Draft Environmental Assessment

FM 407, Dallas District

From Bill Cook Road to FM 1830

CSJ Numbers: 1310-01-048, 1310-01-049, 1310-05-002, and 1568-02-016

Denton County, Texas

August 2025

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated July 17, 2025 and executed by FHWA and TxDOT.

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Acronyms

AADT	Average Annual Daily Traffic
ACS	American Community Survey
ACT	Antiquities Code of Texas
AOI	Area of Influence
APE	Area of Potential Effects
BMP	Best Management Practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CHC	County Historical Commission
CIA	Community Impacts Assessment
CMAQ	Congestion Mitigation and Air Quality
CMP	Congestion Management Process
CWA	Clean Water Act
CGP	Construction General Permit
dB(A)	A-weighted decibel level
DFW	Dallas-Fort Worth
EA	Environmental Assessment
EJ	Environmental Justice
EO	Executive Order
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FM	Farm-to-Market
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FTA	Federal Transit Authority
GHG	Greenhouse Gases
HRSR	Historic Resources Survey Report
IBWC	International Boundary & Water Commission
ISA	Initial Site Assessment
Leq	Equivalent Continuous Sound Level
LEP	Limited English Proficiency
LOP	Letter of Permission
LOS	Level of Service
MMT	Million Metric Tons
MPA	Metropolitan Planning Area
MOU	Memorandum of Understanding

List of Acronyms (continued)

MPH	miles per hour
MS4	Municipal Separate Storm Sewer System
MSAT	Mobile Source Air Toxics
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standard
NAC	Noise Abatement Criteria
NCTCOG	North Texas Council of Governments
NEPA	National Environment Policy Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWP	Nationwide Permit
PA	Programmatic Agreement
PCN	Preconstruction Notification
PH	Public Hearing
PM	Particulate Matter
PST	Petroleum Storage Tank
PWC	Parks and Wildlife Code
PS&E	Plans, Specifications, and Estimates
RGP	Regional General Permit
ROE	Right-of-Entry
ROW	Right-of-Way
RSA	Resource Study Area
SAL	State Archeological Landmark
SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Officer
SP	Individual Standard Permit
SIP	State Implementation Plan
SOV	Single Occupancy Vehicle
SW3P	Storm Water Pollution Prevention Plan
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TERP	Texas Emissions Reduction Plan
THC	Texas Historical Commission
TIP	Transportation Improvement Program
TMA	Transportation Management Area
TPWD	Texas Parks and Wildlife Department

List of Acronyms (continued)

TxDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
UPRR	Union Pacific Railroad
US	United States Highway
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
VMT	Vehicle Miles Traveled
VPD	Vehicles Per Day

1.0 Introduction

The Texas Department of Transportation (TxDOT) is proposing improvements to Farm-to-Market (FM) 407 from approximately 0.38 mile west of Bill Cook Road to 0.11 mile east of FM 1830 in city of Justin and the towns of Northlake and Argyle in Denton County, Texas, a distance of approximately 11.5 miles. The project activities would also include improvements along FM 156 from approximately 0.23 mile north to 0.17 mile south of 12th Street. The proposed project would widen FM 407 by one to two additional lanes in either direction, reconstruct intersections, realign portions on new location, and add bicycle and pedestrian accommodations (see **Appendix A** for the Project Location Map). The proposed project would require 161 acres of additional right-of-way (ROW), including the 86.8 acres of new ROW on the new location. The project will require the acquisition of approximately 70 feet of additional ROW, resulting in a new typical right-of-way width of approximately 150 feet that varies between 142 and 182 feet wide.

The purpose of this Environmental Assessment (EA) is to study the potential consequences of the proposed project and to determine if such consequences warrant the preparation of an Environmental Impact Statement. The EA is prepared to comply with both the TxDOT's environmental review rules and the National Environmental Policy Act (NEPA). The EA will be made available for public review and TxDOT will consider any comments received. If TxDOT determines that there are no significant adverse effects, it will prepare and sign a Finding of No Significant Impact (FONSI), which will be made available to the public.

TxDOT has conducted an independent evaluation of all parts of this EA that were prepared by a contractor(s) and has determined that this EA meets the standards under NEPA, regulations in 40 CFR Subchapter A, and FHWA's and TxDOT's NEPA procedures.

2.0 Project Description

2.1 Existing Facility

The existing FM 407 consists of one 11-foot-wide travel lane in each direction with variable 0-to 3-foot-wide outside shoulders. The roadway includes a conventional concrete I-beam bridge over Trail Creek. The ROW varies from 80 to 120 feet wide (90 feet usual) and totals 150.5 acres.

The existing FM 156 generally consists of one 12-foot-wide travel lane in each direction with variable 3- to 10-foot-wide outside shoulders. The ROW varies from 117 to 147 feet wide.

The existing Bill Cook Road consists of two undivided 10-foot-wide travel lanes within a 60-foot-wide ROW.

The existing Boss Range Road consists of two undivided 10-foot-wide travel lanes within a 60-foot-wide ROW.

The existing FM 1830 consists of two undivided 11-foot-wide travel lanes and an 11-foot-wide dedicated left-turn lane with variable width 0- to 3-foot-wide outside shoulders. The ROW varies from 80 to 120 feet wide (90 feet usual).

All of the roadways are at grade with non-controlled access. Drainage is conveyed through open ditches. The existing speed limit is 55 miles per hour (mph). Refer to **Appendix B** for the project photos, **Appendix C** for the schematics, and **Appendix D** for the existing typical sections.

2.2 Proposed Facility

The proposed project would primarily take place along the existing FM 407, with additional ROW acquisition on either side of the road, beginning approximately 0.38 miles west of Bill Cook Road for approximately 11.5 miles. It would include two new bridges over Trail Creek: one conventional concrete I-beam bridge spanning 140 feet and one conventional concrete I-beam bridge spanning 266 feet. Both bridges would include three 12-foot-wide travel lanes in each direction separated by an 18-foot-wide raised curbed median with 2-foot-wide shoulders, a 1-foot-wide outside rail barrier adjacent to a 10-foot outside shared-use path on one side of the bridge, and a rail barrier on either side of the bridge.

From approximately 850 feet west of Boss Range Road, the proposed project would realign FM 407 north/northeastward through agricultural fields, intersecting W 7th Street, and turning due east to be parallel to 12th Street. Boss Range Road would be extended north approximately 500 feet to intersect the realigned FM 407. The 12th Street intersection with FM 156 would be removed and the proposed project would include one conventional concrete I-beam bridge spanning 420 feet over the Burlington Northern-Santa Fe Railway and FM 156. This bridge would include three 12-foot-wide travel lanes in each direction separated by an 18-foot-wide raised curbed median with shoulders, a 10-foot outside shared-use path on one side of the bridge, and a rail barrier on either side of the bridge. Jughandle-shaped access ramps are proposed to connect FM 407 to FM 156 and be supported by earthen embankments and bridges. These ramp bridges would include one 12-foot-wide lane in each direction. The proposed FM 156 would include two 12-foot-wide travel lanes in either direction with a 12- to 24-foot-wide raised median with shoulders, and one 5-foot-wide sidewalk on the west side. FM 407 and FM 156 drainage would primarily be conveyed through curb and gutter.

The proposed project alignment would continue east on a new location alignment and bridge over Denton Creek via one conventional concrete I-beam bridge composed of three 12-foot-wide travel lanes in each direction separated by an 18-foot-wide raised curbed median with shoulders, a 10-foot-wide outside shared-use path on one side of the bridge, and a rail barrier on either side of the bridge amounting to a total maximum bridge length of 2,184 feet.

The proposed project would continue east of Denton Creek until reaching the existing intersection of FM 407 and Smith Road where the proposed alignment would again match the existing FM 407 alignment. The project would continue east until reaching Cleveland-Gibbs Road where construction would stop [west of Interstate Highway (I-) 35W] and resume at Gateway Drive located approximately 1.13 miles east of I-35W; the portion of FM 407 between Cleveland-Gibbs Road and Gateway Drive will be improved under a different FM 407 project (IH 35W / FM 407 Interchange). The proposed project would continue eastward along the existing FM 407 alignment until the end of the proposed construction 0.11 miles east of FM 1830. Refer to **Appendix A** for the Project Location Map, **Appendix C** for the schematics and **Appendix D** for the proposed typical sections. The Interchange project CSJ 1310-01-050 was environmentally cleared in March of 2023, and is anticipated to let in summer of 2025.

The proposed ROW would be 161 acres, with no easements. The total construction cost of the proposed project is approximately $330. This cost would be funded with a combination of local, state, and federal funding sources.

2.3 Logical Termini and Independent Utility

The Code of Federal Regulations (CFR) requires that federally funded transportation projects have logical termini (23 CFR 771.111[f][i]). Simply stated, this means that a project must have rational beginning and endpoints. Those endpoints may not be created simply to avoid proper analysis of environmental impacts. For the FM 407 project, Bill Cook Road was chosen as the western project limit because this cross street is within the City of Justin's western city limits and extra-territorial jurisdiction limit within which traffic-generating residential developments are occurring adjacent to FM 407. In contrast to west of Bill Cook Road, roadside and study area development is sparse or not as extensive. Motorists associated with the Justin developments located adjacent to, and south of FM 407, are expected to utilize Bill Cook Road as a major access connection to FM 407. This western limit was also chosen to upgrade the horizontal and vertical FM 407 geometry directly associated with transportation safety (see **Section 3.2**). The eastern limit of the project is at FM 1830, a non-regionally significant arterial and traffic generator. Widening FM 407 west of FM 1830 would eliminate an east-to-west travel lane reduction bottleneck from the previously widened FM 407 east of FM 1830. Also, the project design will seamlessly link the I-35W/FM 407 interchange project with an eastern terminus at Cleveland-Gibbs Road located west of I-35W and a western terminus at Gateway Drive located east of I-35W. This I-35W project would remove the current traffic bottleneck involving the interchange and would be constructed and operational prior to the construction of the FM 407 project. TxDOT is currently finalizing the 100% construction plans for the I-35W/FM 407 interchange project in anticipation of a summer 2025 project letting.

Federal regulations require that a project have independent utility and be a reasonable expenditure even if no other transportation improvements are made in the area (23 CFR 771.111[f][2]). This means that a project must be able to provide benefits by itself and must not compel further expenditures to make the project useful. Stated another way, a project must be able to satisfy its purpose and need with no other projects being built. The proposed project can stand on its own without the implementation of other traffic improvements because the proposed improvements can be accomplished without additional improvements to adjacent facilities. The project limits encompass the entire length of the project in which construction would take place and account for transitions into the existing roadway. Because the project stands alone, it does not irretrievably commit federal funds for other future transportation projects.

Federal law prohibits a project from restricting consideration of alternatives for other reasonably foreseeable transportation improvements (23 CFR 771.111[f][3]). This means that a project must not dictate or restrict any future roadway alternatives. The proposed project would not restrict the consideration of alternatives for foreseeable transportation improvements because the proposed improvements would not preclude the future widening of adjacent roadway facilities or the development of other transportation modes or routes.

2.4 Planning Consistency

Both the North Central Texas Council of Governments' (NCTCOG) financially constrained 2045 Metropolitan Transportation Plan (MTP) Update and the 2023-2026 Transportation Improvement Program (TIP), as amended, were initially found to conform to the Texas Commission on Environmental

Quality (TCEQ) State Implementation Plan (SIP) by the Federal Highway Administration (FHWA) and Federal Transit Authority (FTA) on December 15, 2022, and October 18, 2024, respectively.

3.0 Purpose and Need

3.1 Need

The proposed project is needed because the current capacity of FM 407 within the project limits is inadequate to meet current and future anticipated population trends, resulting in congestion, and reduced east-to-west mobility.

3.2 Supporting Facts and/or Data

Population Mobility 2045, prepared by the NCTCOG, is a guidance document for the implementation of multimodal transportation improvements, policies, and programs in the 12-county Metropolitan Planning Area (MPA) through the year 2045. According to *Mobility 2045*, the 12-county Dallas-Fort Worth (DFW) MPA had a 2010 population of approximately 6.4 million persons. By 2045, the population of the 12-county DFW MPA is projected to be 11.2 million persons: an increase in growth of approximately 75 percent.

According to the U.S. Census Bureau, Denton County had a 2010 population of approximately 662,614 persons. In 2021, the estimated population was 941,647, an increase of 42.1%. The City of Justin had a 2010 population of approximately 3,261 persons, and 5,031 in 2021, a growth of 54.3%. The Town of Northlake had a 2010 population of approximately 1,871 persons, and 6,829 in 2021, a growth of 265%, a massive growth that outpaces the county and coincides with the large-scale residential developments in recent years and ongoing along FM 407 and I-35W. The Town of Argyle had a 2010 population of approximately 3,273 persons, and 4,707 in 2021, a growth of 43.8%.

The Texas Water Development Board (TWDB) conducts population projections to assist in regional water planning. **Table 1** shows the projected populations of the geographies within and surrounding the FM 407 proposed project area for the years 2010, 2021, and 2040.

Table 1: Projected Populations for Geographies in the FM 407 Project Area

Geography	2010	2021	2010-2021 % Increase	2040	2021-2040 % Increase
City of Justin	3,261	5,031	54.3	12,298	144.4
Town of Northlake	1,871	6,829	265	31,010	354.1
Town of Argyle	3,273	4,707	43.8	22,005	367.5
Denton County	662,614	941,647	42.1	1,490,815	58.3

Sources: USCB 2010 Census; USCB 2017-2021 American Community Survey 5-Year Estimates; TWDP 2021 Regional Water Plan Population & Water Demand Projections

Employment

U.S. Census Bureau 2010 and 2022 American Community Survey 5-Year estimates were utilized for employment data in Denton County and the cities adjacent to FM 407 in the Area of Influence (AOI). According to the 2010 estimates, 332,090 persons were employed in Denton County. By 2022, Denton County employment was estimated to be 541,241 persons: an increase of 63%. The City of Justin had an estimated 1,620 persons employed in 2010, and 2,382 persons by 2022, an increase of 47%. The Town of Northlake had an estimated 747 persons employed in 2010, and 3,143 persons by 2022, a massive increase of 320.7%, again coinciding with the large-scale ongoing development of the region. The Town of Argyle had an estimated 1,505 persons employed in 2010, and 2,605 persons by 2022, an increase of 73.1%.

Congestion

Increasing growth in the proposed project area will result in more congestion and a demand for more mobility that adheres to current day transportation safety standards. According to TxDOT Transportation Planning and Programming, the year 2028 projected traffic volumes along FM 407 within the project limits range from 5,780 to 22,830 Vehicles Per Day (VPD). The projected 2048 traffic volumes range from 12,710 to 36,400 VPD. A two-way principal arterial, rural and located on level terrain such as the existing FM 407 can efficiently and operationally accommodate average traffic volumes of approximately 3,200 to 5,300 VPD to maintain an acceptable Level of Service (A to D).

Safety

The existing FM 407 consists of one 11-foot-wide travel lane in each direction with variable 0- to 3-foot-wide outside shoulders. The lane and shoulder widths do not adhere to current design, safety and capacity standards and criteria. Because FM 407 is a two-lane undivided roadway, motorists are slowed or stopped by vehicles making right or left-turn movements and vehicles entering or exiting the roadway, specifically motorists from cross streets such as Bill Cook Road attempting to enter the FM 407 facility (currently posted at 55 mph) between passing vehicles. In addition, slow moving vehicles create traffic queueing as motorists attempt to safely pass the vehicles; these vehicles include long-bed trucks which trailing vehicles attempt to pass between oncoming traffic. These daily incidents adversely impact motorist safety, slow travel, and increase the potential for vehicular crashes. In addition, the roadway's limited shoulder widths do not provide adequate space to accommodate disabled vehicles fully and safely, which is considered hazardous to both the stopped and passing motorists. Specifically related to the western project termini (Bill Cook Road), vertical sight distances along the roadway are inadequate and portions of the roadway contain sharp horizontal curves. For example, northbound Bill Cook Road motorists attempting to turn on to westbound FM 407 are not provided adequate sight distance to optimally see eastbound oncoming FM 407 motorists due to the geometrically inadequate FM 407 crest vertical roadway curve located east of Bill Cook Road. There are also a series of three successive geometrically inadequate horizontal roadway curves that must be navigated by motorists beginning 0.47 mile east of Bill Cook Road. The number of motorists attempting to navigate these travel conditions and geometric challenges are expected to increase as adjacent commercial and residential developments continue and the resulting commuter traffic increases.

Therefore, the project proposes to upgrade the travel conditions and travel safety within this western segment and along the entire facility by flattening the vertical and horizontal roadway curvature while adding dedicated travel lane capacity for passing and turning vehicles. These improvements conform to municipal (town, city, and county) Thoroughfare Plans and applicable comprehensive and park and recreational related plans. FM 407 crash data collected between 2017 and 2022 identified two vehicular fatalities along the corridor, and 285 other crashes. The highest number of vehicular crashes are concentrated near intersections in high-population areas along FM 407 including the FM 156, I-35W, and US 377 intersections. However, the two fatalities each occurred near the project's proposed western and eastern terminus, Bill Cook Road and FM 1830, respectively.

Bicycle and Pedestrian Access

There are no bicycle accommodations along FM 407 and sidewalks are not continuous.

3.3 Purpose

The purpose of the project is to reduce congestion and improve mobility on FM 407 from Bill Cook Road to FM 1830.

4.0 Alternatives

4.1 Build Alternative

The project proposes to widen the existing 2-lane rural, undivided roadway to a 6-lane, urban divided facility for approximately 11.5 miles along FM 407 in Denton County, TX. The project would include pedestrian and bike accommodations. The existing ROW varies from 80-feet to 90-feet. The proposed ROW varies along the corridor and is generally 140 feet wide. This alternative would improve traffic operations and mobility within the FM 407 project corridor. Refer to **Section 2.2** for more details.

4.2 No-Build Alternative

Under the No-Build Alternative, the proposed FM 407 project would not be constructed and does not improve FM 407 beyond prior FM 407 improvement commitments and routine FM 407 road maintenance. The regional (*Mobility 2045*) improvements are assumed to be in place and operational with the exception of FM 407 improvements. The No-Build Alternative would not require the conversion of 161 acres of new ROW from existing land uses to transportation use nor would other project-related impacts occur. The No-Build Alternative would not aid in traffic demand and local traffic management. Consequently, the anticipated mobility benefits of the proposed project would not be realized. For this reason, the No-Build Alternative does not meet the project's need and purpose, therefore the Build Alternative is the preferred alternative. However, the No-Build Alternative was carried forward for comparison purposes.

4.3 Preliminary Alternatives Considered but Eliminated from Further Consideration

The TxDOT FM 407 Feasibility Study (December 2020) identified and evaluated road-related capacity, operational and geometric improvements along FM 407 in Denton County. In doing so, the study produced and recommended conceptual solutions to improve FM 407 travel conditions. Based on the study purpose and study goals, the study's production and evaluation of the No-Build Alternative and

conceptual Build Alternatives factored in public and municipality/agency outreach and input. Described below and presented at the study's initial advertised FM 407 Public Meeting conducted by TxDOT in March 2019, each alternative was assessed for compatibility with the regional MTP, local / municipal Thoroughfare Plans, and factored in environmental and design constraints and traffic operations and functionality.

Green Build Alternative

This alignment predominately followed the existing FM 407 roadway centerline and spanned from Florance Road in Northlake eastward to the study's eastern termini at FM 1830. This alignment also entailed two sub-options: intersecting the United States Highway (US) 377 and Union Pacific Railroad (UPRR) at grade, or bridging/overpassing the two facilities. Based on city coordination with the TxDOT and public meeting comments received, the option to have FM 407 bridge over US 377 and the UPRR was eliminated, predominantly due to land impacts which included an adjacent, city-advocated residential development.

The following alternatives focused on the City of Justin portion of the corridor, and each were intended to tie directly to the Green Alternative:

Blue Build Alternative

This northernmost new location alignment spanned from Florance Road on predominately new location westward / northwestward and tied directly to the west-east FM 1384 facility until it bypassed the City of Justin when it turned directly southward and eventually tied to existing FM 407 west of Justin / FM 156. This distant alignment option was eliminated based on traffic analysis which determined approximately 33% of the westbound FM 407 travelers would utilize this route as opposed to approximately 67% of the travelers who would revert to traveling the same existing FM 407 alignment to reach their desired destinations which were predominately located within Justin, south of Justin, or immediately west of Justin and adjacent to existing FM 407.

Brown Build Alternative

Located south of the Blue Alternative and within Justin, this westward new location alignment spanned from Florance Road on new location and terminated at the north-south FM 156 facility within Justin via entrance and exit vehicular access ramps to / from the Alternative and FM 156. This alignment option was eliminated since it terminated at FM 156; in doing so, the FM 407 traffic volumes must merge with the FM 156 volumes and therefore, 1) overburdens the limited capacity FM 156 travel lanes, and 2) creates traffic queueing along the access ramps connecting FM 407 and FM 156. For this reason, a significant portion of the westbound FM407 travelers were forecast to revert to traveling the same existing FM 407 alignment to reach their desired destinations west of FM 156.

Red Build Alternative

Located south of the Brown Alternative and within Justin, this new location alignment spanned from Florance Road southwestward and was located to supplant or be located south of east-west 12th Street, and at the western limit of 12th Street, veered directly southward before it tied directly to existing FM 407 west of Justin / FM 156 / Boss Range Road. Alongside all the Build options identified and evaluated and commented on at the FM 407 public meetings, this alignment was determined and

recommended by TxDOT to be the Technically Preferred Build Alternative (combined with the Green Build Alternative).

One-Way Couplet Build Alternative

This alignment veered immediately southwestward from Florance Road on predominately new location and 1) the westbound travel lanes veered along the existing west-east segment of FM 407 (which is also signed locally within Justin as E. 5th Street), and 2) the eastbound travel lanes veered southwestward on new location and tied directly into the existing FM 407 facility within Justin (west of FM 156) and continuing westward to the study's western termini west of Boss Range Road. This alignment option was eliminated since it highly depended on traveler familiarity with uncommon one-way street operation, 2) required crossing the BNSF Railway at-grade since bridging over the Railway would displace historic buildings and local businesses, 3) and was too disruptive or circuitous for residents and business patrons when navigating to their desired destinations, The at-grade Railway crossing would, like the present day FM 407 Railway crossing, continue to stop emergency service vehicles from crossing the tracks when trains were either traveling along or parked on the tracks.

Purple Build Alternative

This southernmost alignment veered immediately southwestward of Florance Road and followed the Couplet Alternative's eastbound travel lanes but did not align with E. 5th Street, and unlike the Couplet Alternative was a two-way facility. This alignment option was eliminated since it crossed the BNSF Railway at-grade and bridging over the Railway would displace historic buildings and local businesses. Also, the at-grade Railway crossing would, like the present-day FM 407 Railway crossing, continue to stop emergency service vehicles from crossing the tracks when trains were either traveling along or parked on the tracks.

Each studied build alternative could be implemented over different time periods based on localized congestion relief needs and construction funding availability. Another potential mobility improvement considered by the study to further alleviate the FM 407 travel conditions and traffic volume demand, as well as serve future, planned, ongoing development between FM 156 in Justin and I-35W, was to potentially supplement the ultimate build alternative. This supplemental option entailed a new location facility which spanned from FM 156 in Justin eastward along Downe Road and proceeded further eastward and linked the Mulkey Lane facility and eventually linked the I-35E facility. However, this supplemental option would not eliminate the need to add travel lanes (added capacity) to the existing FM 407 facility.

The FM 407 Feasibility Study performed various very high-level design alternative concepts, evaluations and analyses to produce a transportation solution ("Recommended Build Alternative") to improve travel and safety-related conditions along the FM 407 facility. Determination and selection of this Alternative was also based on input received from the FM 407 corridor municipalities, elected officials, and from the two advertised March 2019 and July 2020 FM 407 Public Meetings conducted for the Study by TxDOT.

Upon the completion of the Evaluation Matrix screening of the study's No-Build and all the Build Alternatives, and upon further study team discussions with the stakeholders, municipalities and elected officials after the initial March 2019 FM 407 Public Meeting was conducted by the Study, a refined version of the original Red Route (in combination with the common Green Route and an at-

grade FM 407 / US 377 intersection) presented at the same Public Meeting emerged as the study's Recommended Build Alterative.

The refinement included geometric / alignment modifications to the original Red Route to lessen building displacements and sensitive site impacts as much as possible. The refinement also factored in the public comments received at the March 2020 FM 407 Public Meeting.

In-depth traffic analysis during the refinement process also entailed Level of Service (LOS) calculations which were produced to scrutinize and confirm the refined Red Route alternative would achieve acceptable LOSs through year 2045. Subsequently, the refined red Route was presented as the Recommended Build Alternative at the study's second and final July 2020 FM 407 Public Meeting which was conducted in a virtual format due to COVID-19 pandemic social distancing requirements and mandates which surfaced in the spring of 2020. At this Public Meeting, the Recommended Build Alternative was explained as a conceptual design solution which would be carried forward and processed as a formal post-Feasibility Study FM 407 improvement project and entail the production of FM 407 Roadway Design Schematics, Environmental Studies and further Public Involvement.

The overall Recommended Build Alternative is the Build Alternative, as discussed in **Sections 2.2** and **4.1**.

5.0 Affected Environment and Environmental Consequences

Environmental issues were a primary focus in the planning, design, and environmental analysis processes. In support of this EA, the following technical reports were prepared and may be inspected and copied upon request at the TxDOT Dallas District Office 4777 E. Highway 80, Mesquite, Texas 75150:

- Community Impact Assessment Technical Report
- Archeological Background Study
- Archeological Permit Application
- Archeological Resources Survey Report
- Project Coordination Request for Historic Studies
- Historic Research Design
- Historic Resources Survey Report
- Water Features Delineation Report
- Surface Water Analysis Form
- Water 404/10 Impact Table
- Species Analysis Form and Spreadsheet
- FPPA Form (NRCS-CPA-106)
- The Texas Natural Diversity Database (TXNDD)
- Air Conformity Report Form
- Congestion Management Process Disclosure Statement
- Air Quality Resources Technical Report
- Hazardous Materials Initial Site Assessment

- Traffic Noise Analysis Report
- Indirect Effects Technical Report
- Cumulative Effects Technical Report

The technical reports listed above, apart from the Archeological Resources Survey Report and the Historic Resources Survey Report (HRSR), are based on the environmental study area associated with the final schematic design shown in **Appendix C**. The environmental study area and the actual proposed project area are the same. The discussion of the study area for the Archeological Resources Survey Report and the HRSR are discussed in **Section 5.7**.

Resource categories with the potential to be affected by the implementation of the proposed project are summarized in the following sections.

5.1 Right-of-Way Property Acquisition

The Build Alternative would require acquiring 161 acres of new ROW. The existing ROW within the project limits is approximately 150.5 acres (**Appendix C**). Anticipated residential displacements are discussed in **Section 5.5.2**.

The ROW acquisition would be limited to those properties required for roadway construction. ROW acquisition would be conducted in accordance with the Federal Uniform Relocation and Real Property Acquisition Policy Act of 1970 (Uniform Act). All property owners, from whom property is needed, are entitled to receive just compensation for their land and property. Just compensation is based upon the fair market value of the property. Accommodations for persons with Limited English Proficiency (LEP) will be made during the ROW acquisition process

No-Build Alternative

Under the No-Build Alternative, no project-related ROW would be acquired, therefore no displacements would occur.

5.2 Land Use

The proposed project setting is a mix of rural and urban land, with large areas of undeveloped farm and ranch land along much of its limits. Areas of development can be found along the project in and around the cities of Justin, Northlake, Corral City (aka Draper), Argyle, and Bartonville, and include residential, commercial, and industrial land uses, as well as community facilities such as schools and parks (**Figure 1** in **Appendix E**). The project setting also includes Denton Creek, Fincher Branch, Graham Branch, Trail Creek, Whites Branch, various tributaries, and associated floodplains, with forested and riparian vegetation. Vegetation outside of the floodplains is primarily open scrubland, cultivated farmland, or mowed-maintained grass. There are various traffic generating establishments along FM 407 such as the Justin Elementary School, Northwest Independent School, The Goddard School of Northlake, and Johnie R. Daniel Elementary School. There are no known historical features within and immediately adjacent to the project limit.

5.3 Farmlands

The Farmlands Protection Policy Act (FPPA) of 1981 requires a farmland impact evaluation for applicable, federally funded projects. The purpose of the FPPA is to minimize the extent to which

federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. The results of the FPPA analysis, provided in NRCS-CPA-106, indicate a score of less than 60 points. Therefore, NRCS coordination is not required.

Farmland impacts would be limited to areas where the new location roadway would be constructed. The proposed FM 407 would result in the division or separation of existing agricultural land. The majority of farmlands would continue to function as they do under existing conditions; therefore, encroachment-alteration effects stemming from farmland impacts are not significant as a result of the Build Alternative.

No-Build Alternative

Under the No-Build Alternative, additional ROW would not be obtained, existing farmland would not be developed; therefore, there would be no impacts to farmland.

5.4 Utility Relocation

The new location portion of this project would impact existing utilities from approximately 850 feet west of Boss Range Road through agricultural fields, intersecting W. 7th Street, and turning due east to be parallel to 12th Street.

The impacts resulting from the removal of any utilities from within existing highway ROW (e.g., construction noise, potential disturbance to archeological resources, and potential impacts to species habitat) have been considered as part of the overall project footprint impacts within this EA.

It has not yet been determined whether the dislocated utilities will be re-installed within the project ROW or in a location outside the project ROW. However, the potential impacts resulting from the re-installation of the displaced utilities within the project ROW have been considered as part of the overall project footprint impacts (e.g., construction noise, potential disturbance to archeological resources, and potential impacts to species habitat) within this EA. To the extent that the owner of any displaced utility determines to re-install the displaced utility at a location outside of project ROW, such location will be determined by the owner of the utility subject to the rules and policies governing the utility relocation process. Additionally, the owner of the utility will be responsible for acquiring any easements outside the project ROW and ensuring that the design and construction meet all regulatory and environmental compliance requirements. See 43 Texas Administrative Code (TAC) 21.37(a)(9), (g)(1)), and (g)(4); and 43 TAC 21.38(e)(2).

No-Build Alternative

Under the No-Build Alternative, there would be no project-related impacts to utilities.

5.5 Community Impacts

5.5.1 Community Study Area and Demographics

The community study area was defined by selecting census blocks within at least one mile of the project. The community study area is encompassed by eight census tracts, 16 census block groups, and 505 census blocks. Based on the U.S. Census Bureau 2020 Census, out of the 505 census blocks, 137 (27.1%) have zero population, and 62 (12.3%) have minority populations of 50% or greater. Eight

minority census blocks are adjacent to the proposed project. Based on the 2018-2022 American Community Survey (ACS) 5-Year Estimates, out of the 16 census block groups, one (6.3%) has a minority population of 50% or greater. Out of the eight census tracts, none have minority populations of 50% or greater.

The total approximate population of the community study area is 25,667 across the 505 census blocks. Of the 25,667, 19,157 (74.6%) are white alone; 3,515 (13.7%) are Hispanic or Latino; 750 (2.9%) are Black or African American alone; 1,144 (4.5%) are Two or More Races; 859 (3.4%) are Asian alone; 137 (0.5%) are American Indian and Alaska Native alone; 83 (0.3%) are Some Other Race alone; and 22 (0.09%) are Native Hawaiian and Other Pacific Islander alone. The total minority population within the study area is 6,510 (25.4%).

Of the eight census tracts and 16 block groups encompassing the community study area, none have median household incomes below the 2024 poverty threshold. Median incomes for census tracts range from $106,382 to $220,443. The block groups median income ranges from $86,717 to $221,354. There are an estimated 15,918 households within the eight census tracts encompassing the community study area, with 808 (5.1%) being below the poverty threshold. There are an estimated 12,638 households within the 16 block groups encompassing the study area, with 577 (4.6%) being below the poverty threshold.

5.5.2 Displacements

Six residences would potentially be displaced as a result of the proposed project. All are single-family homes located in a row along the south side of 12th Street west of FM 156. The potential displacements are not located in a minority census block.

Potential displacements were minimized by avoiding impacts to structures where possible and using available vacant or open land where practicable. Constraints were mapped and used in the planning process to avoid important resources such as places of worship, public facilities, and other various resources. Encroachment-alteration effects could include the loss of undeveloped land for agricultural use.

All of these homes are fully within the proposed ROW and cannot be avoided. ROW acquisition would be conducted in accordance with the Federal Uniform Relocation and Real Property Acquisition Policy Act of 1970 (Uniform Act). All property owners, from whom property is needed, are entitled to receive just compensation for their land and property. Just compensation is based upon the fair market value of the property.

No-Build Alternative

Under the No-Build Alternative, there would be no impacts to the community associated with the potential displacements of the proposed project.

5.5.3 Access and Travel Patterns

The proposed project is generally anticipated to reduce travel times through the inclusion of raised medians, widening of the roadway from one to three lanes in each direction, and reconstruction of intersections. The new location portion of the project would create a new corridor and would improve access around the City of Justin for motorists. Raised medians could increase travel times for motorists

adjacent to FM 407, but increases would be minimal, with median breaks being located at intersections and regular intervals along the corridor. One community facility, the North Texas Church of Christ, would not have a median break at their location, requiring U-turns at nearby intersections to enter/exit FM 407 eastbound lanes.

Access along FM 407 for pedestrians/ cyclists would also be improved through the inclusion of shared-use lanes and sidewalks. Bicycle and pedestrian facilities would comply with TxDOT's Bicycle Accommodation Design Guidance. TxDOT's guidance implements the U.S. Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodations, as well as FHWA policy.

Bicycle traffic would be accommodated with a 10-foot-wide shared-use path in the eastbound direction and a 6-foot-wide American with Disabilities Act-compliant sidewalk in the westbound direction would be included along the entire project limit (see **Appendix C** for the schematics and **Appendix D** for the typical sections).

There is the potential for the proposed project area to experience changes in the mode(s) of transportation utilized by area residents and changes in traffic volumes. The introduction of new bike/pedestrian facilities in the immediate area may encourage people to pursue alternative modes of transportation. With improved access to bike/pedestrian facilities, people may have more desire to visit or use local services and facilities.

No-Build Alternative

Under the No-Build Alternative, there would be no improved access around the City of Justin for motorists and reduction of travel times.

5.5.4 Community Cohesion

No adverse impacts to community cohesion are anticipated. FM 407 would continue to provide direct access to all adjacent properties, though raised medians would require additional travel distance for some depending on the direction of travel. Median breaks would provide U-turn access for adjacent property owners without median breaks. Cross streets would continue to provide access across FM 407 as they currently do, along with additional lanes and turn lanes to facilitate more efficient travel. Sidewalks and shared-use paths would reduce existing levels of separation for bicyclists and pedestrians.

A detailed discussion of the community impacts can be found in the Community Impacts Assessment (CIA) Technical Report Form for the proposed project.

No-Build Alternative

Under the No-Build Alternative, there would be no impacts to the community associated with the proposed project.

5.5.5 Limited English Proficiency

Executive Order (EO) 13166 requires Federal agencies to examine the services they provide, identify any need for services to those with LEP, and develop and implement a system to provide those services so LEP persons can have meaningful access to them. Persons who have special communication or accommodation needs, or need an interpreter, have been, and will continue to be encouraged to

contact the TxDOT Dallas District Public Information Office for assistance. Reasonable steps have been and will continue to be taken to ensure LEP persons have meaningful access to the programs, services, and information TxDOT provides.

LEP populations are present across the community study area but are limited. The LEP population is estimated to be 1,392 (4.0%) across 12 of the 16 census block groups. Accommodations have been and will be provided for Spanish language speakers for all public involvement (see **Figure 2a** in **Appendix E**).

Accommodations for LEP persons during previous public involvement have included providing bilingual (English/Spanish) public notices, placing public notice display ads in English and Spanish newspapers, and having Spanish-speaking staff present at public involvement events. In addition, the public involvement notices state that accommodations for other non-English languages would be provided if requested ahead of the meeting. If a request is received, TxDOT will make every reasonable effort to accommodate persons with special communication or mobility needs. A Public Hearing (PH) is currently planned to be held in Fall of 2025. The PH and all other future public involvement would also include the same accommodations provided from the previous activities for non-English speaking LEP populations. If a request is received, TxDOT will make every reasonable effort to accommodate persons with special communication or mobility needs Refer to **Section 7.0** for more information about public involvement conducted for the project.

5.6 Visual/Aesthetics Impacts

This section of FM 407 is an existing roadway. Vegetation in the ROW consists primarily of maintained grasses with minimal tree cover at some of the stream crossings. Aesthetic enhancement of the existing roadway and the realigned section is minimal. The Build Alternative would have minimal effect on the overall aesthetic quality along the proposed project area. Visual impacts resulting from the Build Alternative would include roadway widening. Because this is a change from the existing condition, the viewsheds of existing residences and business facilities would be directly impacted. However, these impacts would not be considered as being detrimental to business operations. Landscaping would not be included as a part of the proposed project.

The proposed project may incorporate safety lighting, which could be considered as a positive effect on the visual and aesthetic qualities of the proposed pedestrian and bicycle accommodations. During the final design, the design of light fixtures would be completed. Local, state, and federal requirements would be reviewed during the design and designation of additional lighting required for this project. The roadway lighting system could consist of low-impact, downward directional lighting to minimize impacts to adjacent properties.

Where reasonable and feasible, mitigation measures that would result in beneficial visual and aesthetic impacts may be programmed for this project. These measures may include aesthetic enhancements, such as lighting, and/or decorative details. Aesthetic treatments would be developed during the final design and incorporated into the project design as appropriate.

No-Build Alternative

The No-Build Alternative would not result in FM 407 project-related visual impacts along the existing corridor as the proposed improvements would not be constructed.

5.7 Cultural Resources

Cultural resources are structures, buildings, archeological sites, districts (a collection of related structures, buildings, and/or archeological sites), cemeteries, and objects. Both federal and state laws require consideration of cultural resources during project planning. At the federal level, NEPA and the National Historic Preservation Act (NHPA) of 1966, among others, apply to transportation projects such as this one. Evaluation of impacts to cultural resources has been conducted under Section 106 of the NHPA in accordance with the Programmatic Agreement (PA) among FHWA, TxDOT, the Texas State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings Review and coordination of this project followed approved procedures for compliance with federal and state laws.

5.7.1 Archeology

The purpose of the archeological investigation is to conduct an inventory or determine the presence/absence of archeological resources (36 CFR 800.4) and to evaluate identified resources for their eligibility for inclusion on the National Register of Historic Places (NRHP), per Section 106 (36 CFR 800) of the NHPA of 1966, as amended, or as a designated State Archeological Landmark (SAL) under the Antiquities Code of Texas (ACT) (13 TAC 26.12).

The Area of Potential Effects (APE) for archeological resources is defined as the footprint of the proposed project to the maximum depth of impact, including all easements, and project specific locations. Thus, the APE for archeological resources would cover a total distance of approximately 11.5 miles long. In total, the APE area is 306.3 acres. The proposed project's anticipated depth of impacts is 2 feet, with an anticipated maximum depth of impact of 10 feet.

The pedestrian survey and shovel testing were conducted on June 18 to 27, 2024. Intensive archeological survey was conducted in areas of proposed new ROW where ROE was granted and where effective survey could be completed from immediately adjacent areas with ROE. A total of eight backhoe trenches were excavated.

The general environment of the APE near existing roadways has been extensively disturbed. These soils and the integrity of any archeology that may have been present have likely been disturbed by area development. The area in the APE and within 50 feet of the APE has typically been extensively disturbed by road construction, residential/commercial development, and utility installations. With the exception of one isolated find in a highly disturbed context, no cultural materials were documented within the area.

It is recommended that a survey be completed in the 40.7 acres of the area where ROE was denied and where area disturbance was not evident or where disturbance could not be established solely by visual inspection. It is also recommended that deep mechanical prospection be completed on parcels 67973 and 67946 where shovel testing was completed, but survey trenches could not be completed at this time.

The project is compliant with Section 106 of the NHPA of 1966 (and subsequent amendments) and the ACT. Section 106 coordination will be conducted in accordance with the terms and conditions of the First PA among the FHWA, the THC, the Advisory Council for Historic Preservation, and TxDOT, as well as the Memorandum of Understanding (MOU) between TxDOT and the THC.

A TxDOT archeologist has reviewed the report and concurs with the results. The SHPO concurred with this assessment in a letter signed and dated September 20, 2024 (see **Appendix F**). The identification efforts and analysis of effects completed to date are adequate. No further work or consultation is required within the evaluated portions of the APE. Once access is obtained to areas for which access has been denied, TxDOT will complete the required investigations and consultation prior to construction. If unanticipated archeological deposits are encountered during construction, work in the immediate area will cease and TxDOT archeological staff will be contacted to initiate post-review discovery procedures under the provisions of the PA and MOU.

It is not anticipated that the proposed project would result in direct impacts to known archeological resources. In the unlikely event that cultural resources are discovered during the construction of the proposed project, TxDOT would immediately initiate cultural resource discovery procedures. All work in the vicinity of the discovery would cease until a specialist from TxDOT and/or the THC could arrive on site and assess the discovery's significance and the need, if any, for additional investigation.

TxDOT initiated consultation with federally recognized tribes on September 16, 2024. The Delaware Nation responded that the project would not affect historic properties. No other tribes objected to the project or provided another response. The comment period ended on November 1, 2024. See **Appendix F** for the tribal coordination documentation.

Potential impacts to archeological resources would be limited to the construction phase of the project and confined to the existing and proposed ROW; thus, encroachment-alteration effects would not occur. Once access is obtained to areas for which access has been denied, TxDOT will decide if mitigation would be required. It is not anticipated that the proposed project would result in direct impacts to known archeological resources.

No-Build Alternative

As construction of the proposed project would not occur, there would be no project-related impacts on archaeological resources associated with the No-Build Alternative.

5.7.2 Historic Properties

The TxDOT Section 106 PA defines the APE for this project as 150 feet (existing roadway) and 300 feet (new location) from the existing and proposed ROW. TxDOT historians reviewed the NRHP, the list of SAL, the list of Recorded Texas Historic Landmarks, and TxDOT files and found no previously documented resources within the APE.

The HRSR recorded 64 historic-age (built prior to 1983) properties in the APE. Property types include domestic, funerary, government, transportation and agricultural. TxDOT historians determined one of the properties NRHP-eligible, the 208 Boss Range Road (Property 05 in HRSR). Per the Justin Heritage Foundation, the house is known as the Gaston House after Stephen Gaston, an area farmer who lived there with his family until 1915. The house exhibits significant original architectural detailing and is a good surviving local example of the Queen Anne style. Despite the loss of the surrounding agricultural fields, it retains sufficient integrity of location, design, materials, workmanship, and feeling to convey its significance under Criterion C. It is therefore eligible for listing under Criterion C in the area of Architecture at the local level, with a period of significance (POS) of 1905. The NRHP boundary is limited to the existing parcel (see **Figure 5**, page 314 of HRSR). For more information see pages 15-16 and 85-87 of HRSR.

The Gaston House lacks integrity of setting and association due to the loss of its surrounding fields and the construction of a modern neighborhood under construction around it on agricultural land formerly connected to the property. Although associated with the early 20th-century farming community in Justin, the complete loss of its associated farmland impacts its ability to convey this significance under Criterion A.

Stephen Gaston lived in the house for approximately 10 years before moving to south Texas. Although he and his family moved back to Justin in 1917, he lived and worked on a different property until his death 20 years later in 1937 (Justin Heritage Foundation, 2024). As such, the house does not hold significance under Criterion B.

The remaining historic-age properties are common designs that lack architectural merit, are not works of a master, and have no known historic associations with important

In May 2024, TxDOT sent a Section 106 letter with maps and photos to the Denton County Historical Commission (CHC) and asked about any known historic properties. To date, TxDOT has not received a response from the CHC.

Staff determined that the project poses no adverse effect to the historic property, given the following factors:

- There are no direct effects because no new ROW or easements will be acquired from the property and all construction activity will take place to the north of the property. The current and proposed roadway improvements are approximately 350 feet from the property's NRHP boundary.[1]
- There are no indirect adverse effects as the proposed roadway is shifting to the north of the current alignment, at grade. The new roadway will be located even further north of the property (see map on page 308 of HRSR). There is a grove of trees and proposed housing between the property and current and proposed alignment which will further shield it from effects.
- There are no reasonably foreseeable cumulative effects now or in the future because there are no adverse direct or indirect effects.

Therefore, pursuant to Stipulation X, Appendix 6 "Undertakings with the Potential to Cause Effects per 36 CFR 800.16(i)" of the Section 106 PA and the MOU, on September 25, 2024, TxDOT historians determined that there are no adverse effects to one historic, non-archeological property in the APE. In compliance with the Antiquities Code of Texas and the MOU, TxDOT historians determined project activities have no potential for adverse effects. Individual project coordination with SHPO is not required (**Appendix F**).

No-Build Alternative

No changes to existing conditions would occur in the No-Build Alternative scenario; therefore, no impacts to historic properties would be anticipated with the No-Build Alternative.

5.8 Protected Lands

Section 4(f)

Section 4(f) protects publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, and any land from a historic site of national, State, or local significance. There are no Section 4(f) properties present in the proposed project area.

Section 6(f)

The proposed project would not use any lands protected by Section 6(f) of the Land and Water Conservation Fund Act or Parks and Wildlife Code (PWC) Chapter 26 lands. There are no Section 6(f) properties present in the proposed project area.

[1] Note the HRSR states the property is 570 feet from the ROW, but that is the distance between the actual resource and the ROW, not the limit of the NRHP boundary (parcel boundary) to the ROW.

Chapter 26

Chapter 26 of the Texas PWC protects the taking of public land designated and used prior to the arrangement of the project as a park, recreation area, scientific area, wildlife refuge, or historic site. There are no Chapter 26 properties present in the proposed project area.

No-Build Alternative

As construction of the proposed FM 407 project would not occur, there would be no project-related impacts on Section 4(f), Section 6(f), and PWC Chapter 26 properties associated with the No-Build Alternative.

5.9 Water Resources

5.9.1 Clean Water Act (CWA) Section 404

This project will involve regulated activity in jurisdictional waters and therefore will require authorization under Section 404 of the CWA. **Table 2** shows the waters that are anticipated to be jurisdictional waters in which regulated activity is anticipated to take place. It also indicates whether the impacts are anticipated to be authorized under Section 404 by a non-reporting nationwide permit (i.e., no pre-construction notification (PCN) required), or if it is anticipated that a nationwide permit (NWP) with PCN, individual standard permit (SP), letter of permission (LOP), or regional general permit (RGP) will be required.

Field reconnaissance conducted on June 26, 2023, October 24, 2023, November 6, 2023, December 13, 2023, and February 14, 2024, confirmed this determination. 1 detention pond and 14 streams were identified within the proposed project area. **Figure 3** in Appendix E show the water features that were identified during the water feature delineation. Wetland boundaries and stream ordinary high-water marks were determined in the field according to the U.S. Army Corps of Engineers (USACE) 1987 Wetlands Delineation Manual and 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2). A detailed discussion of the water features can be found in the Water Features Delineation Report for the proposed project and is available at the TxDOT Dallas District office.

Impacts on these water features would result from roadway construction and culvert installation and would be authorized under NWP 14 and must comply with the conditions of the permit. Water Features 7, 8, 9 will require a PCN due to permanent impacts exceeding 0.10 acre. The need for an SP under Section 404 is not anticipated. If it is later determined that an SP under Section 404 is needed, compliance with Environmental Protection Agency's (EPA) Section 404(b)(1) Guidelines will be confirmed prior to submittal of the individual standard permit application. Adverse construction-related impacts would be minimized by implementing soil erosion and sedimentation Best Management Practices (BMPs), as noted in **Section 5.9.2**.

Name of water feature*	Type of water feature	Location of water feature	Covered by non-reporting NWP under Section 404?	NWP with PCN, SP, LOP, or RGP required under Section 404?
1	Intermittent Tributary to Trail Creek	33.087845, -97.34766	Y, NWP 14	N/A
2	Intermittent Tributary to Trail Creek	33.085613, -97.337785	Y, NWP 14	N/A
3	Intermittent Tributary to Trail Creek	33.084466, -97.335929	Y, NWP 14	N/A
4	Intermittent Tributary to Trail Creek	33.084307, -97.32827	Y, NWP 14	N/A
5	Intermittent Tributary to Trail Creek	33.08534, -97.316624	Y, NWP 14	N/A
6	Intermittent Tributary to Trail Creek	33.086958, -97.309483	Y, NWP 14	N/A
7	Intermittent Tributary to Denton Creek	33.1028, -97.274152	N	Y, NWP 14 with PCN (Water Features 7, 8, and 9 are considered as one water crossing for permitting purposes)
8	Intermittent Tributary to Denton Creek	33.102581, -97.273776	N	
9	Detention Pond	33.102375, -97.274208	N	

10	Intermittent Tributary to Denton Creek	33.101612, -97.272015	Y, NWP 14	N/A
11	Intermittent Tributary to Denton Creek	33.1011, -97.255527	Y, NWP 14	N/A
12	Intermittent Tributary to Graham Branch	33.100241, -97.238404	Y, NWP 14	N/A
13	Intermittent Tributary to Graham Branch	33.100396, -97.207002	Y, NWP 14	N/A
14	Intermittent Tributary to Fincher Branch	33.101282, -97.165554	Y, NWP 14	N/A
15	Intermittent Tributary to Loving Branch	33.104651, -97.141756	Y, NWP 14	N/A

No-Build Alternative

As construction of the proposed project would not occur, there would be no project-related impacts on potentially jurisdictional water features associated with the No-Build Alternative.

5.9.2 Clean Water Act Section 401

For projects that require an NWP under Section 404 that is covered by TCEQ's blanket 401 water quality certification, regardless of whether the NWP is non-reporting, or requires the submission of a PCN, TxDOT complies with Section 401 of the CWA by implementing TCEQ conditions for NWPs. For projects that require authorization under a NWP under Section 404 that is not covered by TCEQ's blanket 401 water quality certification, or under an SP, LOP, or RGP under Section 404, TxDOT will coordinate the Section 401 water quality certification with TCEQ. TCEQ will either approve or deny the Section 401 water quality certification or issue a waiver. The TCEQ Section 401 water quality certification decision must be submitted to the USACE before use of the NWP can be confirmed, or an SP, LOP, or RGP decision can be made.

General Condition 25 of the NWP Program requires applicants using NWP 14 to comply with Section 401 of the CWA. Compliance with Section 401 requires the use of BMPs to manage water quality on

construction sites. General Condition 12 also requires applicants using NWP 14 to use appropriate soil erosion and sedimentation controls.

Impacts on water quality would be minimized by using BMPs to control erosion, sediment, and post-construction Total Suspended Solids, as identified in the Stormwater Pollution Prevention Plan (SWP3). BMPs would be used before and after construction, regularly inspected, and proactively maintained.

No-Build Alternative

As construction of the proposed project would not occur, there would be no project-related impacts on potentially jurisdictional water features associated with the No-Build Alternative

5.9.3 Executive Order 11990 Wetlands

This project is federally funded and therefore is subject to EO 11990, Protection of Wetlands, and will involve construction in one or more wetlands. Explanation of how the project will comply with EO 11990 is provided below.

The section of the proposed roadway is on new location being constructed in an east-west orientation for the purpose of connecting Bill Cook Road to FM 1830. The area west of FM 156 consists of braided stream channels and interlocking forested wetlands. Based on the need for the jug handle intersection and the presence of multiple wetlands and stream channels throughout, there is no practicable alternative to construction in the wetlands.

The proposed project will be constructed on structure over the braided stream channels and forested wetlands that are present west of FM 156 so that the permanent impacts to Waters of the U.S. and wetlands are minimized. Additional practicable measures to minimize harm to wetlands would include the use of stormwater BMPs during construction.

