approximately 600 feet southeast of Greenlee Street to Collier Street along the NB ML and exit ramp			1,580	18
	From Avenue C to 100 feet south of Collier Street along the NB ML			618	10
	NW4 Total	R15 and R16	24	2,198	10 – 18
NW5	From Avenue D to Eagle Drive along the NB frontage road near the ROW.	R18	50¹	899	12

Note: 1. Outdoor activity area of Murchison Performing Arts Center. An estimated 50 band students typically use the activity area during the day.

Any subsequent project design changes might require a reevaluation of this preliminary noise barrier proposal. The final decision to construct the proposed noise barriers would not be made until completion of the project design, utility evaluation, and polling of adjacent property owners.

To avoid noise impacts that may result from future development of properties adjacent to the project, local officials responsible for land use control programs should ensure, to the maximum extent possible, no new activities are planned or constructed along or within the predicted (2030) noise impact contours shown in **Table 5-24**.

TABLE 5-24. NOISE CONTOURS

Land Use	Impact Contour	Distance from ROW (feet)
NAC category B & C	66 dB(A)	400

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receivers is expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions would be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

A copy of this traffic noise analysis will be available to local officials. On the date of approval of this document (Date of Public Knowledge), FHWA and TxDOT are no longer responsible for providing noise abatement for new development adjacent to the project.

5.2.14 Traffic Operations

No-Build Alternative and Build Alternative

As described in **Section 2.3.1**, a traffic operations analysis performed for the proposed project design year (2030) determined that LOS would improve under the proposed Build Alternative as compared to the No-Build Alternative (see **Table 2-6**). That is, mainlane LOS was predicted to be at LOS F for the No-Build Alternative and LOS B/C/D or E for the Build Alternative. Further, operation of the proposed MHOV-C lanes was predicted at LOS A, the highest quality of service. Implementation of the No-Build Alternative would result in increased congestion and poor traffic flow.

5.2.15 Summary of Community Impact Assessment

The following is a summary of the community impact assessment for the proposed project:

1 **9.0 MITIGATION AND MONITORING COMMITMENTS**

2
3 All project-specific commitments and conditions of approval, including resource agency permitting
4 compliance and monitoring requirements, would be incorporated in the project plan for the proposed IH
5 35E project. These project-specific commitments and conditions for approval, as further described below,
6 may vary depending on the project's final design and construction. Mitigation monitoring would be
7 conducted by TxDOT and other federal, state, and local agencies to ensure compliance.
8

9 **9.1 Waters of the U.S., including Wetlands**

10 The placement of temporary and permanent dredge or fill material into each of the jurisdictional waters of
11 the U.S., including wetlands, would meet the criteria for a NWP 14 under Section 404 of the CWA. A
12 NWP 14 PCN is required for five of the eleven water features (Sites W-2, W-6, W-9, W-10, and W-11) due
13 to permanent fill exceeding the threshold of 0.10 acre; also, at Site W-6, there are impacts to a
14 jurisdictional wetland. See **Section 5.1.2** and **Appendix A, Figure A-4** for water crossing details and
15 locations. Details about wetland mitigation and the permitting of the various crossings are anticipated to
16 be addressed as part of the PCN review and approval process. Compensatory mitigation for Section 404
17 impacts would be coordinated with USACE and performed in accordance with the terms of USACE NWP
18 14 approval.
19

20 **9.2 Water Quality**

21 The proposed project would disturb more than one acre; therefore, TxDOT compliance is required with
22 the TCEQ TPDES General Permit for Construction Activity. The proposed project would also disturb
23 more than five acres; therefore, a Notice of Intent would be filed to comply with TCEQ stating that TxDOT
24 would have a SW3P in place during construction of the proposed project. In addition, TCEQ guidelines
25 for the proposed project require completion of the Tier I (Small Projects) Checklist (TCEQ-20228, revised
26 12/29/2006), which requires at least one BMP from the Section 401 BMPs for Tier I Projects published by
27 the TCEQ on April 12, 2004 (**Section 5.1.4**).
28

29 **9.3 Vegetation and Wildlife Habitat/Threatened or Endangered Species**

30 In accordance with TPWD (see **Appendix B-5**), of the habitats given consideration for non-regulatory
31 mitigation during project planning by the TxDOT-TPWD MOA (see **Section 5.1.5**), mitigation is
32 anticipated for six sites (approximately 1.20 acres) of riparian forest and 18 sites (approximately 4.25
33 acres) of upland forest (and associated large trees), for a total of 5.45 acres. Non-regulatory mitigation
34 would take place at LLELA and be through fee payment. During construction, TxDOT would minimize the
35 amount of wildlife habitat disturbed. Existing vegetation, especially native trees, would be preserved
36 wherever practicable.
37