No-Build Alternative

As construction of the proposed project would not occur, there would be no project-related impacts on wetlands associated with the No-Build Alternative.

5.9.4 Rivers and Harbors Act

This project does not involve work in or over a navigable Water of the U.S.; therefore, Section 10 of the Rivers and Harbors Act does not apply. Likewise, a navigational clearance under the General Bridge Act of 1946, and Section 9 of the Rivers and Harbors Act (administered by the U.S. Coast Guard [USCG]) is not applicable. Coordination with the USCG (for Section 9 and the General Bridge Act) and the USACE (for Section 10) would not be required.

5.9.5 Clean Water Act Section 303(d)

The project is not located within 5 linear miles (not stream miles) of, is not within the watershed of, and does not drain to an impaired assessment unit under the June 26, 2024, Draft Section 303(d) list.

5.9.6 Clean Water Act Section 402

Since Texas Pollutant Discharge Elimination System Construction General Permit (CGP) authorization and compliance (and the associated documentation) occur outside of the environmental clearance

process, compliance is ensured by the policies and procedures that govern the design and construction phases of the projects. The Project Development Process Manual and the Plans, Specifications, and Estimates (PS&E) Preparation Manual require a Storm Water Pollution Prevention Plan (SW3P) to be included in the plans of all projects that disturb one or more acres. The Construction Contract Administration Manual requires that the appropriate CGP authorization documents [Notice of Intent (NOI) or site notice] be completed, posted, and submitted, when required by the CGP, to TCEQ and the Municipal Separate Storm Sewer System (MS4) operator. It also requires that projects be inspected to ensure compliance with the CGP.

The PS&E Preparation Manual requires that all projects include Standard Specification Item 506 (Temporary Erosion, Sedimentation, and Environmental Controls), and the "Required Specification Checklists" require Special Provision 506-003 on all projects that need authorization under the CGP. These documents require the project contractor to comply with the CGP and SW3P and complete the appropriate authorization documents.

No-Build Alternative

The No-Build Alternative would not alter the amount of runoff generated within the proposed project area.

5.9.7 Floodplains

Denton County, the city of Justin, and the towns of Northlake and Argyle are participants in the National Flood Insurance Program. The study area is located on Flood Insurance Rate Map (FIRM) Panel Numbers 48121C0480G, 48121C0485G, and 48121C0505G (effective April 18, 2011).

This project is federally funded and therefore is subject to and would comply with federal EO 11988, Floodplain Management. However, the project will not involve a significant encroachment in the floodplain.

A review of Federal Emergency Management Agency FIRMs indicates that the majority of the proposed project area is outside the 100-year floodplain. The sections of the proposed project that cross Trail Creek, Graham Branch, and Fincher Branch are situated within Zone A (areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies, with no base flood determined). The section of the project that crosses Denton Creek is situated within Zone AE (areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies, with base flood elevation of 613 to 617 feet). Mandatory flood insurance purchase requirements and floodplain management standards apply. This project is subject to and would comply with federal EO 11988 on Floodplain Management. The department implements this EO on a programmatic basis through adherence to its Hydraulic Design Manual. The design of this project would be conducted in accordance with the department's Hydraulic Design Manual. Adherence to the TxDOT Hydraulic Design Manual ensures that this project would not result in a "significant encroachment" as defined by FHWA's rules implementing EO 11988 at 23 CFR 650.105(q).

No-Build Alternative

This alternative would not alter the existing level of roadway encroachments into floodplains.

5.9.8 Wild and Scenic Rivers

The Wild and Scenic Rivers Act does not apply.

5.9.9 Coastal Barrier Resources

The Coastal Barrier Resources Act does not apply.

5.9.10 Coastal Zone Management

The proposed project is not located within the Texas Coastal Management Plan boundary. Therefore, a consistency determination is not required.

5.9.11 Edwards Aquifer

The TCEQ Edwards Aquifer Rules and the EPA Edwards Aquifer MOU do not apply.

5.9.12 International Boundary and Water Commission (IBWC)

This proposed project does not cross or encroach upon the floodway of the IBWC ROW or an IBWC flood control project.

5.9.13 Drinking Water Systems

In accordance with TxDOT's Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges (Item 103, Disposal of Wells), any drinking water wells would need to be properly removed and disposed of during construction of the project.

5.10 Biological Resources

5.10.1 Impacts to Vegetation

The proposed project would directly impact the following vegetation type: Agriculture (32.23 acres), Central Texas: Floodplain Hardwood Forest (10.90 acres), Central Texas: Riparian Hardwood Forest (6.90 acres), Central Texas: Riparian Herbaceous Vegetation (2.03 acres), Crosstimbers: Post Oak Woodland (6.08 acres), Crosstimbers: Savanna Grassland (47.53 acres), Edwards Plateau: Oak/ Hardwood Motte (2.48 acres), Native Invasive: Deciduous Woodland (0.76 acre), Native Invasive: Mesquite Shrubland (4.07 acres), Open Water (0.20 acre), and Urban (195.41 acres). Refer to the Observed Vegetation Map in **Figure 4** in **Appendix E**.

According to the MOU with TPWD, important remnant vegetation includes communities listed as suitable vegetation type and within the range of Species of Greatest Conservation Need (SGCN). Important remnant vegetation includes 1) rare vegetation communities and 2) those that are suitable vegetation types for SGCNs. The proposed project area contains potential suitable vegetation community for the Sutherland hawthorn (*Crataegus viridis var. glabriuscula*) and Topeka purple-coneflower (*Echinacea atrorubens*). No signs of the species were identified during site visits during its fruiting season; therefore, it is presumed to be unoccupied. To address important remnant vegetation's second component, general vegetation types of those SGCNs that may impact include agriculture, grassland, woodland, riparian, and urban. These vegetation types are located within the proposed project area. Impacts to these vegetation types were quantified by using Ecological Mapping Systems of Texas correcting for discrepancies using actual observed vegetation types. None of these areas that include vegetation community for SGCNs are considered rare or remnant vegetation communities. Potential impacts to vegetation would be confined to the existing and proposed ROW; thus, encroachment-alteration effects would not occur. Impacts to vegetation would be avoided or minimized by limiting disturbance to only that which is necessary to construct the proposed project. The removal of native vegetation, particularly mature native trees and shrubs would be avoided to the greatest extent practicable. Seeding and replanting with TxDOT-approved seed mixes containing native species would be used in the re-vegetation of disturbed areas.

No-Build Alternative

If the No-Build Alternative were implemented, the proposed project would not be constructed. No impacts to vegetation related to the construction of the proposed project would occur.

5.10.2 Executive Order 13112 on Invasive Species

This project is subject to and will comply with federal EO 13112 as amended by EO 13751 on Safeguarding the Nation from the Impacts of Invasive Species. The department implements EO on a programmatic basis through its Roadside Vegetation Management Manual and Landscape and Aesthetics Design Manual.

5.10.3 Executive Memorandum on Environmentally and Economically Beneficial Landscaping

This project is subject to and will comply with the federal Executive Memorandum on Environmentally and Economically Beneficial Landscaping, effective April 26, 1994. The department implements this Executive Memorandum on a programmatic basis through its Roadside Vegetation Management Manual and Landscape and Aesthetics Design Manual.

5.10.4 Impacts to Wildlife

The proposed project area contains both wildlife adapted to urban environments and others only found in the wooded and aquatic areas. Mammalian species that likely inhabit the area include the coyote (*Canis latrans*), Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and eastern fox squirrel (*Sciurus niger*). Amphibians and reptiles such as the Texas rat snake (*Pantherophis obsoletus*), red-eared slider (*Trachemys scripta elegans*), western ribbon snake (*Thamnophis proximus*), and the northern cricket frog (*Acris crepitans*) may also utilize the different available habitats within the proposed project area.

The portion of the proposed project at Denton Creek would be realigned. This realignment would bisect continuous wildlife forested habitat resulting in habitat fragmentation. This would result in wildlife potentially being exposed to greater predation, human activities, domesticated animals and increased wildlife-vehicle collisions. Direct or indirect impacts to wildlife species are expected for all habitat within and adjacent to the project including areas of adjacent urban development and existing roadway structures (culverts, utility poles, etc.). Proposed work would include vegetation removal, soil disturbance, demolition, and construction of new roadway and roadway structures. It is likely that the impacted wildlife would recolonize the available habitat once construction of the proposed project is complete. Designing the bridge to span the floodplain, including Denton Creek, may enable the underpass and Denton Creek to function as a wildlife crossing, and may help mitigate impacts to local populations once construction is complete.

No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed; thus, there would be no project-related impacts on wildlife.

5.10.5 Migratory Bird Protections

This project will comply with applicable provisions of the Migratory Bird Treaty Act and Texas Wildlife Code Title 5, Subtitle B, Chapter 64, Birds. It is the department's policy to avoid the removal and destruction of active bird nests except through federal- or state-approved options and FHWA policy. In addition, it is the department's policy to, where appropriate and practicable:

- Use measures to prevent or discourage birds from building nests on man-made structures within portions of the proposed project area planned for construction, and
- Schedule construction activities outside the typical nesting season (March through September).

Additional preemptive and preventative measures that may be applied, where appropriate and practicable, are described in TxDOT's Guidance – Avoiding Migratory Birds and Handling Potential Violations.

5.10.6 Fish and Wildlife Coordination Act

The project is anticipated to require a nationwide permit issued by the USACE. Compliance with the Fish and Wildlife Coordination Act will be accomplished by complying with the terms and conditions of the nationwide permit.

5.10.7 Bald and Golden Eagle Protection Act of 2007

This project is not within 660 feet of an active or an inactive Bald or Golden Eagle nest. Therefore, no coordination with the U.S. Fish and Wildlife Service (USFWS) is required.

5.10.8 Magnuson-Stevens Fishery Conservation Management Act

The Essential Fish Habitat/Magnuson-Stevens Fishery Conservation and Management Act does not apply.

5.10.9 Marine Mammal Protection Act

The proposed project area does not contain suitable habitat for marine mammals.

5.10.10 Threatened, Endangered, and Candidate Species

The proposed project must comply with federal and state regulations for protecting and managing threatened and endangered fish, wildlife, and plant species. The Endangered Species Act (ESA) of 1973 affords protection for federally-listed threatened and endangered species and, where designated critical habitat for these species. Chapters 67 and 68 of the TPWC and Sections 65.171 - 65.176 of Title 31 of the TAC affords protection of state listed species. Chapter 88 of the TPWC and Sections 69.01 - 69.9 of the TAC affords protection to endangered plants.

The Texas Natural Diversity Database (TXNDD) data obtained from the Texas Parks and Wildlife Department (TPWD) on September 23, 2024, was reviewed along with the TPWD Rare, Threatened, and Endangered Species of Texas list for Denton County, dated August 22, 2024. The TXNDD radii search revealed there is no element of occurrence record within 1.5 miles of the proposed project. Within 10 miles of the proposed project, the following occurrences were recorded: one record of Texas garter snake (*Thamnophis sirtalis annectens*), six records of Comanche Peak prairie clover (*Dalea reverchonii*), two records of Texas heelsplitter (*Potamilus amphichaenus*), two records of Reverchon's scurfpea (*Pediomelum reverchonii*), four records of *Schizachyrium scoparium – Andropogan geradii - Sorghastrum mutans – Bifora americana Mollisol Grassland*, one record of *Schizachyrium scoparium – Bouteloua curtipendula - Nassella leucotricha Grassland*, one record of eastern spotted skunk (*Spilogale putorius*) and one record of the Woodhouse's toad (*Anaxyrus woodhousii*). These species and plant communities are located outside of the proposed project area and would not be impacted by the proposed project.

The USFWS Official Species List from the Information for Planning and Consultation (IPaC) was obtained on September 16, 2024, for the proposed project. The TPWD RTEST Annotated County List of Rare Species data for Denton County, accessed on August 22, 2024, was also obtained for the

proposed project. The project area does not contain critical habitat or proposed critical habitat. This information was used to complete the Species Analysis Spreadsheet and the Species Analysis Form that were prepared for the project. In accordance with the 2021 MOU, TxDOT coordinated with TPWD as this project required an EA. **Appendix F** includes the TPWD coordination documentation. A summary of the analysis is provided in the following paragraphs.

Federally Listed Endangered, Threatened, Candidate, and Proposed Species

Seven species were identified on the USFWS Official Species List for the proposed project. The Whooping Crane (*Grus americana*) is a federally endangered species. The tricolored bat (*Perimyotis subflavus*) is a federally proposed endangered species, the Texas heelsplitter is federally proposed endangered. The Piping Plover (*Charadrius melodus*) and Rufa Red Knot (*Calidris canutus rufa*) are federally threatened species. The alligator snapping turtle (*Macrochelys temminckii*) is a federally proposed threatened species. The monarch butterfly (*Danaus plexippus*) is a federal candidate species.

There is no suitable habitat for Whooping Crane as there are no freshwater wetlands of substantial size, marshes, ponds, rivers, irrigated land, or sloughs in the proposed project area. Species presence would be temporary and incidental; therefore, no effect to the species is anticipated.

The tricolored bat has been proposed as a federally endangered species. There is no suitable habitat for the tricolored bat based on the fragmented nature of the woodland habitat, lack of known occurrence data from the USFWS Species Status Assessment, proximity/distance to aquatic features, and lack of large culverts of suitable size within the project area; therefore, no effect to the species is anticipated.

There is no suitable habitat for Texas Heelsplitter in the proposed project area; however, Freshwater Mussel BMPs, including survey/relocation of native mussels, in compliance with USFWS-TPWD Protocol; Water Quality BMPs; and Stream Crossing BMPs would be implemented.

The USFWS Official Species List states that the Piping Plover and Rufa Red Knot only need to be considered for wind energy projects. The proposed project would not affect these species and/or their habitat.

There is no suitable habitat for alligator snapping turtle within the proposed project area. Within the project area, Trail Creek and Denton Creek are not large enough or deep enough to support this species. The streams are approximately 12 and 24 inches in depth, respectively, and woody debris is limited, therefore the proposed project would have no effect on the species.

The project area contains suitable habitat for the monarch butterfly. Nectar plants are found within the existing and proposed ROW and the species was identified during the July 20 and December 13, 2023, site visits. The proposed project footprint would impact nectar plants utilized by this species. The project may affect the monarch butterfly; however, this project is anticipated to be completed prior to the species being listed and consultation is not required for candidate species. If the monarch butterfly is proposed for listing during the life of this project, the impacts on monarch butterflies will be reevaluated to determine the appropriate course of action, which may include a conference or consultation with USFWS.

State-Listed Species

TxDOT has reviewed the TPWD Rare, Threatened, and Endangered Species of Texas (RTest) list and analyzed potential impacts to state-listed species in the Species Analysis Spreadsheet. Four species were identified on the RTest Official Species List for the proposed project. The Whooping Crane (*Grus americana*) is a state endangered species. The Texas heelsplitter is state threatened species. The Piping Plover and Rufa Red Knot are state threatened species. Within 10 miles of the proposed project, one record of the Texas garter snake, two records of the Texas heelsplitter, one record of the eastern spotted skunk, and one record of the Woodhouse's toad were listed. These species are outside of the proposed project area and would not be impacted by the proposed project.

Species of Greatest Conservation Need

The TXNDD data obtained from TPWD on September 23, 2024, was reviewed along with the TPWD REST list for Denton County, accessed on September 16, 2024. The TXNDD radii of 1.5 miles and 10 miles from the project area were searched and revealed element of occurrence records. One occurrence for the Texas garter snake and one occurrence for the eastern spotted skunk, both SGCN species, were recorded within the 10-mile radius of the proposed project. The proposed project area contains potential suitable vegetation community for the Sutherland hawthorn and Topeka purple-coneflower; however, no signs of the species were identified during site visits during their fruiting season. Suitable habitat was observed within the proposed project for the following SGCN: Strecker's chorus frog (*Pseudacris streckeri*), Woodhouse's toad, bald eagle (*Haliaeetus leucocephalus*), chestnut-collared longspur (*Calcarius ornatus*), common grackle (*Quiscalus quiscula*), common nighthawk (*Chordeiles minor*), mountain plover (*Charadrius montanus*), Sprague's pipit (*Anthus spragueii*), western burrowing owl (*Athene cunicularia hypugaea*), American bumblebee (*Bombus pensylvanicus*), hill country thread-leg katydid (*Arethaea ambulator*), eastern spotted skunk, long-tailed weasel (*Mustela frenata*), swamp rabbit (*Sylvilagus aquaticus*), western hog-nosed skunk (*Conepatus leuconotus*), eastern box turtle (*Terrapene carolina*), slender glass lizard (*Ophisaurus attenuatus*), smooth softshell (*Apalone mutica*), Texas garter snake, timber (canebreak) rattlesnake (*Crotalus horridus*), western box turtle (*Terrapene ornata*), and western chicken turtle (*Deirochelys reticularia miaria*).

Impacts to these SGCN would be avoided or minimized by implementing the following BMPs: Aquatic Amphibian and Reptile BMPs, Bird BMPs, Freshwater Mussel BMPs, Insect Pollinator BMPs, General Design and Construction BMPs, Rare Plan BMPs, Terrestrial Amphibian and Reptile BMPs, Vegetation BMPs, Water Quality BMPs, and Stream Crossings BMPs. Refer to **Appendix F** for the coordination documentation and to **Section 8** for BMPs or mitigation strategies that will be used to avoid or minimize impacts to these SGCN.

No-Build Alternative

Under the No-Build Alternative, there would be no impacts to federally listed and threatened or endangered or state-listed species.

5.11 Air Quality

For information regarding air quality refer to the Air Quality Technical Report available at the TxDOT Dallas District Office and **Appendix F** for the letter of concurrence from TCEQ.

Transportation Conformity

This project is located is in Denton County, which is designated by the EPA as a severe nonattainment for the 2008 ozone National Ambient Air Quality Standard (NAAQS) and serious nonattainment area for the 2015 ozone NAAQS. The transportation conformity rules apply. Conformity for older standards is satisfied by conformity to the more stringent 2008 and 2015 ozone NAAQS, as applicable.

Both the MTP and TIP, as amended, were initially found to conform to the TCEQ SIP by FHWA and FTA on December 15, 2022, and October 18, 2024, respectively. All projects in the NCTCOG TIP that are proposed for federal or state funds were initiated in a manner consistent with federal guidelines in Section 450, of Title 23 CFR and Section 613.200, Subpart B, of Title 49 CFR. TxDOT obtained project level conformity determination on June 24, 2025 from FHWA.

Carbon Monoxide Traffic Air Quality Analysis

Traffic data for the estimated time of completion year 2031 and design year 2048 is 16,520 and 27,900 VPD, respectively. A prior TxDOT modeling study and previous analyses of similar projects demonstrated that it is unlikely that the carbon monoxide standard would ever be exceeded as a result of any project with an Average Annual Daily Traffic (AADT) below 140,000. The AADT projections for the project do not exceed 140,000 VPD; therefore, a Traffic Air Quality Analysis was not required.

Mobile Source Air Toxics

A qualitative mobile source air toxics (MSAT) assessment has been conducted relative to the Build and No-Build Alternative. As documented in the technical report, all project alternatives may result in increased exposure to MSAT emissions in certain locations although the concentrations and duration of exposure are uncertain. Because of this uncertainty, the health effects of these emissions cannot be estimated. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

Congestion Management Process

The proposed project is adding single-occupant vehicle (SOV) capacity, is a project with FHWA/FTA involvement, and is within the DFW Transportation Management Area (TMA); therefore, a Congestion Management Process (CMP) analysis is required. The proposed project is within the DFW TMA. The project-level CMP analysis is on file and available for review at the NCTCOG and is included as an appendix in the Air Quality Technical Report.

Committed congestion reduction strategies and operational improvements within the study boundary will consist of providing a sidewalk along the north side of FM 407, a shared-use bicycle and pedestrian path along the south side of the roadway, additional travel lanes, and dedicated left-turn and right-turn lanes. Individual projects are listed in **Table 3**.

Table 2: Congestion Management Process Strategies

Location	Type	Implementation Date
FM 1171 from IH 35W to West of FM 156	New Roadway	2023

Source: Project Team, Air Quality Technical Report, April 2024.

In an effort to reduce congestion and the need for SOV lanes in the region, TxDOT and NCTCOG will continue to promote appropriate congestion reduction strategies through the Congestion Mitigation and Air Quality Improvement (CMAQ) program, the CMP, and the MTP. The congestion reduction strategies considered for this project would help alleviate congestion in the SOV study boundary but would not eliminate it.

Therefore, the proposed project is justified. The CMP analysis for added SOV capacity projects in the TMA is on file and available for review at the NCTCOG.

Air Quality Construction Emissions Reduction Strategies

During the construction phase of this project, temporary increases in particulate matter (PM) and MSAT emissions may occur from construction activities. The primary construction-related emissions of PM are fugitive dust from site preparation, and the primary construction-related emissions of MSAT are diesel PM from diesel-powered construction equipment and vehicles.

The potential impacts of PM emissions will be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. The Texas Emissions Reduction Plan (TERP) provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions. Information about the TERP program can be found on TCEQ's TERP website[2].

However, considering the temporary and transient nature of construction-related emissions, the use of fugitive dust control measures, the encouragement of the use of TERP, and compliance with applicable regulatory requirements, it is not anticipated that emissions from the construction of this project will have any significant impact on air quality in the area.

No-Build Alternative

This alternative would result in gradually increasing vehicle miles traveled as traffic volumes increase and traffic congestion worsens within the existing roadway system over time. Actual and predicted trends in both criteria pollutant and MSAT emissions would be expected to continue in the future, regardless of the alternative chosen.

[2]https://www.tceq.texas.gov/airquality/terp

5.12 Hazardous Materials

The presence of hazardous materials within a project study area can create issues affecting ROW acquisition, project development, and construction. The Hazardous Materials Initial Site Assessment (ISA) identifies the potential hazardous materials concerns as they relate to project construction and/or ROW acquisition for concerns identified. The ISA was completed and approved on May 7, 2024, and summarizes potential hazardous materials within and adjacent to the project corridor. The ISA included a site reconnaissance, research of existing and previous land use, reviewing the project design and ROW requirements, and reviewing federal and state regulatory database files. The evaluation reached conclusions regarding the potential impacts of each concern identified during the preparation of the ISA. The ISA is maintained in the Dallas District project files.

The existing and previous land use of the project location and surrounding area is a combination of mixed rural and urban land, with large areas of undeveloped farm and ranch land along much of its limits. Areas of development can be found along the project in and around the municipalities of Justin, Northlake, and Argyle, and Denton County, and include residential, commercial, and industrial land uses, as well as community facilities such as schools and parks. As part of the ISA, a review of selected environmental regulatory databases published by federal and state agencies was conducted to determine the potential for hazardous material issues within and near the project study area. A review of the regulatory database report dated February 16, 2024, was performed in general accordance with the American Society for Testing and Materials Standard E1527 and TxDOT guidelines, which define the environmental record sources to be reviewed and their minimum search distances from the proposed project.

Based on an evaluation of the regulatory sites, all of the regulatory listings were determined to pose a low environmental risk. The site locations are shown on the Hazardous Materials Site Location Map (see **Figure 5** in **Appendix E**) and **Table 4**.

Table 3: Summary of Regulated Sites of Concern

ERIS Map ID	Site Information	Database	Location Relative to Project
9	US 377 at TX 407 Argyle, Texas	Emergency Response Notification System Risk Level: Low	According to the database, two incidents were identified at this location. The first one involved approximately 5 gallons of oil and miscellaneous minerals were released from a pole-mounted transformer into the soil on 1/29/1993.The soil was excavated and removed from the site. Based on the small amount of the material released, cleanup, and the time since the occurrence, this incident is considered a low environmental risk to the proposed project. The second incident involved an unknown amount of an unknown liquid that was spilled into the soil after a train collided with a car on the tracks on 12/16/1997. Based on the cleanup and the time

Table 3: Summary of Regulated Sites of Concern			
ERIS Map ID	Site Information	Database	Location Relative to Project
			since the occurrence, this incident is considered a low environmental risk to the proposed project.
10	CVS Pharmacy #11091 111 FM 407 W, Argyle, Texas	Resource Conservation and Recovery Act Very Small Quantity Generator Risk Level: Low	As of April 2023, there were no compliance monitoring and enforcement (violation) records associated with this facility situated at the adjacent northeast corner of FM 407 and US 377. Based on the lack of violations this site is considered a low environmental risk to the proposed project.
15	Lone Star 79 1842 FM 407 E, Bartonville, Texas	Petroleum Storage Tank (PST) Risk Level: Low	The site is an active gas station currently utilizing one single-wall, steel, 6,000-gallon diesel PST and one single-wall, steel, 6,000-gallon, 8,000-gallon, and 10,000-gallon gasoline PSTs installed in 1985. One 500-gallon used oil PST was removed from the ground in 1996. No releases have been reported for the facility. ROW would be acquired from the north side of the property along FM 407. Proposed construction activity adjacent to the site includes widening and realigning FM 407 as well as improvements along Lone Star Way. The construction activities do not include any significant excavations. Based on no reported releases and proposed work adjacent to the site, this site is considered a low environmental risk to the project.

Map ID numbers correspond to those used in the ISA.

Source: Project Team, Hazardous Materials ISA Report, May 2024.

No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed; thus, project-related hazardous materials impacts would not occur.

5.13 Traffic Noise

A traffic noise analysis was prepared in accordance with TxDOT's (FHWA-approved) Traffic Noise Policy (2019). The Traffic Noise Analysis Report (2024), which includes details about the analysis, is available for public review at the TxDOT Dallas District office.

Existing and predicted traffic noise levels were modeled at representative land use activity areas (receptors) adjacent to the project that might be impacted by traffic noise and would potentially benefit from feasible and reasonable noise abatement (**Table 5**).

Table 4: Traffic Noise Levels dB(A) Leq						
Representative Receiver	NAC Category	NAC Level	Existing	Predicted 2043	Change (+/-)	Noise Impact (Yes/No)
R1 - Single-family residential	B	67	48	58	+10	No
R2 - Single-family residential	B	67	48	59	+11	Yes
R3 - Single-family residential (pool/pond)	B	67	49	60	+11	Yes
R4 - Single-family residential	B	67	53	63	+10	No
R5 - Single-family residential	B	67	46	56	+10	No
R6 - Single-family residential	B	67	49	60	+11	Yes
R7 - Single-family residential	B	67	53	57	+4	No
R8 - Single-family residential	B	67	55	61	+6	No
R9 - Single-family residential	B	67	55	60	+5	No
R10 - Single-family residential	B	67	60	60	0	No
R11 - Single-family residential	B	67	60	62	+2	No
R12 - Single-family residential	B	67	60	61	+1	No
R13 - Single-family residential	B	67	55	60	+5	No
R14 - Single-family residential	B	67	60	55	-5	No
R15 - Single-family residential	B	67	58	60	+2	No
R16 - Single-family residential (gazebo)	B	67	59	66	+7	Yes
R17 - Single-family residential	B	67	63	70	+7	Yes
R18 - Single-family residential (pool)	B	67	60	66	+6	Yes
R19 - Single-family residential (pool)	B	67	60	67	+7	Yes
R20 - Single-family residential	B	67	59	66	+7	Yes
R21 - Single-family residential (pool)	B	67	56	66	+10	Yes

Table 4: Traffic Noise Levels dB(A) Leq						
Representative Receiver	NAC Category	NAC Level	Existing	Predicted 2043	Change (+/-)	Noise Impact (Yes/No)
R22 - Single-family residential	B	67	57	67	+10	Yes
R23 - Single-family residential	B	67	49	58	+9	No
R24 - Single-family residential	B	67	49	58	+9	No
R25 - Single-family residential	B	67	63	73	+10	Yes
R26 - Single-family residential	B	67	61	71	+10	Yes
R27 - Single-family residential	B	67	56	64	+8	No
R28 - North Texas Church of Christ (interior)	D	52	40	48	+8	No
R29 - Single-family residential	B	67	56	64	+8	No
R30 - Single-family residential (pool)	B	67	55	64	+9	No
R31 - Single-family residential	B	67	57	65	+8	No
R32 - The Well Community Church	C	67	47	56	+9	No
R33 - Single-family residential (pool)	B	67	50	59	+9	No
R34 - Single-family residential	B	67	64	72	+8	Yes
R35 - Single-family residential	B	67	60	67	+7	Yes
R36 - Single-family residential (pool)	B	67	55	63	+8	No
R37 - Single-family residential	B	67	63	69	+6	Yes
R38 - Single-family residential	B	67	61	69	+8	Yes
R39 - Single-family residential	B	67	61	67	+6	Yes
R40 - Single-family residential	B	67	67	72	+5	Yes
R41 - Single-family residential	B	67	68	72	+4	Yes

Table 4: Traffic Noise Levels dB(A) Leq						
Representative Receiver	NAC Category	NAC Level	Existing	Predicted 2043	Change (+/-)	Noise Impact (Yes/No)
R42 - Single-family residential	B	67	57	62	+5	No
R43 - Single-family residential	B	67	56	61	+5	No
R44 - Single-family residential	B	67	62	68	+6	Yes
R45 - Single-family residential	B	67	69	72	+3	Yes
R46 - Single-family residential	B	67	56	59	+3	No
R47 - Single-family residential	B	67	63	70	+7	Yes
R48 - Single-family residential (half court)	B	67	67	70	+3	Yes
R49 - Single-family residential (pool)	B	67	65	69	+4	Yes
R50 - Single-family residential	B	67	61	64	+3	No
R51 - Single-family residential (pool)	B	67	59	63	+4	No

Source: Project Team, Traffic Noise Analysis Technical Report, July 2024.

Modeled noise-sensitive locations were primarily single-family residential, but also included two places of worship. The traffic noise analysis determined that out of 51 representative receptors, 24 were predicted to have noise levels that approach or exceed the FHWA noise abatement criteria or that substantially exceed the existing noise levels; therefore, the proposed project would result in traffic noise impacts (see **Figure 6** in **Appendix E**).

Noise abatement measures were considered and analyzed for each impacted receptor location. Abatement measures, typically noise barriers, must provide a minimum noise reduction, or benefit, at or above the threshold of 5 dB(A). A barrier is not acoustically feasible unless it reduces noise levels by at least 5 dB(A) at greater than 50 percent of first row impacted receptors and benefits a minimum of two impacted receptors. To be reasonable, the barrier must not exceed the cost reasonableness allowance of 1,500 square feet per benefited receptor and must meet the noise reduction design goal of 7 dB(A) for at least one receptor.

One noise barrier was found to be both reasonable and feasible and is recommended for incorporation into the proposed project (**Table 6**). Noise barriers were not reasonable and feasible for the remaining impacted representative receivers, and abatement is not proposed for those locations. Additional details regarding the barrier analysis can be found in the Traffic Noise Analysis Report (2023).

R25-R26 (Proposed Barrier 7): These receivers represent a total of 30 impacted receptors with driveways connecting to the frontage road. A continuous noise barrier would restrict access to these residences. Gaps in the noise barrier would satisfy access requirements. A non-continuous noise barrier 8 feet to 12 feet in height and approximately 3,244 feet in length (three barriers in total at 8, 10, and 12 feet) was modeled along the ROW. This barrier would reduce noise levels by at least 5 dB(A) for 30 benefited receptors and meet the noise reduction design goal of 7 dB(A) for at least one of those receptors. With a total area of abatement of 34,460 square feet or 1,149 square feet per benefited receptor, the barrier would also be cost reasonable.

Table 5: Noise Barrier Proposal (Preliminary)

Barrier	Representative Receivers	Total # Benefited	Length (feet)	Height (feet)	Total Sq. Ft.	Sq. Ft. per Benefited Receptor
7	R25-R26	30	3,244	8-12	34,460	1,149

Source: Project Team, Traffic Noise Analysis Technical Report, July 2024.

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

To avoid noise impacts that may result from the future development of properties adjacent to the project, local officials responsible for land use control programs must ensure, to the maximum extent possible, that no new activities are planned or constructed along or within the following predicted (2043) noise impact contours (**Table 7**).

Table 6: Proposed Noise Contours

	Land Use NAC Category	Impact Contour	Distance from Right of Way
Bill Cook Road to Denton Creek	B & C	66 dB(A)	Within ROW
	E	71 dB(A)	Within ROW
Denton Creek to I-35W	B & C	66 dB(A)	Within ROW
	E	71 dB(A)	Within ROW
I-35W to FM 1830	B & C	66 dB(A)	Within ROW
	E	71 dB(A)	Within ROW

Source: Project Team, Traffic Noise Analysis Technical Report, July 2024.

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 receptors is expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions will 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 to assist in future land use planning. 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 developments adjacent to the project.

No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed. If the No-Build Alternative were implemented, traffic noise levels would be expected to increase with an associated future increase in traffic volumes.

5.14 Induced Growth

The AOI encompasses approximately 11,712 acres. A map of the AOI is provided in **Figure 7** in **Appendix E**.

The municipalities of Justin, Northlake, and Argyle, and Denton County have all seen substantial growth in the last decade. Population and employment have grown most substantially within the Town of Northlake, and past and present development trends confirm it. There is, however, still land throughout the FM 407 corridor that has yet to develop. Discussions were held with planners from Northlake and Argyle, and planning documents from all cities within the AOI were reviewed to consider these areas. Much of the corridor is already developed or has plans to develop which eliminated many areas from consideration, however some areas of potential induced growth were identified. With the assistance of city planners and planning documents, 537.3 acres of land were identified as having potential for induced growth within the AOI.

No-Build Alternative

This alternative would not result in induced growth.

5.15 Cumulative Impacts

The CEQ defines cumulative impacts as those which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR §1508.7). As such, it may be difficult to understand the role that a proposed action may have in contributing to the overall or cumulative impacts on an area or resource.

A Resource Study Area (RSA) has both temporal and geographic components. The temporal component used is 2001 to 2045. The RSA encompasses approximately 11,712 acres. A map of the RSA is provided in **Figure 8** in **Appendix E**.

Socioeconomic, cultural, waters, and floodplains have either no substantial direct impacts, no direct impacts, or/and are not in poor and/or declining health in the context of the proposed project; therefore, these resources were not carried forward for detailed evaluation in the Cumulative Impacts Analysis Technical Report. The health of biological resources and farmland (soils) within the proposed project area is considered to be at risk due to potential effects on wildlife habitat and prime farmland, which may, in turn, impact sensitive and protected species and prime soils.

Biological resources related to sensitive species and their habitats and farmland soils were considered in further detail to determine if the proposed project, in conjunction with other past, present, and reasonably foreseeable future actions, would pose a risk to the sustainability or health of these resources. The proposed project would not result in cumulative effects on sensitive species and their habitats or water resources and on prime farmland soils. The contribution of the proposed project to cumulative effects on these resources would be minor, and cumulative effects on these resources would not adversely affect the overall sustainability or long-term health of sensitive species and their habitats.

No-Build Alternative

This alternative would not result in cumulative impacts.

5.16 Construction Phase Impacts

Depending on required traffic control and phasing, the construction phase of the proposed project, and associated construction impacts, are anticipated to be 24 to 48 months. During the construction phase of the proposed project, there is the potential for noise, dust, or light pollution; impacts associated with physical construction activity, and other traffic disruptions. These potential impacts are discussed as follows:

Construction Noise – 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 receptors is expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions will 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.

Light Pollution – Construction normally occurs during daylight hours; however, construction could occur during the night-time hours to minimize impacts on the traveling public during daylight hours.

Due to the proximity of residences and businesses to the project, if construction were to occur during the night-time hours, it would be of short duration and would not be conducted late in the evening. Construction during the nighttime hours would follow any local policies and ordinances established for construction activities, such as light limitations.

Construction Activity Impacts – Construction activities would be limited to the proposed project footprint. Excessive vibration from construction equipment is not anticipated. If there was excessive vibration from construction equipment, it would be of short duration.

Traffic control plans would be prepared and implemented in coordination with the city and the county. Construction that would require cross-street closures would be scheduled so only one crossing in an area is affected at one time. Where detours are required, clear and visible signage for an alternative route would be displayed. In residential areas, major activity would be limited to normal work hours whenever practicable, to avoid noise and related impacts to the local population.

Temporary Lane, Road, or Bridge Closures (Including Detours) – Traffic control plans would be prepared and implemented in coordination with the city and the county. Construction that would require cross-street closures would be scheduled so only one crossing in an area is affected at one time. Where detours are required, clear and visible signage for an alternative route would be displayed.

Motorists would be inconvenienced during the construction of the project due to lane and cross-street closures; however, these closures would be of short duration and alternate routes would be provided.

Residents and businesses in the immediate construction area would be notified in advance of the proposed construction activity using a variety of techniques, including signage, electronic media, community newspapers, and other techniques. The proposed project would not restrict access to any existing public or community services, businesses, commercial areas, or employment centers. Impacts on wildlife during construction could include direct mortality to species during grading and vegetation removal. Disturbance of habitat could also result in increased vehicle strikes from construction vehicles and motorists in the area.

No-Build Alternative

The No-Build Alternative would not result in noise, dust, or light pollution; impacts associated with physical construction activity, temporary lane, road closures; and other traffic disruptions associated with construction.

5.17 Greenhouse Gas Emission and Climate Change

TxDOT has prepared a Statewide On-Road Greenhouse Gas and Climate Change Technical Report (TxDOT 2024) https://www.txdot.gov/content/dam/docs/environmental/toolkit/725-01-rpt.pdf. To prepare this report, TxDOT conducted on-road greenhouse gas (GHG) emissions analyses for Texas, assessed future Texas climate scenarios or projections and how that might impact the on-road transportation system, and summarized TxDOT strategies and programs that result in GHG reduction and transportation system resiliency and preservation. A summary of key issues in this technical report is provided below. Please refer to the technical report for more details.

The Earth has gone through many natural changes in climate over time. However, since the industrial revolution began in the 1700s, atmospheric concentrations of GHG emissions have continued to climb, primarily due to humans burning fossil fuel (e.g., coal, natural gas, gasoline, oil, and/or diesel) to generate electricity, heat and cool buildings, and power industrial processes, vehicles, and equipment. According to the Intergovernmental Panel on Climate Change, this increase in GHG emissions is projected to contribute to future changes in climate (Solomon 2007, Stocker 2013).

5.17.1 Statewide On-road GHG

TxDOT contracted the Texas A&M Transportation Institute to complete GHG analyses for the statewide on-road transportation system using the EPA's Motor Vehicle Emissions Simulator (MOVES4 version).

Figure 5.17.1.1 shows three future on-road GHG emission analysis scenarios and vehicle miles of travel (VMT) for the Texas on-road transportation system. In the base-year 2019 (prior to COVID pandemic), the estimated on-road Texas CO2e emissions was 161 million metric tons (MMT). By 2050, the estimated CO2e emissions range from 135 MMT to 42 MMT. If the EPA 2024 vehicle rules29 are a reasonable projection for future vehicle technological advances, emissions would be approximately 42 MMT. If technology changes more rapidly than the EPA 2024 vehicle rules, then 2050 emissions would likely be lower than 42 MMT. If technology changes more slowly than the EPA 2024 vehicle rules, then emissions are projected to be in the range of 42 MMT to 80 MMT. The Base Case provides a worse-case emission estimate; however, based on CAA history and emission trends30 and the 2024 EPA vehicle rules, technology is likely to advance beyond vehicle model year 2026 that is captured in the MOVES4 Base Case. The VMT forecasts used in each emissions scenario are the same. Future emissions could be different if VMT projections and actual VMT differ, such as:

- Population greater than projections tend to increase VMT and GHG emissions, while population less than projections tend to decrease VMT and GHG emissions; and
- Greater use than projected in transit, active transportation, or trip avoidance options tend to reduce GHG emissions, while less use than projected in these travel options tend to increase emissions.

5.17.2 Mitigation Measures

Strategies that reduce on-road GHG emissions fall under three major categories:

- Vehicle and fuel technological advances including but not limited to market forces or changes to vehicle and fuel standards,
- Traffic System Management (TSM) reduces emissions by improving the operational characteristics of the transportation network to improve traffic flow and reduce congestion (e.g., traffic light timing, pre-staged wrecker service to efficiently clear accidents, and/or traveler information systems),
- Travel Demand Management (TDM) provides reductions in VMT by encouraging the use of alternative modes and shared trips (e.g., telework, transit, rideshare, high occupancy vehicle lanes, scooters, and bicycle and pedestrian facilities). TDM requires personal choice decisions.

Over the next 10 years of projected funds in the 2024 TxDOT UTP, it is estimated that more than 33 cents of every dollar either directly or indirectly result in GHG emission reduction and/or support transportation system resilience and preservation. TxDOT has ten programs and strategies that directly or indirectly reduce GHG emissions, and eleven programs, strategies and plans that directly or indirectly support system resiliency and preservation. According to national and international climate experts, the GHG reduction actions within TxDOT control only provide for nominal reductions that could collectively with other states result in meaningful co-benefits; most transportation GHG reduction will occur through various vehicle and fuel technological advances. TxDOT does not control vehicle and fuel technology. See the Technical Report for more detail.

5.17.3 TxDOT and a Changing Climate

By 2100, the National Oceanic and Atmospheric Administration State Climate Summary and United States Geological Survey National Climate Change Viewer data project Texas will be warmer, drier, subject to increased intensity of extreme weather events, experience additional sea level rise, and experience higher storm surge. Implications for the Texas transportation system would be temporary closures due to extreme weather events, increased flooding and inundation potential, roadway rutting, buckling, cracking, and increased risk of power outages that could affect traffic signals and intelligent transportation systems (ITS). Warmer and drier conditions may lead to longer wildfire seasons and increased wildfire potential that may result in temporary road closures due to fire, smoke, or limited visibility conditions.

TxDOT is scheduled to complete the Statewide Resiliency Plan by late 2024. This Plan will build on existing TxDOT strategies that address future climate scenarios in accordance with TxDOT and FHWA planning, design, asset management, maintenance, emergency response, and operational policies and guidance. The flexibility in these TxDOT activities and programs for the Texas traveling public and the Texas transportation system help TxDOT consider and plan for, adapt to, and be more resilient to risks to the transportation system. TxDOT will continue to partner with various state and federal agencies on data needs (e.g., TWDB on inland flooding and hydraulic data) and resilience measures to improve design and operation of the Texas transportation system. TxDOT will continue to collaborate with transportation partners and the public on our efforts to address system resiliency.

6.0 Agency Coordination

Texas Historical Commission

Coordination with the THC regarding impacts on cultural resources has been completed, and the results of the coordination are included in **Appendix F**.

Texas Parks and Wildlife Department

In accordance with the MOU between TxDOT and TPWD, TPWD has provided a set of recommended BMPs in a document titled, "Beneficial Management Practices – Avoiding, Minimizing, and Mitigating Impacts of Transportation Projects on State Natural Resources." The MOU provides that the application of specific BMPs to individual projects will be determined by TxDOT at its discretion. The TPWD-recommended BMPs that will be applied to this project are indicated in the Form – Documentation of Texas Parks and Wildlife Department BMPs prepared for the project, which is included in **Appendix F**.

Texas Commission on Environmental Quality

In accordance with the TxDOT-TCEQ MOU, **Appendix F** includes written correspondence between TxDOT and TCEQ. Coordination with the TCEQ regarding impacts on air quality will be initiated and documented in the final EA.

7.0 Public Involvement

Public Meetings

Public Meeting – Monday, March 27, 2023

A virtual public meeting with an in-person option was held at Gene Pike Middle School Cafeteria at 2200 Texan Drive, Justin, TX 76247 on Monday, March 27, 2024. The meeting was held in an open house format from 6:00 p.m. to 8:00 p.m. to allow for questions and review of project exhibits. TxDOT and consultant personnel were available to answer questions during the open house. The total registered attendance at the public meeting was 135 persons, which was comprised of seven elected officials. Eight TxDOT staff and 7 consultant staff were also present. The purpose of the meeting was to present the planned improvements and to receive public comment on the proposed project. The virtual public meeting which included a pre-recorded presentation with both audio and visual components, was available for viewing from March 27, 2023, to April 11, 2023 and received 1,322 views of the project page and 637 views of the narrated PowerPoint presentation. A total of 120 comments were received by in-person and online comment forms, email, voicemail, and mail. Of the comments received, 26 are negative, 15 positive, and 79 are neutral. Comments for the project, impacts to properties from the widening and realignment, and design concerns were received at the meeting.

The public meeting documentation may be inspected and copied upon request at the TxDOT Dallas District Office.

Public Hearing

A public hearing is anticipated to be held in Fall of 2025 upon approval of this draft EA for public viewing. Similar to the public meeting, notices will be mailed and published in both Spanish and English language newspapers. Language translation services and other accommodations will also be provided upon request. Comments and responses will be included in **Appendix G.**

Additional Public Involvement

A notice of impending construction would be provided to owners of adjoining property and affected local governments and public officials. The notice may be provided via a sign or signs posted in the ROW, mailed notice, printed notice distributed by hand, or notice via website when the recipient has previously been informed of the relevant website address. This notice would be provided after the environmental decision (i.e. FONSI), but before earthmoving or other activities requiring the use of heavy equipment begin.

8.0 Post-Environmental Clearance Activities and Design/Construction Commitments

8.1 Post-Environmental Clearance Activities

Activities to be completed after environmental clearance are listed and discussed as follows:

1. Utilities: Utility relocations would be required throughout the corridor. Utility agreements and notice to owners would be required for this project prior to construction.
2. Archeological Resources: It is recommended that a survey be completed in the 40.7 acres of the area where ROE was denied and where area disturbance was not evident or where

disturbance could not be established solely by visual inspection. It is also recommended that deep mechanical prospection be completed on parcels 67973 and 67946 where shovel testing was completed, but survey trenches could not be completed at this time.

3. Traffic Noise: Following the environmental clearance, a Notification of Noise letter will be sent to the Local Officials in the city of Justin and the towns of Northlake and Argyle about traffic noise and its potential impacts on the communities adjacent to the project.
4. Section 404: The proposed project would require an NWP 14 with a PCN. The PCN will be obtained before construction. The proposed project would comply with all general conditions of the NWP.
5. Section 401: The Section 401 Certification requirements for NWP 14 would be met by implementing a SW3P. The SW3P would include at least one BMP for erosion control, sediment control, and post-construction TSS control from the Tier 1 Section 401 Water Quality Certification Conditions for NWPs as published by the TCEQ.
6. Section 402: The project contractor will comply with the CGP, SW3P, and complete the appropriate authorization documents.
7. Wetlands: The project contractor will minimize impacts to wetlands during construction by keeping the construction footprint as small as possible while enabling construction that meets all requirements for the proposed project's implementation. BMPs would be implemented during construction.
8. Floodplains: Notification and coordination with the local floodplain administrator is required because portions of the project are within the 100-year floodplain. This coordination will be completed prior to the start of construction.
9. Invasive Species: The project contractor is required to preserve native vegetation to the extent practical. The contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, and 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.
10. Migratory Birds: Before construction begins, the project contractor will use measures to prevent or discourage birds from building nests on man-made structures within portions of the project area planned for construction; and schedule construction activities outside the typical nesting season.
11. Threatened, Endangered, and Candidate Species: The following BMPs would be implemented per the 2021 MOU for the proposed project. The full BMPs are included on the **Documentation of Texas Parks and Wildlife Department Best Management Practices** form included in **Appendix F**.
    - Aquatic Amphibian and Reptile BMP
    - Bird BMP
    - Freshwater Mussel BMP
    - General Design and Construction BMP

- Insect Pollinator BMP
- Rare Plant BMP
- Stream Crossings BMP
- Terrestrial Amphibian and Reptile BMP
- Vegetation BMP
- Water Quality BMP

12. Detours: County and local public safety officials would be notified of any road closures or detours during construction. Detour timing and necessary rerouting of emergency vehicles would be coordinated with the proper local agencies during construction.
13. Air Quality: Implement fugitive dust control measures contained in standard specifications to minimize potential impacts of PM emissions during construction.
14. Hazardous Materials for Building Demolition: Structures being demolished will need to be assessed and mitigated for asbestos and lead-containing-paint. Asbestos and LCP inspections, notification, and removal, as applicable, would be addressed prior to demolition in accordance with regulatory requirements.
15. A Noise barrier is proposed for this project, based on a preliminary analysis. Proposed Barrier 7, a non-continuous noise barrier 8 feet to 12 feet in height and approximately 3,244 feet in length (three barriers in total at 8, 10, and 12 feet) was modeled along the ROW, refer to **Section 5.13**. Pending evaluation of the noise barrier proposal by the design engineer in a constructability assessment, a noise workshop will be held before project letting. A noise workshop is a meeting to solicit viewpoints (votes) from all benefiting and adjacent property owners and residents to decide if the noise barrier(s) will be constructed.
16. A copy of the traffic noise analysis will be made available to local officials to assist in future land use planning, to avoid noise impacts that may result from future development of properties adjacent to the project.
17. Public Involvement: Before construction, a notice of impending construction will be provided to owners of adjoining property and affected local governments and public officials.

8.2 Design/Construction Commitments

1. Archeological Resources: If unanticipated archaeological deposits are encountered during construction, work in the immediate area will cease, and TxDOT archaeological staff will be contacted to initiate post-review discovery procedures.
2. Wetlands: The construction contractor would be required to avoid and minimize unnecessary impacts on wetlands during construction.
3. Construction (Texas Pollutant Discharge Elimination System): Contractor shall comply with the CGP and SW3P. Complete, post, and submit NOI and notice of termination to TCEQ and the MS4 operator. Inspect the project to ensure compliance with the CGP.

4. Drinking Water Systems: If any unknown wells are encountered during construction activities, they would need to be properly plugged in accordance with state statutes.
5. Hazardous Materials: The contractor would take appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction staging area. All construction materials used for the proposed project would be removed as soon as the work schedules permit. The contractor would initiate early regulatory agency coordination during project development.
6. Vegetation: Avoid and minimize disturbance of vegetation and soils. All disturbed areas would be revegetated, according to TxDOT specifications as soon as it becomes practicable. In accordance with EO 13112 on Invasive Species, the Executive Memorandum on Beneficial Landscaping, and the 1999 FHWA guidance on invasive species, all revegetation would, to the extent practicable, use only native species. Furthermore, BMPs would be used to control and prevent the spread of invasive species.
7. Migratory Birds: Take all appropriate actions to prevent the take of migratory birds, their active nests, eggs or young by the use of proper phasing of the project or other appropriate actions. Refer to **Section 8.1** for applicable BMPs.
8. Air Quality: The TERP provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions.
9. Threatened, Endangered, and Candidate Species: As indicated above in **Section 6.0**, the TPWD-recommended BMPs that will be applied to this project are indicated in the **Documentation of Texas Parks and Wildlife Department Best Management Practices** form prepared for the project, which is included in **Appendix F**. If any species on the Denton County threatened and endangered species list is sighted in the project area during construction, construction would stop, and contractor would notify the TxDOT Area Engineer. Refer to **Section 8.1** for applicable BMPs.
10. A noise barrier is proposed for this project, based on a preliminary analysis. As part of project design, the design engineer will prepare a constructability assessment to determine if noise barrier can be constructed based on site constraints or other factors. If determined constructable, a noise workshop will be held. If approved during the noise workshop, noise barrier will be incorporated into the construction plans for project letting.

8.3 Monitoring and Compliance Plan for Mitigation

The mitigation described in **Sections 8.1** and **8.2** will be implemented by one or more TxDOT contractors. TxDOT will be responsible for monitoring the mitigation described in **Sections 8.1** and **8.2.** The mitigation will be implemented and completed prior to or during construction of the project. Compliance will be determined by adherence to the wording of the mitigation commitments in Sections **8.1** and **8.2**. TxDOT may avail itself of any contractual or other remedy allowable by law should a contractor charged with implementing mitigation commitments fail to fulfill such commitments. The mitigation will be funded through a combination of federal funding under the Federal Aid Highway Program and State of Texas funding.

9.0 Conclusion

Implementation of the proposed project would not result in a significant impact on the human or natural environment. Therefore, a Finding of No Significant Impact (FONSI) is recommended.

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----------. b. Archeological Resources Survey Report.

----------. c. Historic Resources Survey Report.

----------. d. Water Features Delineation Report.

----------. e. Species Analysis Form and Spreadsheet.

----------. f. Air Quality Resources Technical Report.

----------. g. Qualitative Mobile Source Air Toxics Analysis.

----------. h. Hazardous Materials Initial Site Assessment

----------. i. Traffic Noise Analysis Report.

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11.0 Names and Qualifications of Persons Preparing the EA or Conducting an Independent Evaluation of the EA

The following persons assisted in compiling this draft EA:

TxDOT Dallas District

Jordan Mrayyan, P.E., Transportation Engineer, Project Manager – 10 years

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Manuel Trevino, Environmental Specialist, District Traffic Noise Specialist – 16 years

Adelina Munoz, Environmental Project Planner – 24 years

Sara Khoshkar, Environmental Project Planner – 10 years

TxDOT Environmental Affairs Division

Doug Booher, Director of Environmental Affairs – 26 years

Sonya Hernandez, Project Delivery Section Director – 17 years

Kristin Miller, Project Delivery Manager – 35 years

Ray Umscheid, Traffic Noise Specialist – 16 years

Adam Fouts, Environmental Specialist, District Water Resources Specialist – 13 years

Renee Benn-Lee, Historic Resources Program Manager – 18 years

Scott Pletka, Archeology Program Manager – 20 years

Spencer Ward, Community Impacts Specialist – 4 years

Glendora Lopez, Air Quality Specialist – 3 years

Deborah Nixon, Environmental Project Planner, Hazardous Materials Specialist – 22 years

Lauren Young, Environmental Project Planner– 16 years

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Jonathan Stewart, Supervising Environmental Manager – 35 years

Alma R. Canning, Sr. Environmental Scientist – 28 years

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Robert Pitt, Sr. Environmental Scientist – 27 years

Christopher Hagar, Sr. Environmental Scientist – 31 years

Christopher Davis, Environmental Planner – 7 years

Lauren Bartsch, Environmental Planner – 3 years

Jillian North, Environmental Planner – 5 years

Isabelle Martinez, Environmental Planner – 2 years

Amber Anderson, Environmental Planner/GIS Specialist – 8 years

AmaTerra Environmental, Inc.

Deborah Dobson-Brown, Sr. Architectural Historian – 39 years

Aaron Norment, Archeological Principal Investigator – 18 years

Katherine Seikal, PhD Archeological Principal Investigator – 16 years

Kurt Korfmacher, Sr. Architectural Investigator – 20 years

Sunshine Thomas, PhD, Sr. Archaeological Principal Investigator – 20 years

12.0 Appendices

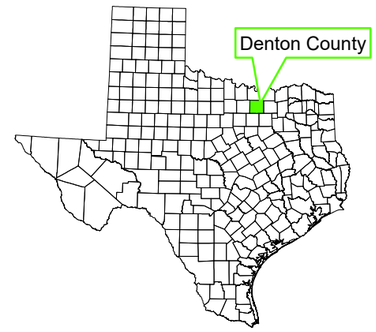
Appendix A – Project Location Map

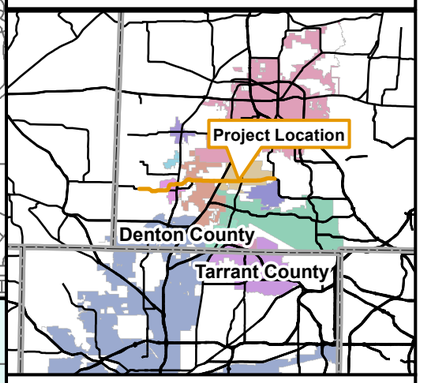
Vicinity Map

FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049,
1310-05-002, & 1568-02-016





0 6,000 Feet

N W E S

Legend

- Project Location
- Other TxDOT Project
- TxDOT Major Roadways
- Surface Water
- Lake

Base Map Sources: TxDOT (2023)

Denton
Dish
Argyle
Justin
Northlake
Bartonville
Flower Mound
Fort Worth
Denton County
Corral City
Begin Project
End Project
Other TxDOT Project
Denton Creek
Florance Rd
Faught Rd
Stonecrest Rd
Gibbons Rd
Bill Cook Rd
Boss Range Rd
BNSF
UPRR
35W
377
407
1830
1171
156
114
Grapevine Lake

Appendix B – Project Photos

Photograph 1: View looking west toward the western project limit from Bill Cook Road along the FM 407 ROW. Date of photograph: 7/20/23.

Photograph 2: View looking east from Bill Cook Road along the FM 407 south ROW. Date of photograph: 7/20/23.

Photograph 3: View looking west along FM 407 from the eastern project limit near STA 859+60. Date of photograph: 7/20/23.

Photograph 4: View looking east along FM 407 from the eastern project limit near STA 859+60. Date of photograph: 7/20/23.

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Photograph 5: View looking east from the existing FM 407 south ROW near STA 148+00. The mowed-maintained vegetation is Urban and primarily consists of Bermudagrass (*Cynodon dactylon*). Date of photograph: 7/20/23.

Photograph 6: View looking northwest from the existing FM 407 north ROW near STA 158+50. The mowed-maintained vegetation is Urban and primarily consists of Bermudagrass, followed by shrubland vegetation that is Native Invasive and primarily consists of Bermudagrass and honey mesquite (*Prosopis glandulosa*). Date of photograph: 7/20/23.

Photograph 7: View looking southeast from the existing FM 407 south ROW near STA 169+00. The woody vegetation consists of Central Texas: Riparian Hardwood Forest species and includes black willow (*Salix nigra*), eastern cottonwood (*Populus deltoides*), and sugarberry (*Celtis laevigata*) Date of photograph: 10/24/23.

Photograph 8: View looking southeast from the existing FM 407 south ROW near STA 183+00. The mowed-maintained vegetation is Urban and consists of Bermudagrass beyond that the vegetation fits the Crosstimbers: Savanna Grassland classification. Date of photograph: 7/20/23.

Photograph 9: View looking north from the existing FM 407 bridge over Trail Creek near STA 189+50. The woody vegetation consists of Central Texas: Riparian Hardwood Forest species and includes black willow, giant ragweed (*Ambrosia trifida*), and sugarberry. Date of photograph: 7/20/23.

Photograph 10: View looking northwest from the existing FM 407 north ROW near STA 281+00. The vegetation in the background is agricultural row crops. Date of photograph: 7/20/23.

Photograph 11: View looking south from the existing 7th street south ROW near STA 311+75. The vegetation is agricultural land and consists of plowed fields of row crops. Date of photograph: 11/06/23.

Photograph 12: View looking east from the proposed FM 407 ROW near STA 331+15. The herbaceous vegetation consists of Central Texas: Riparian Herbaceous species and includes Illinois bundleflower (*Desmanthus illinoensis*), sideoats grama (*Bouteloua curtipendula*), sumpweed (*Iva annua*), and yellow nutsedge (*Cyperus esculentus*). Date of photograph: 11/6/23.

Photograph 13: View looking west from the proposed FM 407 ROW near STA 1004+00. The herbaceous vegetation consists of Crosstimbers: Savanna Grassland species and consists of giant ragweed and Johnsongrass. Date of photograph: 6/27/23.

Photograph 14: View looking west from the proposed FM 407 ROW near STA 2001+50. The woody vegetation consists of Central Texas: Floodplain Hardwood Forest species and consists of American elm (*Ulmus americana*), green ash (*Fraxinus pennsylvanica*), and sugarberry. Date of photograph: 6/27/23.

Photograph 15: View looking east from the proposed FM 407 ROW near STA 392+00. The woody vegetation consists of Central Texas: Riparian Hardwood Forest species and consists of American elm, Chinese privet (*Ligustrum sinense*), eastern cottonwood, and sugarberry. Date of photograph: 10/24/23.

Photograph 16: View looking northwest from the proposed FM 407 ROW near STA 392+25. The woody vegetation consists of Central Texas: Riparian Hardwood Forest species and consist of sugarberry. Denton Creek fits the open water classification. Date of photograph: 12/13/23.

Photograph 17: View looking southwest from the proposed FM 407 ROW near STA 410+00. The herbaceous vegetation consists of Crosstimbers: Savanna Grassland species and consists of Bermudagrass and side oats grama. Date of photograph: 12/13/23.

Photograph 18: View looking west from the proposed FM 407 ROW near STA 443+00. The herbaceous vegetation consists of Crosstimbers: Savanna Grassland species and consists of Bermudagrass and side oats grama. Date of photograph: 10/24/23.

Photograph 19: View looking southwest from the existing FM 407 south ROW near STA 495+00. The woody vegetation consists of Central Texas: Riparian Hardwood Forest species and consists of sugarberry. The vegetation to the east is agricultural land consisting of plowed fields for row crops. Date of photograph: 11/6/23.

Photograph 20: View looking southeast from the existing FM 407 south ROW near STA 500+00. The vegetation to the outside of the mowed-maintained vegetation is agricultural land consisting of plowed fields for row crops. Date of photograph: 11/6/23.

Photograph 21: View looking west from the existing FM 407 north ROW near STA 679+00. The woody vegetation is Edwards Plateau: Oak/Hardwood Motte and primarily consists of pecan and sugarberry. Date of photograph: 7/20/23.

Photograph 22: View looking west from the existing FM 407 north ROW near STA 681+00. The mowed-maintained vegetation is Urban and primarily consists of Bermudagrass. Beyond the mowed-maintained vegetation is herbaceous vegetation that consists of Crosstimbers: Savanna Grassland species and consists of Bermudagrass and side oats grama. Date of photograph: 7/20/23.

Photograph 23: View looking northwest from the existing FM 407 north ROW near STA 839+00. The mowed-maintained vegetation is Urban and primarily consists of Bermudagrass. Date of photograph: 7/20/23.

Photograph 24: View looking southeast from the existing FM 407 near STA 860+00. The mowed-maintained vegetation is Urban and primarily consists of Bermudagrass. Date of photograph: 7/20/23.

Photograph 25: View looking toward Displacement 1 at 805 12th St, Justin, TX 76247. Date of photograph: 10/24/23.

Photograph 26: View looking toward Displacement 2 at 717 12th St, Justin, TX 76247. Date of photograph: 10/24/23.

Photograph 27: View looking toward two sheds associated with Displacement 2 and one shed associated with Displacement 3 at 717 and 619 12th St, Justin, TX 76247. Date of photograph: 10/24/23.

Photograph 28: View looking toward Displacement 3 at 619 12th St, Justin, TX 76247. Date of photograph: 10/24/23.

Photograph 29: View looking toward Displacement 4 at 521 12th St, Justin, TX 76247. Date of photograph: 10/24/23.

Photograph 30: View looking toward a large shed associated with Displacement 4 and a smaller shed associated with Displacement 5 at 521 519 12th St, Justin, TX 76247. The Displacement 5 shed is outside of the proposed right of way (ROW). Date of photograph: 10/24/23.

Photograph 31: View looking toward Displacement 5 at 519 12th St, Justin, TX 76247. Date of photograph: 10/24/23.

Photograph 32: View looking toward Displacement 6 at 517 12th St, Justin, TX 76247. The shed in the background is outside of the proposed ROW. Date of photograph: 10/24/23.

Photograph 33: View looking toward a home in disrepair at 208 Boss Range Rd, Northlake, TX 76247. Date of photograph: 7/20/23.

Photograph 34: View looking toward a home along W 5th Street in Justin, TX. Date of photograph: 7/20/23.

Photograph 35: View looking east toward the Propwash Airport Sign (ID 1) at 15663 Cessna Road, Justin, TX 76247. Date of photograph: 7/20/23.

Photograph 36: View looking northeast toward Kid's Kampus Preschool (ID 3) at 427 Boss Range Rd, Justin, TX 76247. Date of photograph: 7/20/23.

Photograph 37: View looking east toward Justin Elementary School (ID 4) at 425 Boss Range Rd, Justin, TX 76247. Date of photograph: 7/20/23.

Photograph 38: View looking southwest toward Leuty Ave Apartments (ID 7) at 909 W 7th St Ste B, Justin, TX 76247. Date of photograph: 7/20/23.

Photograph 39: View looking east toward the Justin Youth Sports Association (ID 10) at 420 Ovaletta Dr, Justin, TX 76247. Date of photograph: 7/20/23.

Photograph 40: View looking east toward the Justin Community Library (ID 11) at 408 Pafford Ave, Justin, TX 76247. Date of photograph: 7/20/23.

Photograph 41: View looking southwest toward the City Hall Park (ID 12) at 415 N College Ave, Justin, TX 76247. Date of photograph: 7/20/23.

Photograph 42: View looking southwest toward the Justin City Hall (ID 13) at 415 N College Ave, Justin, TX 76247. Date of photograph: 7/20/23.

Photograph 43: View looking north toward the Justin U.S. Post Office (ID 21) at 120 W 5th St, Justin, TX 76247. Date of photograph: 7/20/23.

Photograph 44: View looking southeast toward Bishop Gardens (ID 22) at 200 Hardeman Blvd, Justin, TX 76247. Date of photograph: 7/20/23.

Photograph 45: View looking east from Justin Cemetery Road toward Justin Cemetery (ID 24) at Jusitn Cemetery Road, Justin, TX 76247. Date of photograph: 4/5/22.

Photograph 46: View looking northwest toward Longmeadow Healthcare Center (ID 25) at 120 Meadowview Drive, Justin, TX 76247. Date of photograph: 7/20/23.

Photograph 47: View looking southeast toward Fellowship of the Parks (ID 27) at 3105 FM 407, Northlake, TX 76247. Date of photograph: 7/20/23.

Photograph 48: View looking southwest toward Northwest ISD Outdoor Learning Center (ID 28) at 7773 Mulkey Rd, Northlake, TX 76247. Date of photograph: 7/20/23.

Photograph 49: View looking northwest toward Lance Thompson Elementary School (ID 35) at 821 Hawks Wy, Argyle, TX 76226. Date of photograph: 7/20/23.

Photograph 50: View looking northwest toward North Texas Church of Christ (ID 36) at 1290 FM 407, Northlake, TX 76247. Date of photograph: 7/20/23.

Photograph 51: View looking east from Cleveland Gibbs Road toward the Denton County Emergency Services (ID 40) at CO Rd 338, Argyle, TX 76226. Date of photograph: 5/6/22.

Photograph 52: View looking east from the parking lot toward The Goddard School of Northlake (ID 41) at 7851 Cleveland Gibbs Road, Argyle, TX 76226. Date of photograph: 5/6/22.

Photograph 53: View looking north toward a sign at the future location of The Academy (ID 42) at the northeast corner of Cleveland Gibbs Blvd and Homestead Way, Northlake, TX 76247. Date of photograph: 7/20/23.

Photograph 54: View looking north from Commons Circle toward Northlake Police Department (ID 43) at 1600 Commons Circle, Northlake, TX, 76226. Date of photograph: 5/6/22.

Photograph 55: View looking south from the parking lot toward Northlake Town Hall (ID 44) at 1500 Commons Circle, Argyle, TX 76226. Date of photograph: 5/6/22.

Photograph 56: View looking west from Corral City Drive towards Corral City Town Hall (ID 49) at 14007 Corral City Drive, Argyle, TX, 76226. Date of photograph: 7/20/23.

Photograph 57: View looking west from Corral City Drive toward Draper Park (ID 50) Corral City, TX 76226. Date of photograph: 7/20/23.

Photograph 58: View looking south from Old Justin Road toward Argyle West Elementary School (ID 51) at 171 Old Justin Road, Argyle, TX 76226. Date of photograph: 5/6/22.

Photograph 59: View looking north from Prairie Mound Road toward Prairie Mound Cemetery (ID 52) at Prairie Mound Road, Argyle, TX 76226. Date of photograph: 5/6/22.

Photograph 60: View looking southeast from the parking lot towards The Door Church (ID 19) at 8141 Gateway Drive, Suite 270, Argyle, TX, 76226. Date of photograph: 7/20/23.

Photograph 61: View looking northwest toward The Well Community Church (ID 57) at 600 Highway 407 West, Argyle, TX 76226. Date of photograph: 7/20/23.

Photograph 62: View looking north from the parking lot toward the Texas Department of Public Safety and Justice of the Peace Precinct 4 (ID 58) at 6200 Canyon Falls Drive, Suite 400, Argyle, TX 76226. Date of photograph: 5/6/22.

Photograph 63: View looking east from Stonecrest Road toward Flower Mound Fire Station 6 (ID 60) at 6566 Stonecrest Rd, Argyle, TX 76226. Date of photograph: 5/6/22.

Photograph 64: View looking south toward Liberty Christian School (ID 62) at 1301 US-377, Argyle, TX 76226. Date of photograph: 7/20/23.

Photograph 65: View looking south toward the Argyle Middle School sign (ID 65) at 191 US-377, Argyle, TX 76226. Date of photograph: 7/20/23.

Photograph 66: View looking southeast toward the Argyle U.S. Postal Service (ID 66) at 440 US-377 N, Argyle, TX 76226. Date of photograph: 7/20/23.

Photograph 67: View looking southeast toward Argyle Town Hall (ID 68) at 308 Denton Street, Argyle, TX 76226. Date of photograph: 7/20/23.

Photograph 68: View looking northwest toward Jeter Family Cemetery (Map ID 69) located along Oakwood Drive in Bartonville, TX 76226. Date of photograph: 7/20/23.

Photograph 69: View looking east toward Argyle Fire Station 511 (Map ID 70) at 511 Gibbons Road, Argyle, TX 76226. Date of photograph: 7/20/23

Photograph 70: View looking south from FM 407 toward New Song School of the Arts (Map ID 72) at 1624 FM 407, Argyle, TX 76226. Date of photograph: 7/20/23.

Photograph 71: View looking east toward Blanton Elementary School (Map ID 78) at 9501 Stacee Ln, Argyle, TX 76226. Date of photograph: 7/20/23.

Photograph 72: View looking east toward Harpool Middle School (Map ID 79) at 9601 Stacee Ln, Lantana, TX 76226. Date of photograph: 7/20/23.

Photograph 73: View looking southwest toward the intersection of US 377 and FM 407 from the CVS Pharmacy (RCRA VSQG, ERIS Map ID 10) property. Date of photograph: 7/20/23.

Photograph 74: View looking northeast towards the tank hold of the Lone Star 79 PST site (ERIS Map ID 15) at 1842 FM 407 (STA 852+00). Date of photograph: 7/20/23.

Photograph 75: View looking west from existing FM 407 north ROW near STA. 175+00 toward Water Feature (WF) 1: Tributary to Trail Creek (33.087711, -97.348086). Date of photograph: 11/6/23.

Photograph 76: View looking southeast from existing FM 407 north ROW near STA. 189+00 toward Data Point (DP) 1 at WF 2: Trail Creek (33.087783, -97.342694). Date of photograph: 11/6/23.

Photograph 77: View looking east from existing FM 407 south ROW near STA. 206+75 toward WF 3: Tributary to Trial Creek (33.085686, -97.337833). Date of photograph: 10/24/23.

Photograph 78: View looking southeast from existing FM 407 south ROW near STA. 214+00 toward WF 4: Tributary to Trial Creek (33.084444, -97.336056). Date of photograph: 10/24/23.

Photograph 79: View looking southeast from existing FM 407 south ROW near STA. 237+50 toward DP 2 at WF 5: Tributary to Trail Creek (33.084503, -97.328342). Date of photograph: 11/6/23.

Photograph 80: View looking northwest from existing FM 407 south ROW near STA. 274+25 toward DP 3 at WF 6: Tributary to Trail Creek (33.085269, -97.316697). Date of photograph: 11/6/23.

Photograph 81: View looking southeast from proposed FM 407 ROW near STA. 330+00 toward WF 8: Tributary to Denton Creek and WF 9: Wetland 1 (33.094886, -97.305633). Date of photograph: 11/6/23.

Photograph 82: View looking southeast from proposed FM 407 ROW near STA. 332+00 toward DP 4 (33.094814, -97.305078). Date of photograph: 11/6/23.

Photograph 83: View looking south from proposed FM 407 ROW near STA 331+25 toward DP 5 (33.094822, -97.305303). Date of photograph: 11/6/23.

Photograph 84: View looking southwest from the proposed FM 407 ROW near STA. 331+00 toward DP 6 (33.094903, -97.305297). Date of photograph: 11/6/23.

Photograph 85: View looking northwest from the proposed FM 407 ROW near STA. 329+50 toward DP 7 (33.094906, -97.305844). Date of photograph: 11/6/23.

Photograph 86: View looking north from proposed FM 407 ROW near STA. 329+25 toward DP 8 (33.094878, -97.305825). Date of photograph: 11/6/23.

Photograph 87: View looking northwest from the proposed FM 407 ROW near STA. 361+00 toward DP 9 at WF 10: Tributary to Denton Creek and WF 11: Wetland 2 (33.094381, -97.295178). Date of photograph: 6/27/23.

Photograph 88: View looking northwest from the proposed FM 407 ROW near STA 363+00 toward WF 10: Tributary to Denton Creek (33.094544, -97.295117). Date of photograph: 6/27/23.

Photograph 89: View looking northwest from the proposed FM 407 ROW near STA 398+25 toward WF 12: Denton Creek (33.097343, -97.284254). Date of photograph: 12/13/23.

Photograph 90: View looking west from the proposed FM 407 ROW near STA 398+75 toward DP 10 (33.097190, -97.284163). Date of photograph: 12/13/23.

Photograph 91: View looking southeast from the proposed FM 407 ROW near STA 405+00 toward DP 11 (33.098819, -97.282697). Date of photograph: 12/13/23.

Photograph 92: View looking southwest from the proposed FM 407 ROW near STA 436+75 toward DP 12 at WF 14: Tributary to Denton Creek (33.102675, - 97.273567). Date of photograph: 10/24/23.

Photograph 93: View looking south from the proposed FM 407 ROW near STA 437+00 toward WF 13: Tributary to Denton Creek with WF 15: Detention Pond in the background (33.103194, - 97.274139). Date of photograph: 10/24/23.

Photograph 94: View looking southwest from the proposed FM 407 ROW near STA 438+75 toward DP 13 at WF 14: Tributary to Denton Creek (33.101078, - 97.270992). Date of photograph: 10/24/23.

Photograph 95: View looking west from the proposed FM 407 ROW near STA 440+50 toward WF 15: Detention Pond (33.102303, - 97.273403). Date of photograph: 10/24/23.

Photograph 96: View looking southeast from the proposed FM 407 ROW near STA 447+75 toward DP 14 at WF 16: Tributary to Denton Creek (33.101078, - 97.270992). Date of photograph: 10/24/23.

Photograph 97: View looking west from the proposed FM 407 ROW near STA 447+50 along WF 16: Tributary to Denton Creek (33.101078, -97.270992). Date of photograph: 10/24/23.

Photograph 98: View looking southwest from the existing FM 407 south ROW near STA 496+00 toward DP 15 at WF 17: Tributary to Denton Creek (33.101036, -97.255417). Date of photograph: 11/6/23.

Photograph 99: View looking southeast from the existing FM 407 north ROW near STA 547+75 toward DP 16 at WF 9: Tributary to Long Branch (33.100511, -97.238433). Date of photograph: 11/6/23.

Photograph 100: View looking northwest from the existing FM 407 south ROW near STA 547+75 toward DP 17 at WF 9: Tributary to Long Branch (33.100511, -97.238433). Date of photograph: 11/6/23.

Photograph 101: View looking east from the existing FM 407 south ROW near STA 643+00 toward DP 18 at WF 19: Tributary to Graham Branch (33.100292, -97.2072). Date of photograph: 11/6/23.

Photograph 102: View looking southwest from the existing FM 407 south ROW near STA 771+50 toward DP 19 at WF 20: Fincher Branch (33.101161, -97.165678). Date of photograph: 11/6/23.

Photograph 103: View looking southwest from the existing I-30 south ROW near STA 846+00 toward DP 20 at WF 21: Tributary to Loving Branch (33.104506, - 97.141969). Date of photograph: 11/6/23.

Photograph 104: View looking southwest from the existing FM 407 north ROW near STA 846+50 toward WF 21: Tributary to Loving Branch (33.104719, - 97.141842). Date of photograph: 11/6/23.

Appendix C – Schematics

Texas Department of Transportation

DALLAS DISTRICT
DESIGN SCHEMATIC

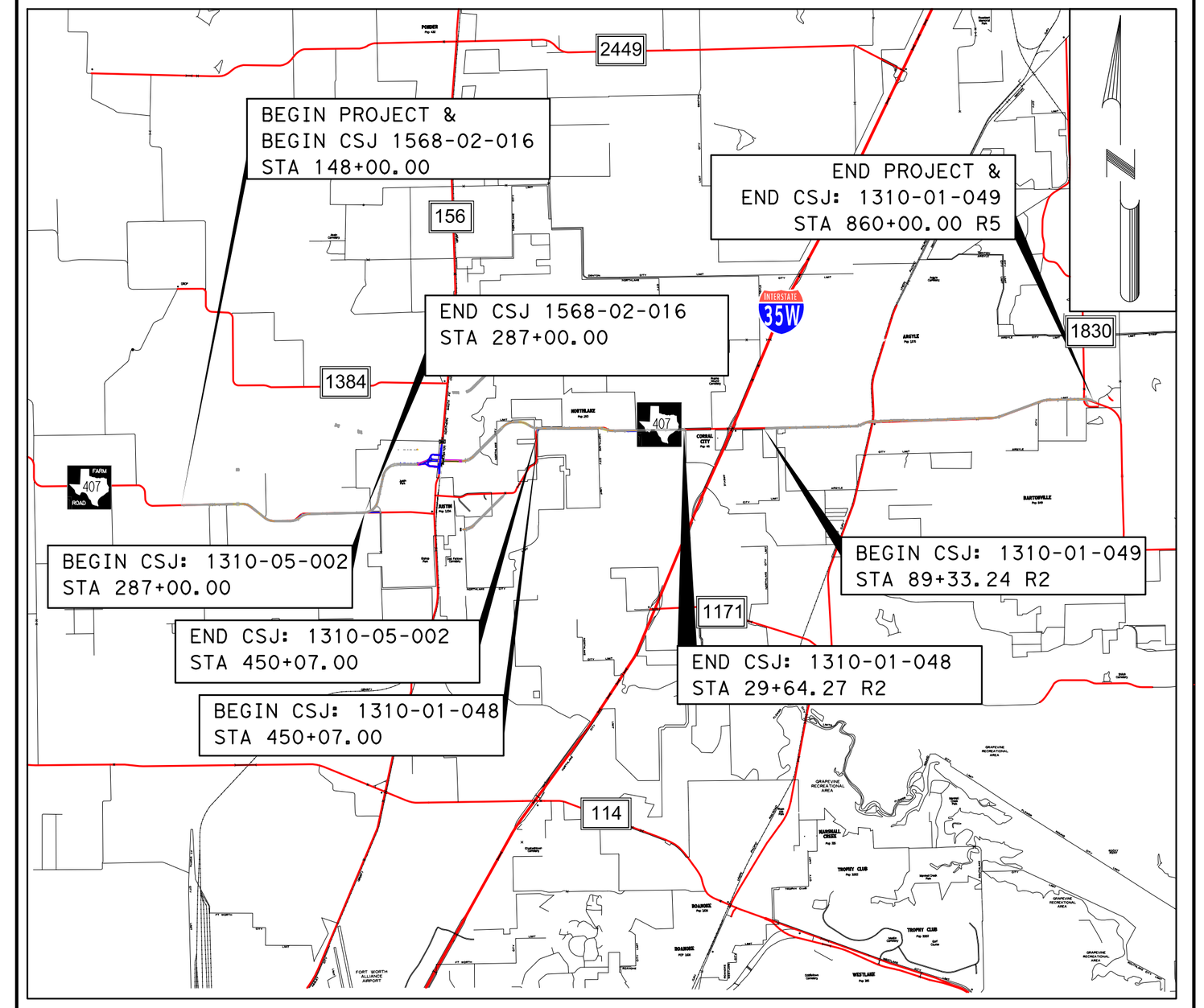
CEASON CLEMENS, P.E.
DISTRICT ENGINEER

FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES

ROADWAY TYPE	FUNCTIONAL CLASSIFICATION	DESIGN SPEED
FM 407 MAINLANE (EAST OF FM 156)	URBAN MINOR ARTERIAL	45 MPH
FM 407 MAINLANE (WEST OF FM 156)	URBAN MAJOR ARTERIAL	45 MPH
BILL COOK RD	LOCAL	35 MPH
7TH STREET	LOCAL	30 MPH
12TH STREET	LOCAL	30 MPH
FM 156	URBAN MINOR ARTERIAL	45 MPH
US 377	URBAN PRINCIPAL ARTERIAL	45 MPH
FM 1830	URBAN MINOR ARTERIAL	55 MPH
FM 407 / FM 156 ACCESS RAMPS	URBAN MINOR ARTERIAL	25 MPH
BOSS RANGE RD	URBAN MINOR ARTERIAL	25 MPH
OLD FM 407	URBAN MINOR ARTERIAL	25 MPH

SURVEY SCALE FACTOR: 1:1.000150630

100% COMPLETION SUBMITTAL



DENTON COUNTY

PROJECT LOCATION MAP

NOT TO SCALE
DESIGN WAIVER/DEVIATION: NO

ROLL 1 OF 12

INDEX OF SHEETS:

- ROLL 1: BEGIN PROJECT - STA 191+00
- ROLL 2: STA 191+00 - STA 253+00
- ROLL 3: STA 253+00 - STA 290+00
- ROLL 4: STA 290+00 - STA 334+00
- ROLL 5: STA 334+00 - STA 380+00
- ROLL 6: STA 380+00 - STA 435+00
- ROLL 7: STA 435+00 - STA 510+00
- ROLL 8: STA 510+00 - STA 59+00 R2
- ROLL 9: STA 59+00 R2 - STA 661+00 R3
- ROLL 10: STA 661+00 R3 - STA 735+00 R5
- ROLL 11: STA 735+00 R5 - STA 810+00 R5
- ROLL 12: STA 810+00 R5 - END PROJECT

STATION EQUATIONS:

FM 407_LT:
555+80.06 R1 = 29+64.27 R2
105+07.15 R2 = 631+20.95 R3
689+25.78 R3 = 6+66.54 R4
22+09.14 R4 = 704+76.60 R5

FM407_CL:
555+79.63 R1 = 29+64.27 R2
105+07.94 R2 = 631+20.95 R3
689+44.93 R3 = 6+66.54 R4
21+90.16 R4 = 704+76.60 R5

FM407_RT:
555+79.20 R1 = 29+64.27 R2
105+07.68 R2 = 631+20.95 R3
689+64.09 R3 = 6+66.54 R4
21+70.94 R4 = 704+76.60 R5

OCTOBER 2024

HORIZ SCALE: 1"=100'
0 50 100 200

VERTICAL SCALE: 1"=10'
0 5 10 20

TIMOTHY M. NESBITT, P.E.
(TX PE NO. 66648)

DATE SUBMITTED: 1/9/2025

DATE APPROVED:

DATE REVISED:

PRELIMINARY
FOR INTERIM REVIEW ONLY. NOT FOR PERMITTING, BIDDING, OR CONSTRUCTION.
Prepared by or under the Direct Supervision of
TIMOTHY M. NESBITT, P.E. 66648
1/9/2025

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

Bartlett&West
9330 LBJ FREEWAY, STE 1150 - DALLAS, TX 75243
PHONE 888-200-6464
TBPE FIRM REGISTRATION NO. 6499

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Texas Department of Transportation
DALLAS DISTRICT
DESIGN SCHEMATIC
CEASON CLEMENS, P.E.
DISTRICT ENGINEER
FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES
100% COMPLETION SUBMITTAL
DENTON COUNTY
PROJECT LOCATION MAP
ROLL 1 OF 12
OCTOBER 2024
Bartlett&West
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Texas Department of Transportation

DALLAS DISTRICT
DESIGN SCHEMATIC

CEASON CLEMENS, P.E.
DISTRICT ENGINEER

FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
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ROADWAY TYPE	FUNCTIONAL CLASSIFICATION	DESIGN SPEED
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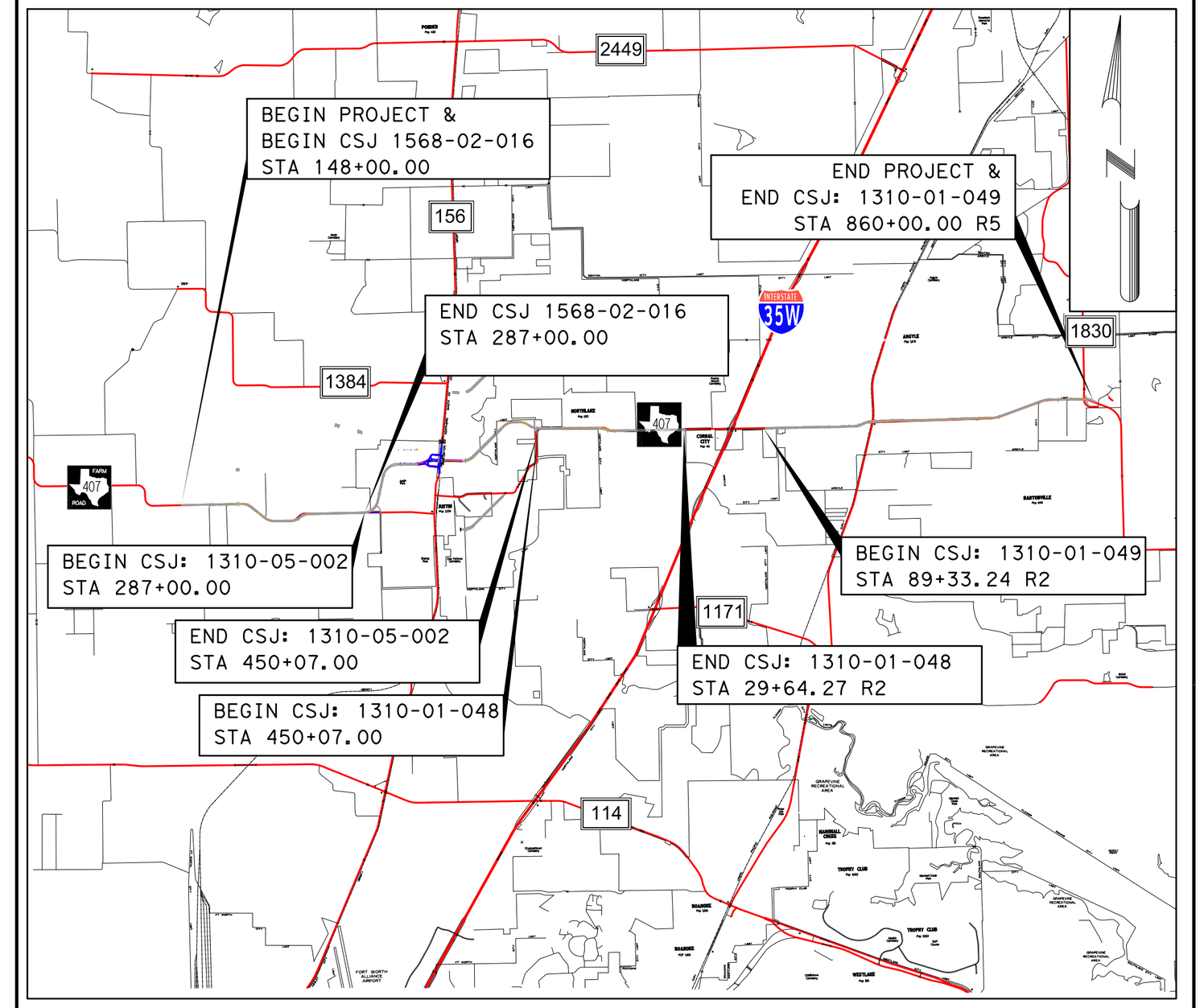
FM 407 / FM 156 ACCESS RAMPS	URBAN MINOR ARTERIAL	25 MPH
BOSS RANGE RD	URBAN MINOR ARTERIAL	25 MPH
OLD FM 407	URBAN MINOR ARTERIAL	25 MPH

SURVEY SCALE FACTOR: 1:1.000150630

100% COMPLETION SUBMITTAL



DENTON COUNTY

PROJECT LOCATION MAP

NOT TO SCALE
DESIGN WAIVER/DEVIATION: NO

ROLL 2 OF 12

INDEX OF SHEETS:

- ROLL 1: BEGIN PROJECT - STA 191+00
- ROLL 2: STA 191+00 - STA 253+00
- ROLL 3: STA 253+00 - STA 290+00
- ROLL 4: STA 290+00 - STA 334+00
- ROLL 5: STA 334+00 - STA 380+00
- ROLL 6: STA 380+00 - STA 435+00
- ROLL 7: STA 435+00 - STA 510+00
- ROLL 8: STA 510+00 - STA 59+00 R2
- ROLL 9: STA 59+00 R2 - STA 661+00 R3
- ROLL 10: STA 661+00 R3 - STA 735+00 R5
- ROLL 11: STA 735+00 R5 - STA 810+00 R5
- ROLL 12: STA 810+00 R5 - END PROJECT

STATION EQUATIONS:

FM 407_LT:
- 555+80.06 R1 = 29+64.27 R2
- 105+07.15 R2 = 631+20.95 R3
- 689+25.78 R3 = 6+66.54 R4
- 22+09.14 R4 = 704+76.60 R5

FM407_CL:
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OCTOBER 2024

HORIZ SCALE: 1"=100'
0 50 100 200

VERTICAL SCALE: 1"=10'
0 5 10 20

DATE SUBMITTED: 1/9/2025
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TIMOTHY M. NESBITT, P.E.
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Prepared by or under the Direct Supervision of
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9330 LBJ FREEWAY, STE 1150 - DALLAS, TX 75243
PHONE 888-200-6464
TBPE FIRM REGISTRATION NO. 6499

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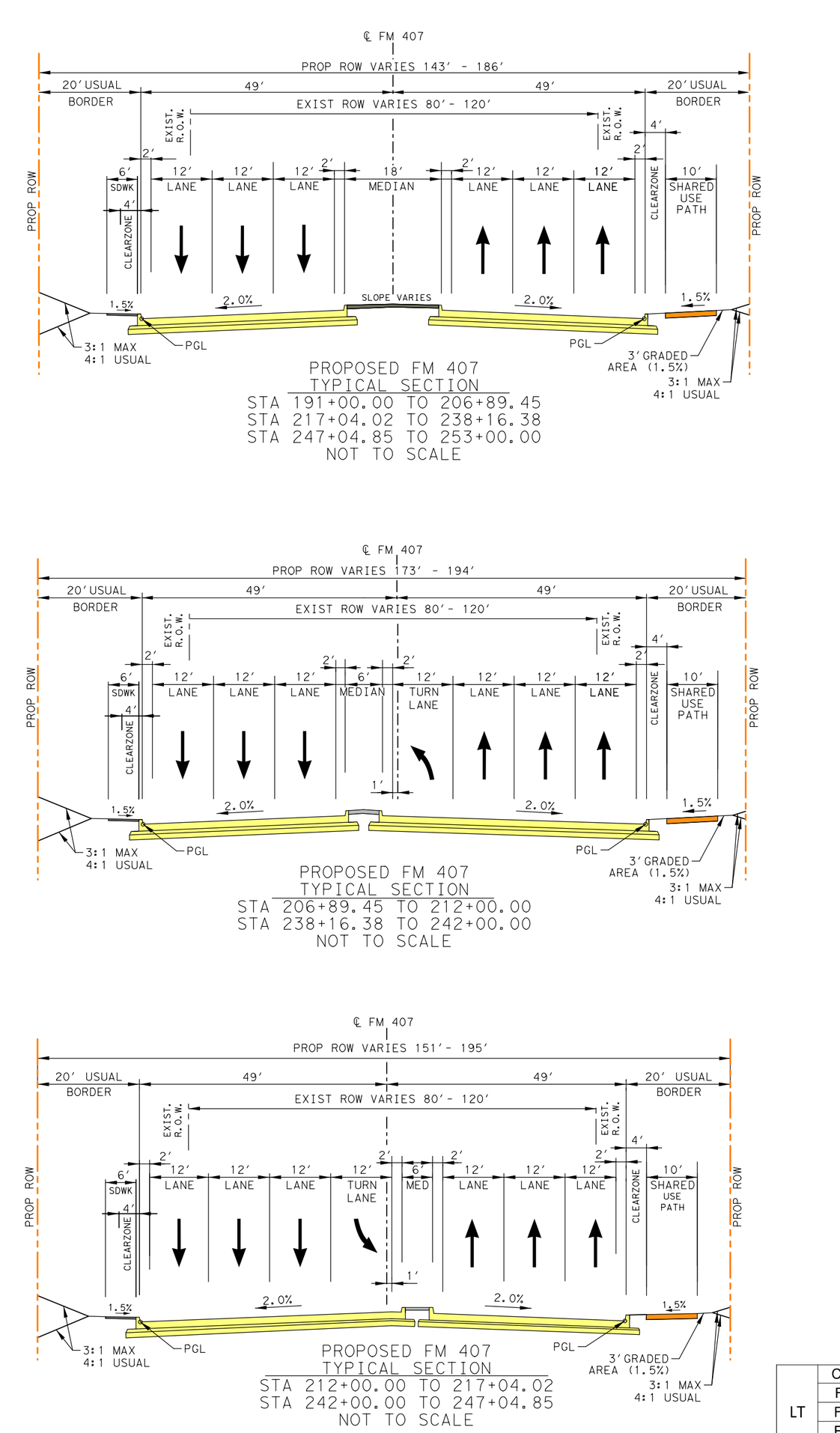
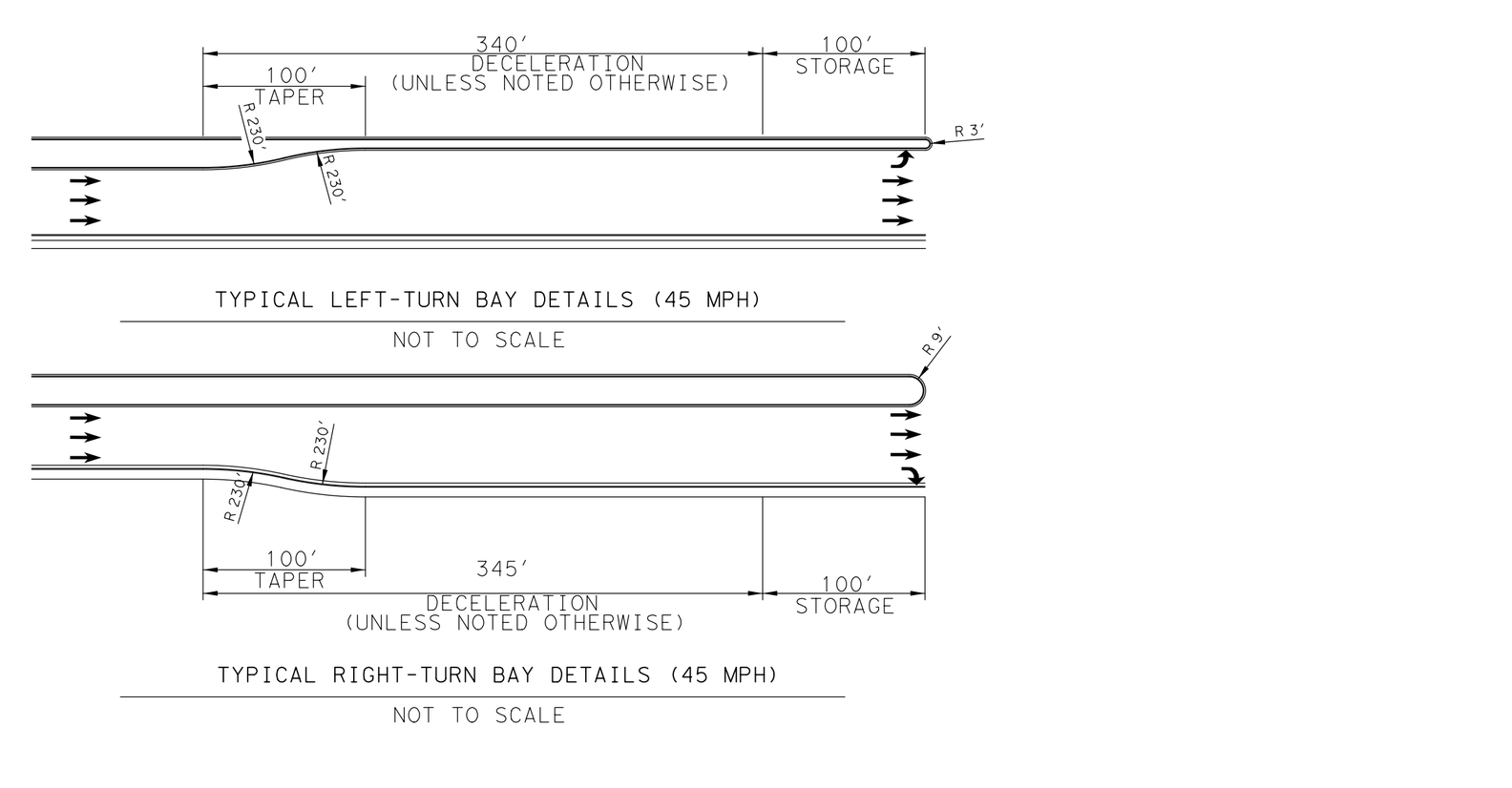
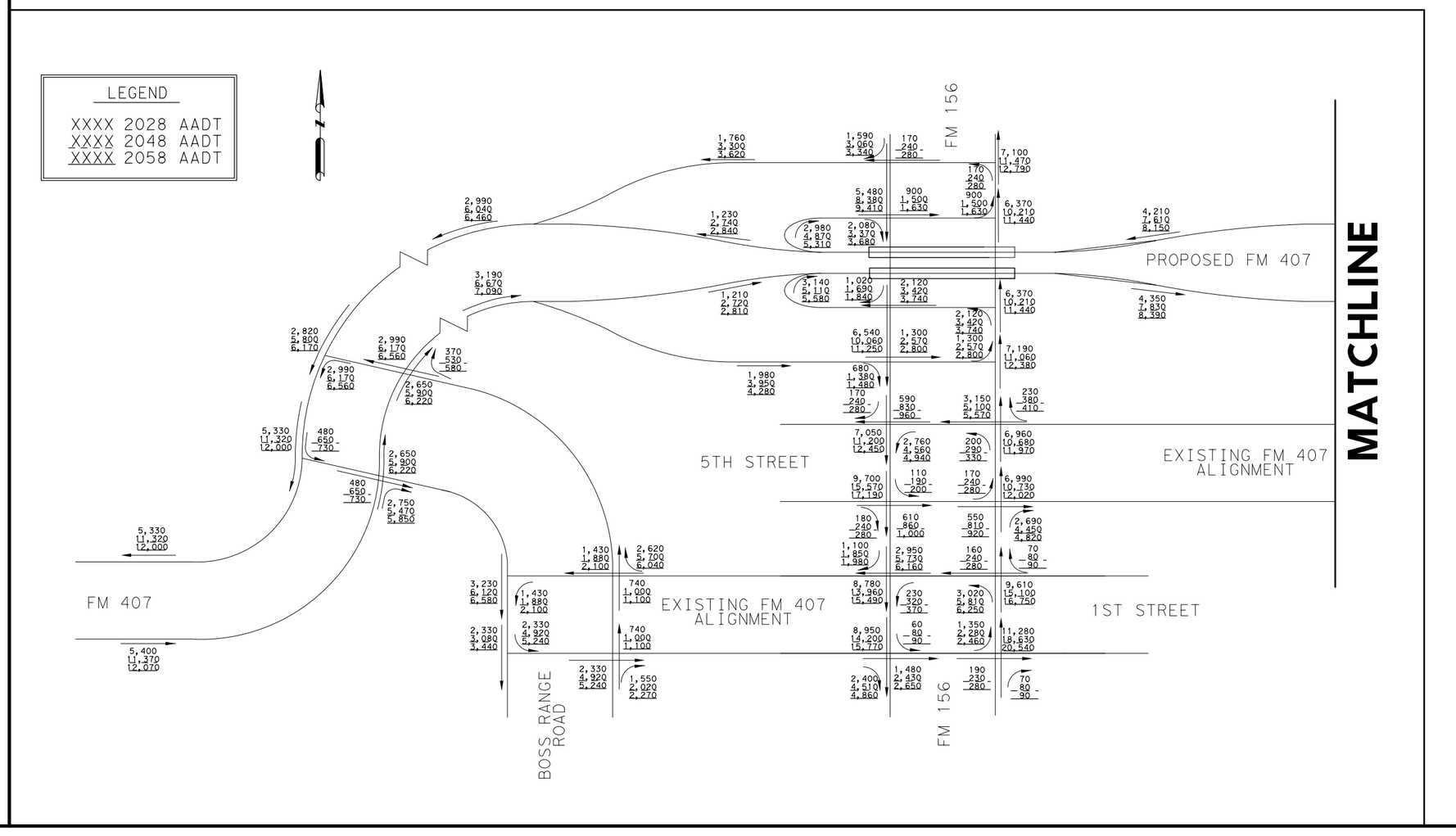
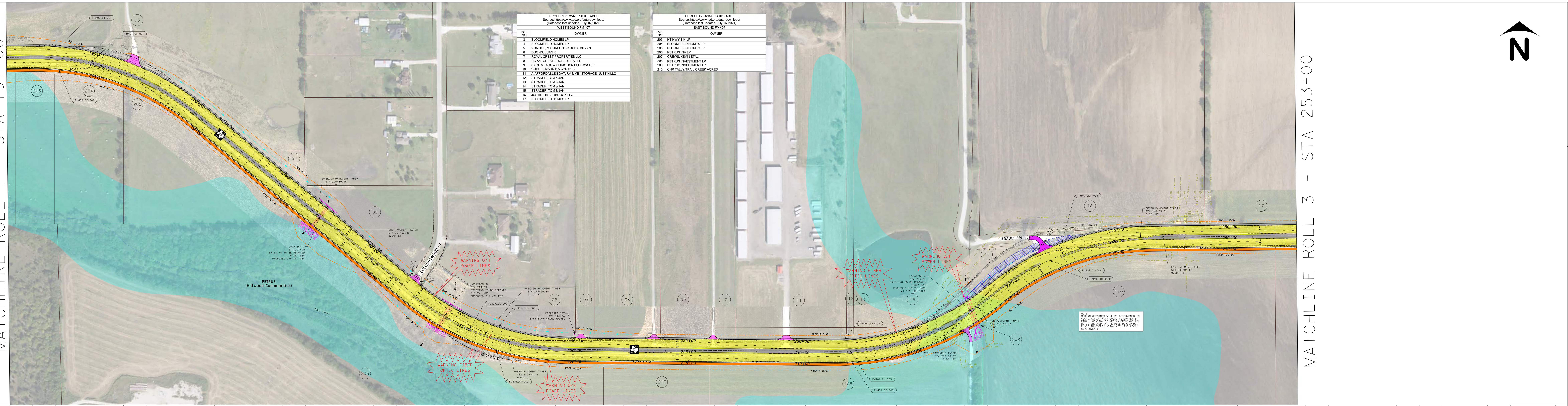






	CURVE NO.	PI STA	PI STATION-N	PI STATION-E	DELTA	RADIUS	DEGREE	TANGENT	LENGTH	CHORD BEARING	PC STATION	PT STATION	BACK TANGENT	AHEAD TANGENT
LT	FM407-001	196+46.70	7081722.41	2323997.64	40.283°	1149	4.987°	421.41	807.82	S70.414°E	192+25.29	200+33.11	N89.444°E	S50.273°E
LT	FM407-002	216+27.47	7080434.06	2325547.97	39.292°	1051	5.452°	375.19	720.74	S69.919°E	212+52.28	219+73.02	S50.273°E	S89.565°E
LT	FM407-003	235+24.63	7080419.43	2327474.72	39.977°	1051	5.452°	382.30	733.32	N70.447°E	231+42.33	238+75.66	S89.565°E	N50.458°E
LT	FM407-004	242+82.54	7080921.86	2328083.3	39.000°	1149	4.987°	406.89	782.11	N69.958°E	238+75.66	246+57.76	N50.458°E	N89.458°E
	CURVE NO.	PI STA	PI STATION-N	PI STATION-E	DELTA	RADIUS	DEGREE	TANGENT	LENGTH	CHORD BEARING	PC STATION	PT STATION	BACK TANGENT	AHEAD TANGENT
CL	FM407-001	196+28.73	7081673.23	2323980.14	40.283°	1100	5.209°	403.442	773.37	S70.414°E	192+25.29	199+98.66	N89.444°E	S50.273°E
CL	FM407-002	216+10.51	7080385.2	2325530.11	39.292°	1100	5.209°	392.683	754.344	S69.919°E	212+17.83	219+72.17	S50.273°E	S89.565°E
CL	FM407-003	235+41.61	7080370.29	2327492.17	39.977°	1100	5.209°	400.122	767.513	N70.447°E	231+41.49	239+09.00	S89.565°E	N50.458°E
CL	FM407-004	242+98.53	7080873.03	2328101.12	39.000°	1100	5.209°	389.534	748.753	N69.958°E	239+09.00	246+57.75	N50.458°E	N89.458°E
	CURVE NO.	PI STA	PI STATION-N	PI STATION-E	DELTA	RADIUS	DEGREE	TANGENT	LENGTH	CHORD BEARING	PC STATION	PT STATION	BACK TANGENT	AHEAD TANGENT
RT	FM407-001	196+10.76	7081624.06	2323962.65	40.283°	1051	5.452°	385.47	738.92	S70.414°E	192+25.29	199+64.21	N89.444°E	S50.273°E
RT	FM407-002	215+93.56	7080336.33	2325512.24	39.292°	1149	4.987°	410.18	787.95	S69.919°E	211+83.38	219+71.33	S50.273°E	S89.565°E
RT	FM407-003	235+58.59	7080321.16	2327509.62	39.977°	1149	4.987°	417.95	801.70	N70.447°E	231+40.64	239+42.34	S89.565°E	N50.458°E
RT	FM407-004	243+14.52	7080824.19	2328118.93	39.000°	1051	5.452°	372.18	715.40	N69.958°E	239+42.34	246+57.74	N50.458°E	N89.458°E



Texas Department of Transportation

DALLAS DISTRICT
DESIGN SCHEMATIC
CEASON CLEMENS, P.E.
DISTRICT ENGINEER
FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES

100% COMPLETION SUBMITTAL

DENTON COUNTY
PROJECT LOCATION MAP

ROLL 2 OF 12

OCTOBER 2024

TIMOTHY M. NESBITT, P.E.