9.5 Noise

Traffic noise impacts would occur from the construction and operation of the proposed project. Five noise barriers were determined to be both feasible and reasonable as to mitigate for anticipated traffic noise impacts. **Appendix C, Figure C-20** shows the proposed noise walls. There are 169 receivers that would benefit from the proposed noise barriers. The final decision to construct the proposed noise barriers would be made upon completion of the project design and utility evaluation, as well as through public involvement efforts (i.e., noise workshops). Such noise workshops would determine if the noise walls are desired and, if so, assist in their aesthetic design. Any subsequent project design changes may require a reevaluation of this proposal.

9.6 Archeological Resources

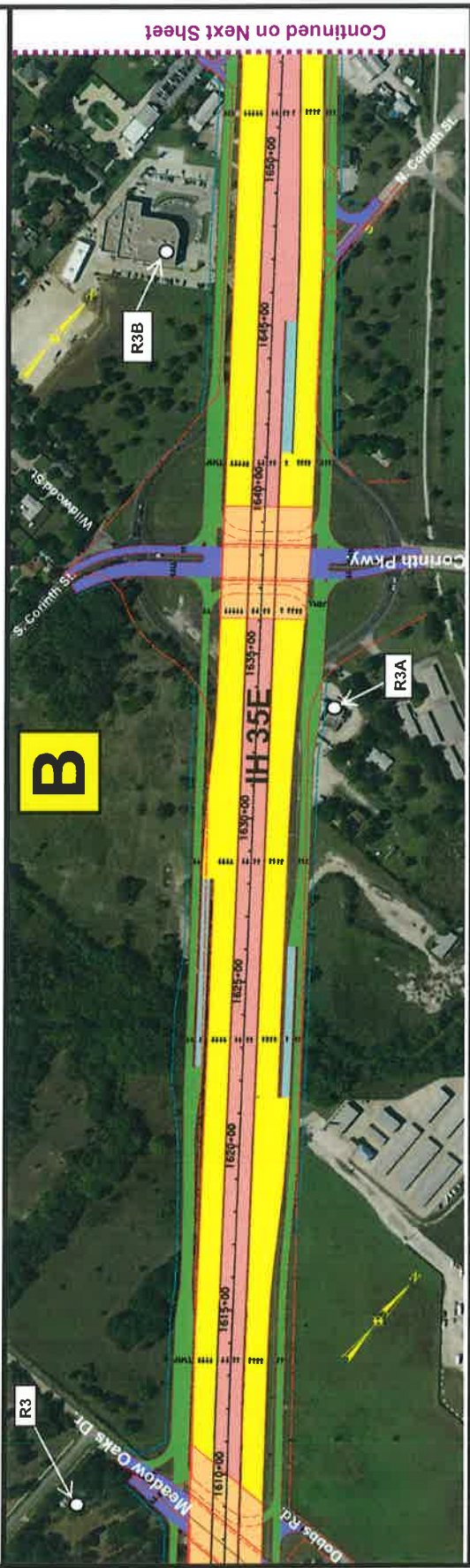
If evidence of archeological deposits is encountered during construction, work in the immediate area would cease and TxDOT archeological staff would be contacted to initiate accidental discovery procedures under the provisions of the Programmatic Agreement between TxDOT, THC, FHWA, and the Advisory Council on Historic Preservation, and the MOU between TxDOT and the THC.

9.7 Hazardous Wastes/Substances

As detailed in **Section 5.4.1**, 24 sites with a high risk of hazardous materials were identified within one mile of the proposed project. During the ROW negotiation and acquisition process, further inquiry into the existing and previous ownership and uses of each property would be performed. Further assessment and investigations would be postponed until right-of-entry can be obtained in later stages of project development. If identified and confirmed, any hazardous material issues would be addressed during the ROW negotiation, acquisition, or eminent domain process prior to construction. Appropriate subsurface investigations and soils and/or groundwater management plans for activities within these areas would be developed. Special provisions or contingency language would be included in the project's Plans, Specifications, and Estimates to address hazardous materials and/or petroleum contamination according to applicable state, federal, and local regulations per TxDOT Standard Specifications.

9.8 Aesthetic Considerations

Aesthetic design guidelines are being developed for IH 35E mainlanes and cross street bridges. Aesthetic treatments for structural components (retaining walls, bridges, etc.) and landscaping would be incorporated into the proposed project during final design, and stakeholder input would be considered during this design process to minimize the potential for aesthetic impacts. Additional aesthetic design concepts would be dependent on additional funding from local governments, interest groups, and organizations.