Bartlett&West

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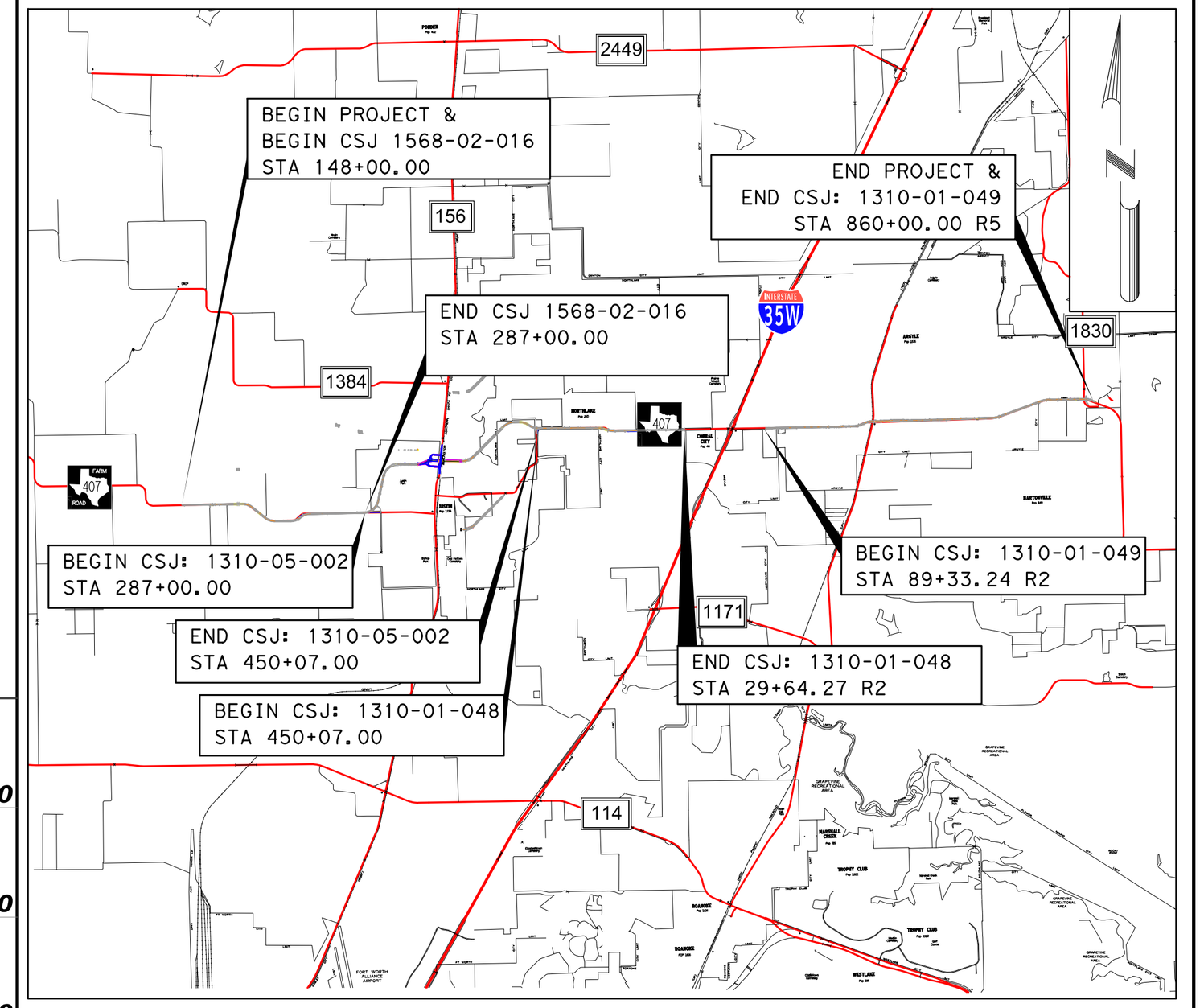


Texas Department of Transportation

DALLAS DISTRICT
DESIGN SCHEMATIC

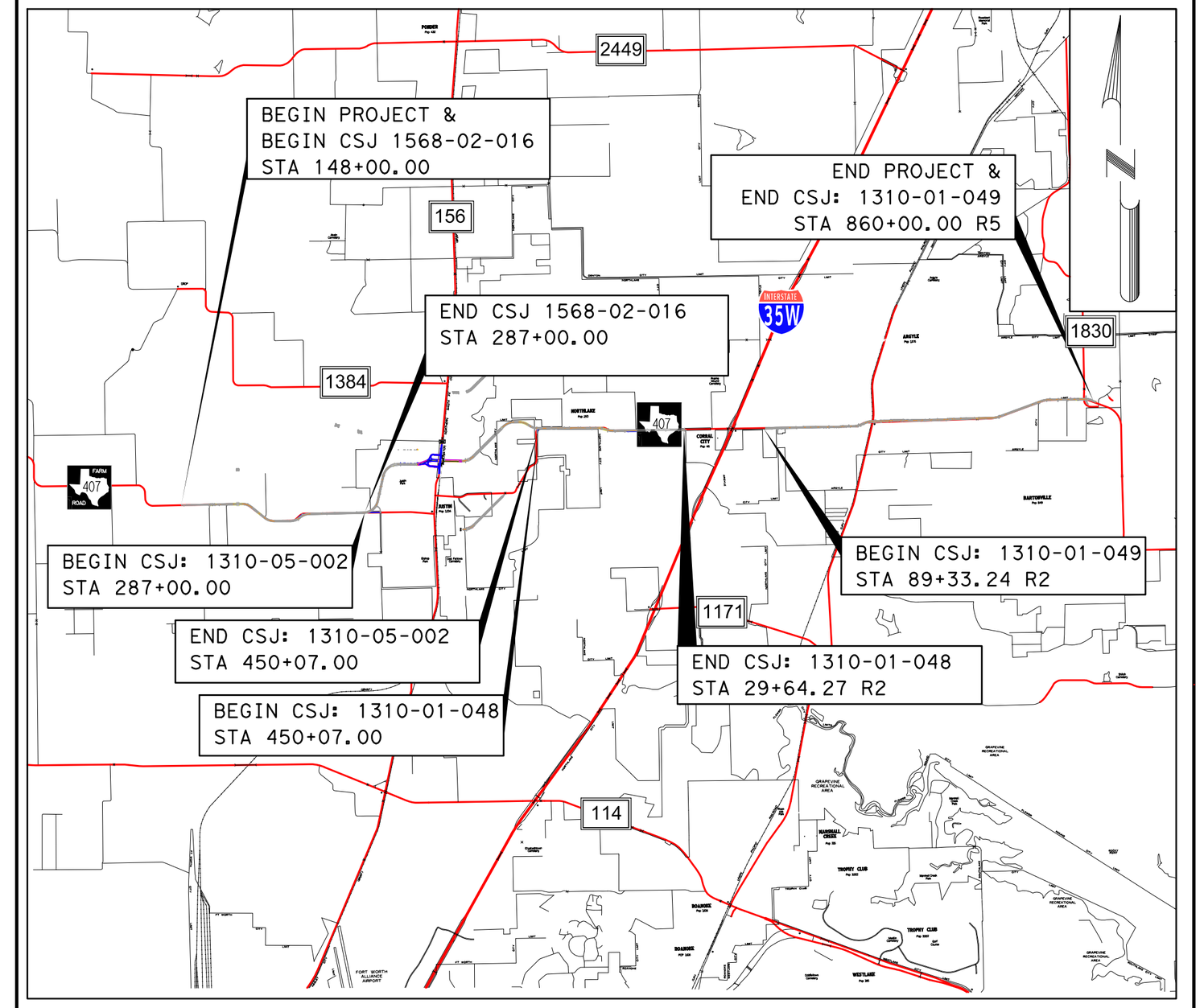
CEASON CLEMENS, P.E.
DISTRICT ENGINEER

FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES

ROADWAY TYPE	FUNCTIONAL CLASSIFICATION	DESIGN SPEED
FM 407 MAINLANE (EAST OF FM 156)	URBAN MINOR ARTERIAL	45 MPH
FM 407 MAINLANE (WEST OF FM 156)	URBAN MAJOR ARTERIAL	45 MPH
BILL COOK RD	LOCAL	35 MPH
7TH STREET	LOCAL	30 MPH
12TH STREET	LOCAL	30 MPH
FM 156	URBAN MINOR ARTERIAL	45 MPH
US 377	URBAN PRINCIPAL ARTERIAL	45 MPH
FM 1830	URBAN MINOR ARTERIAL	55 MPH
FM 407 / FM 156 ACCESS RAMPS	URBAN MINOR ARTERIAL	25 MPH
BOSS RANGE RD	URBAN MINOR ARTERIAL	25 MPH
OLD FM 407	URBAN MINOR ARTERIAL	25 MPH

SURVEY SCALE FACTOR: 1:1.000150630

100% COMPLETION SUBMITTAL



DENTON COUNTY

PROJECT LOCATION MAP

NOT TO SCALE
DESIGN WAIVER/DEVIATION: NO

ROLL 3 OF 12

INDEX OF SHEETS:

- ROLL 1: BEGIN PROJECT - STA 191+00
- ROLL 2: STA 191+00 - STA 253+00
- ROLL 3: STA 253+00 - STA 290+00
- ROLL 4: STA 290+00 - STA 334+00
- ROLL 5: STA 334+00 - STA 380+00
- ROLL 6: STA 380+00 - STA 435+00
- ROLL 7: STA 435+00 - STA 510+00
- ROLL 8: STA 510+00 - STA 59+00 R2
- ROLL 9: STA 59+00 R2 - STA 661+00 R3
- ROLL 10: STA 661+00 R3 - STA 735+00 R5
- ROLL 11: STA 735+00 R5 - STA 810+00 R5
- ROLL 12: STA 810+00 R5 - END PROJECT

STATION EQUATIONS:

FM 407_LT:
555+80.06 R1 = 29+64.27 R2
105+07.15 R2 = 631+20.95 R3
689+25.78 R3 = 6+66.54 R4
22+09.14 R4 = 704+76.60 R5

FM407_CL:
555+79.63 R1 = 29+64.27 R2
105+07.94 R2 = 631+20.95 R3
689+44.93 R3 = 6+66.54 R4
21+90.16 R4 = 704+76.60 R5

FM407_RT:
555+79.20 R1 = 29+64.27 R2
105+07.68 R2 = 631+20.95 R3
689+64.09 R3 = 6+66.54 R4
21+70.94 R4 = 704+76.60 R5

OCTOBER 2024

HORIZ SCALE: 1"=100'
0 50 100 200

VERTICAL SCALE: 1"=10'
0 5 10 20

TIMOTHY M. NESBITT, P.E.
(TX PE NO. 66648)

DATE SUBMITTED: 1/9/2025

DATE APPROVED:

DATE REVISED:

PRELIMINARY
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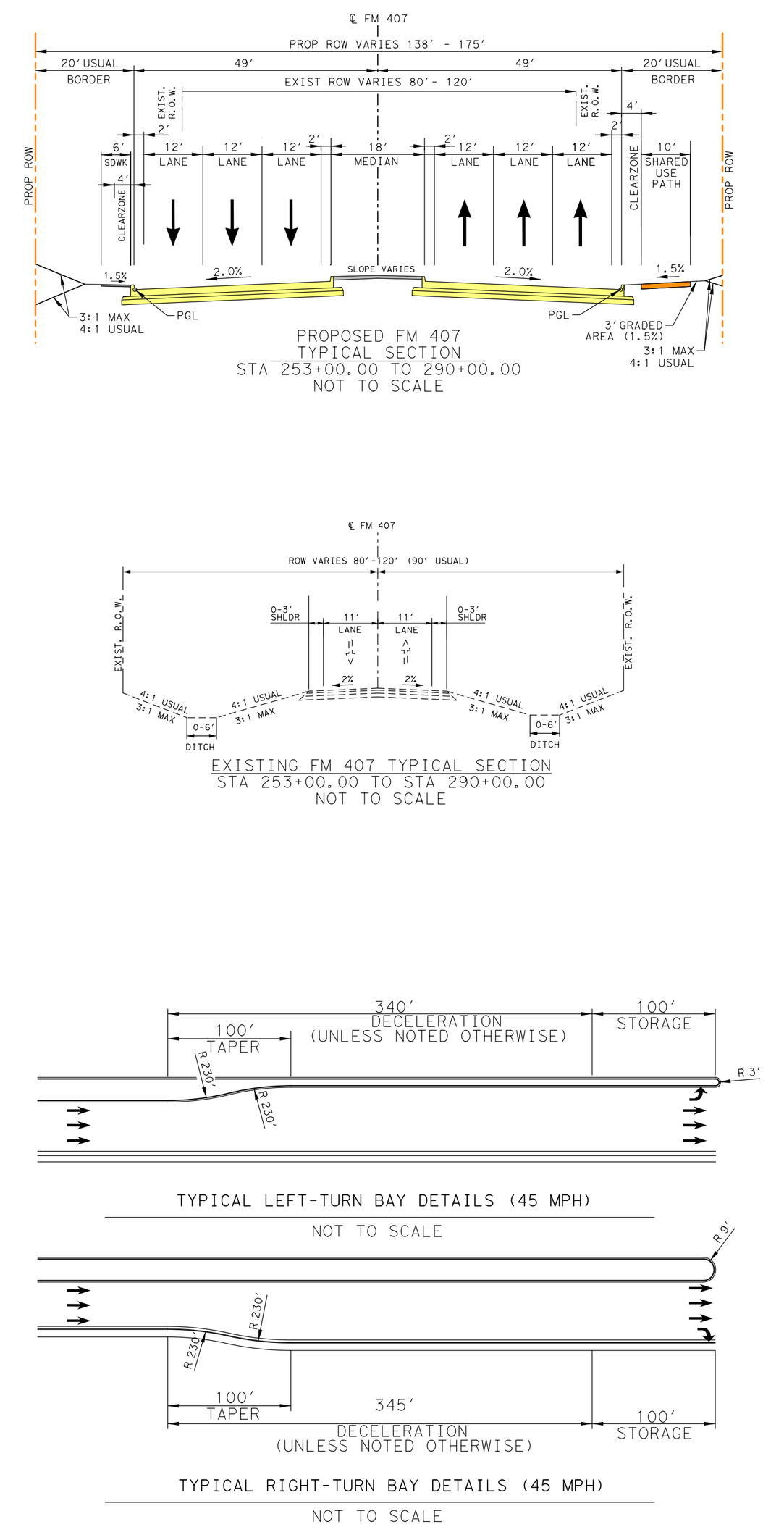
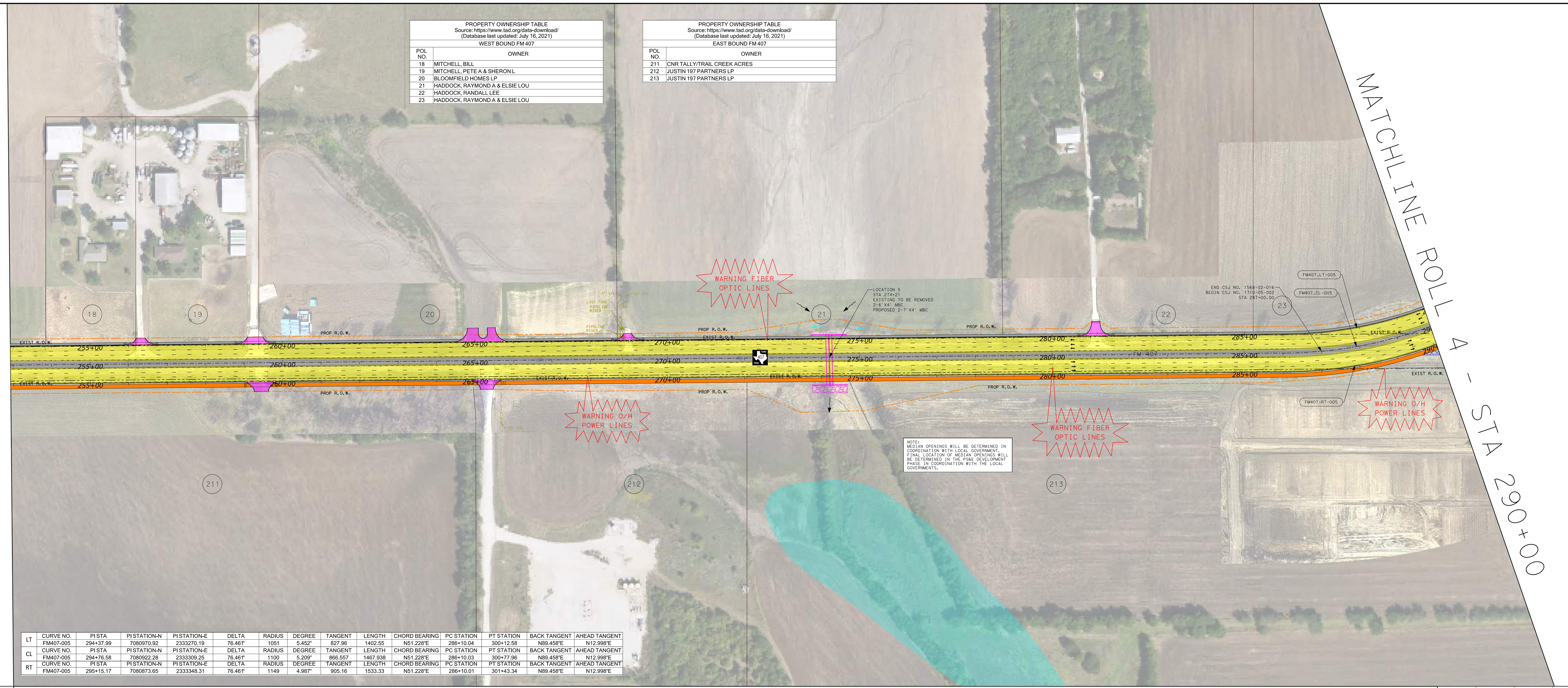
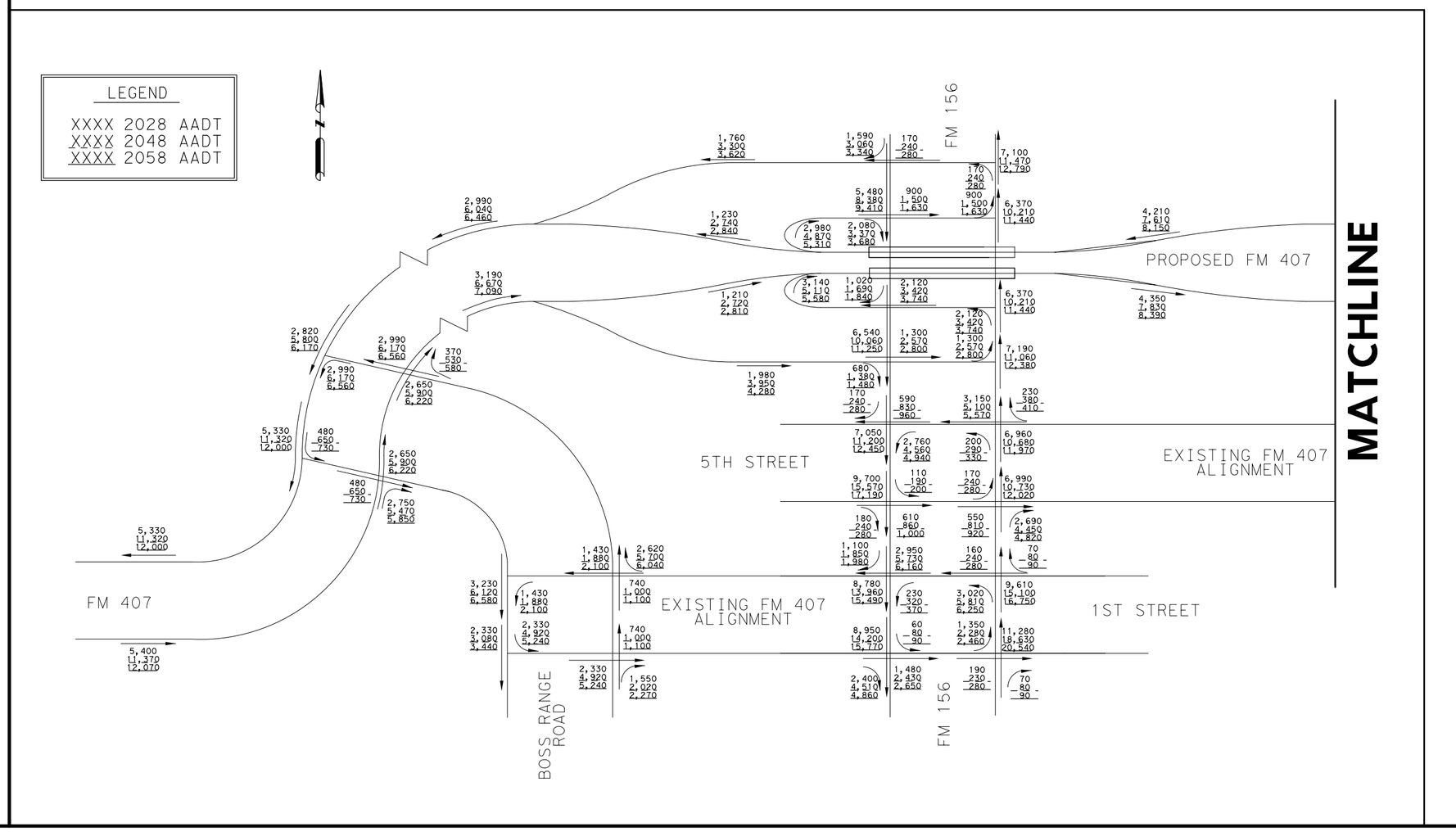
NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

Bartlett&West
9330 LBJ FREEWAY, STE 1150 - DALLAS, TX 75243
PHONE 888-200-6464
TBPE FIRM REGISTRATION NO. 6499







Texas Department of Transportation
DALLAS DISTRICT
DESIGN SCHEMATIC
CEASON CLEMENS, P.E.
DISTRICT ENGINEER
FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES
100% COMPLETION SUBMITTAL
DENTON COUNTY
PROJECT LOCATION MAP
ROLL 3 OF 12
OCTOBER 2024
TIMOTHY M. NESBITT, P.E.
Bartlett&West
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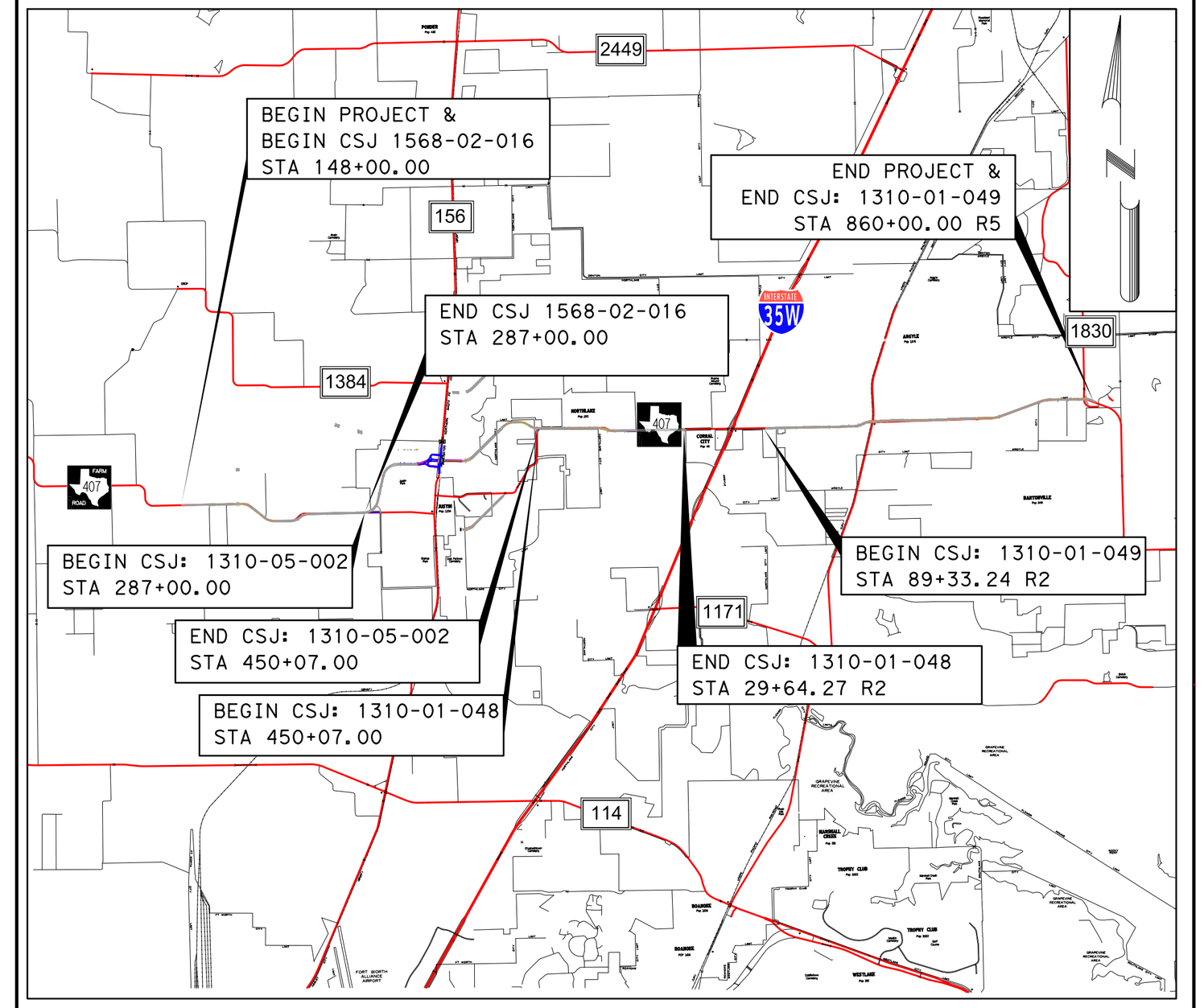
Texas Department of Transportation
DALLAS DISTRICT
DESIGN SCHEMATIC
CEASON CLEMENS, P.E.
DISTRICT ENGINEER

FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES

ROADWAY TYPE	FUNCTIONAL CLASSIFICATION	DESIGN SPEED
FM 407 MAINLANE (EAST OF FM 156)	URBAN MINOR ARTERIAL	45 MPH
FM 407 MAINLANE (WEST OF FM 156)	URBAN MAJOR ARTERIAL	45 MPH
BILL COOK RD	LOCAL	35 MPH
7TH STREET	LOCAL	30 MPH
12TH STREET	LOCAL	30 MPH
FM 156	URBAN MINOR ARTERIAL	45 MPH
US 377	URBAN PRINCIPAL ARTERIAL	45 MPH
FM 1830	URBAN MINOR ARTERIAL	55 MPH
FM 407 / FM 156 ACCESS RAMPS	URBAN MINOR ARTERIAL	25 MPH
BOSS RANGE RD	URBAN MINOR ARTERIAL	25 MPH
OLD FM 407	URBAN MINOR ARTERIAL	25 MPH

SURVEY SCALE FACTOR: 1:1.000150630

100% COMPLETION SUBMITTAL



DENTON COUNTY
PROJECT LOCATION MAP
NOT TO SCALE
DESIGN WAIVER/DEVIATION: NO

ROLL 4 OF 12

INDEX OF SHEETS:
ROLL 1: BEGIN PROJECT - STA 191+00
ROLL 2: STA 191+00 - STA 253+00
ROLL 3: STA 253+00 - STA 290+00
ROLL 4: STA 290+00 - STA 334+00
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ROLL 6: STA 380+00 - STA 435+00
ROLL 7: STA 435+00 - STA 510+00
ROLL 8: STA 510+00 - STA 59+00 R2
ROLL 9: STA 59+00 R2 - STA 661+00 R3
ROLL 10: STA 661+00 R3 - STA 735+00 R5
ROLL 11: STA 735+00 R5 - STA 810+00 R5
ROLL 12: STA 810+00 R5 - END PROJECT

STATION EQUATIONS:
FM 407_LT:
555+80.06 R1 = 29+64.27 R2
105+07.15 R2 = 631+20.95 R3
689+25.78 R3 = 6+66.54 R4
22+09.14 R4 = 704+76.60 R5
FM407_CL:
555+79.63 R1 = 29+64.27 R2
105+07.94 R2 = 631+20.95 R3
689+44.93 R3 = 6+66.54 R4
21+90.16 R4 = 704+76.60 R5
FM407_RT:
555+79.20 R1 = 29+64.27 R2
105+07.68 R2 = 631+20.95 R3
689+64.09 R3 = 6+66.54 R4
21+70.94 R4 = 704+76.60 R5

OCTOBER 2024

HORIZ SCALE: 1"=100'
0 50 100 200
VERTICAL SCALE: 1"=10'
0 5 10 20

TIMOTHY M. NESBITT, P.E.
(TX PE NO. 66648)

DATE SUBMITTED
1/9/2025
DATE APPROVED
DATE REVISED

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TIMOTHY M. NESBITT, P.E. 66648
1/9/2025

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Bartlett&West
9330 LBJ FREEWAY, STE 1150 - DALLAS, TX 75243
PHONE 888-200-6464
TBPE FIRM REGISTRATION NO. 6499

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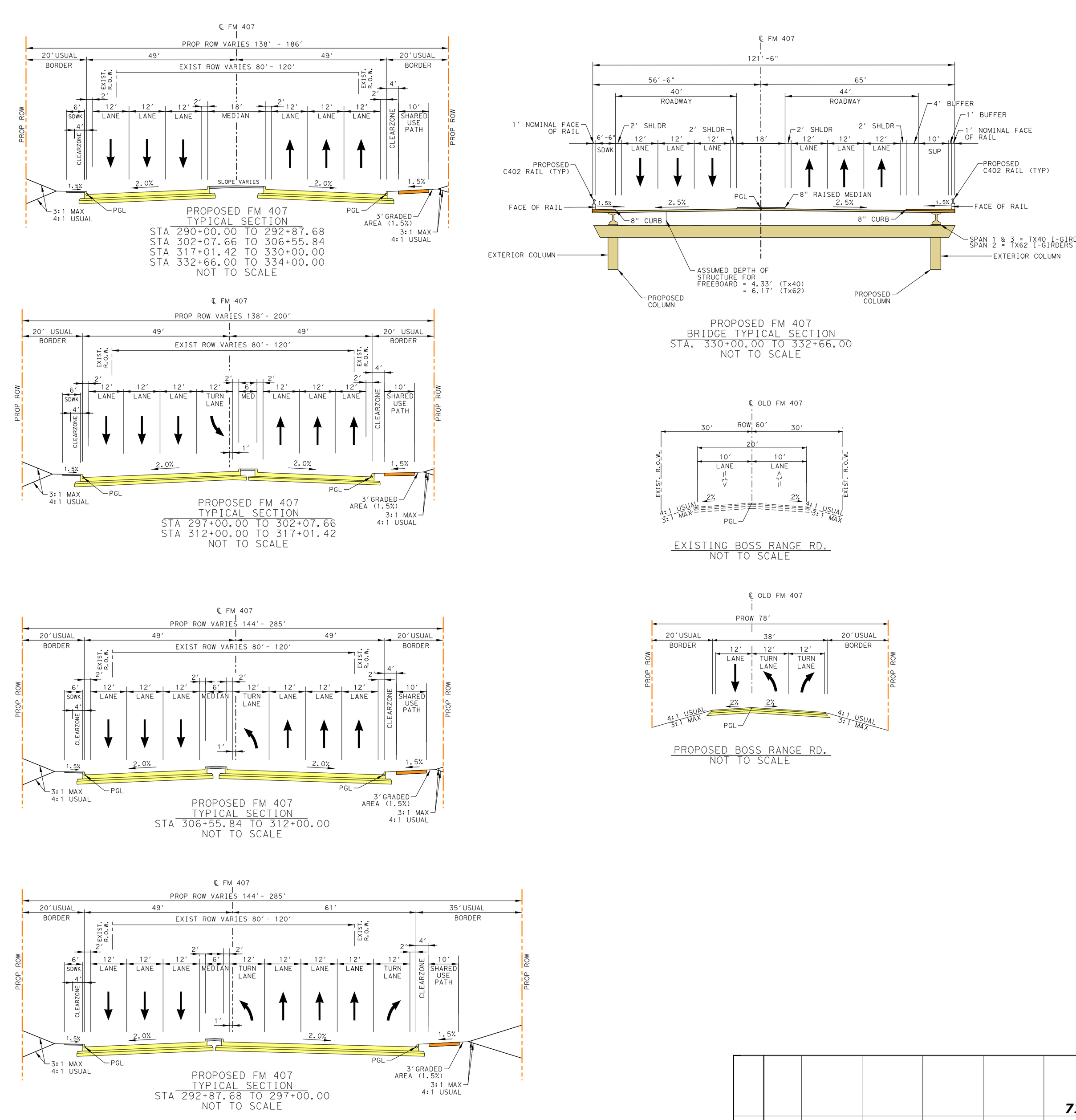

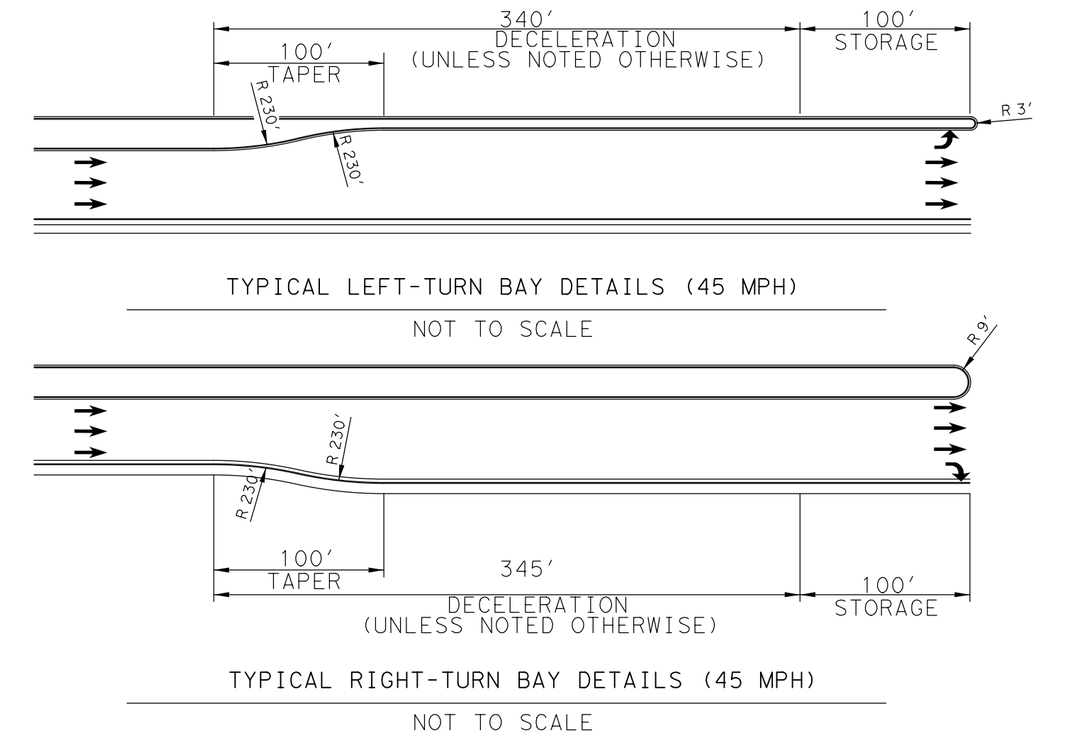

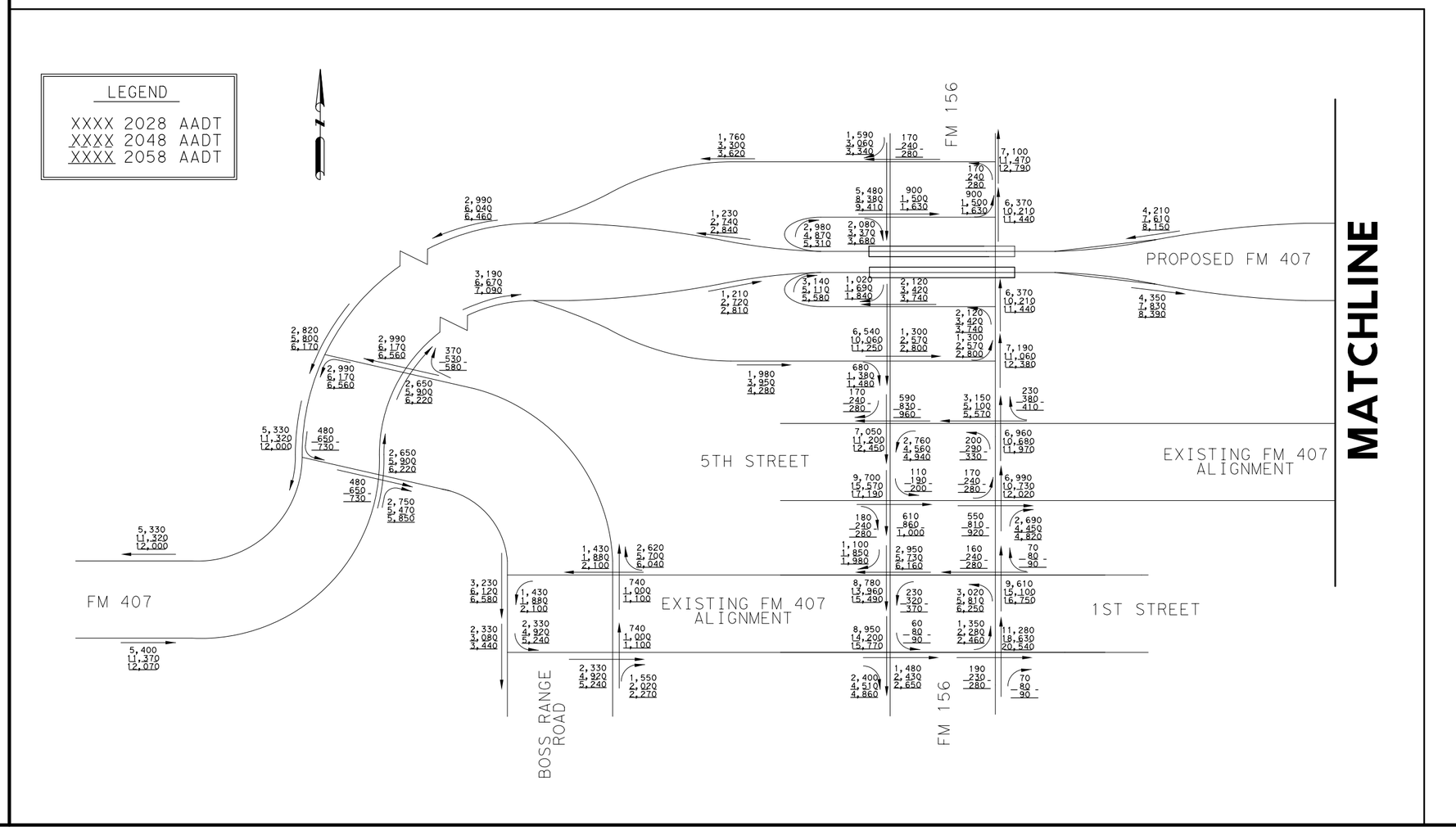

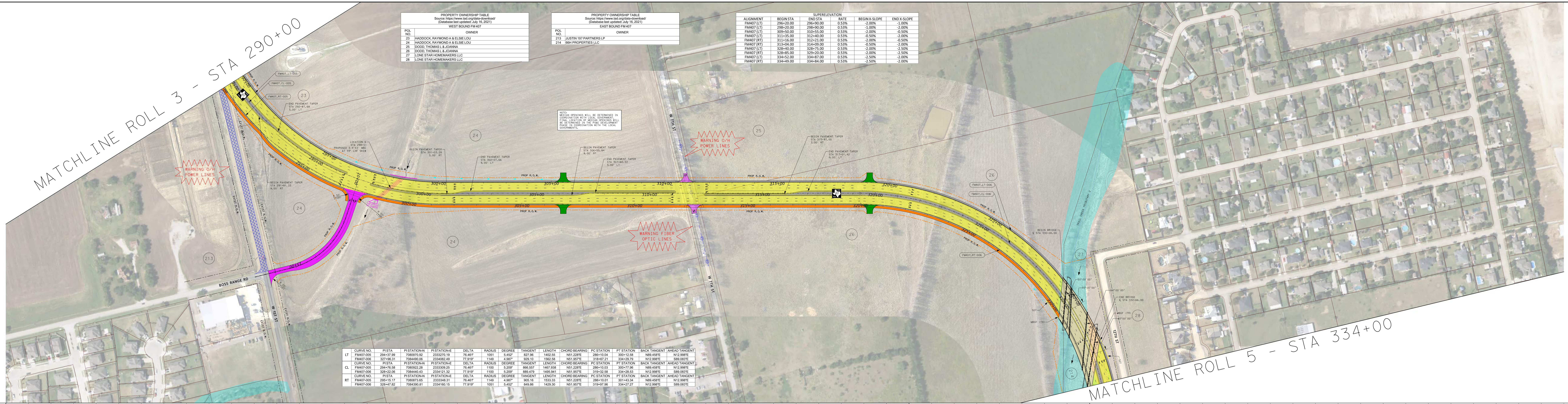

PROPERTY OWNERSHIP TABLE Source: https://www.tad.org/data-download/ (Database last updated: July 16, 2021) WEST BOUND FM 407	
POL NO.	OWNER
23	HADDOCK, RAYMOND A & ELSIE LOU
24	HADDOCK, RAYMOND A & ELSIE LOU
25	DODD, THOMAS L & JOANNA
26	DODD, THOMAS L & JOANNA
27	LONE STAR HOMEMAKERS LLC
28	LONE STAR HOMEMAKERS LLC

PROPERTY OWNERSHIP TABLE Source: https://www.tad.org/data-download/ (Database last updated: July 16, 2021) EAST BOUND FM 407	
POL NO.	OWNER
213	JUSTIN 197 PARTNERS LP
214	66H PROPERTIES LLC

SUPERELEVATION					
ALIGNMENT	BEGIN STA	END STA	RATE	BEGIN X-SLOPE	END X-SLOPE
FM407 (LT)	296+20.00	296+90.00	0.53%	-2.00%	-1.00%
FM407 (LT)	298+20.00	298+90.00	0.53%	-1.00%	-2.00%
FM407 (LT)	309+50.00	310+55.00	0.53%	-2.00%	-0.50%
FM407 (LT)	311+35.00	312+40.00	0.53%	-0.50%	-2.00%
FM407 (RT)	311+16.00	312+21.00	0.53%	-2.00%	-0.50%
FM407 (RT)	313+04.00	314+09.00	0.53%	-0.50%	-2.00%
FM407 (LT)	328+40.00	328+75.00	0.53%	-2.00%	-2.50%
FM407 (RT)	328+85.00	329+20.00	0.53%	-2.00%	-2.50%
FM407 (LT)	334+52.00	334+87.00	0.53%	-2.50%	-2.00%
FM407 (RT)	334+49.00	334+84.00	0.53%	-2.50%	-2.00%

	CURVE NO.	PI STA	PI STATION-N	PI STATION-E	DELTA	RADIUS	DEGREE	TANGENT	LENGTH	CHORD BEARING	PC STATION	PT STATION	BACK TANGENT	AHEAD TANGENT
LT	FM407-005	294+37.99	7080970.92	2333270.19	76.461°	1051	5.452°	827.96	1402.55	N51.228°E	286+10.04	300+12.58	N89.458°E	N12.998°E
	FM407-006	327+96.31	7084490.06	2334082.49	77.919°	1149	4.987°	929.10	1562.58	N51.957°E	318+67.21	334+29.79	N12.998°E	S89.083°E
CL	FM407-005	294+76.58	7080922.28	2333309.25	76.461°	1100	5.209°	866.557	1467.938	N51.228°E	286+10.03	300+77.96	N89.458°E	N12.998°E
	FM407-006	328+22.06	7084440.43	2334121.32	77.919°	1100	5.209°	889.479	1495.941	N51.957°E	319+32.58	334+28.53	N12.998°E	S89.083°E
RT	FM407-005	295+15.17	7080873.65	2333348.31	76.461°	1149	4.987°	905.16	1533.33	N51.228°E	286+10.01	301+43.34	N89.458°E	N12.998°E
	FM407-006	328+47.82	7084390.81	2334160.15	77.919°	1051	5.452°	849.86	1429.30	N51.957°E	319+97.96	334+27.27	N12.998°E	S89.083°E

Texas Department of Transportation
DALLAS DISTRICT
DESIGN SCHEMATIC
CEASON CLEMENS, P.E.
DISTRICT ENGINEER
FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES
100% COMPLETION SUBMITTAL
DENTON COUNTY
PROJECT LOCATION MAP
ROLL 4 OF 12
OCTOBER 2024
Bartlett&West
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Texas Department of Transportation

DALLAS DISTRICT
DESIGN SCHEMATIC

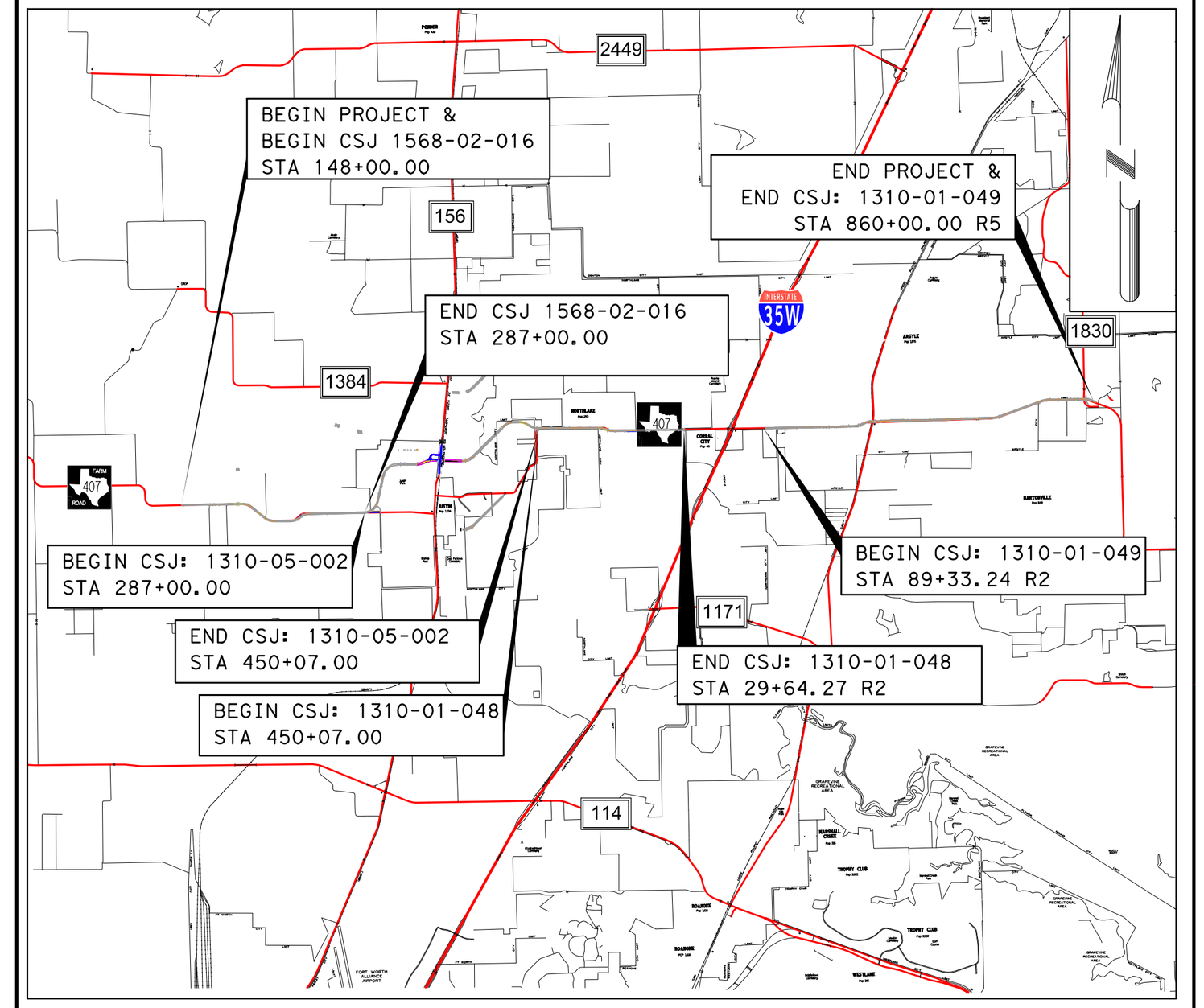
CEASON CLEMENS, P.E.
DISTRICT ENGINEER

FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES

ROADWAY TYPE	FUNCTIONAL CLASSIFICATION	DESIGN SPEED
FM 407 MAINLANE (EAST OF FM 156)	URBAN MINOR ARTERIAL	45 MPH
FM 407 MAINLANE (WEST OF FM 156)	URBAN MAJOR ARTERIAL	45 MPH
BILL COOK RD	LOCAL	35 MPH
7TH STREET	LOCAL	30 MPH
12TH STREET	LOCAL	30 MPH
FM 156	URBAN MINOR ARTERIAL	45 MPH
US 377	URBAN PRINCIPAL ARTERIAL	45 MPH
FM 1830	URBAN MINOR ARTERIAL	55 MPH
FM 407 / FM 156 ACCESS RAMPS	URBAN MINOR ARTERIAL	25 MPH
BOSS RANGE RD	URBAN MINOR ARTERIAL	25 MPH
OLD FM 407	URBAN MINOR ARTERIAL	25 MPH

SURVEY SCALE FACTOR: 1:1.000150630

100% COMPLETION SUBMITTAL



DENTON COUNTY

PROJECT LOCATION MAP

NOT TO SCALE
DESIGN WAIVER/DEVIATION: NO

ROLL 5 OF 12

INDEX OF SHEETS:

- ROLL 1: BEGIN PROJECT - STA 191+00
- ROLL 2: STA 191+00 - STA 253+00
- ROLL 3: STA 253+00 - STA 290+00
- ROLL 4: STA 290+00 - STA 334+00
- ROLL 5: STA 334+00 - STA 380+00
- ROLL 6: STA 380+00 - STA 435+00
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- ROLL 8: STA 510+00 - STA 59+00 R2
- ROLL 9: STA 59+00 R2 - STA 661+00 R3
- ROLL 10: STA 661+00 R3 - STA 735+00 R5
- ROLL 11: STA 735+00 R5 - STA 810+00 R5
- ROLL 12: STA 810+00 R5 - END PROJECT

STATION EQUATIONS:

FM 407_LT:
555+80.06 R1 = 29+64.27 R2
105+07.15 R2 = 631+20.95 R3
689+25.78 R3 = 6+66.54 R4
22+09.14 R4 = 704+76.60 R5

FM407_CL:
555+79.63 R1 = 29+64.27 R2
105+07.94 R2 = 631+20.95 R3
689+44.93 R3 = 6+66.54 R4
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105+07.68 R2 = 631+20.95 R3
689+64.09 R3 = 6+66.54 R4
21+70.94 R4 = 704+76.60 R5

MAY 2025

HORIZ SCALE: 1"=100'
0 50 100 200

VERTICAL SCALE: 1"=10'
0 5 10 20

TIMOTHY M. NESBITT, P.E.
(TX PE NO. 66648)

DATE SUBMITTED
5/22/2025

DATE APPROVED

DATE REVISED

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5/22/2025

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9330 LBJ FREEWAY, STE 1150 - DALLAS, TX 75243
PHONE 888-200-6464
TBPE FIRM REGISTRATION NO. 6499

amq01781 4:34:08 PM 5/22/2025

LEGEND:
PROPOSED MAINLANES
PROPOSED DRIVEWAYS
FEASIBLE DRIVEWAY
PROPOSED SIDEWALKS
PROPOSED MEDIANS
PAVEMENT REMOVAL
DISPLACEMENTS
PROPOSED ROW
EXISTING EASEMENT
100 YR FLOODPLAIN
FLOODWAY LIMITS
RIPRAP
STREAM FLOW
DITCH FLOW
TRAVEL LANE
EXISTING SIGNAL
EXISTING CULVERT
PROPOSED CULVERT
CURVE NUMBER
PROPERTY OWNERSHIP

Texas Department of Transportation
DALLAS DISTRICT
DESIGN SCHEMATIC
CEASON CLEMENS, P.E.
DISTRICT ENGINEER
FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES
100% COMPLETION SUBMITTAL
DENTON COUNTY
PROJECT LOCATION MAP
ROLL 5 OF 12
MAY 2025
DATE SUBMITTED
5/22/2025
DATE APPROVED
DATE REVISED
PRELIMINARY
NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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Texas Department of Transportation

DALLAS DISTRICT
DESIGN SCHEMATIC

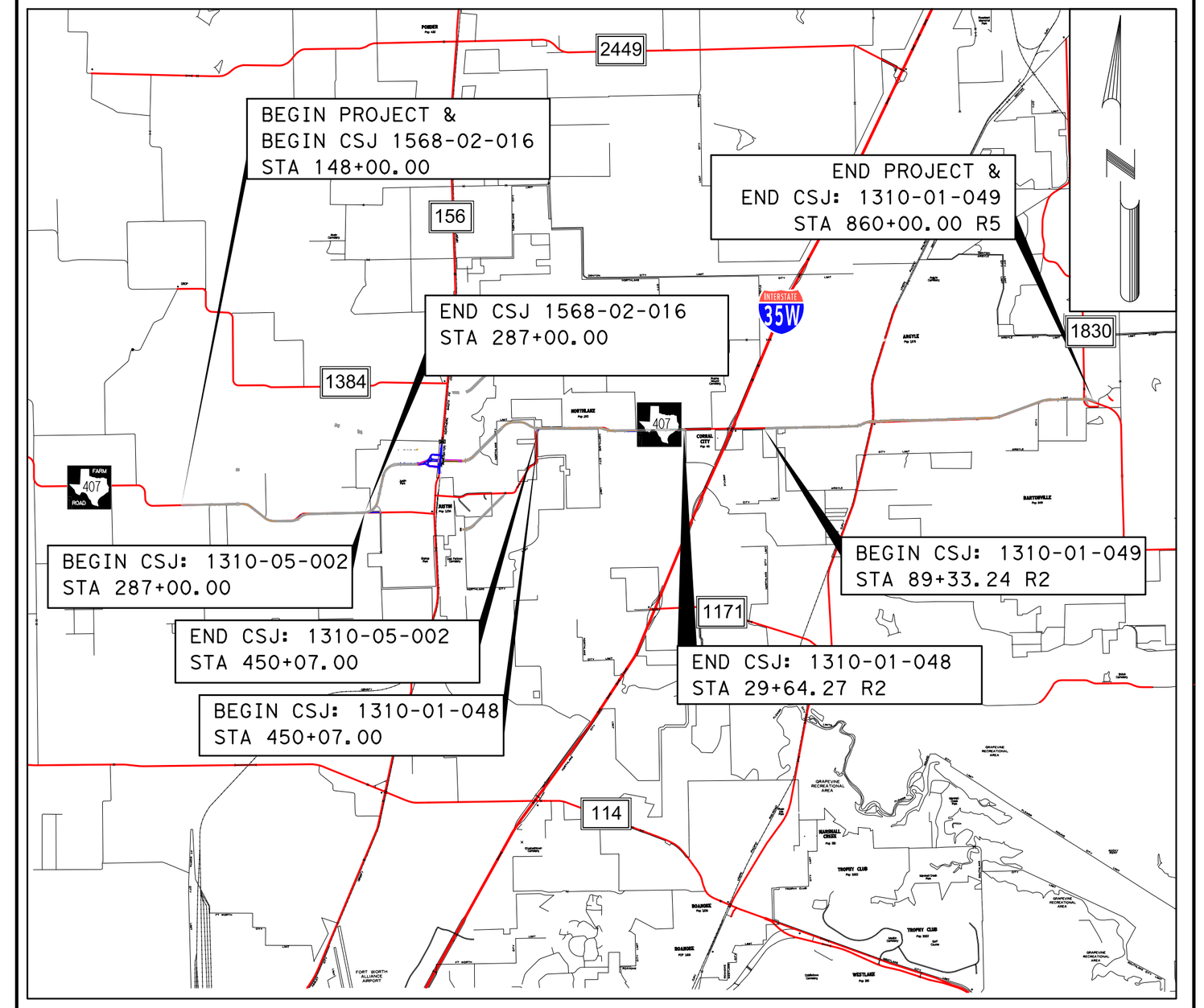
CEASON CLEMENS, P.E.
DISTRICT ENGINEER

FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES

ROADWAY TYPE	FUNCTIONAL CLASSIFICATION	DESIGN SPEED
FM 407 MAINLANE (EAST OF FM 156)	URBAN MINOR ARTERIAL	45 MPH
FM 407 MAINLANE (WEST OF FM 156)	URBAN MAJOR ARTERIAL	45 MPH
BILL COOK RD	LOCAL	35 MPH
7TH STREET	LOCAL	30 MPH
12TH STREET	LOCAL	30 MPH
FM 156	URBAN MINOR ARTERIAL	45 MPH
US 377	URBAN PRINCIPAL ARTERIAL	45 MPH
FM 1830	URBAN MINOR ARTERIAL	55 MPH
FM 407 / FM 156 ACCESS RAMPS	URBAN MINOR ARTERIAL	25 MPH
BOSS RANGE RD	URBAN MINOR ARTERIAL	25 MPH
OLD FM 407	URBAN MINOR ARTERIAL	25 MPH

SURVEY SCALE FACTOR: 1:1.000150630

100% COMPLETION SUBMITTAL



DENTON COUNTY

PROJECT LOCATION MAP

NOT TO SCALE
DESIGN WAIVER/DEVIATION: NO

ROLL 6 OF 12

INDEX OF SHEETS:
- ROLL 1: BEGIN PROJECT - STA 191+00
- ROLL 2: STA 191+00 - STA 253+00
- ROLL 3: STA 253+00 - STA 290+00
- ROLL 4: STA 290+00 - STA 334+00
- ROLL 5: STA 334+00 - STA 380+00
- ROLL 6: STA 380+00 - STA 435+00
- ROLL 7: STA 435+00 - STA 510+00
- ROLL 8: STA 510+00 - STA 59+00 R2
- ROLL 9: STA 59+00 R2 - STA 661+00 R3
- ROLL 10: STA 661+00 R3 - STA 735+00 R5
- ROLL 11: STA 735+00 R5 - STA 810+00 R5
- ROLL 12: STA 810+00 R5 - END PROJECT

STATION EQUATIONS:

FM 407_LT:
- 555+80.06 R1 = 29+64.27 R2
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- 689+25.78 R3 = 6+66.54 R4
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FM407_CL:
- 555+79.63 R1 = 29+64.27 R2
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- 689+44.93 R3 = 6+66.54 R4
- 21+90.16 R4 = 704+76.60 R5

FM407_RT:
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- 21+70.94 R4 = 704+76.60 R5

OCTOBER 2024

HORIZ SCALE: 1"=100'
0 50 100 200
VERTICAL SCALE: 1"=10'
0 5 10 20

TIMOTHY M. NESBITT, P.E.
(TX PE NO. 66648)

DATE SUBMITTED: 1/9/2025
DATE APPROVED:
DATE REVISED:

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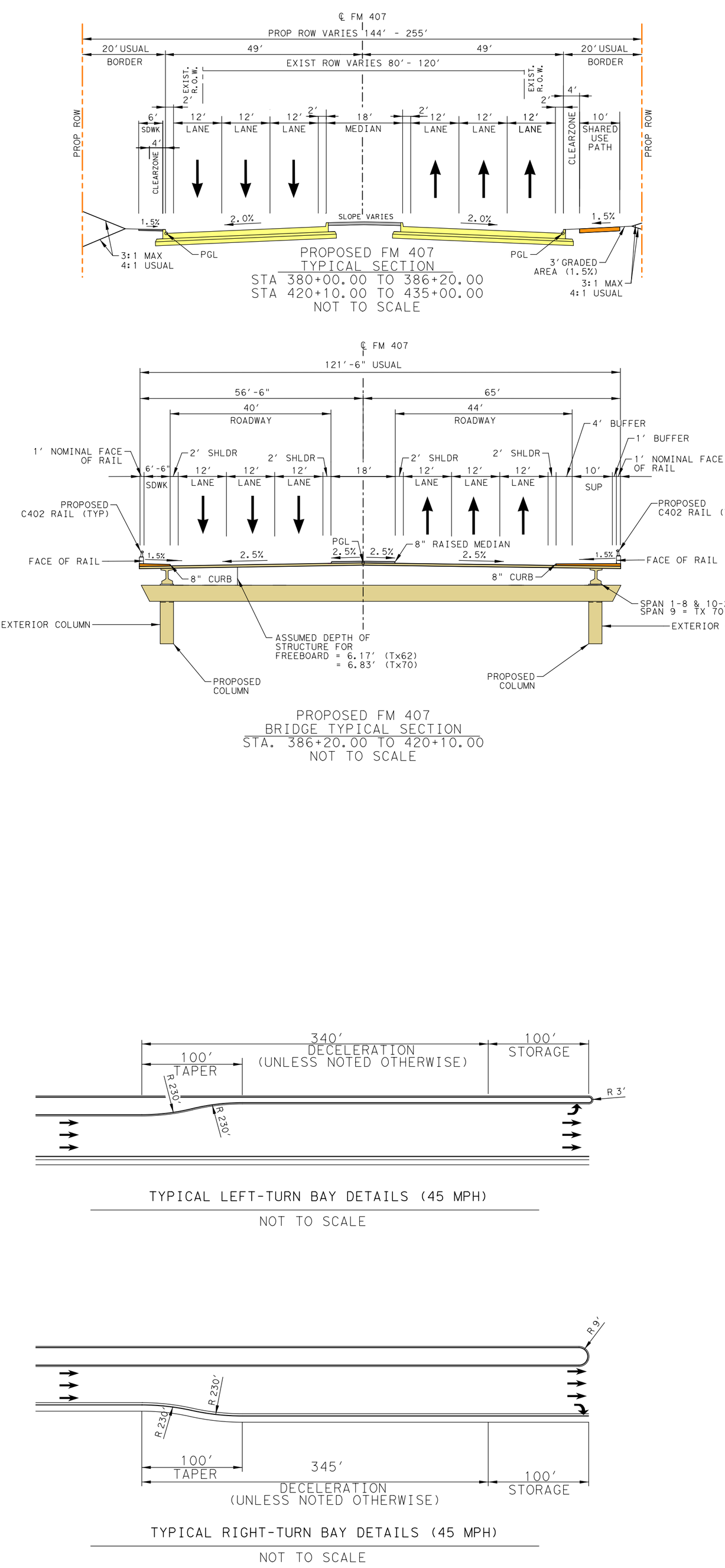
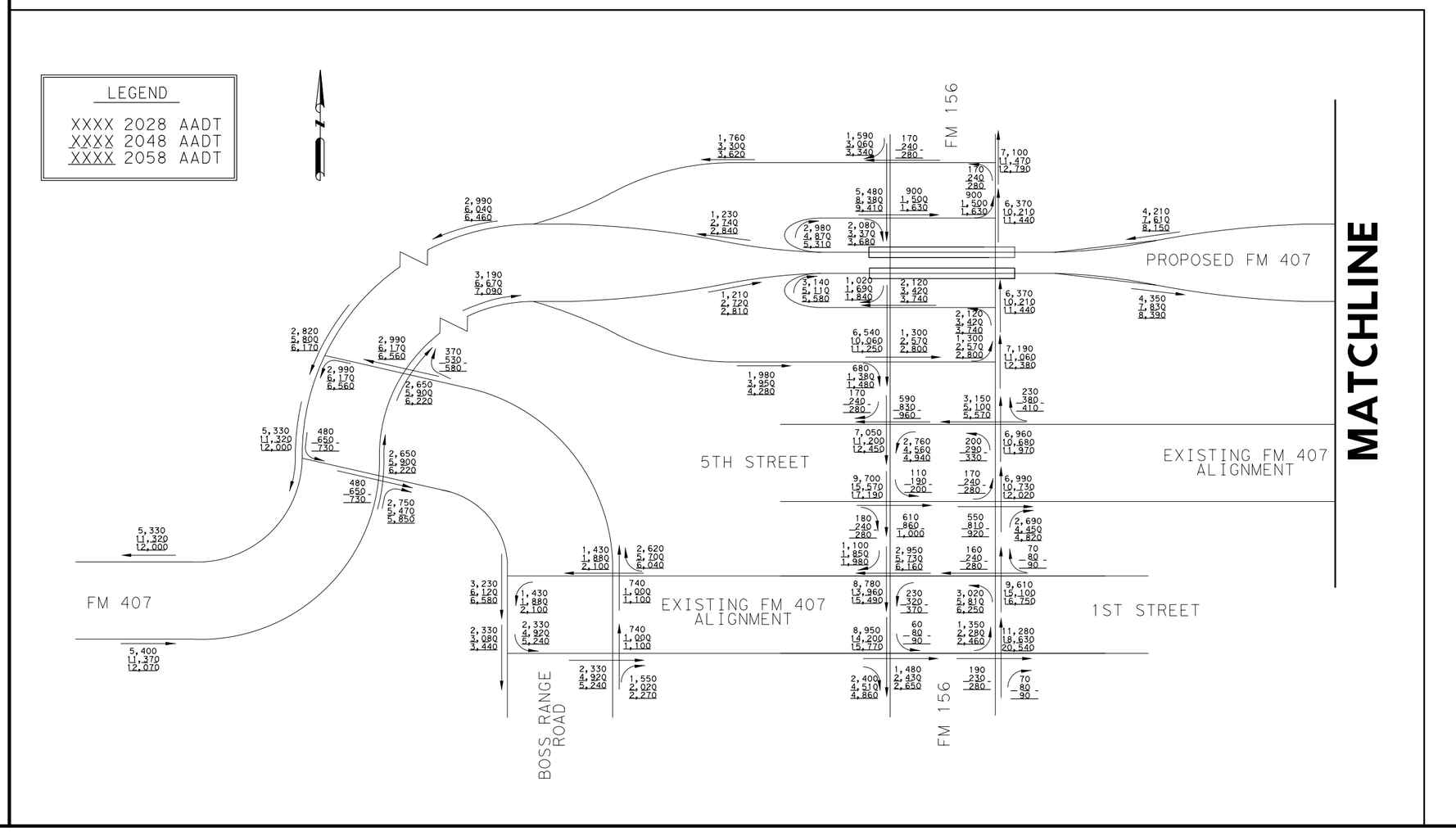
Bartlett&West
9330 LBJ FREEWAY, STE 1150 - DALLAS, TX 75243
PHONE 888-200-6464
TBPE FIRM REGISTRATION NO. 6499





Texas Department of Transportation
DALLAS DISTRICT
DESIGN SCHEMATIC
CEASON CLEMENS, P.E.
DISTRICT ENGINEER
FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES
100% COMPLETION SUBMITTAL
DENTON COUNTY
PROJECT LOCATION MAP
ROLL 6 OF 12
OCTOBER 2024
Bartlett&West
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![Texas Department of Transportation]

Texas Department of Transportation

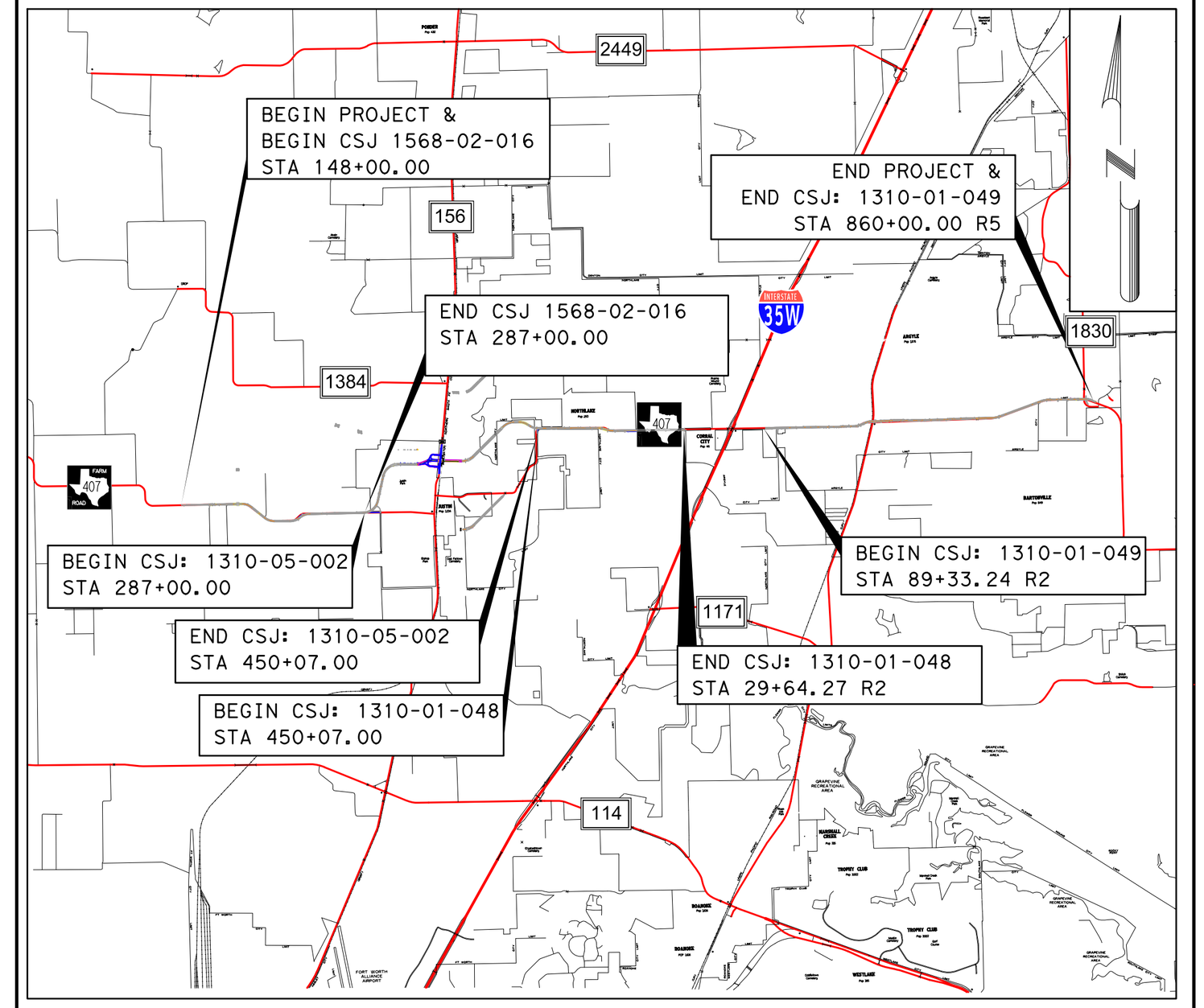
DALLAS DISTRICT
DESIGN SCHEMATIC
CEASON CLEMENS, P.E.
DISTRICT ENGINEER

FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES

ROADWAY TYPE	FUNCTIONAL CLASSIFICATION	DESIGN SPEED
FM 407 MAINLANE (EAST OF FM 156)	URBAN MINOR ARTERIAL	45 MPH
FM 407 MAINLANE (WEST OF FM 156)	URBAN MAJOR ARTERIAL	45 MPH
BILL COOK RD	LOCAL	35 MPH
7TH STREET	LOCAL	30 MPH
12TH STREET	LOCAL	30 MPH
FM 156	URBAN MINOR ARTERIAL	45 MPH
US 377	URBAN PRINCIPAL ARTERIAL	45 MPH
FM 1830	URBAN MINOR ARTERIAL	55 MPH
FM 407 / FM 156 ACCESS RAMPS	URBAN MINOR ARTERIAL	25 MPH
BOSS RANGE RD	URBAN MINOR ARTERIAL	25 MPH
OLD FM 407	URBAN MINOR ARTERIAL	25 MPH

SURVEY SCALE FACTOR: 1:1.000150630

100% COMPLETION SUBMITTAL



DENTON COUNTY

PROJECT LOCATION MAP

NOT TO SCALE
DESIGN WAIVER/DEVIATION: NO

ROLL 7 OF 12

INDEX OF SHEETS:

- ROLL 1: BEGIN PROJECT - STA 191+00
- ROLL 2: STA 191+00 - STA 253+00
- ROLL 3: STA 253+00 - STA 290+00
- ROLL 4: STA 290+00 - STA 334+00
- ROLL 5: STA 334+00 - STA 380+00
- ROLL 6: STA 380+00 - STA 435+00
- ROLL 7: STA 435+00 - STA 510+00
- ROLL 8: STA 510+00 - STA 59+00 R2
- ROLL 9: STA 59+00 R2 - STA 661+00 R3
- ROLL 10: STA 661+00 R3 - STA 735+00 R5
- ROLL 11: STA 735+00 R5 - STA 810+00 R5
- ROLL 12: STA 810+00 R5 - END PROJECT

STATION EQUATIONS:

FM 407_LT:
555+80.06 R1 = 29+64.27 R2
105+07.15 R2 = 631+20.95 R3
689+25.78 R3 = 6+66.54 R4
22+09.14 R4 = 704+76.60 R5

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OCTOBER 2024

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DISTRICT ENGINEER
FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES
100% COMPLETION SUBMITTAL
DENTON COUNTY
PROJECT LOCATION MAP
ROLL 7 OF 12
OCTOBER 2024
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Texas Department of Transportation

DALLAS DISTRICT
DESIGN SCHEMATIC

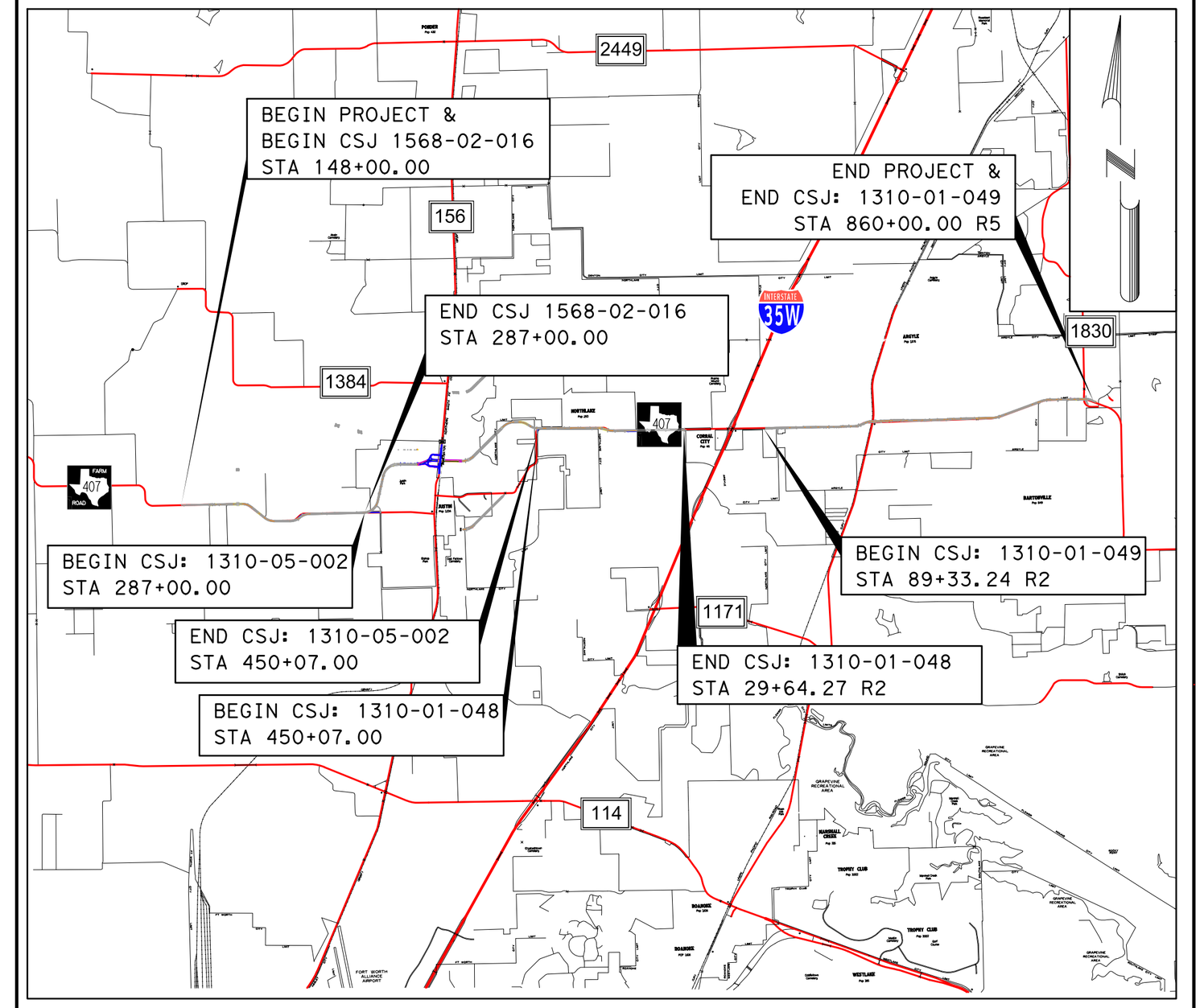
CEASON CLEMENS, P.E.
DISTRICT ENGINEER

FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES

ROADWAY TYPE	FUNCTIONAL CLASSIFICATION	DESIGN SPEED
FM 407 MAINLANE (EAST OF FM 156)	URBAN MINOR ARTERIAL	45 MPH
FM 407 MAINLANE (WEST OF FM 156)	URBAN MAJOR ARTERIAL	45 MPH
BILL COOK RD	LOCAL	35 MPH
7TH STREET	LOCAL	30 MPH
12TH STREET	LOCAL	30 MPH
FM 156	URBAN MINOR ARTERIAL	45 MPH
US 377	URBAN PRINCIPAL ARTERIAL	45 MPH
FM 1830	URBAN MINOR ARTERIAL	55 MPH
FM 407 / FM 156 ACCESS RAMPS	URBAN MINOR ARTERIAL	25 MPH
BOSS RANGE RD	URBAN MINOR ARTERIAL	25 MPH
OLD FM 407	URBAN MINOR ARTERIAL	25 MPH

SURVEY SCALE FACTOR: 1:1.000150630

100% COMPLETION SUBMITTAL



DENTON COUNTY

PROJECT LOCATION MAP

NOT TO SCALE
DESIGN WAIVER/DEVIATION: NO

ROLL 8 OF 12

INDEX OF SHEETS:

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ROLL 6: STA 380+00 - STA 435+00
ROLL 7: STA 435+00 - STA 510+00
ROLL 8: STA 510+00 - STA 59+00 R2
ROLL 9: STA 59+00 R2 - STA 661+00 R3
ROLL 10: STA 661+00 R3 - STA 735+00 R5
ROLL 11: STA 735+00 R5 - STA 810+00 R5
ROLL 12: STA 810+00 R5 - END PROJECT

STATION EQUATIONS:

FM 407_LT:
555+80.06 R1 = 29+64.27 R2
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OCTOBER 2024

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0 50 100 200

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0 5 10 20

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PHONE 888-200-6464
TBPE FIRM REGISTRATION NO. 6499

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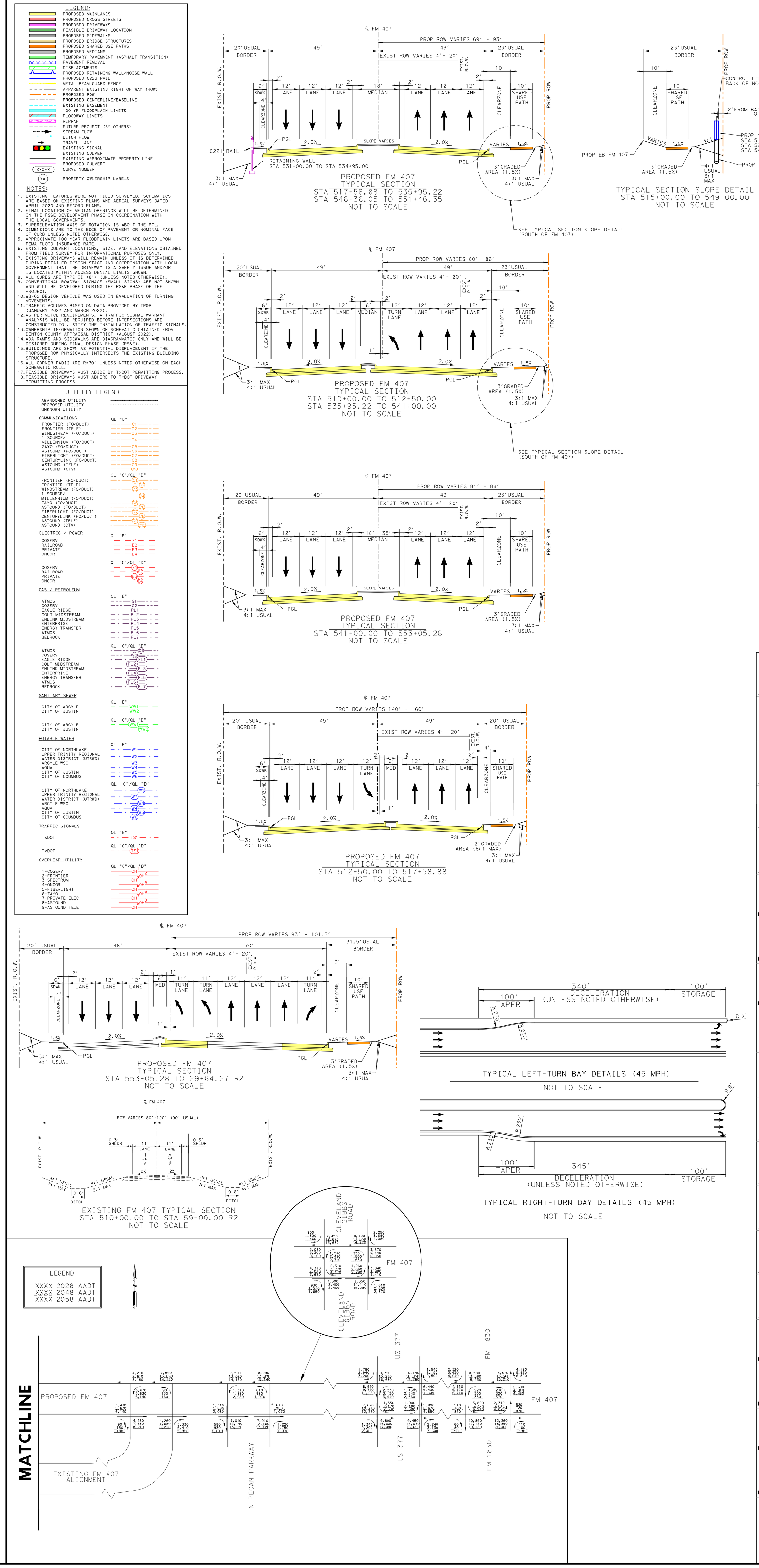

Texas Department of Transportation
DALLAS DISTRICT
DESIGN SCHEMATIC
CEASON CLEMENS, P.E.
DISTRICT ENGINEER
FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES
100% COMPLETION SUBMITTAL
DENTON COUNTY
PROJECT LOCATION MAP
ROLL 8 OF 12
OCTOBER 2024
Bartlett&West

Texas Department of Transportation

DALLAS DISTRICT
DESIGN SCHEMATIC

CEASON CLEMENS, P.E.
DISTRICT ENGINEER

FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES

ROADWAY TYPE	FUNCTIONAL CLASSIFICATION	DESIGN SPEED
FM 407 MAINLANE (EAST OF FM 156)	URBAN MINOR ARTERIAL	45 MPH
FM 407 MAINLANE (WEST OF FM 156)	URBAN MAJOR ARTERIAL	45 MPH
BILL COOK RD	LOCAL	35 MPH
7TH STREET	LOCAL	30 MPH
12TH STREET	LOCAL	30 MPH
FM 156	URBAN MINOR ARTERIAL	45 MPH
US 377	URBAN PRINCIPAL ARTERIAL	45 MPH
FM 1830	URBAN MINOR ARTERIAL	55 MPH
FM 407 / FM 156 ACCESS RAMPS	URBAN MINOR ARTERIAL	25 MPH
BOSS RANGE RD	URBAN MINOR ARTERIAL	25 MPH
OLD FM 407	URBAN MINOR ARTERIAL	25 MPH

SURVEY SCALE FACTOR: 1:1.000150630

100% COMPLETION SUBMITTAL

DENTON COUNTY

PROJECT LOCATION MAP

NOT TO SCALE
DESIGN WAIVER/DEVIATION: NO

ROLL 9 OF 12

INDEX OF SHEETS:

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- ROLL 5: STA 334+00 - STA 380+00
- ROLL 6: STA 380+00 - STA 435+00
- ROLL 7: STA 435+00 - STA 510+00
- ROLL 8: STA 510+00 - STA 59+00 R2
- ROLL 9: STA 59+00 R2 - STA 661+00 R3
- ROLL 10: STA 661+00 R3 - STA 735+00 R5
- ROLL 11: STA 735+00 R5 - STA 810+00 R5
- ROLL 12: STA 810+00 R5 - END PROJECT

STATION EQUATIONS:

FM 407_LT:
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OCTOBER 2024

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0 50 100 200

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0 5 10 20

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DENTON COUNTY
PROJECT LOCATION MAP
ROLL 9 OF 12
OCTOBER 2024
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Texas Department of Transportation

DALLAS DISTRICT
DESIGN SCHEMATIC

CEASON CLEMENS, P.E.
DISTRICT ENGINEER

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OLD FM 407	URBAN MINOR ARTERIAL	25 MPH

SURVEY SCALE FACTOR: 1:1.000150630

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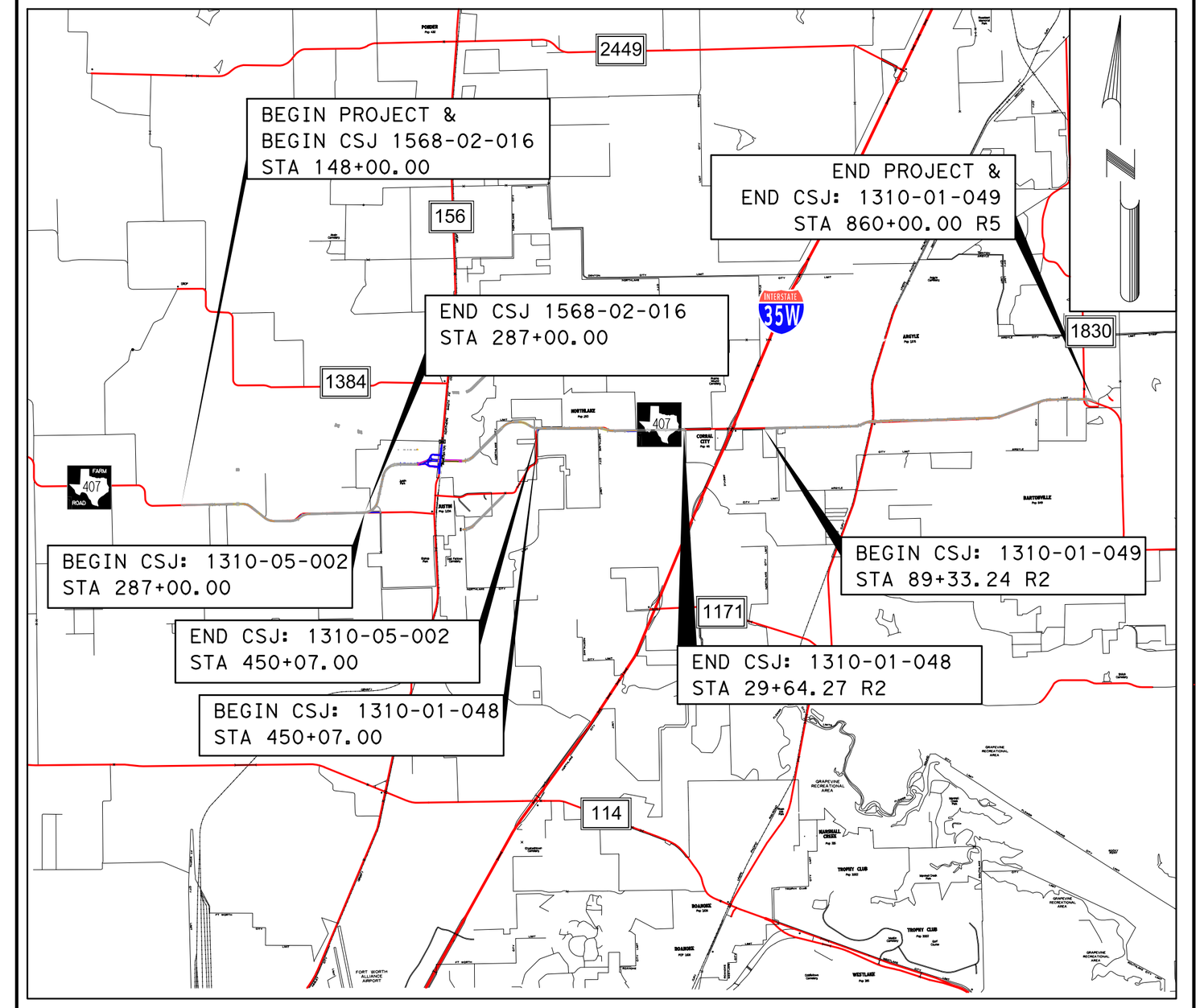

DENTON COUNTY
PROJECT LOCATION MAP
NOT TO SCALE
DESIGN WAIVER/DEVIATION: NO

ROLL 10 OF 12

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ROLL 8: STA 510+00 - STA 59+00 R2
ROLL 9: STA 59+00 R2 - STA 661+00 R3
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OCTOBER 2024

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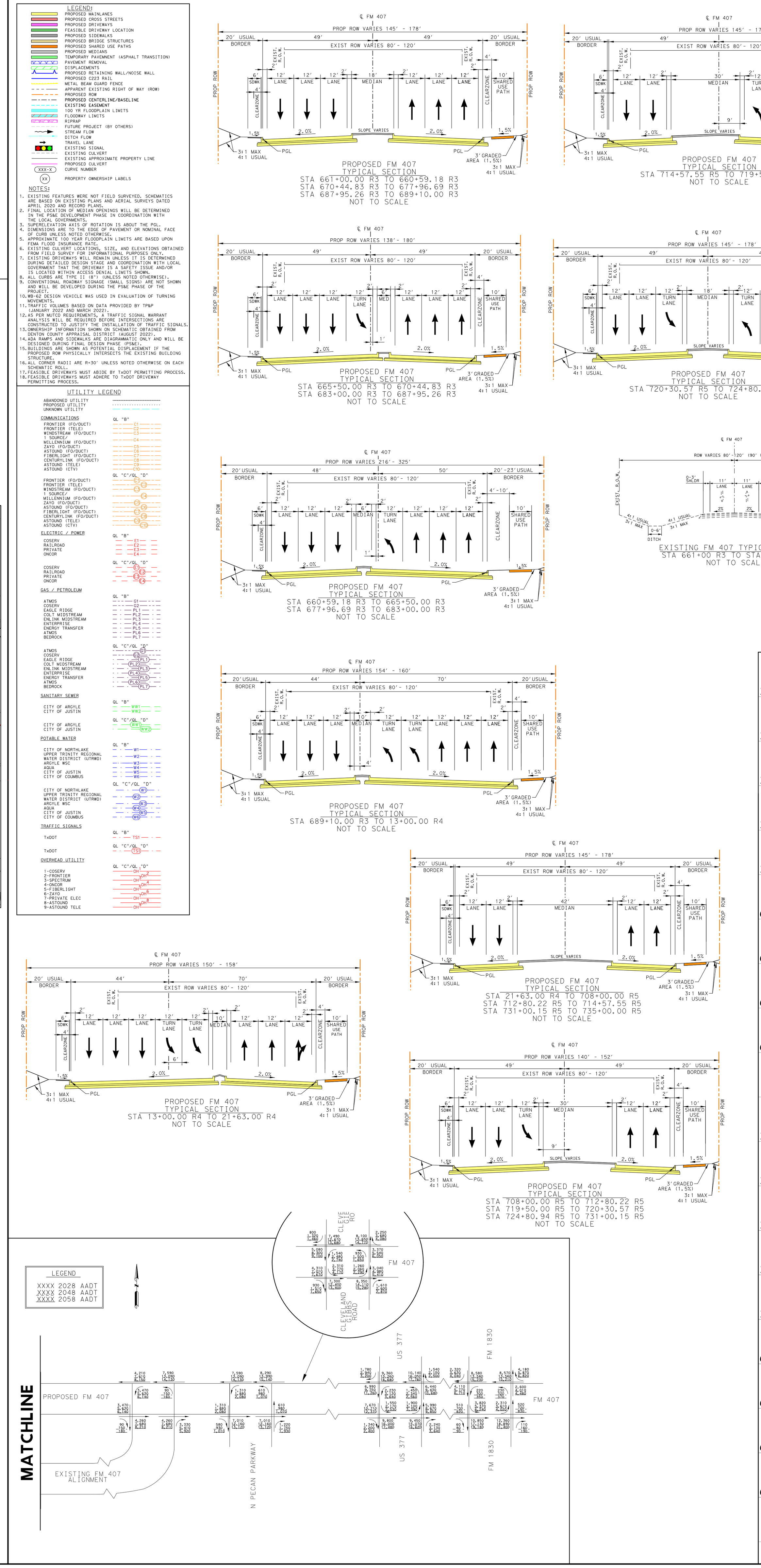

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PROJECT LOCATION MAP
ROLL 10 OF 12
OCTOBER 2024
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Bartlett&West
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Texas Department of Transportation

DALLAS DISTRICT
DESIGN SCHEMATIC

CEASON CLEMENS, P.E.
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SURVEY SCALE FACTOR: 1:1.000150630

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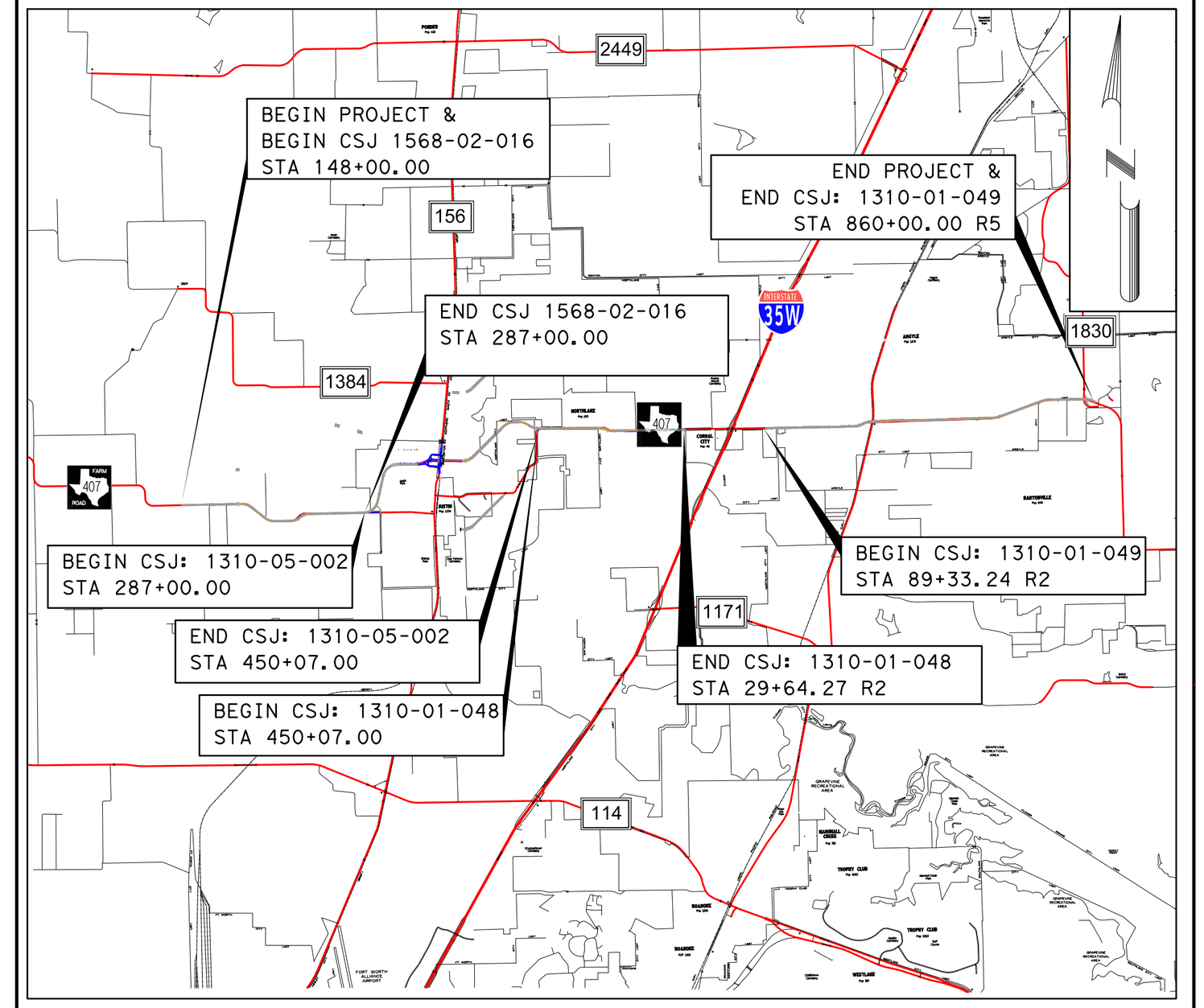

DENTON COUNTY
PROJECT LOCATION MAP
NOT TO SCALE
DESIGN WAIVER/DEVIATION:NO

ROLL 11 OF 12

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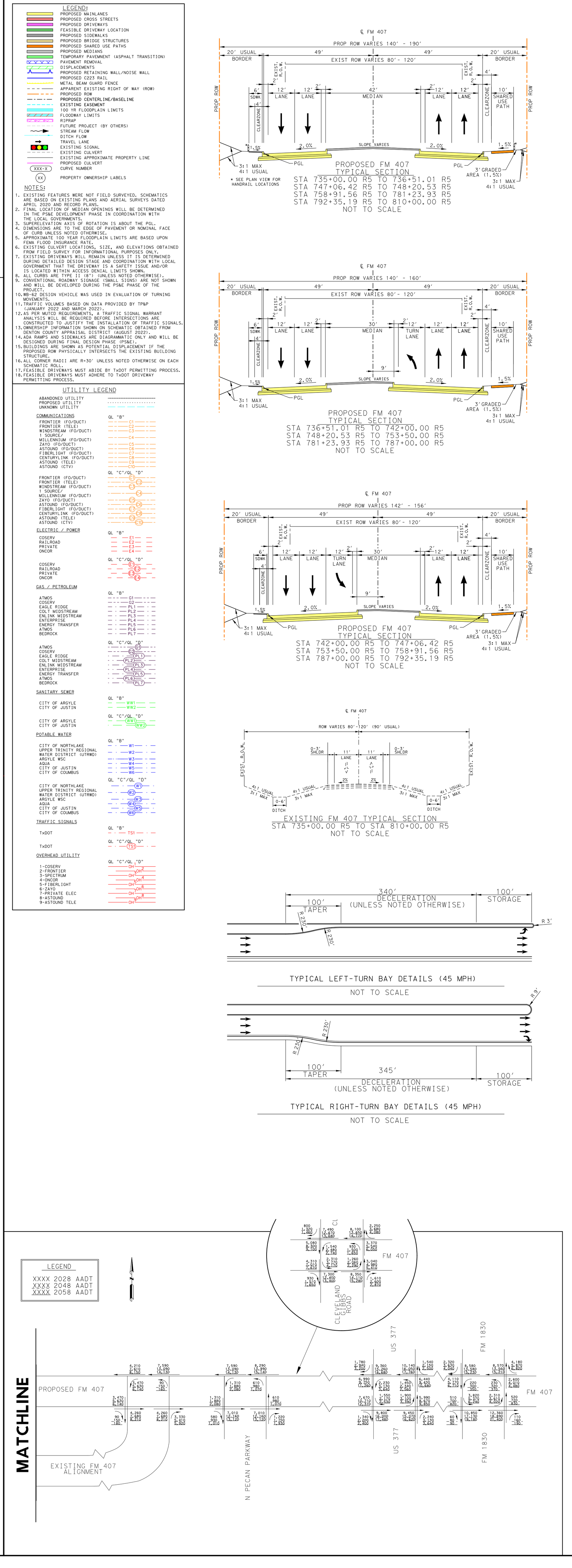