Legend

- Ramps
- Bridges
- Local streets
- Noise wall (see Table 5-23 of EA)
- Noise receiver (see Table 5-22 of EA)

Note: See Figure A-5 for an index of map sheets.

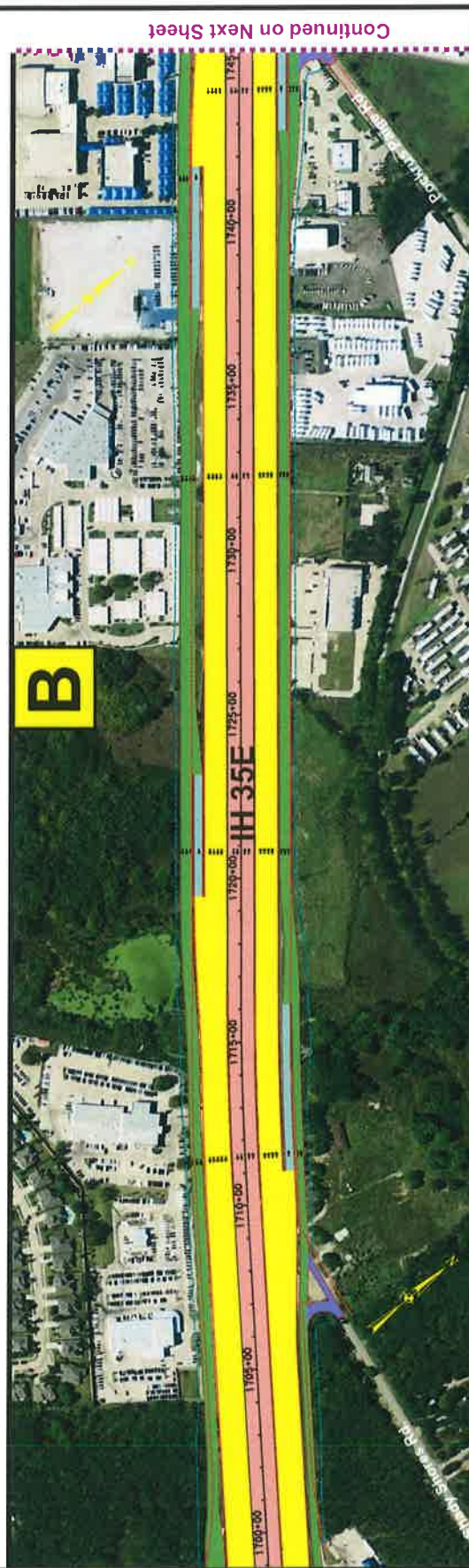
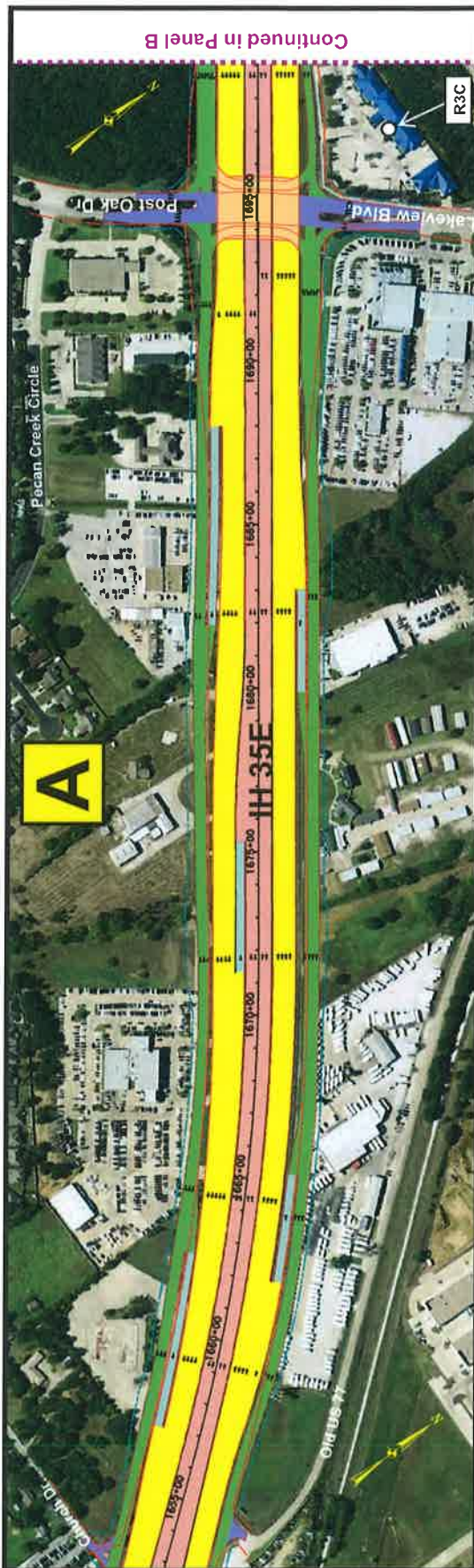
- Managed lanes
- Frontage roads
- General purpose lanes
- Existing right-of-way
- Proposed new right-of-way