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ROLL 11 OF 12
OCTOBER 2024
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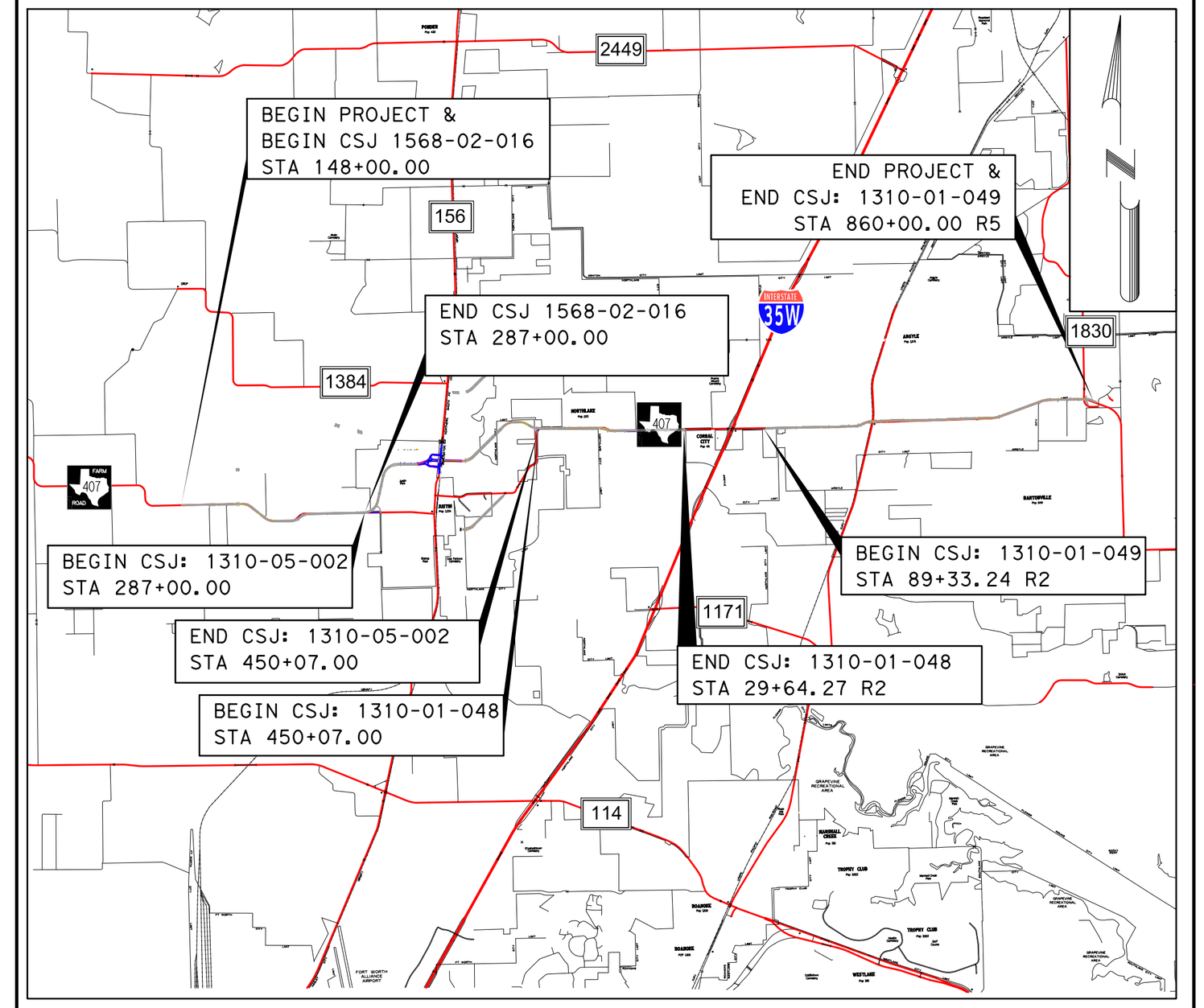
SURVEY SCALE FACTOR: 1:1.000150630

100% COMPLETION SUBMITTAL



DENTON COUNTY

PROJECT LOCATION MAP

NOT TO SCALE
DESIGN WAIVER/DEVIATION: NO

ROLL 12 OF 12

INDEX OF SHEETS:

ROLL 1: BEGIN PROJECT - STA 191+00
ROLL 2: STA 191+00 - STA 253+00
ROLL 3: STA 253+00 - STA 290+00
ROLL 4: STA 290+00 - STA 334+00
ROLL 5: STA 334+00 - STA 380+00
ROLL 6: STA 380+00 - STA 435+00
ROLL 7: STA 435+00 - STA 510+00
ROLL 8: STA 510+00 - STA 59+00 R2
ROLL 9: STA 59+00 R2 - STA 661+00 R3
ROLL 10: STA 661+00 R3 - STA 735+00 R5
ROLL 11: STA 735+00 R5 - STA 810+00 R5
ROLL 12: STA 810+00 R5 - END PROJECT

STATION EQUATIONS:

FM 407_LT:
555+80.06 R1 = 29+64.27 R2
105+07.15 R2 = 631+20.95 R3
689+25.78 R3 = 6+66.54 R4
22+09.14 R4 = 704+76.60 R5

FM407_CL:
555+79.63 R1 = 29+64.27 R2
105+07.94 R2 = 631+20.95 R3
689+44.93 R3 = 6+66.54 R4
21+90.16 R4 = 704+76.60 R5

FM407_RT:
555+79.20 R1 = 29+64.27 R2
105+07.68 R2 = 631+20.95 R3
689+64.09 R3 = 6+66.54 R4
21+70.94 R4 = 704+76.60 R5

OCTOBER 2024

HORIZ SCALE: 1"=100'
0 50 100 200

VERTICAL SCALE: 1"=10'
0 5 10 20

TIMOTHY M. NESBITT, P.E.
(TX PE NO. 66648)

DATE SUBMITTED
1/9/2025

DATE APPROVED

DATE REVISED

PRELIMINARY
FOR INTERIM REVIEW ONLY. NOT FOR PERMITTING, BIDDING, OR CONSTRUCTION. Prepared by or under the Direct Supervision of TIMOTHY M. NESBITT, P.E. 66648
1/9/2025

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

Bartlett&West
9330 LBJ FREEWAY, STE 1150 - DALLAS, TX 75243
PHONE 888-200-6464
TBPE FIRM REGISTRATION NO. 6499

c:\projectwise\bartwest-pw-03\ss01813\dms03314\FM407*SCHEM12.dgn
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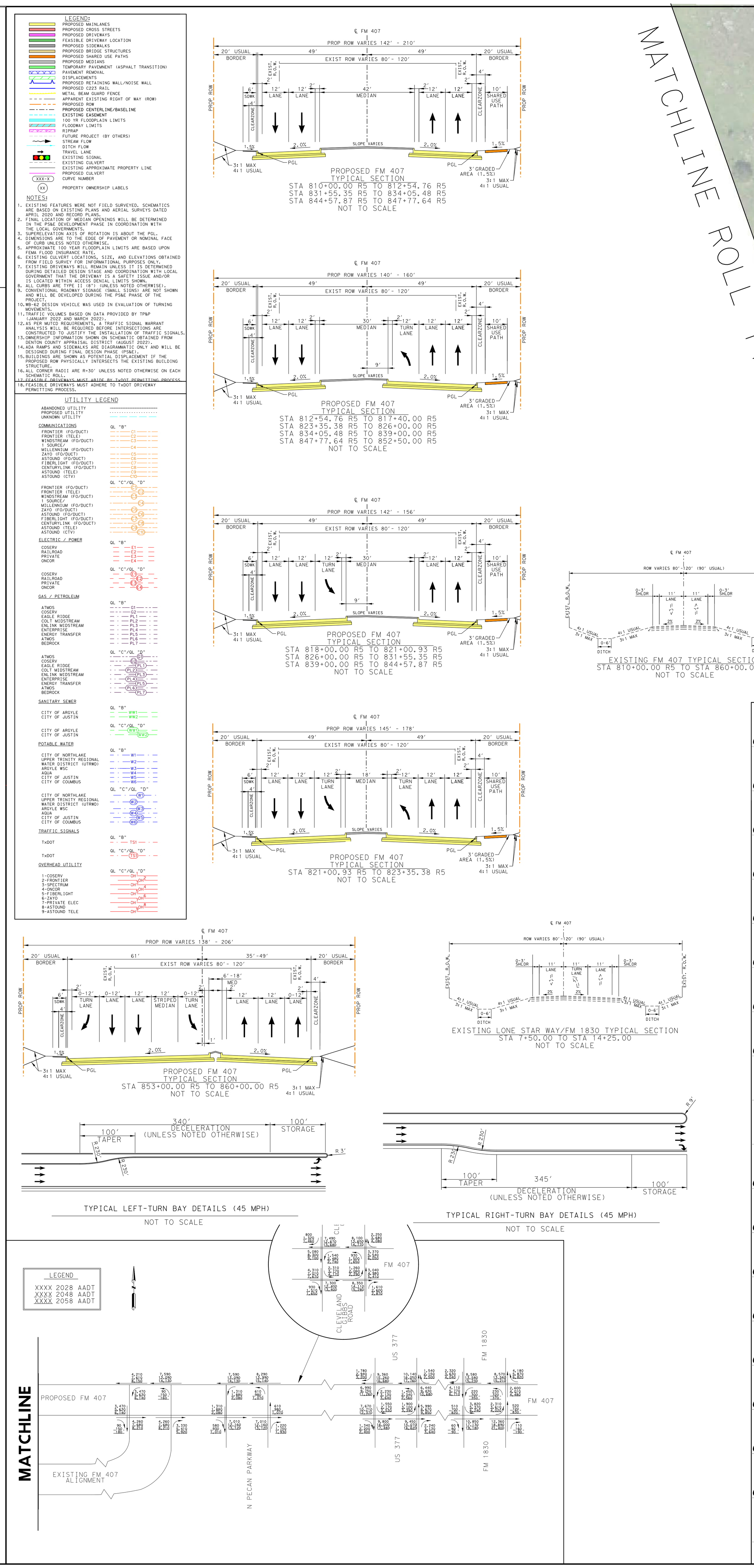
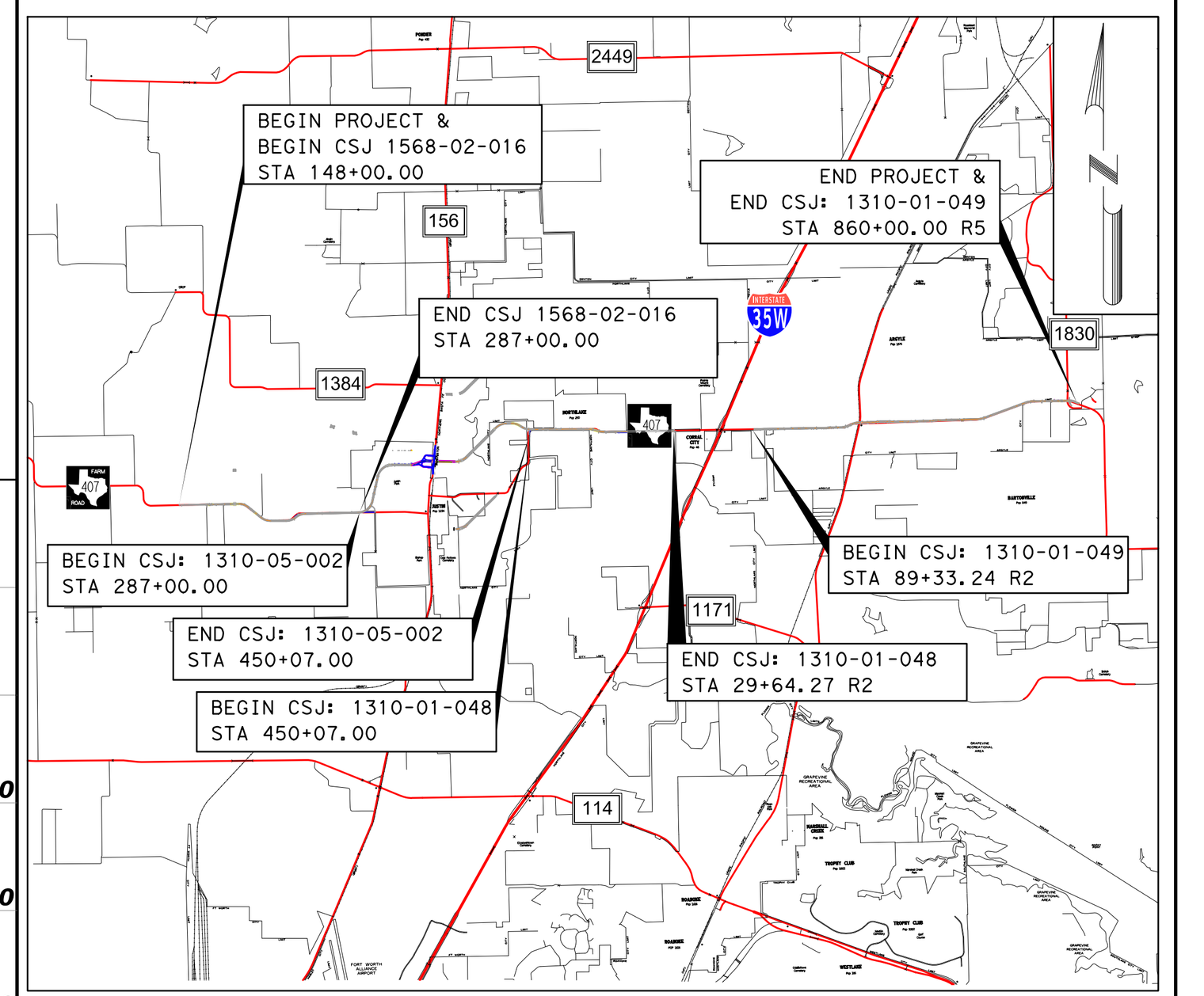


Texas Department of Transportation
DALLAS DISTRICT
DESIGN SCHEMATIC
CEASON CLEMENS, P.E.
DISTRICT ENGINEER
FROM: BILL COOK RD
TO: FM 1830
CSJs: 1568-02-016, 1310-05-002, 1310-01-048, 1310-01-049
PROJECT LENGTH: 11.5 MILES
100% COMPLETION SUBMITTAL



DENTON COUNTY
PROJECT LOCATION MAP
ROLL 12 OF 12
OCTOBER 2024
DATE SUBMITTED 1/9/2025
DATE APPROVED
DATE REVISED
TIMOTHY M. NESBITT, P.E.
PRELIMINARY
NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
Bartlett&West
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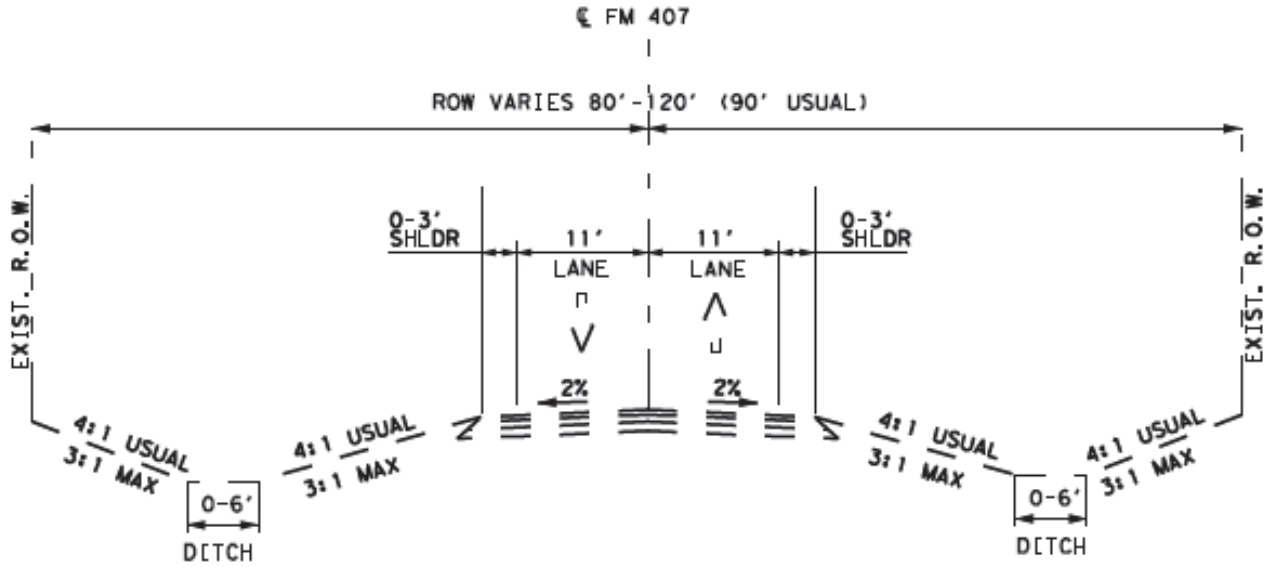
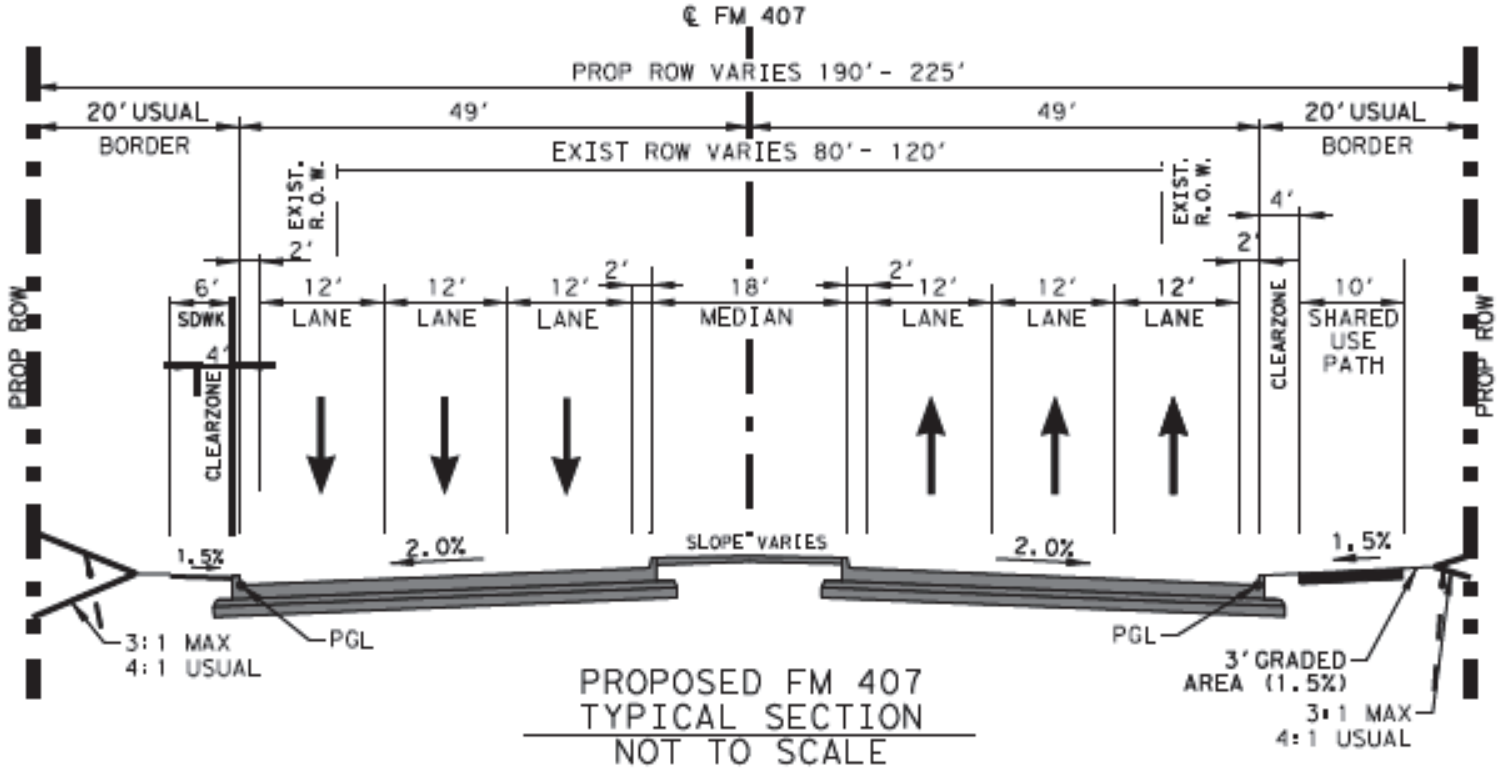
Appendix D – Typical Sections



EXISTING FM 407 TYPICAL SECTION
NOT TO SCALE



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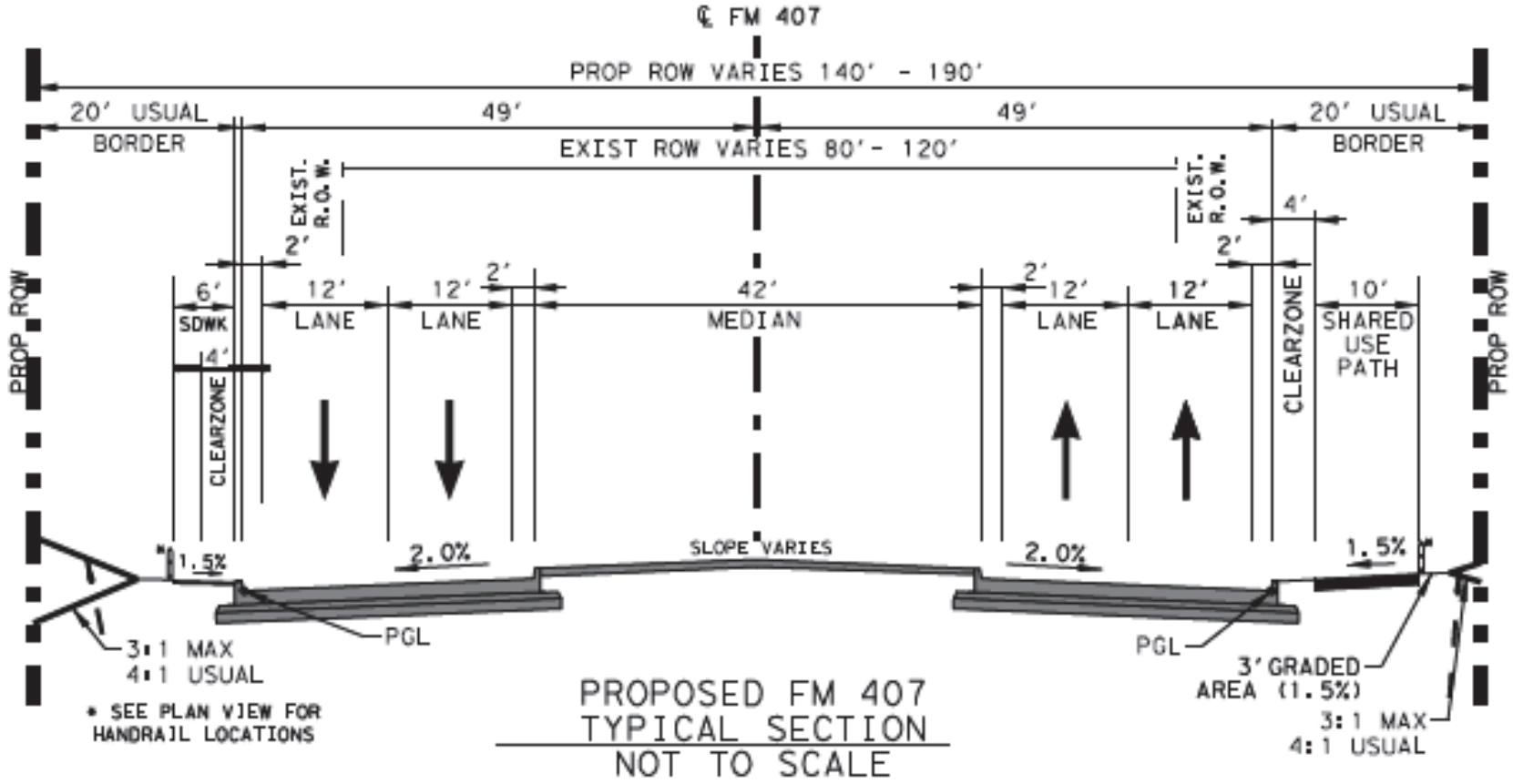

PROPOSED FM 407
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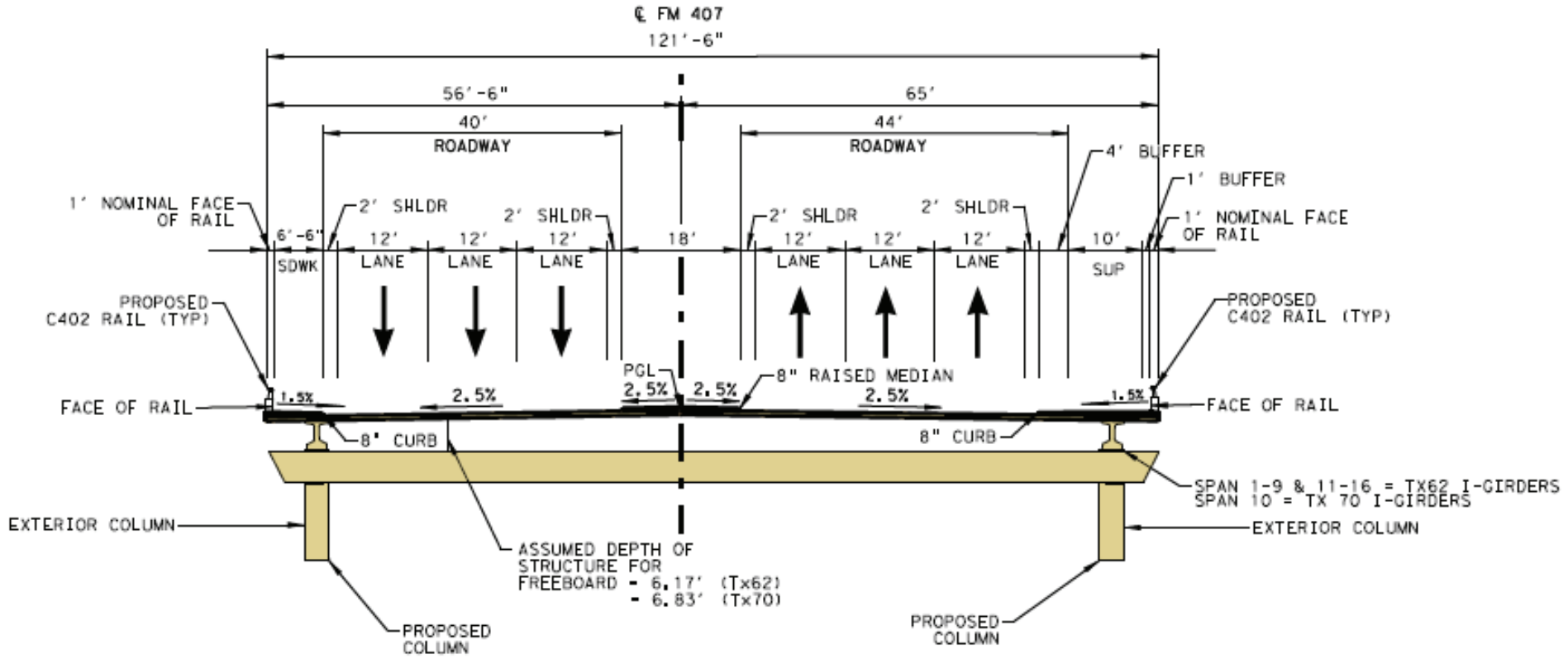
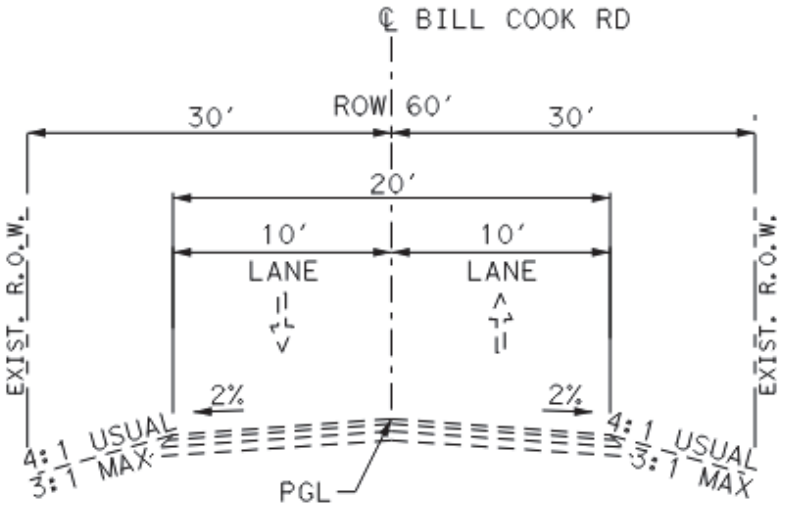
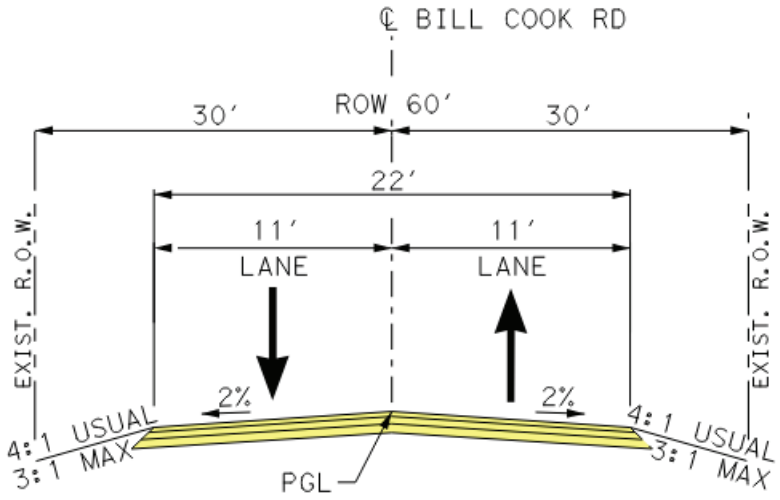


PROPOSED FM 407
BRIDGE TYPICAL SECTION



EXISTING BILL COOK RD
STA 168+47 TO STA 168+70.2
NOT TO SCALE



PROPOSED BILL COOK RD
STA 167+96.88 TO STA 169+18.44
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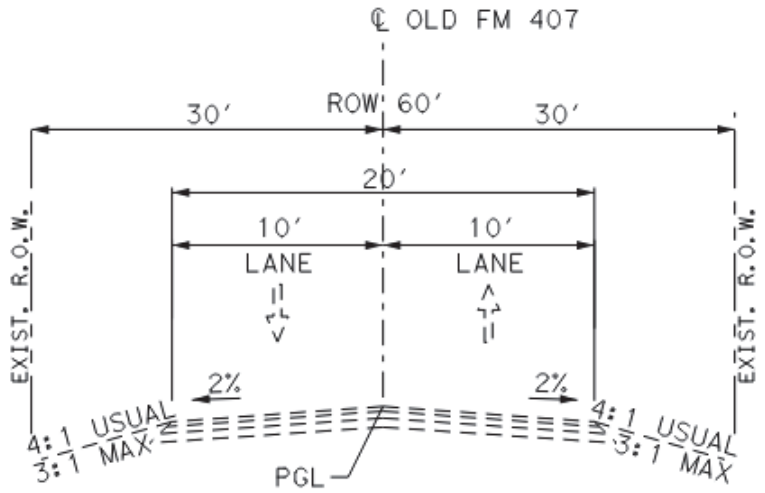

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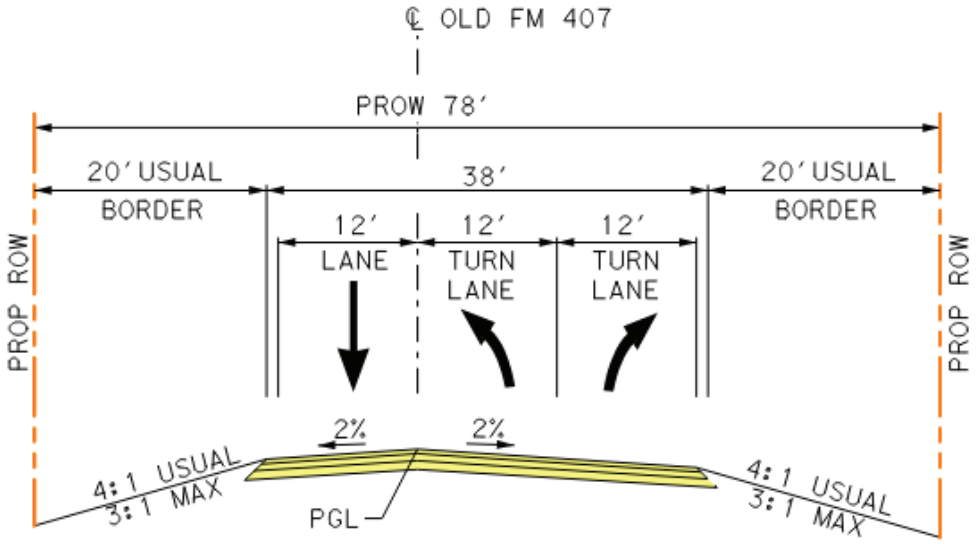

PROPOSED BOSS RANGE RD.
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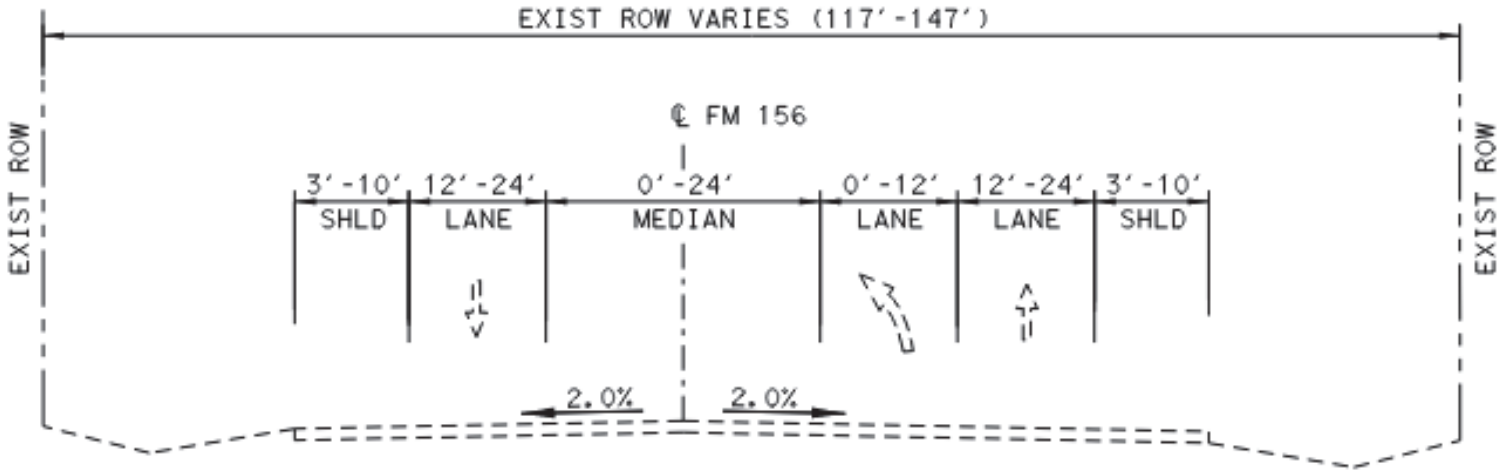
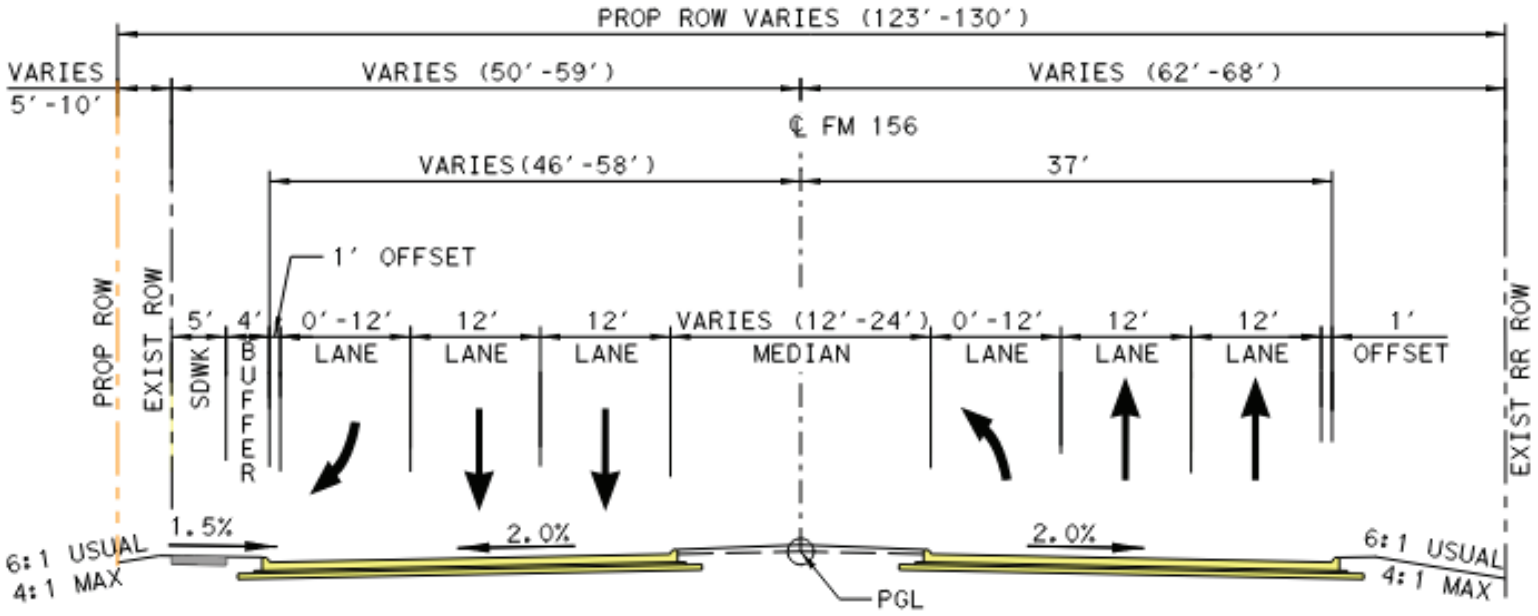
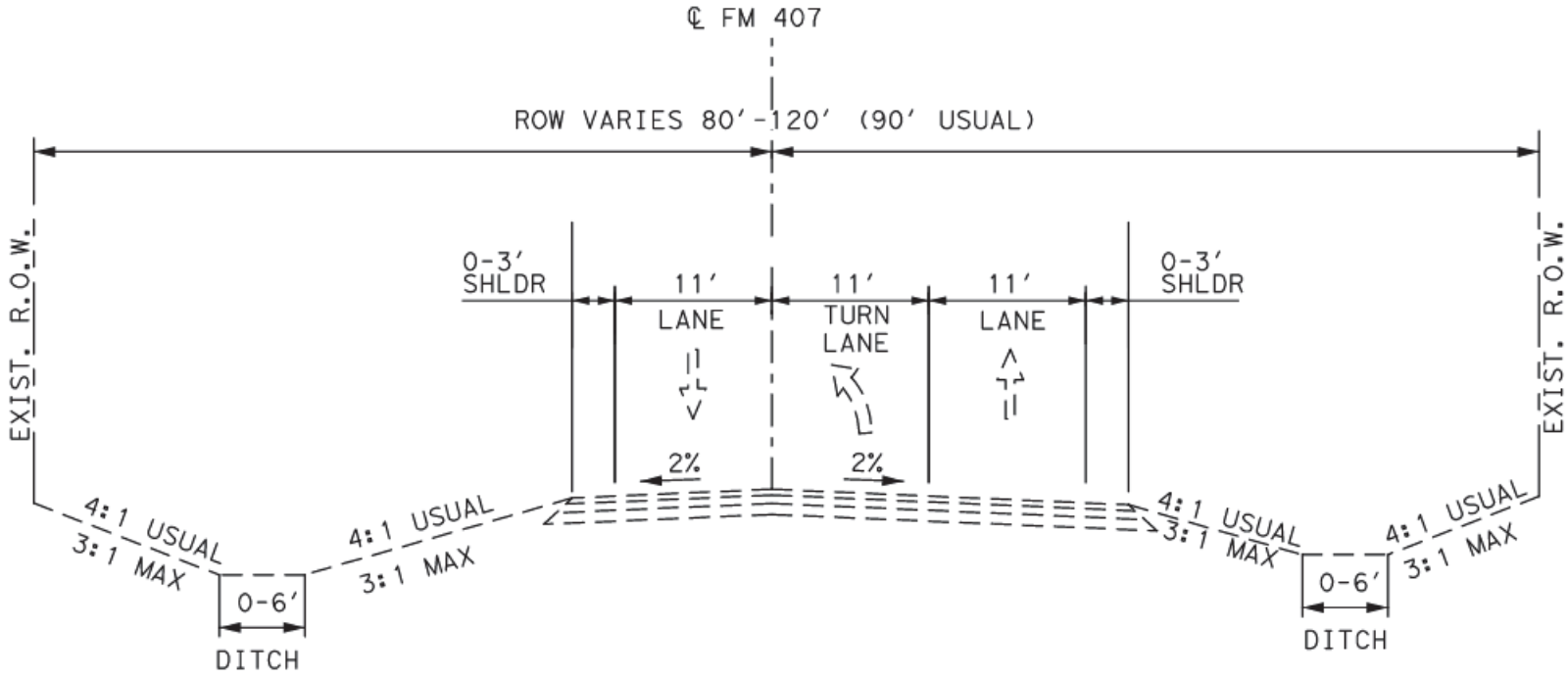


EXISTING FM 156
STA 116+00.00 TO 137+36.29



PROPOSED FM 156

STA 125+33.81 TO 131+96.72



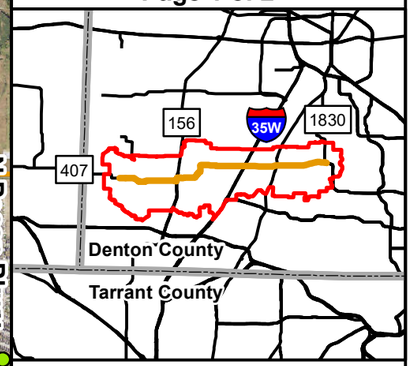
EXISTING LONE STAR WAY/FM 1830 TYPICAL SECTION
STA 7+50.00 TO STA 14+25.00
NOT TO SCALE

Appendix E – Resource-specific Maps

Figure 1
CIA Facilities Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, 1310-05-002, & 1568-02-016



N
W E
S
0 1,800 3,600
Feet

Legend

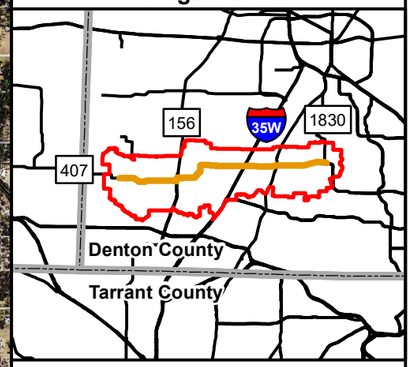
- Project Location (Roadway Widening)
- Project Location (New Location)
- Other TxDOT Project (CSJ 1310-01-050)
- Community Study
- Railroad
- Airport
- Assisted Living
- Cemetery
- Educational
- Government
- Low-Income Housing
- NonProfit
- Place of Worship
- Recreational

Base Map Source: TNRIS (2022)

Figure 1
CIA Facilities Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, 1310-05-002, & 1568-02-016



N
W E
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0 1,800 3,600
Feet

Legend

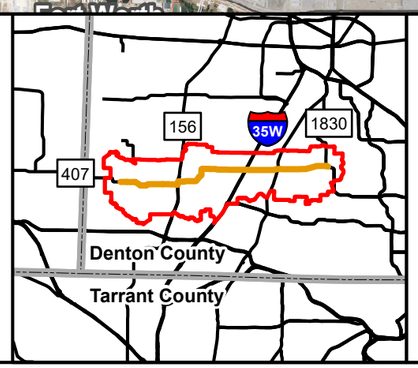
- Project Location (Roadway Widening)
- Project Location (New Location)
- Other TxDOT Project (CSJ 1310-01-050)
- Community Study
- Railroad
- Airport
- Assisted Living
- Cemetery
- Educational
- Government
- Low-Income Housing
- NonProfit
- Place of Worship
- Recreational

Base Map Source: TNRIS (2022)

Figure 2a
Census Geography Map
LEP Populations
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
W E
S

0 0.5 1
Miles

Base Map Sources:
TNRIS (2022), USCB (2022)

Legend

- Project Location (Roadway Widening)
- Project Location (New Location)
- Other TxDOT Project (CSJ 1310-01-050)
- Community Study Area

LEP Populations

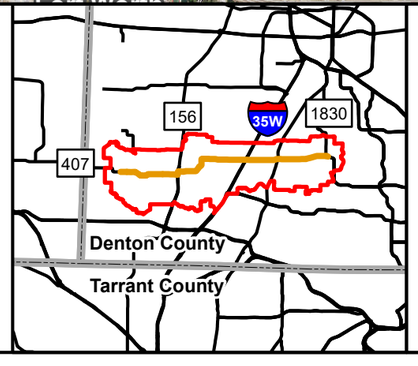
0% — 24.5%

LEP = Populations 5 years and older who speak English "less than very well"
BG - Block Group
CT - Census Tract

Strader Rd
35W
317
Old Justin Rd
E Hickory Rd
E Hickory Hill Rd
Oliver Creek Rd
156
1384
377
1830
Florance Rd
BNSF
Harvest Way
Sam Davis Rd
Stonecrest Rd
E Harpole Rd
Gibbons Rd
Hilltop Rd
Lantana Trail
B Judge Rd
Begin Project
Mulkey Rd
N Pecan Pkwy
Cleveland Gibbs Rd
Other TxDOT Project
Frenchtown Rd
End Project
407
Sam Reynolds Rd
Bill Cook Rd
Dove Hill Rd
Boss Range Rd
Canyon Falls Dr
Jeter Rd E
Porter Rd
Smoot Ln
Cross Timbers Rd
1171
338
Winding Mdws Dr
Sam Reynolds Rd
BNSF
156
35W
Fort Worth

Figure 2b
Census Geography Map
Minority Populations
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
W E
S

0 0.5 1 Miles

Base Map Sources:
TNRIS (2022), USCB (2020)

Legend

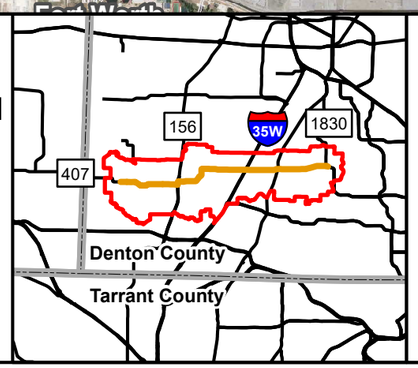
- Project Location (Roadway Widening)
- Project Location (New Location)
- Other TxDOT Project (CSJ 1310-01-050)
- Community Study Area
- No Population
- Non-EJ Census Block
- EJ Census Block

EJ = Minority Population >=50%

Figure 2c
Census Geography Map
Households Below Poverty Level
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
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0 0.5 1 Miles

Base Map Sources:
TNRIS (2022), USCB (2022)

Legend

- Project Location (Roadway Widening)
- Project Location (New Location)
- Other TxDOT Project (CSJ 1310-01-050)
- Community Study

Households Below Poverty Level

0% — 29.4%

Poverty Level = DHHS 2024 Poverty Threshold for a Family of Four is $31,200
BG - Block Group
CT - Census Tract

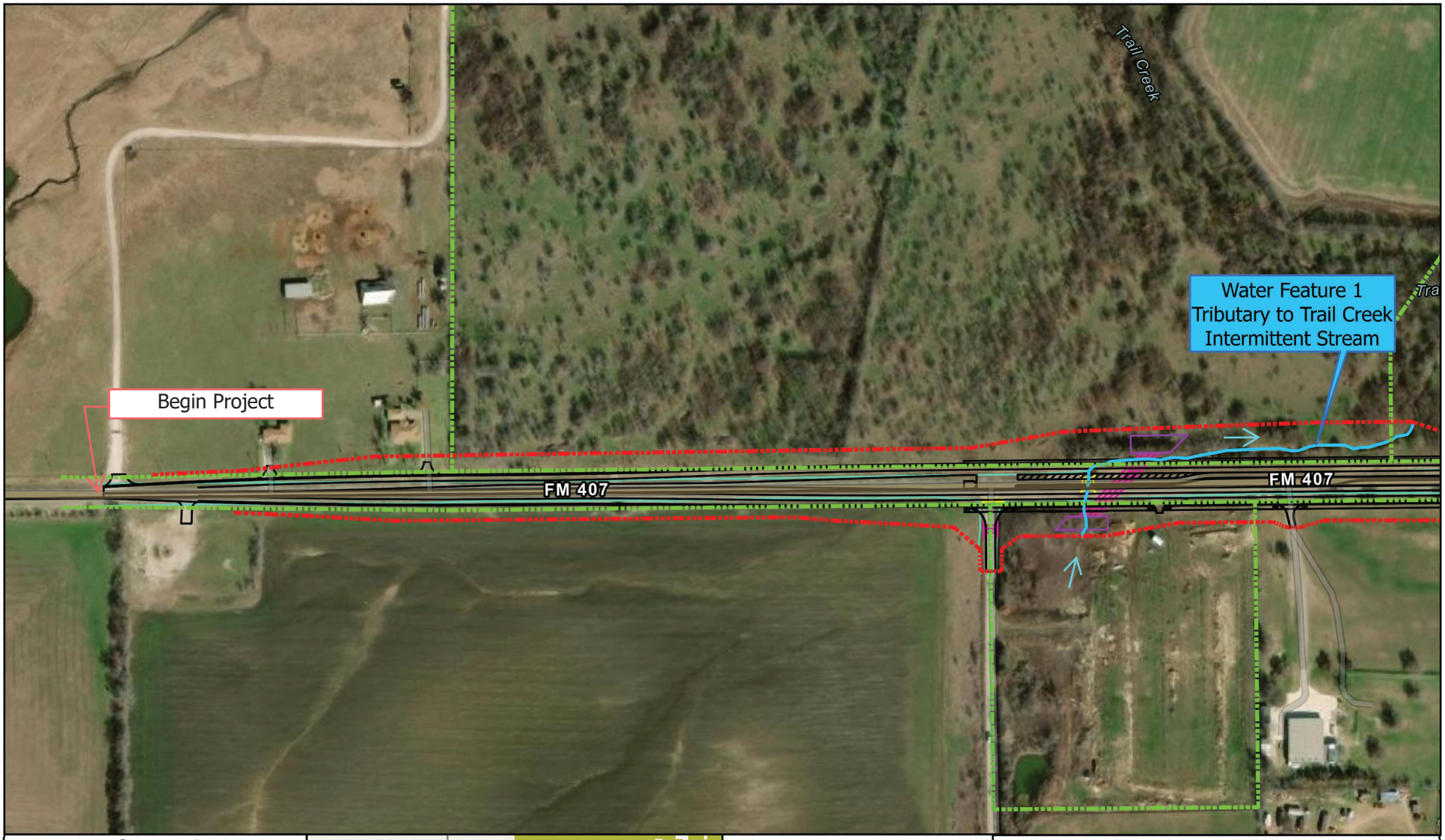
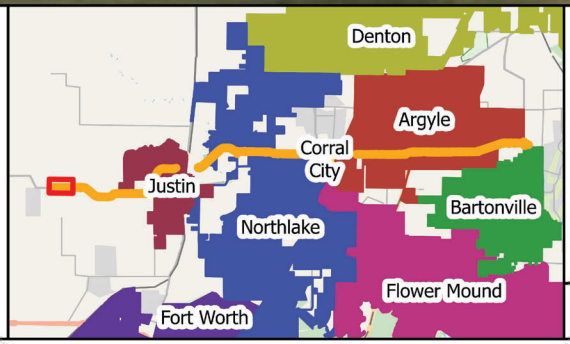