0 250' 500' 750' 1000'

Figure C-20 (Sheet 1 of 7)

Proposed Noise Wall and Receiver Locations

IH 35E from FM 2181 to US 380, Denton County, TX



Note: See Figure A-5 for an index of map sheets.

Legend

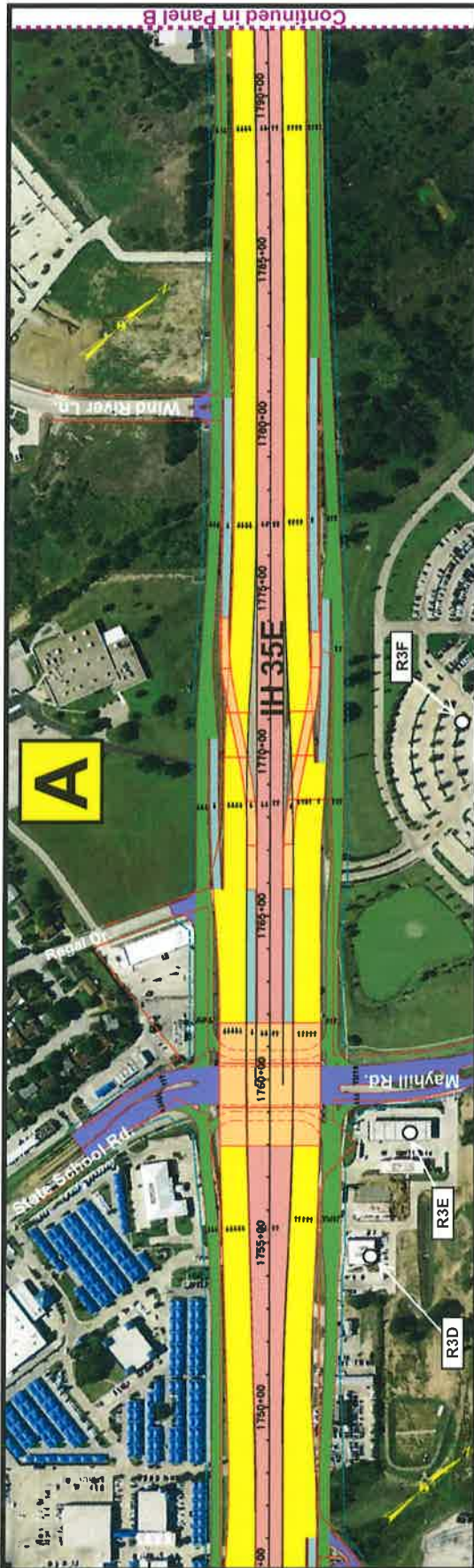
- | | | | |
|--|---------------------------------------|--|---------------------------|
| | Ramps | | Managed lanes |
| | Bridges | | Frontage roads |
| | Local streets | | General purpose lanes |
| | Noise wall (see Table 5-23 of EA) | | Existing right-of-way |
| | Noise receiver (see Table 5-22 of EA) | | Proposed new right-of-way |