Figure 3
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



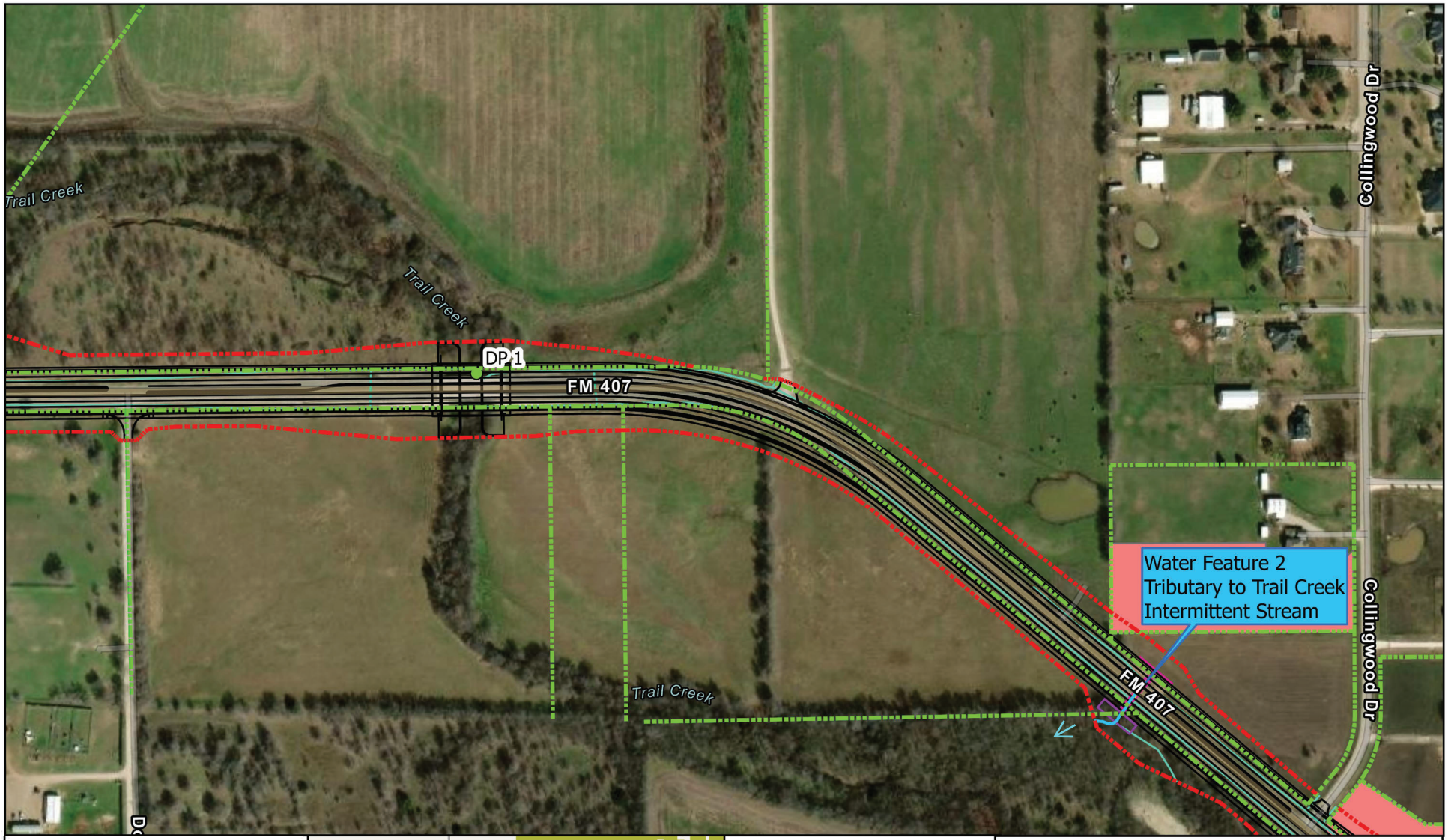
N
W E
S

0 100 200
Feet

Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Flow Direction
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied



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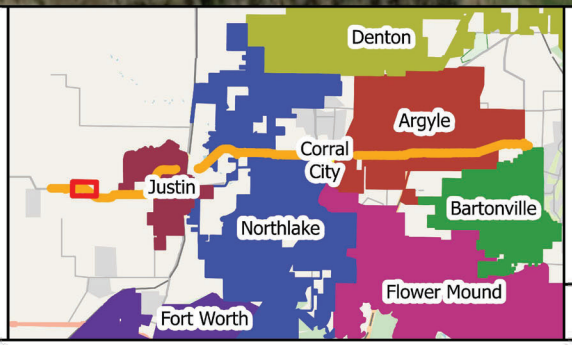
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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Feet

Base Map Source: ESRI (2025)

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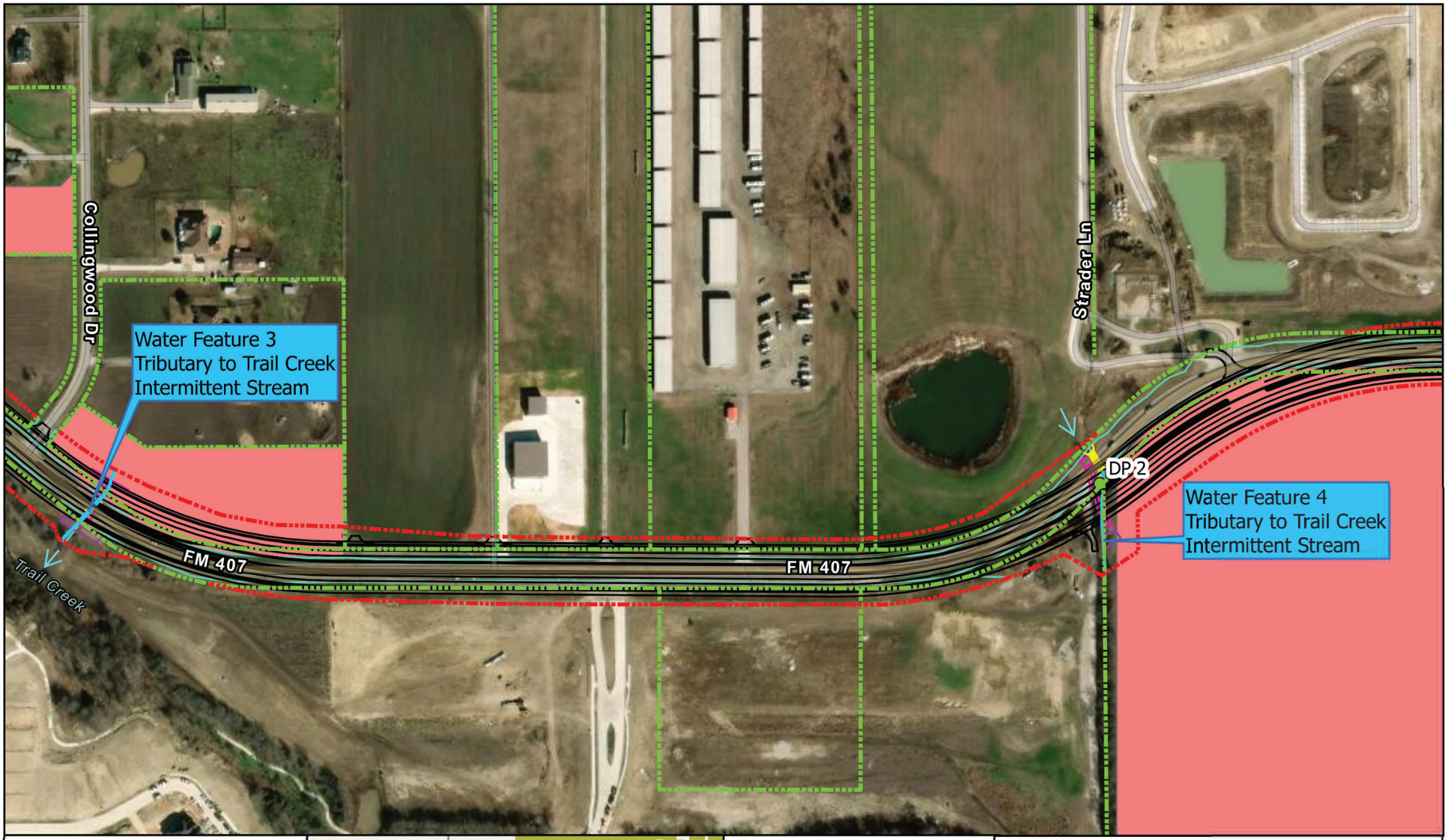
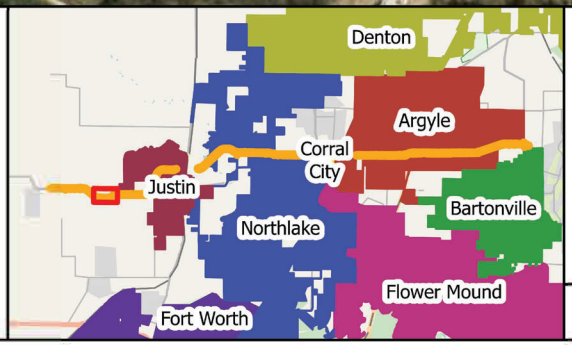


Figure 3
Water Features Map
FM 407

From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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Feet

Base Map Source: ESRI (2025)

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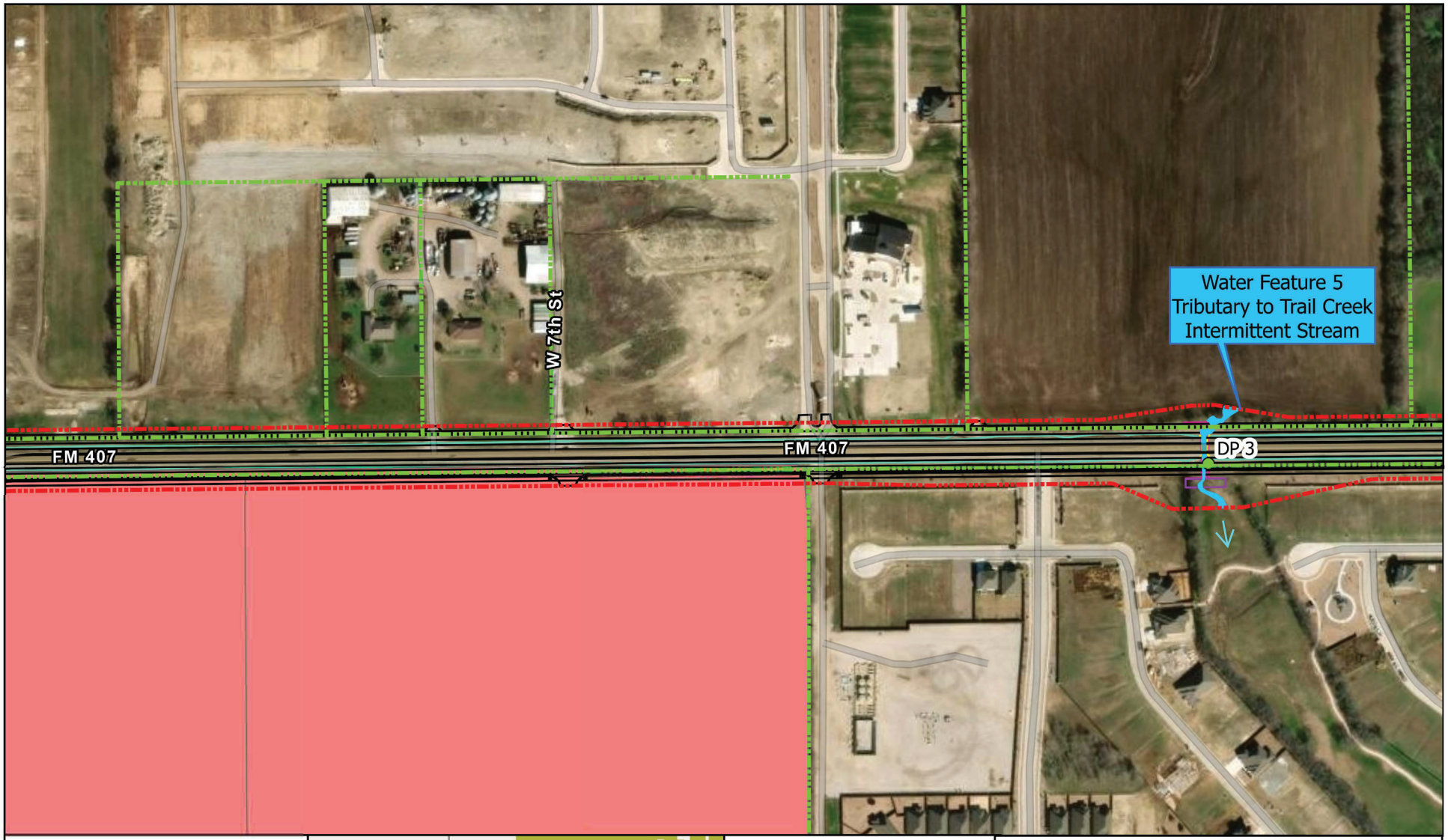

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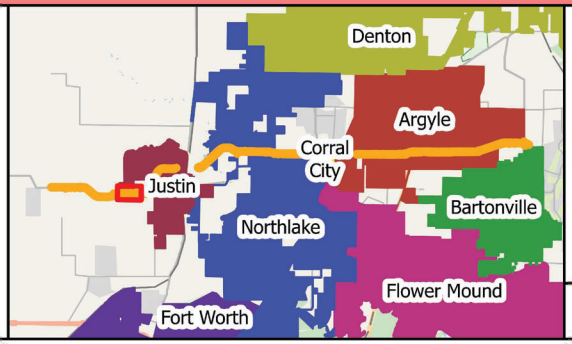
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



N
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Feet

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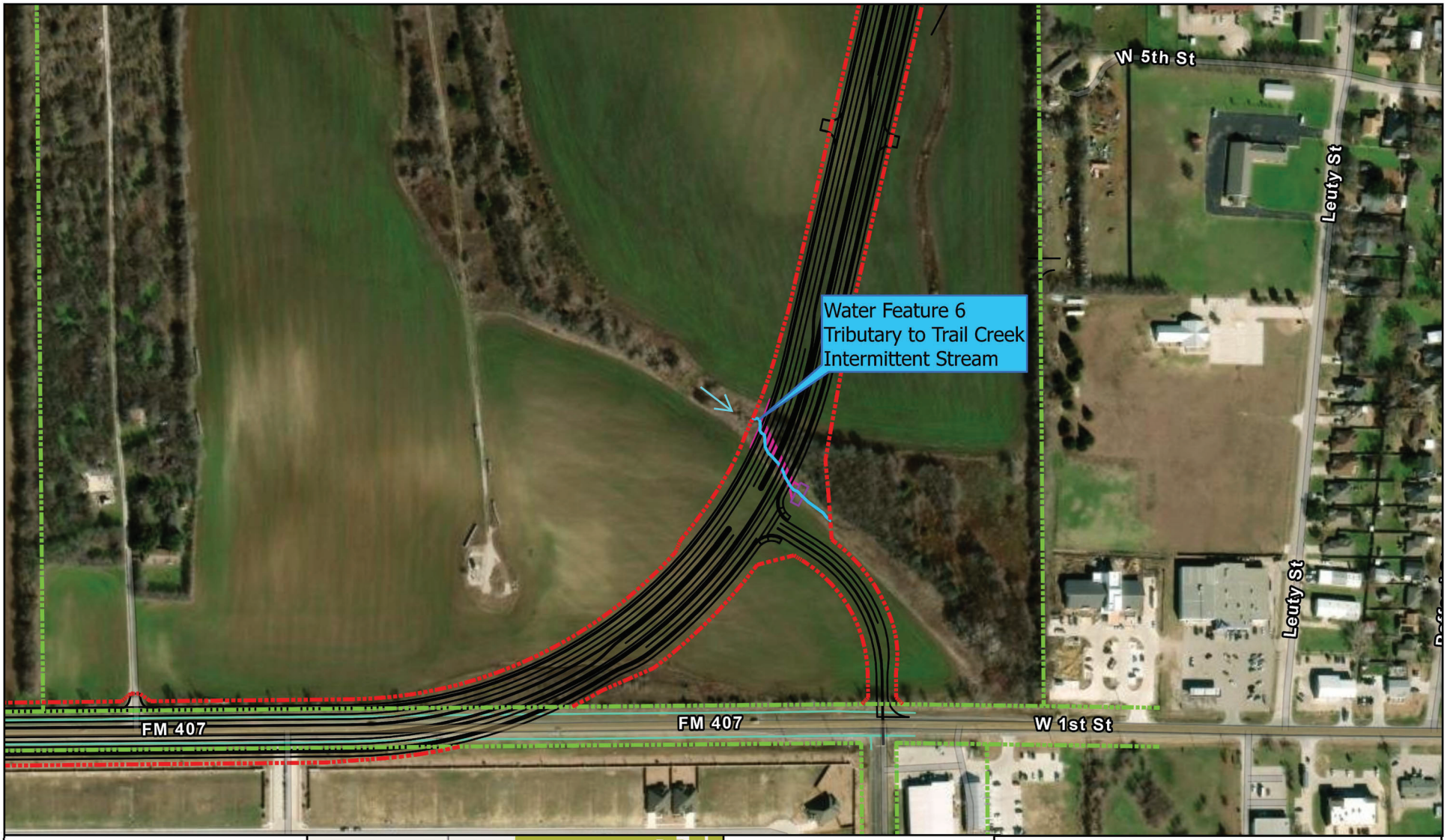
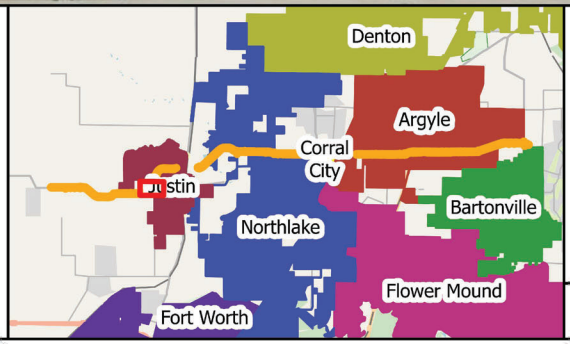


Figure 3
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



N
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0 100 200
Feet

Base Map Source: ESRI (2025)

Legend

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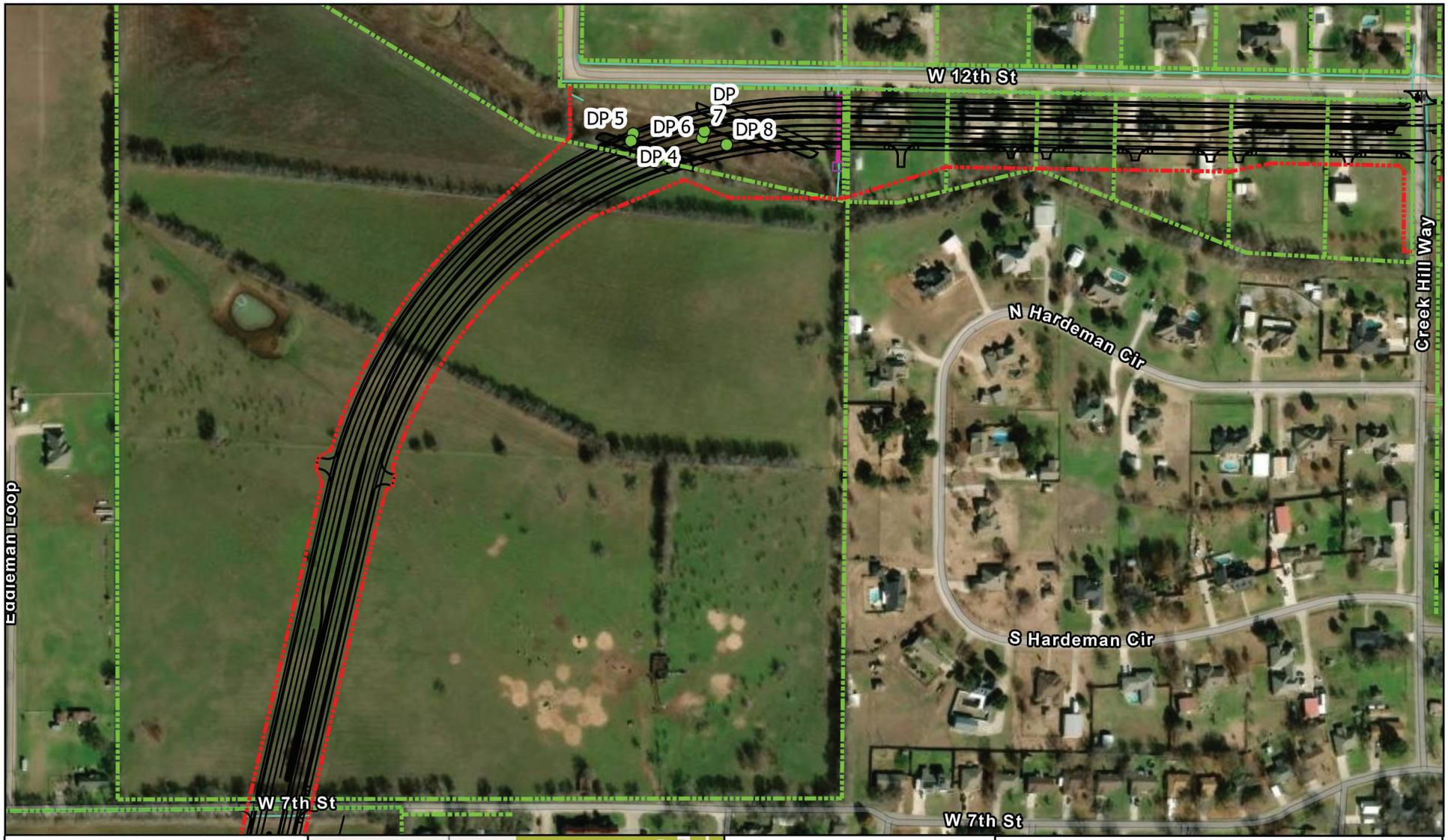
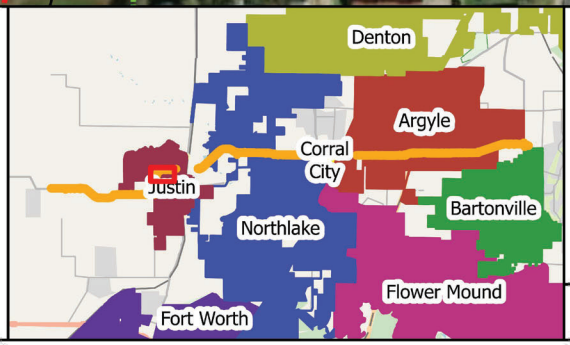


Figure 3
Water Features Map
FM 407

From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



N
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S

0 100 200
Feet

Base Map Source: ESRI (2025)

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- Proposed Culvert
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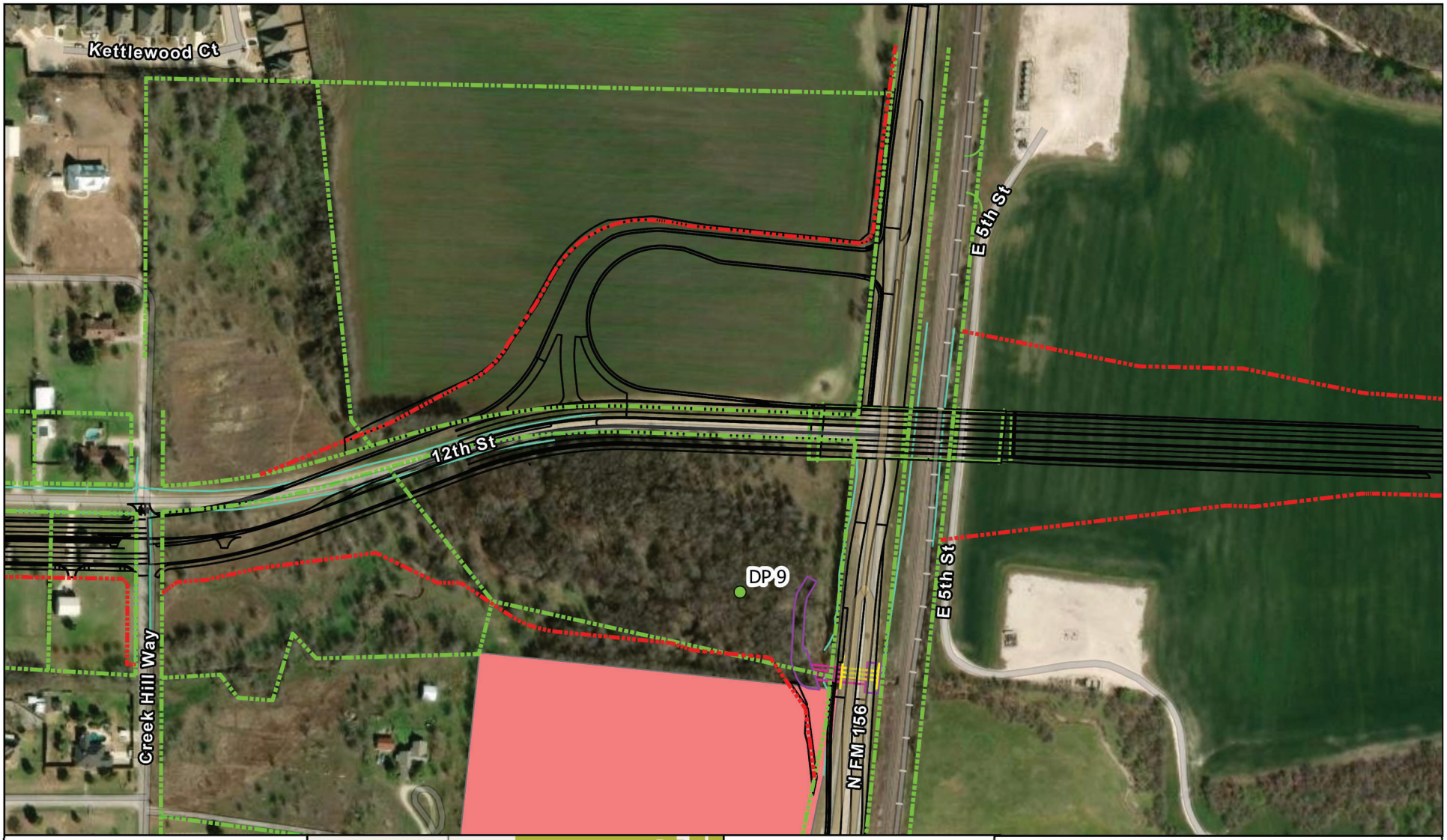

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FM 407
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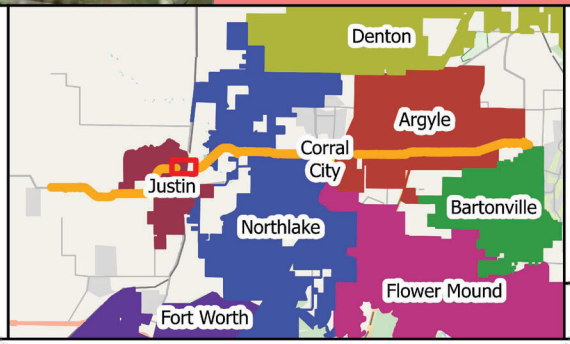
CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



N
W E
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0 100 200
Feet

Base Map Source: ESRI (2025)

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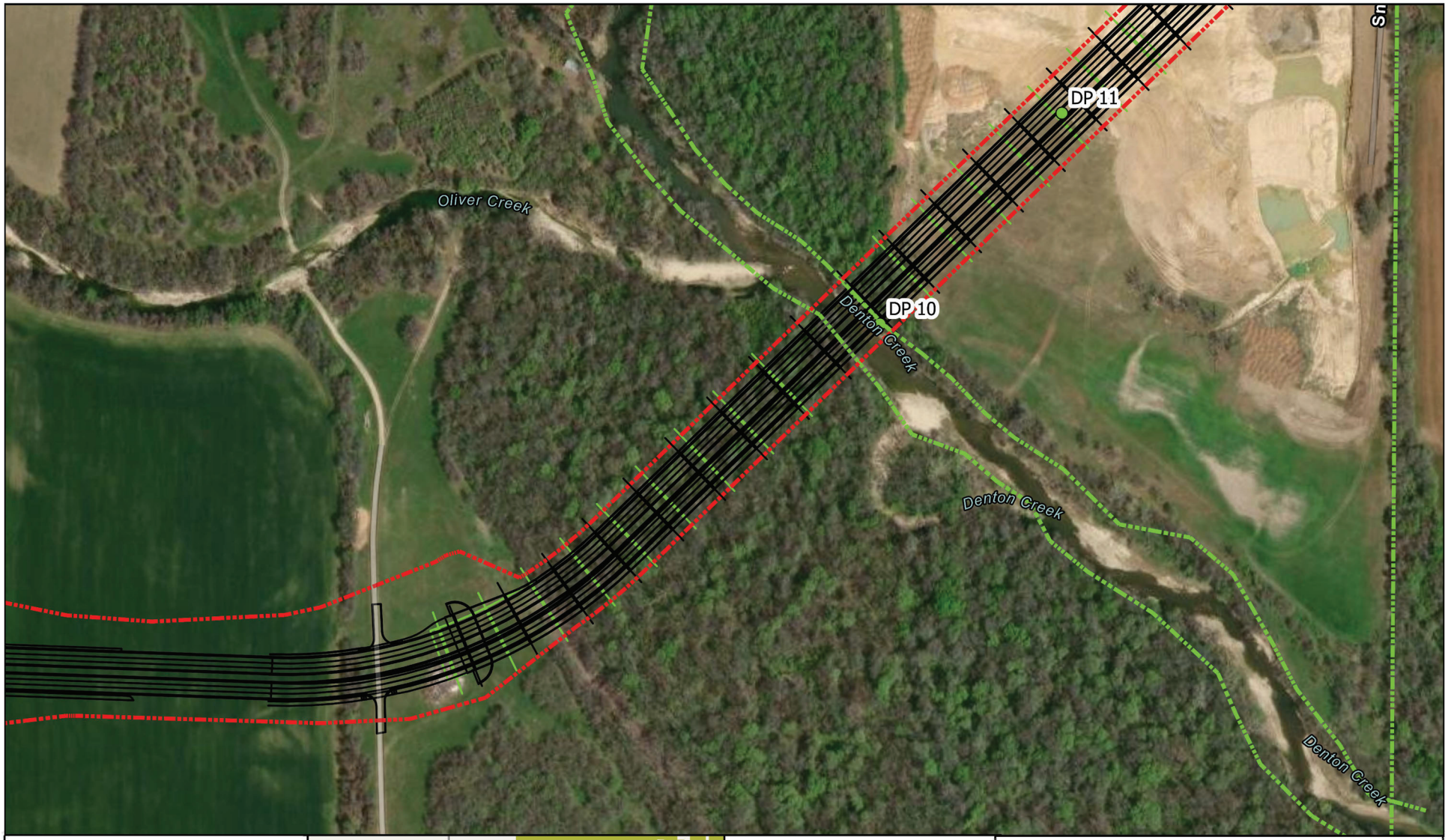

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Water Features Map
FM 407
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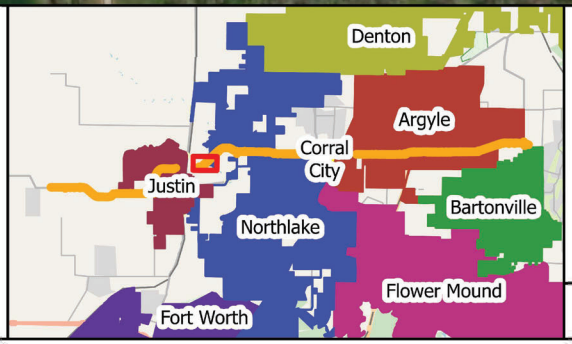
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



N
W E
S

0 100 200
Feet

Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
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- Drainage Ditch
- Access Denied

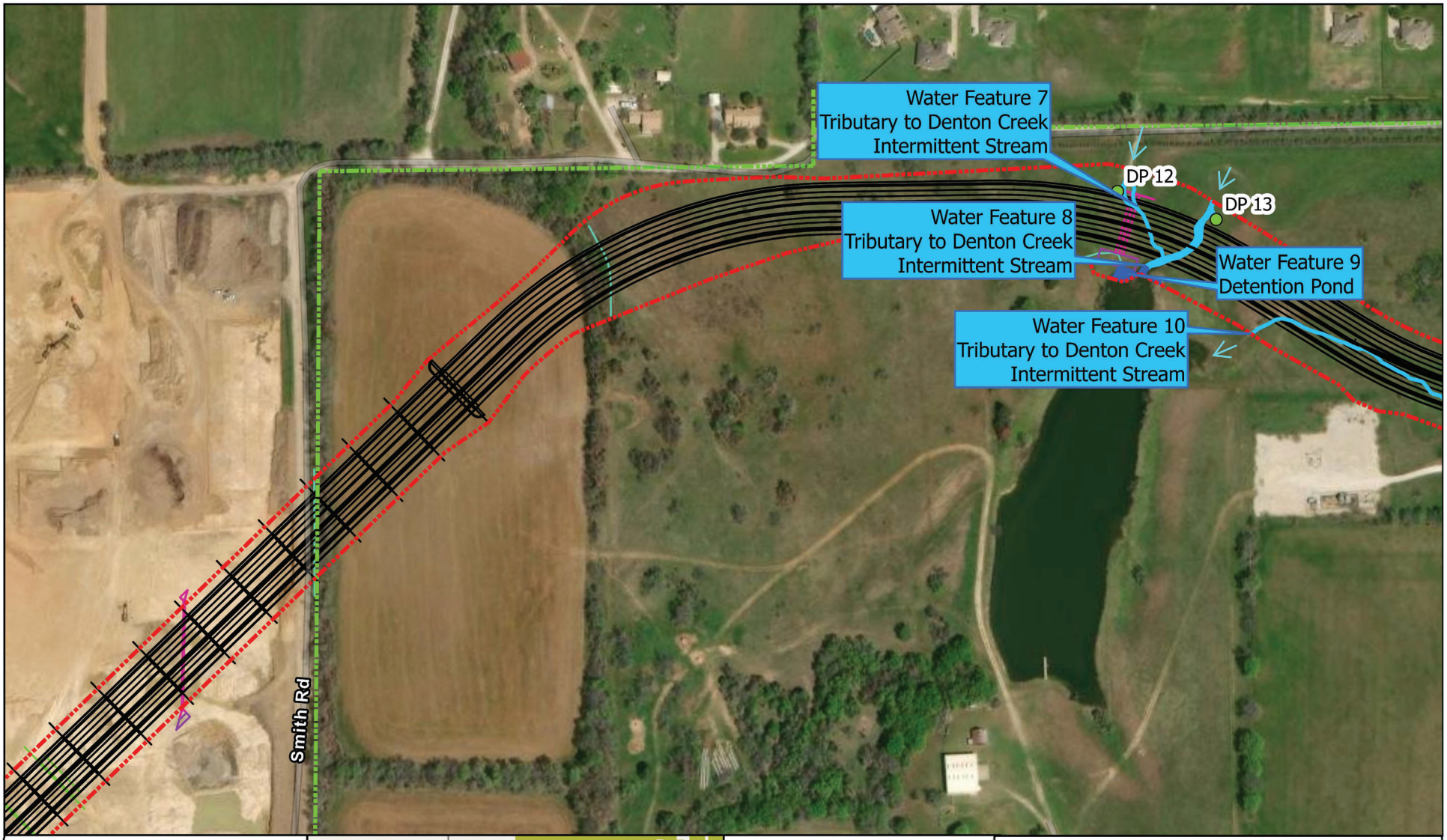
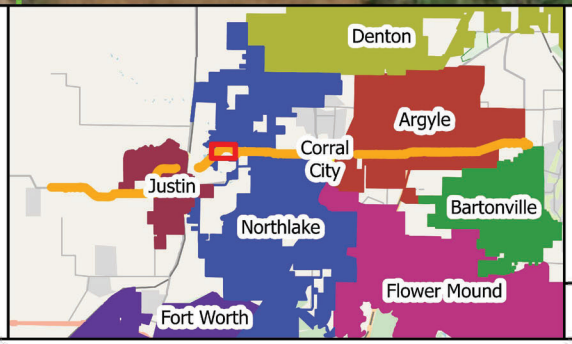


Figure 3
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Flow Direction
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

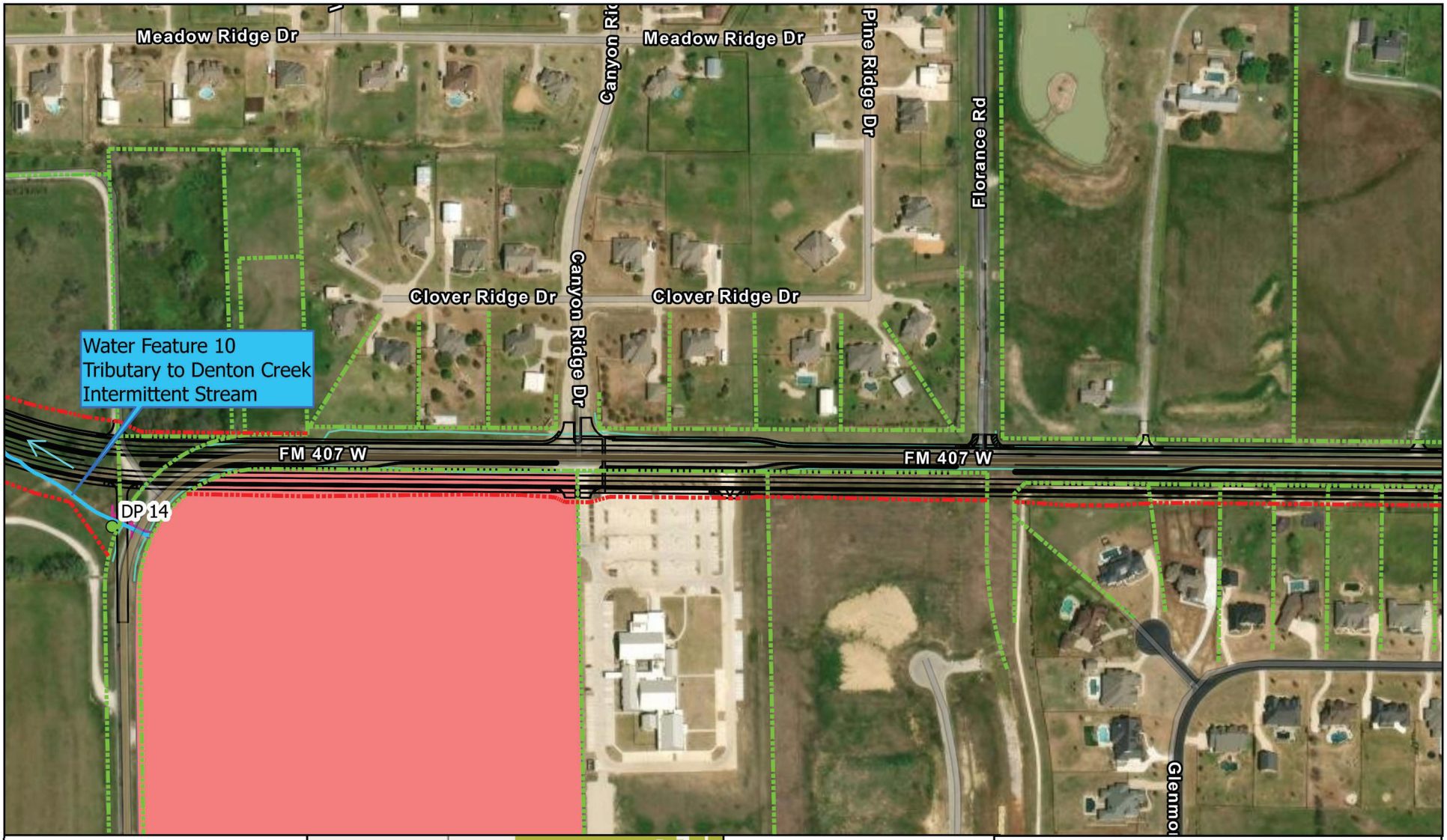
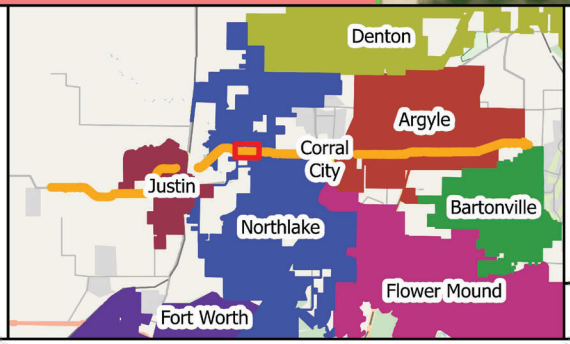


Figure 3
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Flow Direction
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

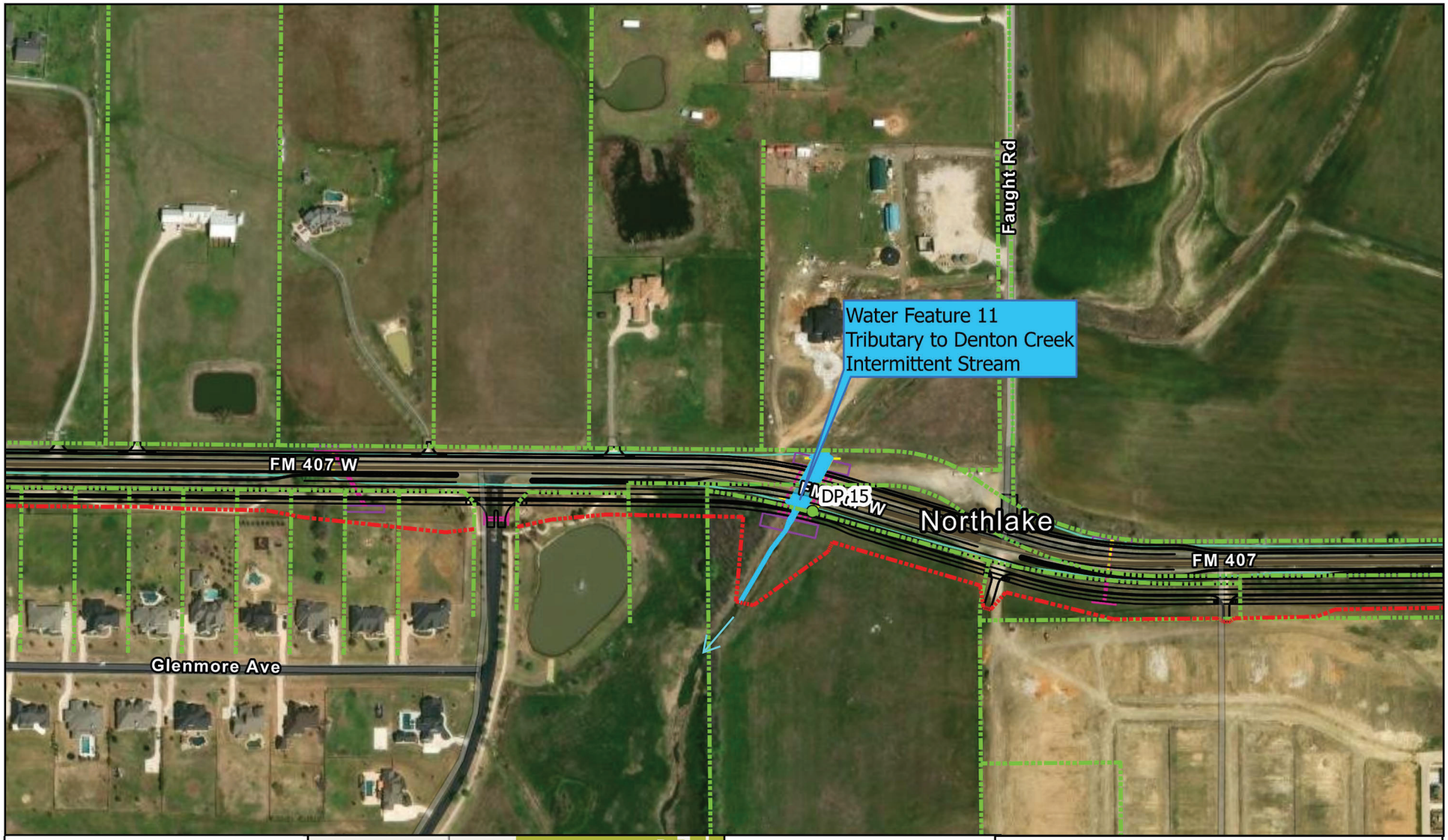
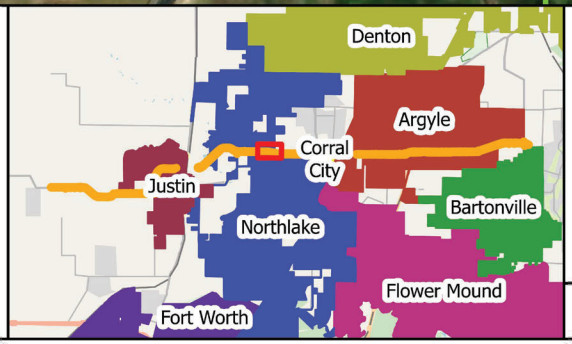


Figure 3
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Flow Direction
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

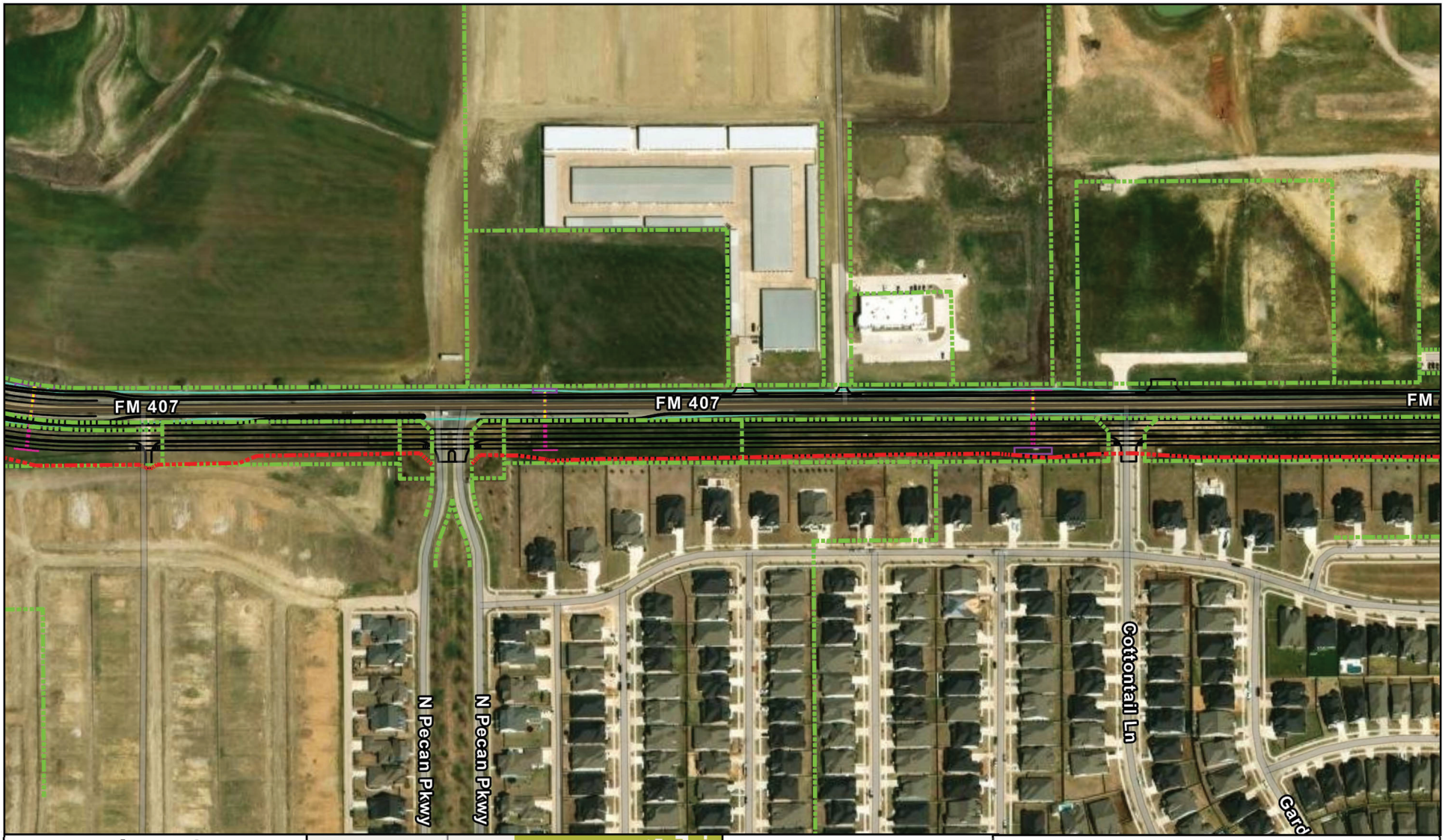
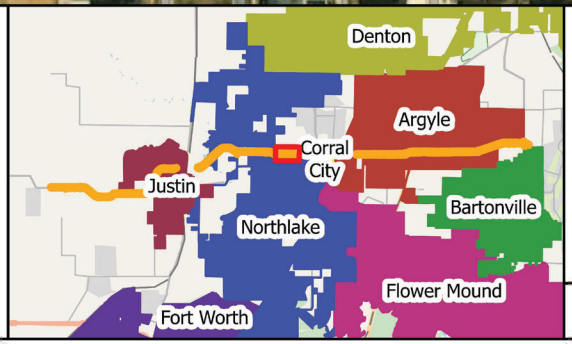