Source/Date of Aerial Photograph: LandisCor/Oct 2007

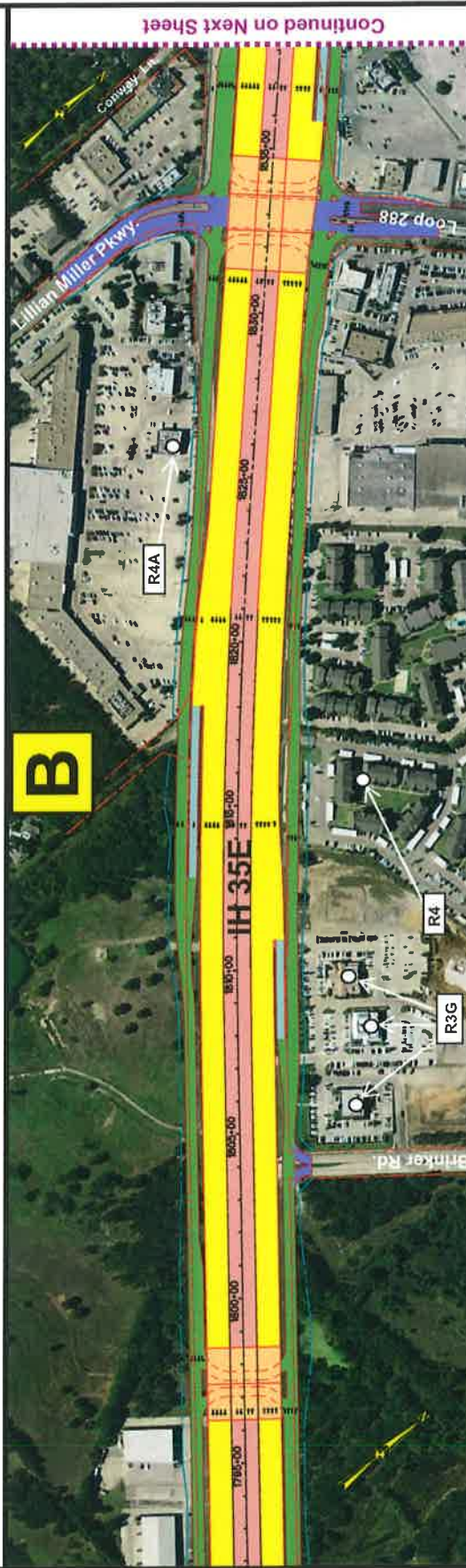


Figure C-20 (Sheet 2 of 7)

Proposed Noise Wall and Receiver Locations
IH 35E from FM 2181 to US 380, Denton County, TX



Continued in Panel B



Continued on Next Sheet

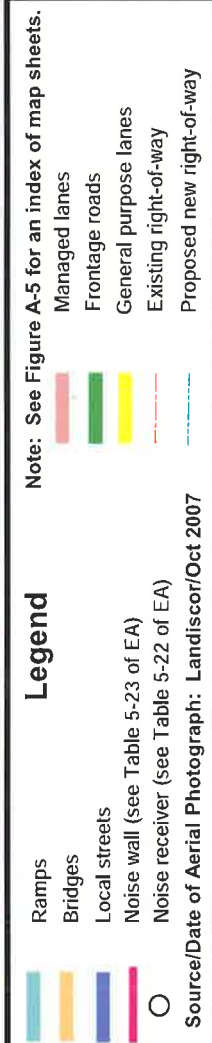


Figure C-20 (Sheet 3 of 7)
Proposed Noise Wall and Receiver Locations
 IH 35E from FM 2181 to US 380, Denton County, TX

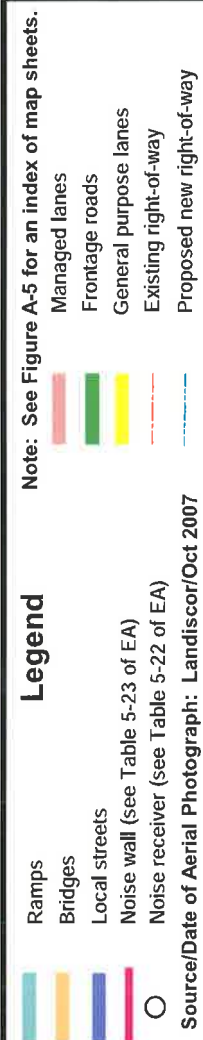
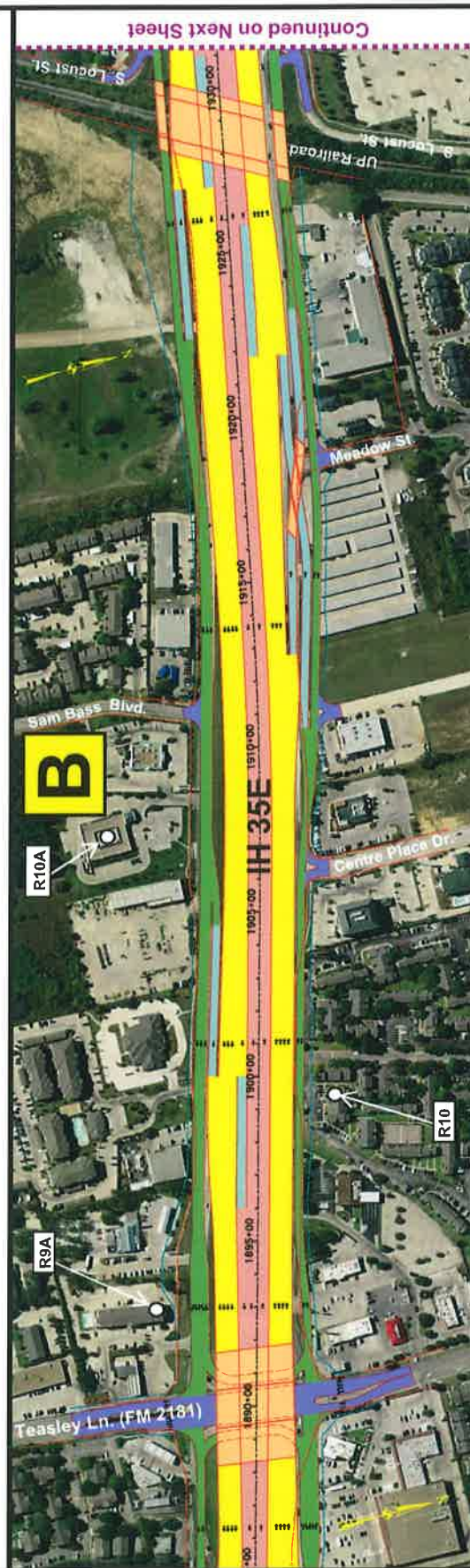
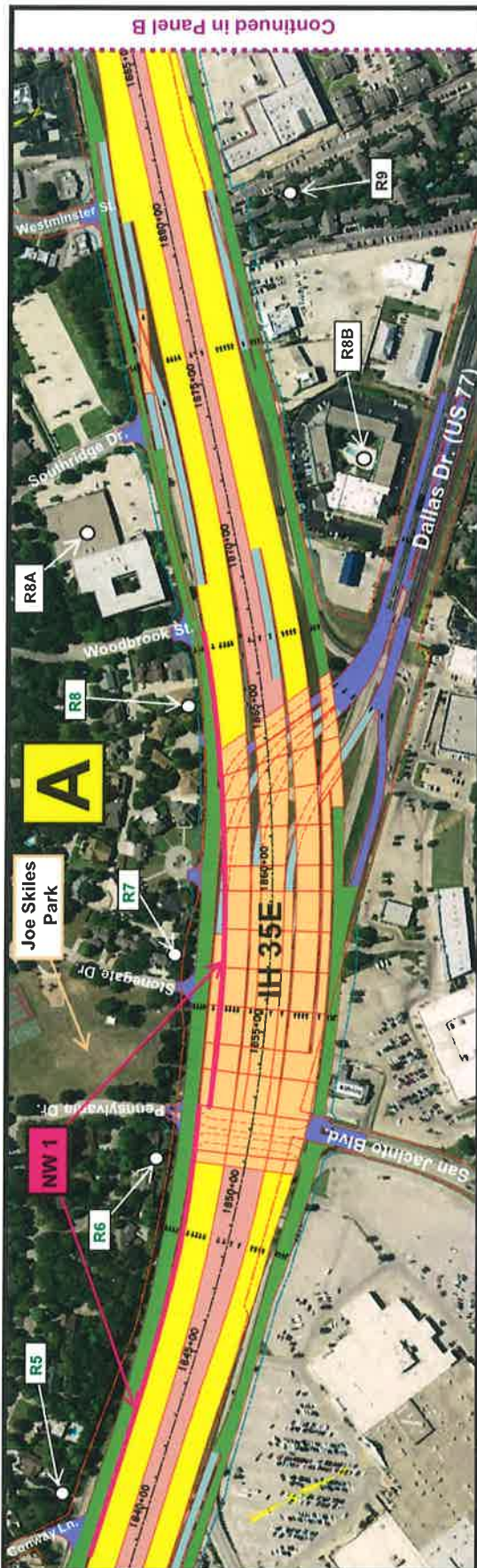


Figure C-20 (Sheet 4 of 7)
Proposed Noise Wall and Receiver Locations
 IH 35E from FM 2181 to US 380, Denton County, TX

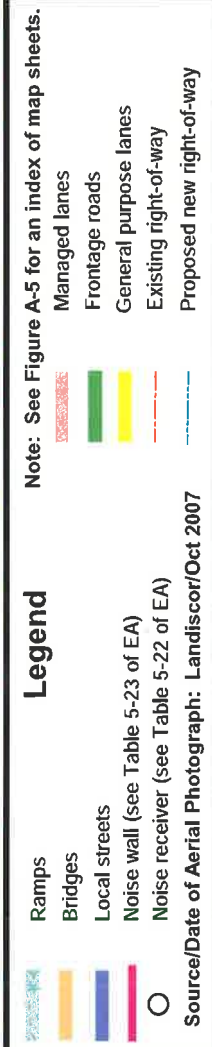
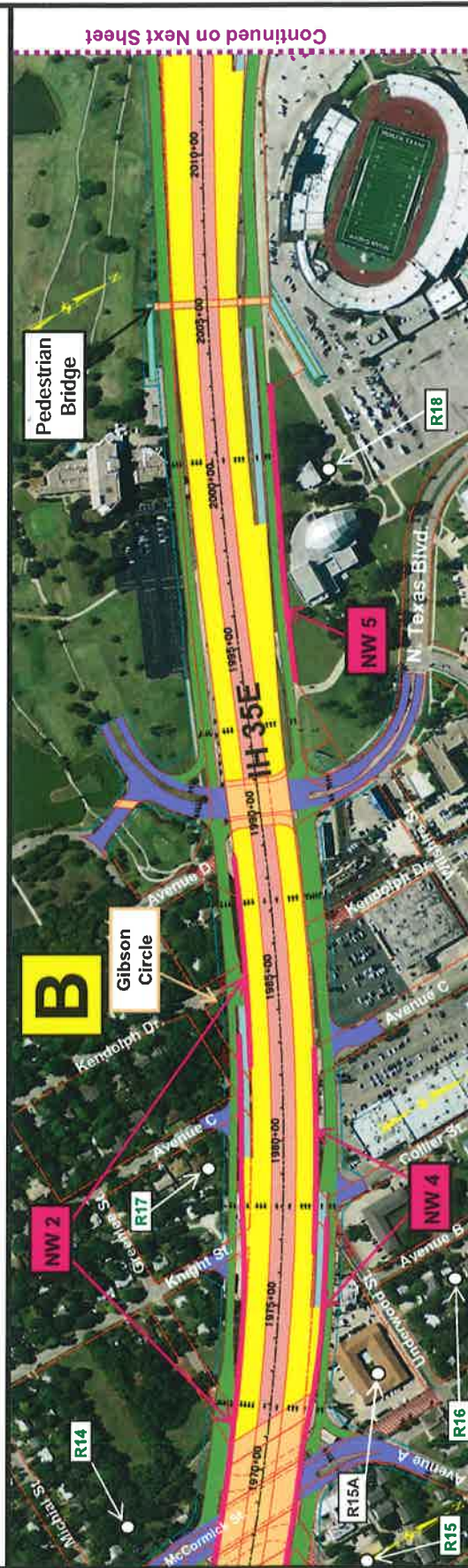
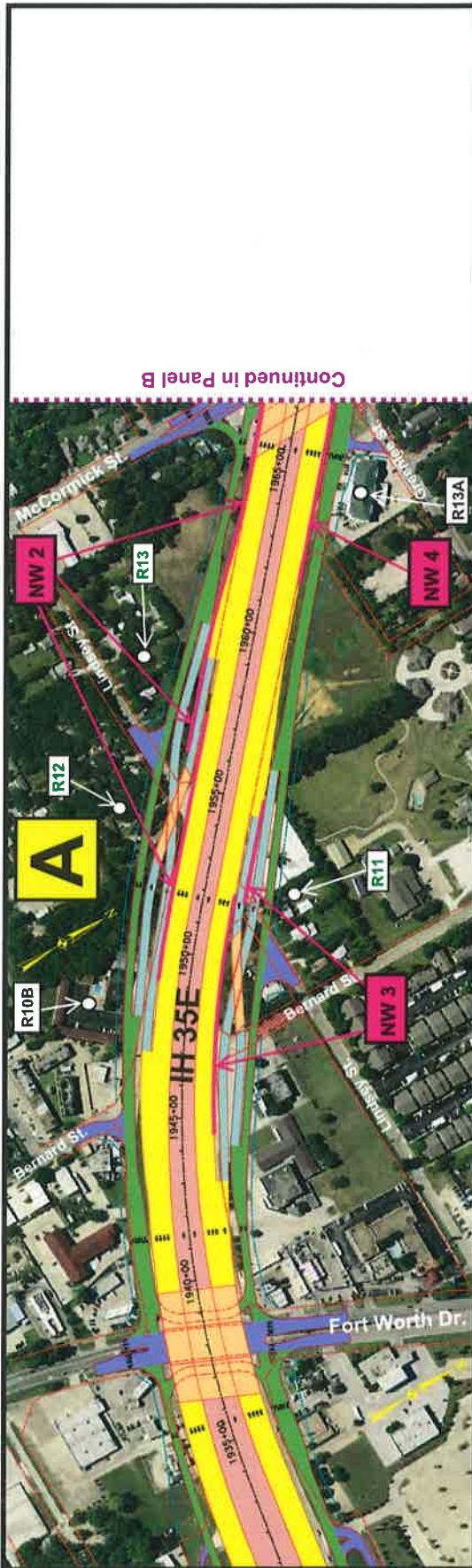
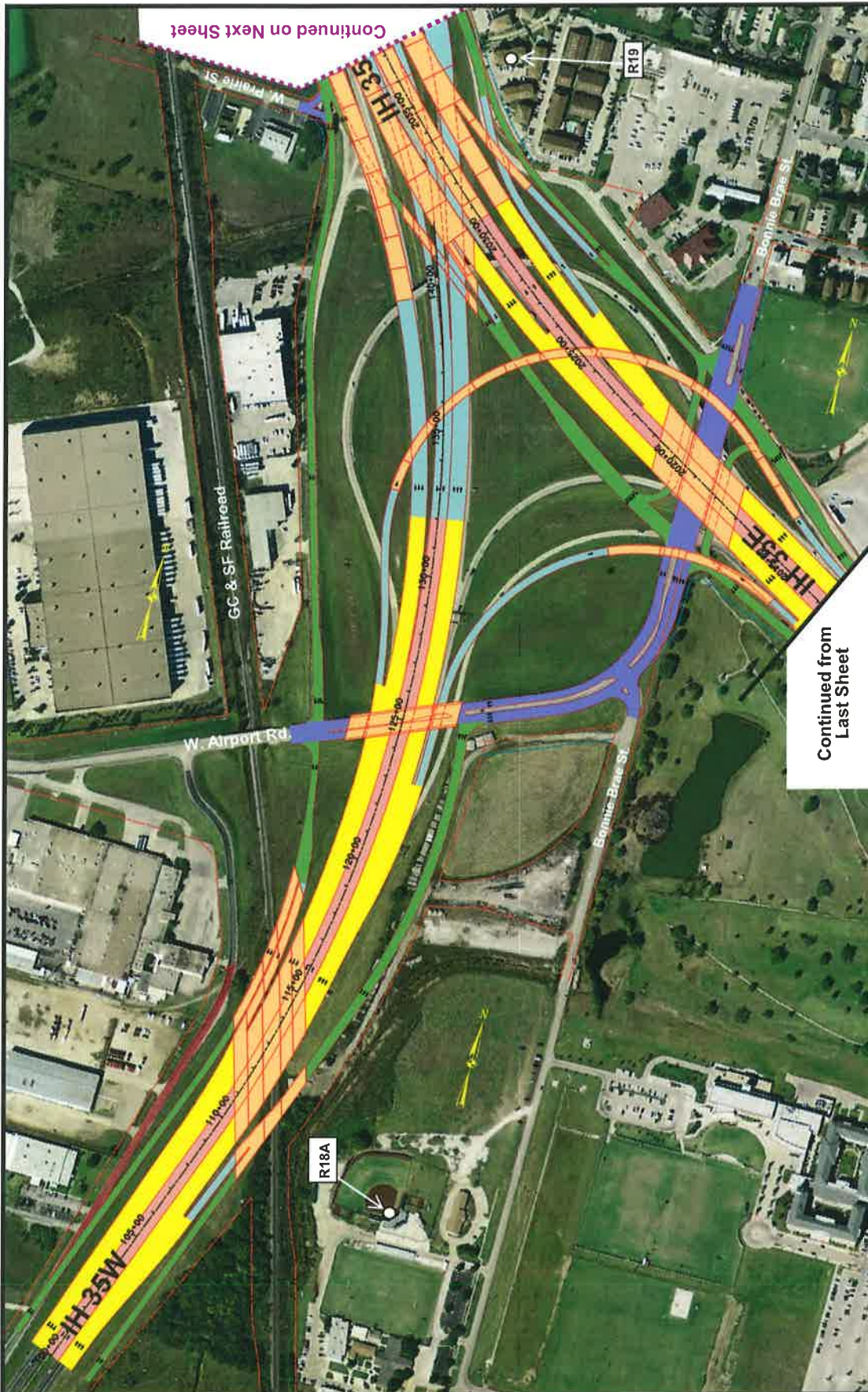


Figure C-20 (Sheet 5 of 7)
Proposed Noise Wall and Receiver Locations
 IH 35E from FM 2181 to US 380, Denton County, TX



Legend

- Ramps
- Bridges
- Local streets
- Noise wall (see Table 5-23 of EA)
- Noise receiver (see Table 5-22 of EA)

Note: See Figure A-5 for an index of map sheets.

- Managed lanes
- Frontage roads
- General purpose lanes
- Existing right-of-way
- Proposed new right-of-way

Figure C-20 (Sheet 6 of 7)
Proposed Noise Wall and Receiver Locations
 IH 35E from FM 2181 to US 380, Denton County, TX