Figure 3
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

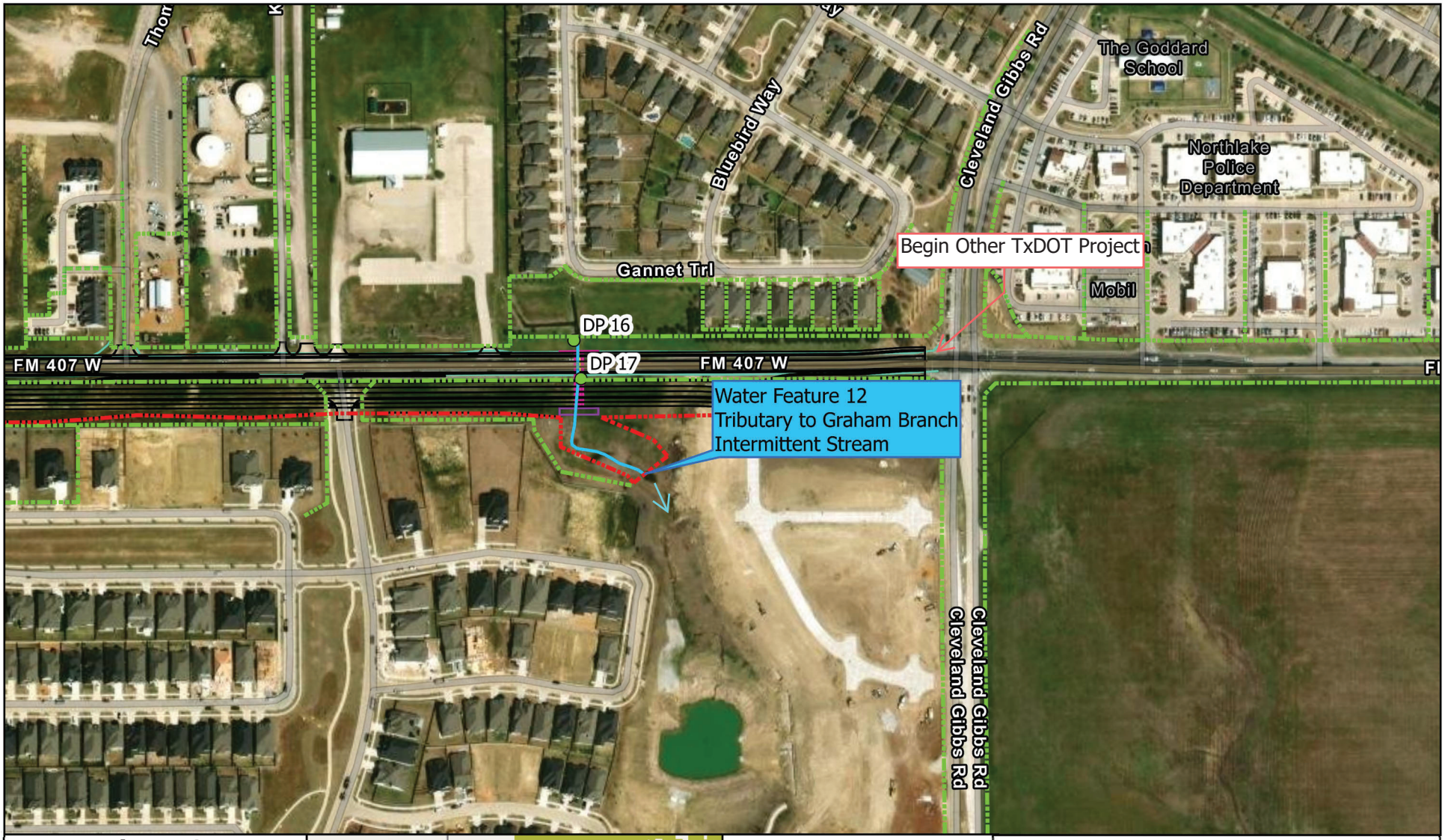
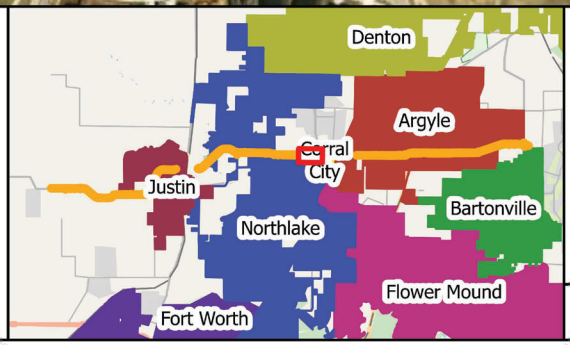


Figure 3
Water Features Map
FM 407

From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Flow Direction
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

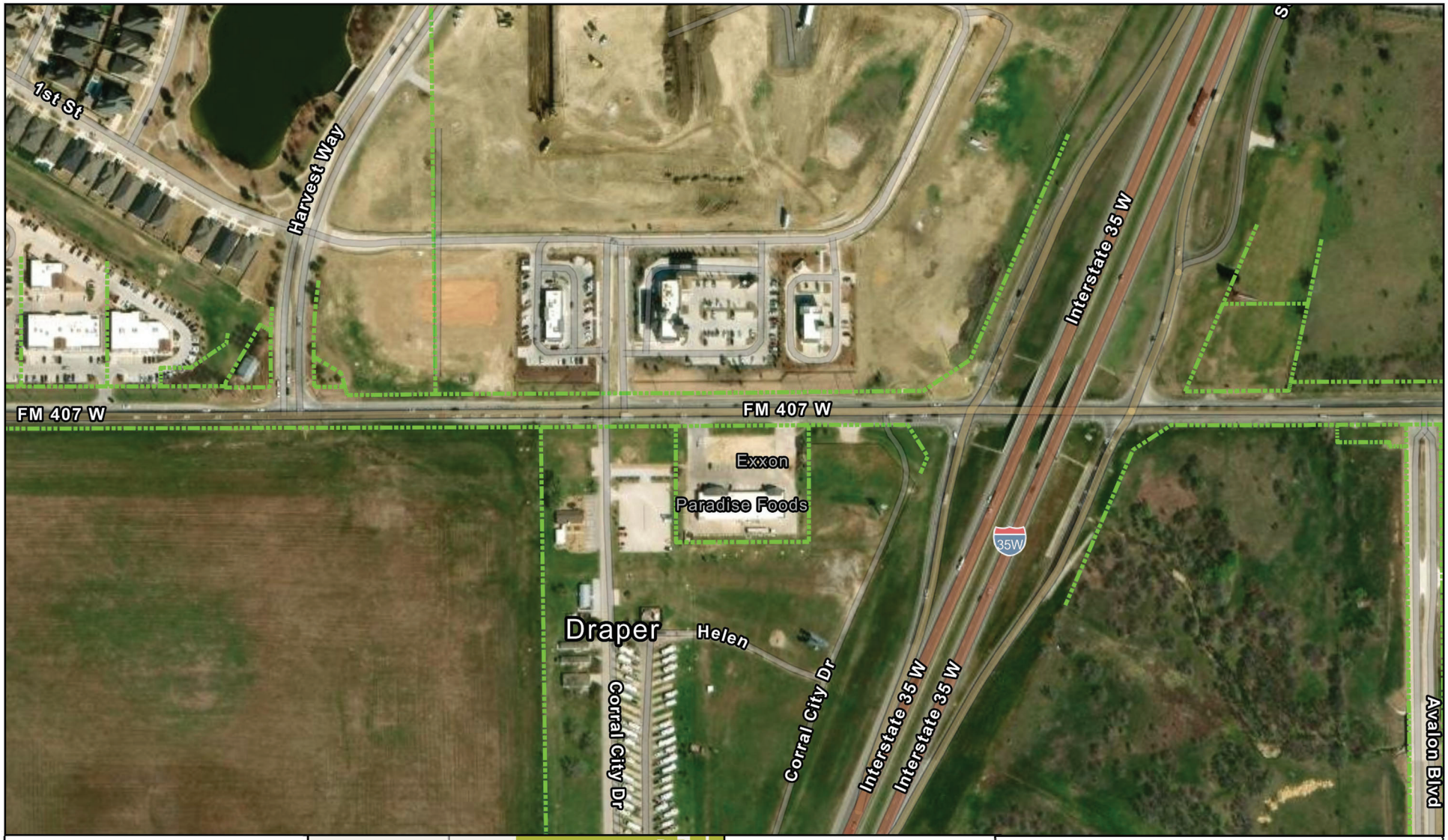
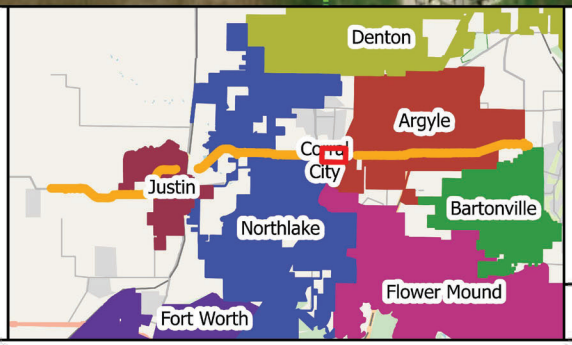


Figure 3
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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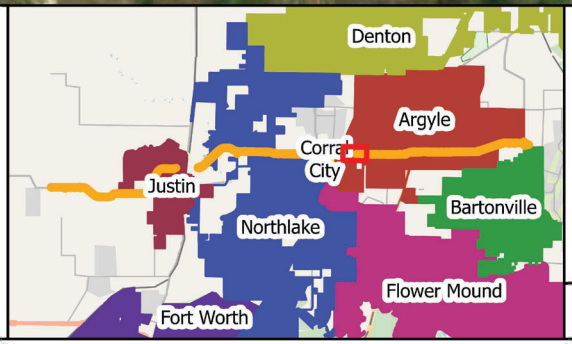
Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

Figure 3
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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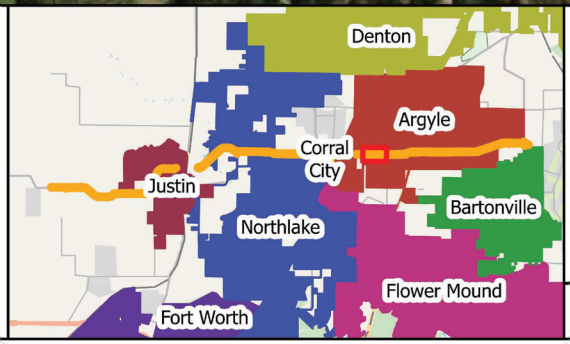
Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

Figure 3
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Flow Direction
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

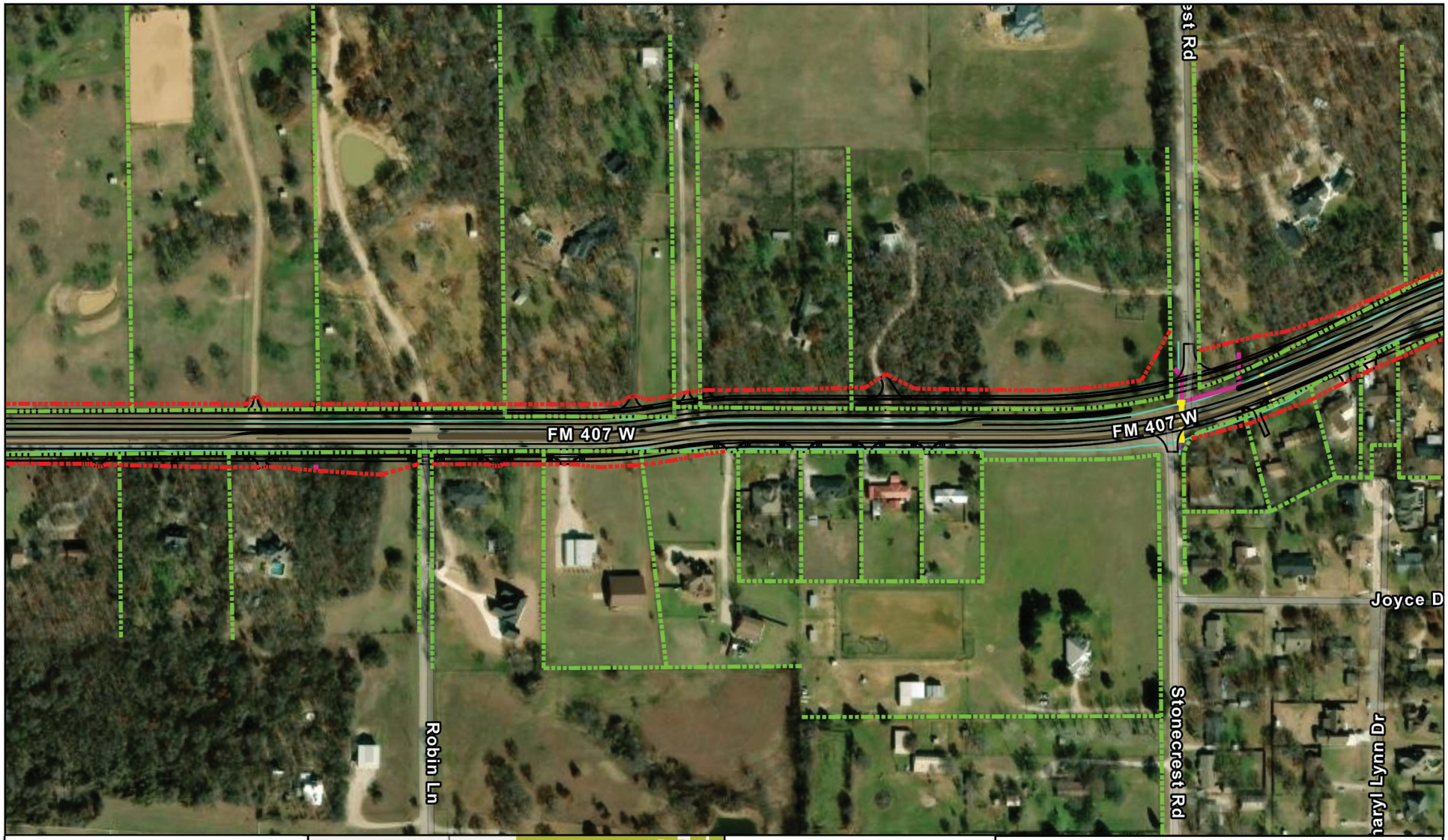
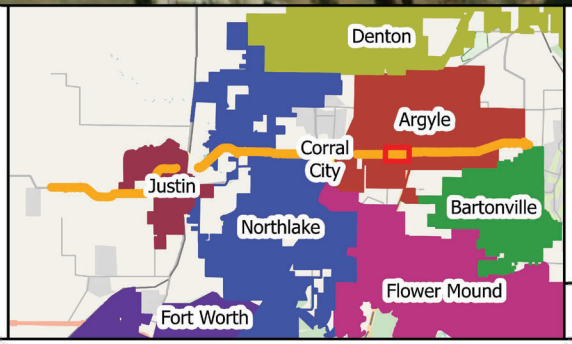


Figure 3
Water Features Map
FM 407

From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

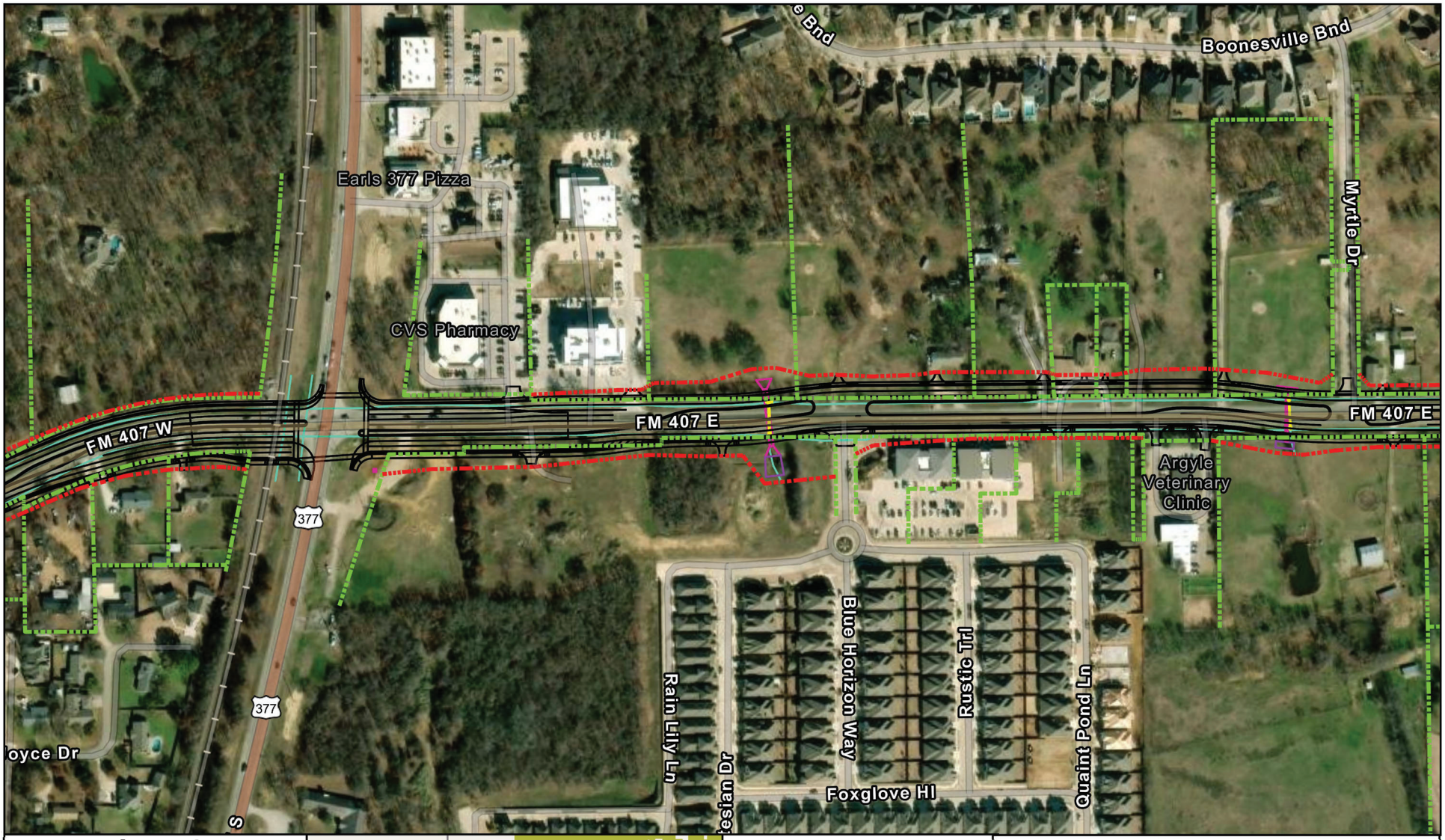
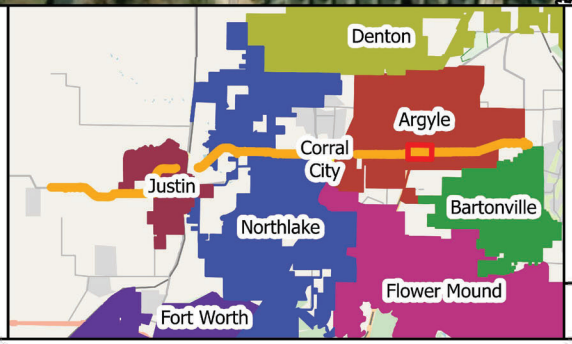


Figure 3
Water Features Map
FM 407

From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

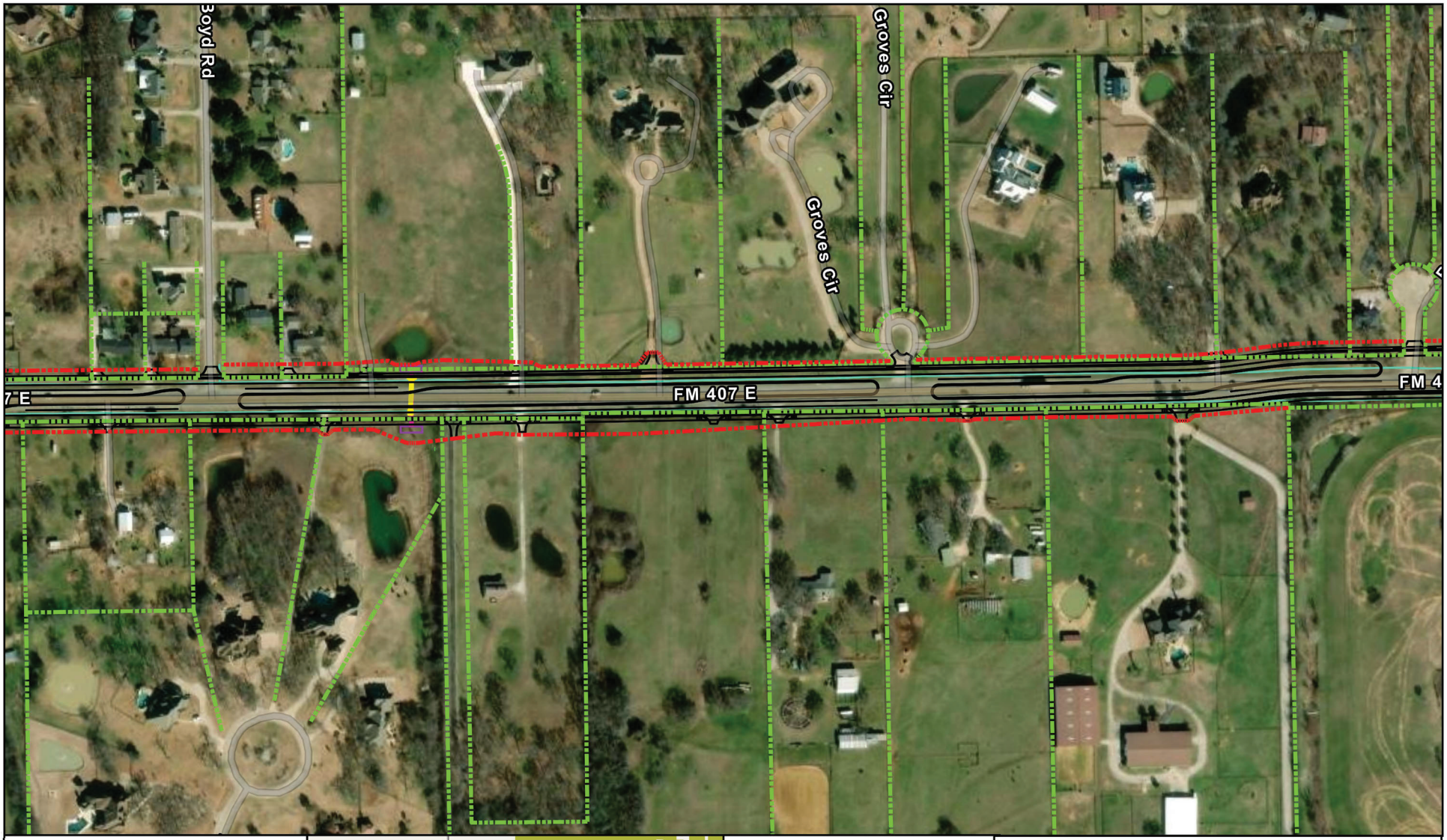
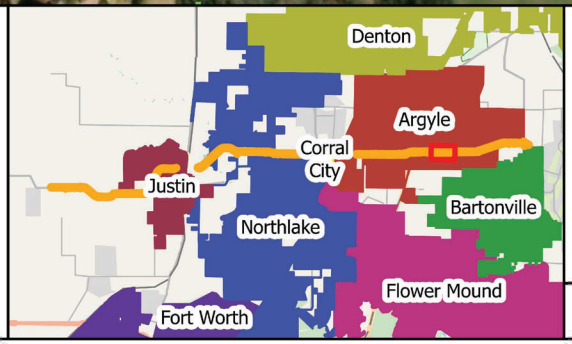


Figure 3
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

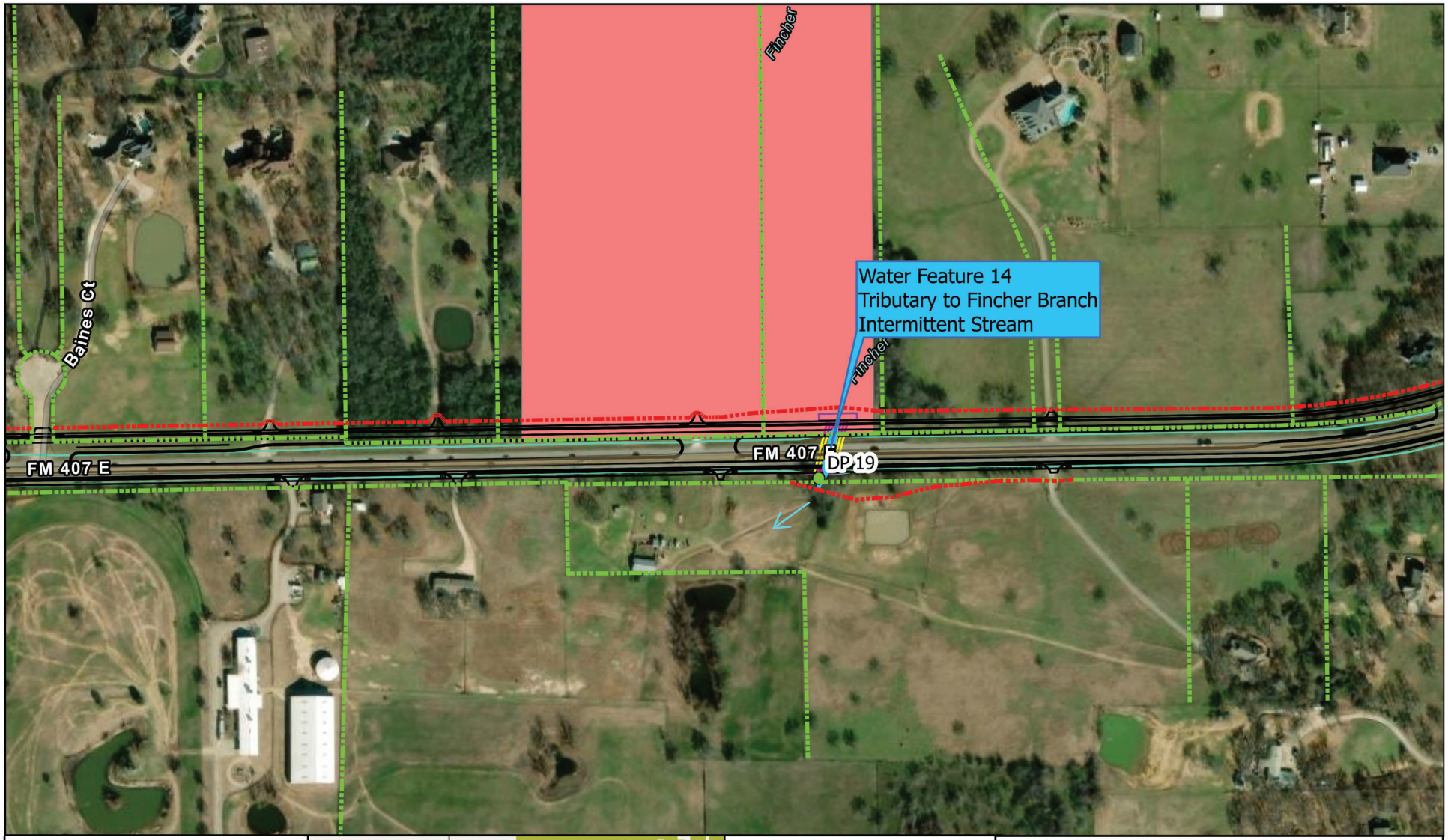
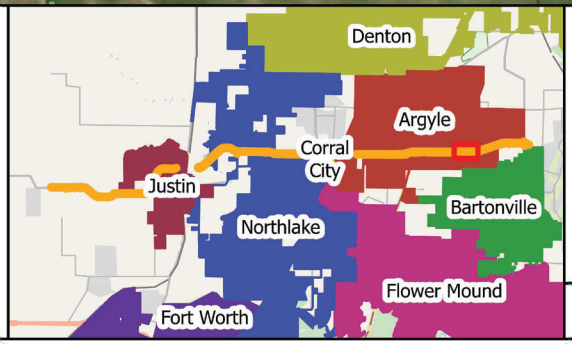


Figure 3
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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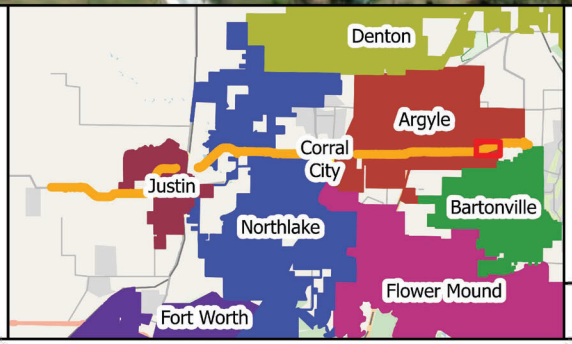
Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Flow Direction
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

Figure 3
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

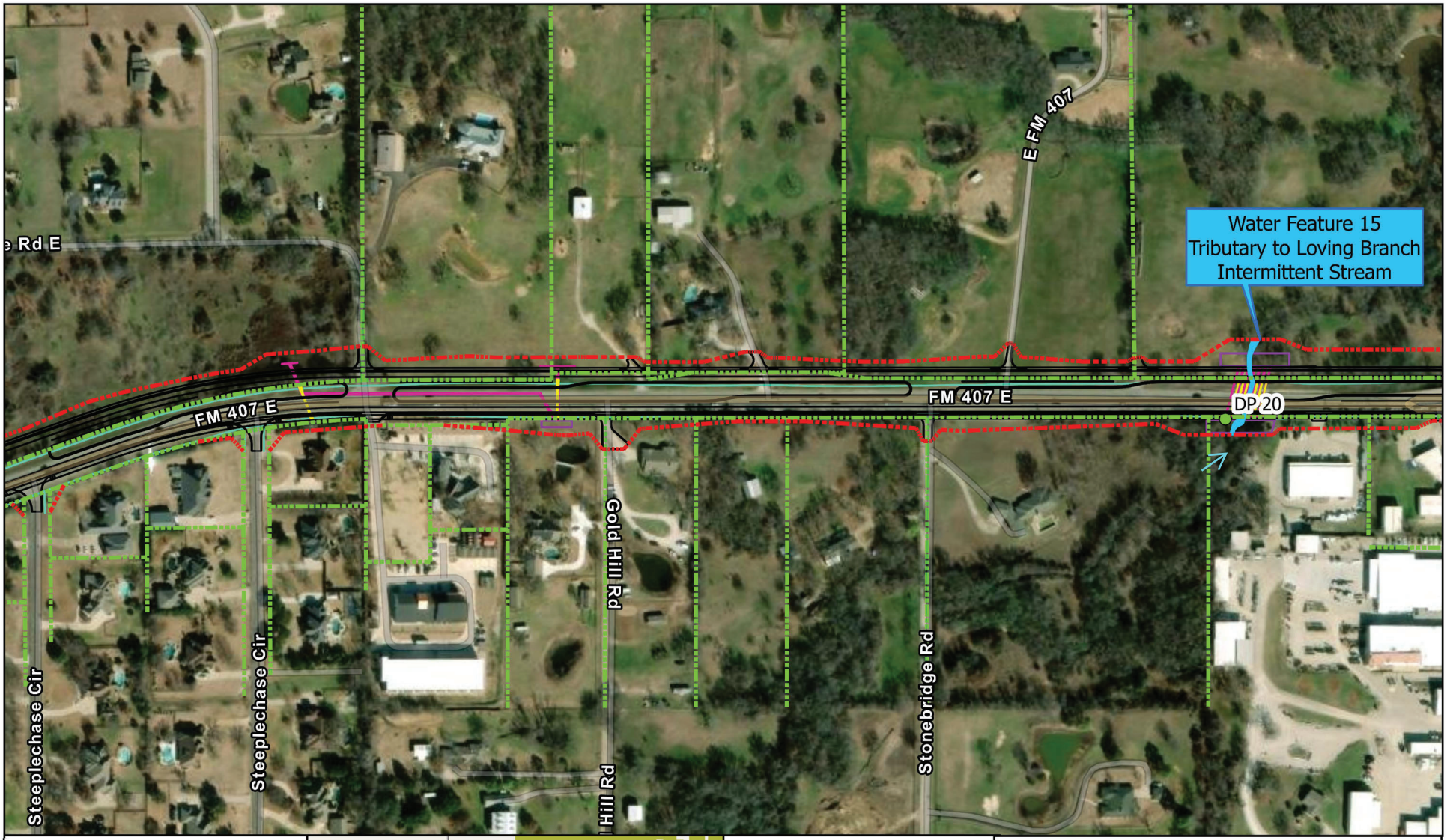
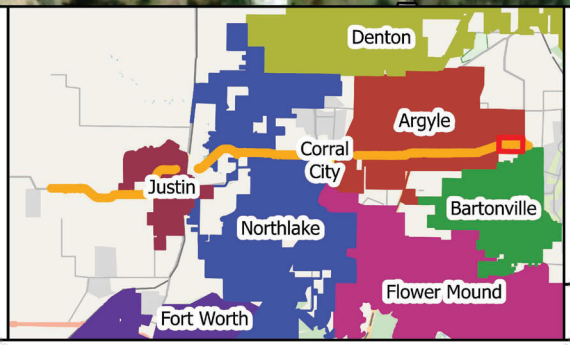


Figure 3
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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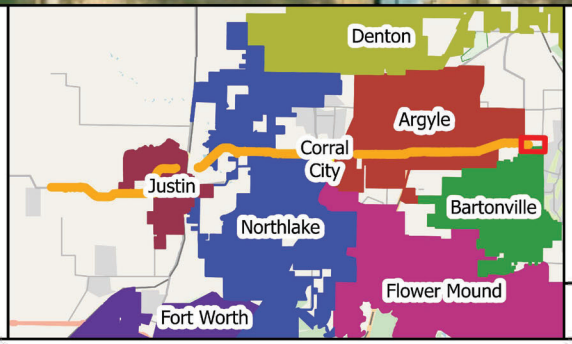
Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Flow Direction
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

Figure 3
Water Features Map
FM 407
From Bill Cook Road to FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, & 1568-02-016



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Base Map Source: ESRI (2025)

Legend

- Existing Right of Way
- Proposed Right of Way
- Wetland Datapoint
- Pond
- Stream
- Pavement Design
- Proposed Bridge Design
- Existing Culvert
- Proposed Riprap
- Proposed Culvert
- Drainage Ditch
- Access Denied

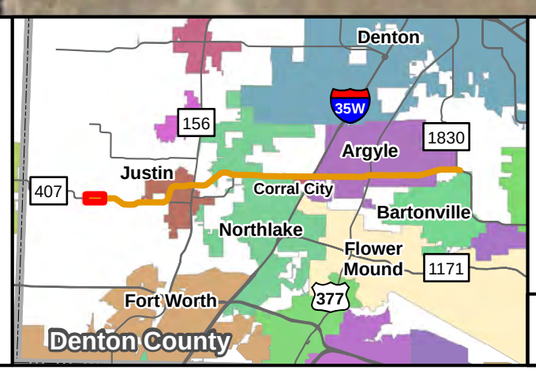
Begin Project

145+00
150+00
155+00
160+00
165+00
170+00
175+00

Boss Range Rd

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Feet

Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Central Texas: Riparian Hardwood Forest
- Native Invasive: Mesquite Shrubland
- Urban

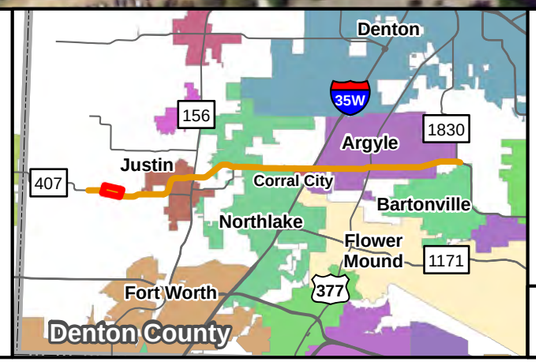
Trail Creek

Dove Hill Rd

175+00
180+00
185+00
190+00
195+00
200+00
205+00

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Feet

Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Agricultural
- Central Texas: Riparian Hardwood Forest
- Crosstimbers: Savanna Grassland
- Native Invasive: Deciduous Woodland
- Native Invasive: Mesquite Shrubland
- Urban

Collingwood Dr

Strader Ln

Trail Creek

210+00

215+00

220+00

225+00

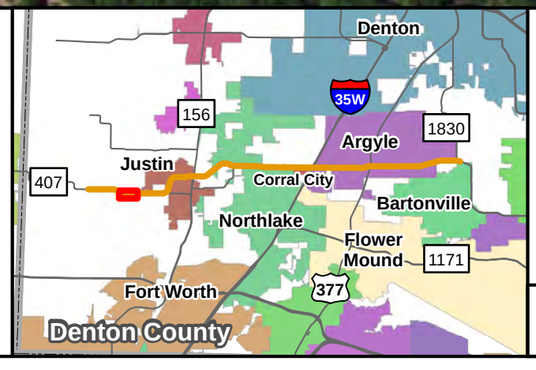
230+00

235+00

240+00

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Feet

Base Map Source: TNRIS (2022)

Legend

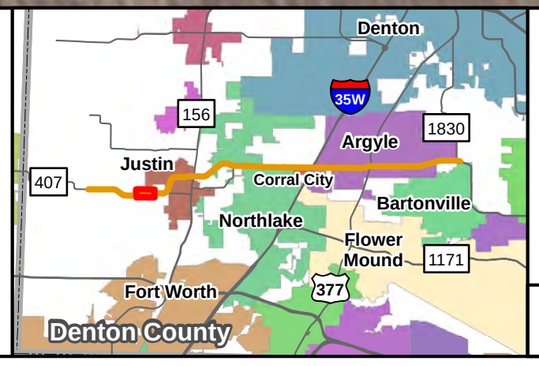
- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Agricultural
- Crosstimbers: Savanna Grassland
- Native Invasive: Deciduous Woodland
- Urban

Strader Ln

240+00
245+00
250+00
255+00
260+00
265+00
270+00

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Feet

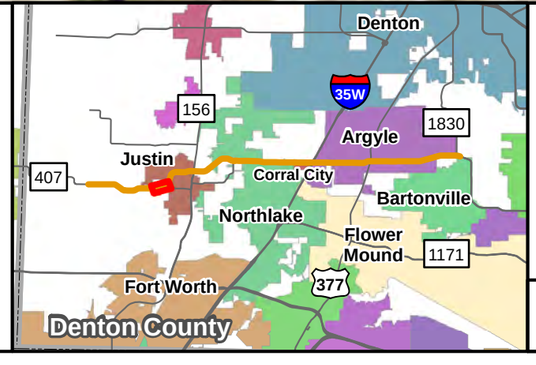
Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Agricultural
- Edwards Plateau: Oak/ Hardwood Motte
- Urban

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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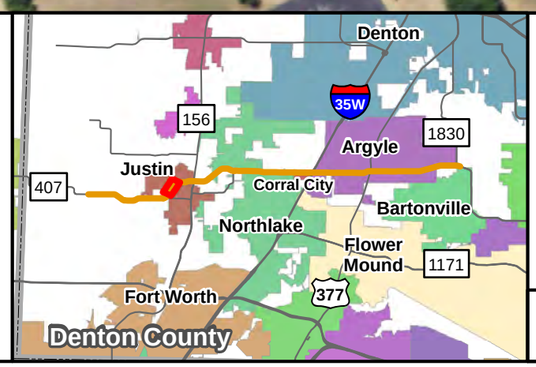
Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Agricultural
- Central Texas: Riparian Hardwood Forest
- Central Texas: Riparian Herbaceous Vegetation
- Urban

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N W E S

0 100 200 Feet

Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Agricultural
- Central Texas: Riparian Herbaceous Vegetation
- Crosstimbers: Savanna Grassland
- Urban

12th St

12th St

156

BNSF

Creek Hill Blvd

345+00

340+00

350+00

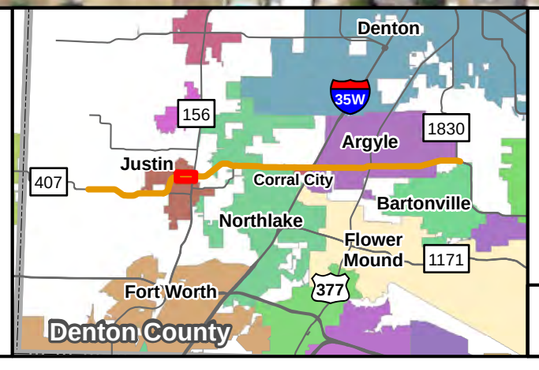
355+00

360+00

365+00

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Feet

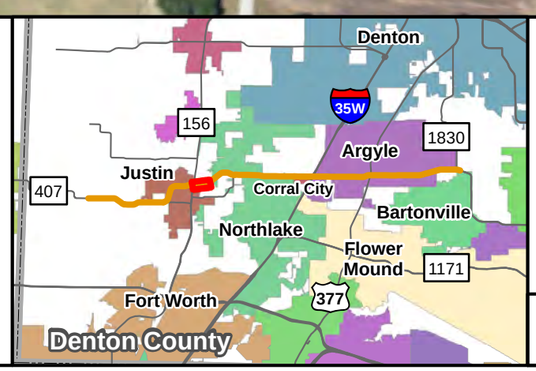
Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Agricultural
- Central Texas: Floodplain Hardwood Forest
- Crosstimbers: Savanna Grassland
- Urban

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
W E
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0 100 200
Feet

Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Agricultural
- Central Texas: Floodplain Hardwood Forest
- Central Texas: Riparian Hardwood Forest
- Crosstimbers: Savanna Grassland
- Open Water
- Urban

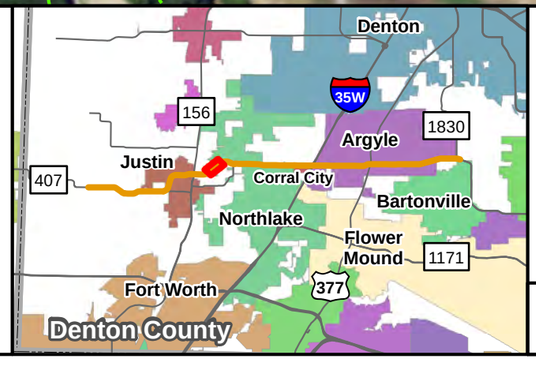
Oliver Creek

Denton Creek

395+00 400+00 405+00 410+00 415+00 420+00 425+00

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Agricultural
- Central Texas: Riparian Hardwood Forest
- Crosstimbers: Savanna Grassland
- Open Water

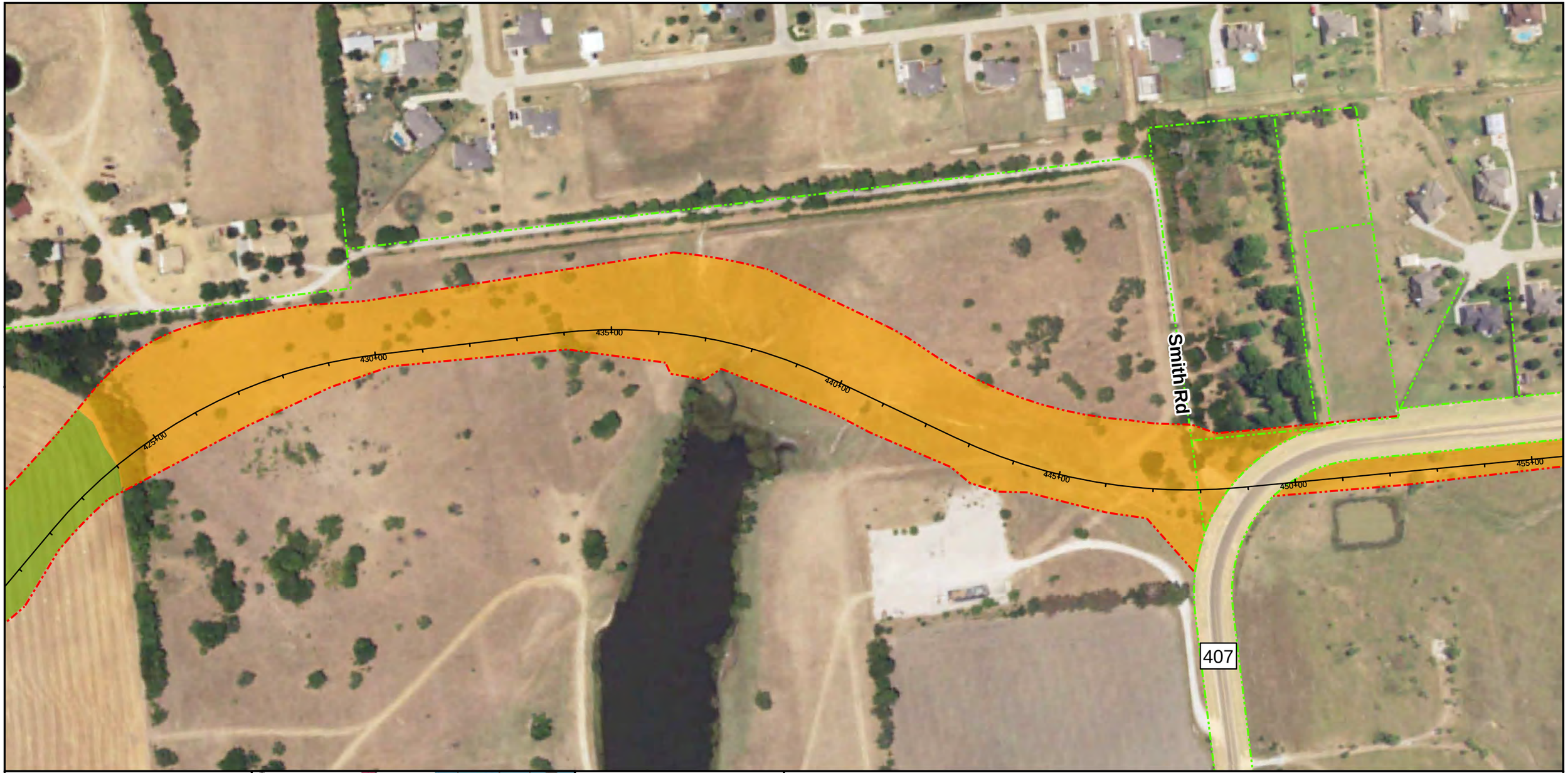
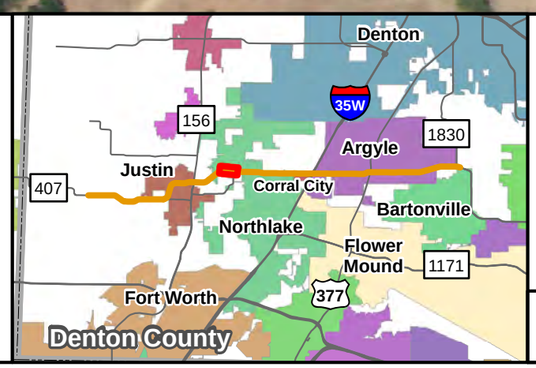


Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Agricultural
- Crosstimbers: Savanna Grassland
- Urban

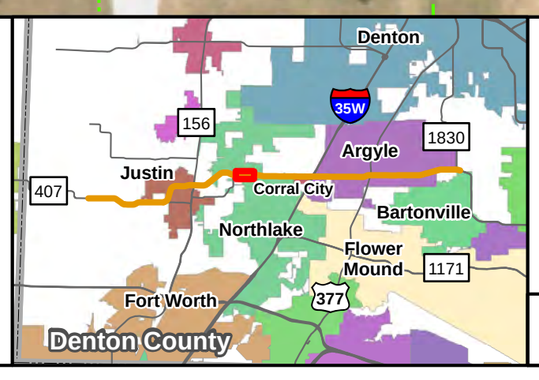
Canyon Ridge Rd

Florence Rd

455+00 460+00 465+00 470+00 475+00 480+00 485+00

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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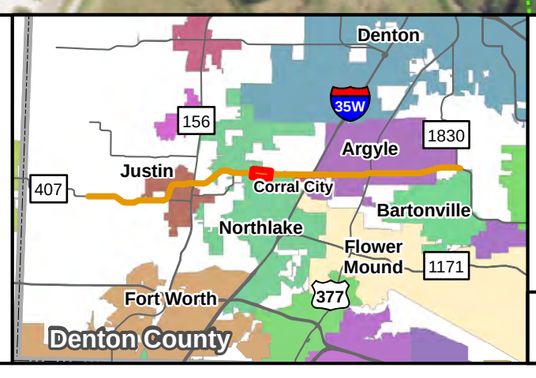
Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Crosstimbers: Savanna Grassland
- Urban

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Agricultural
- Central Texas: Riparian Hardwood Forest
- Urban

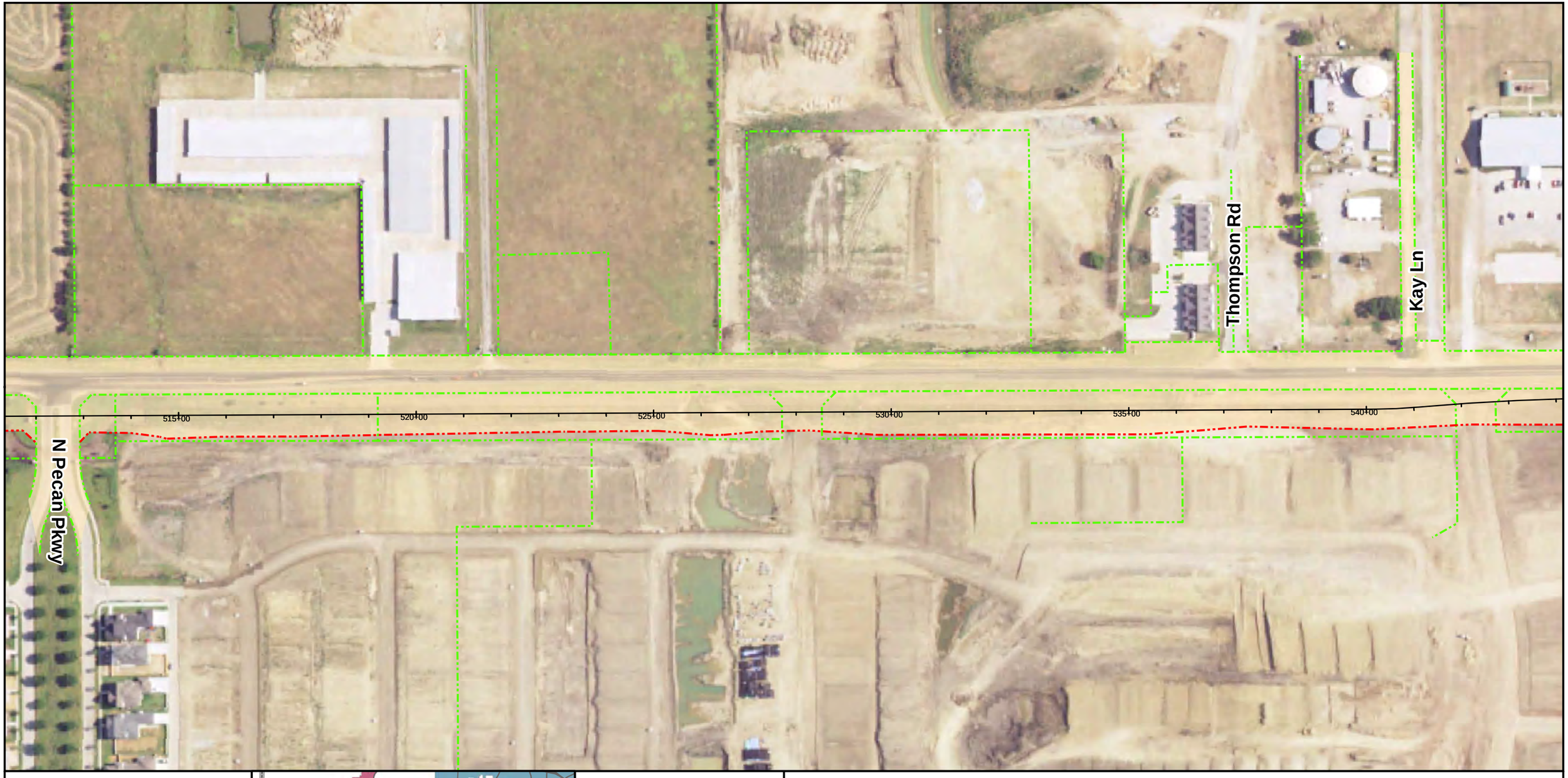
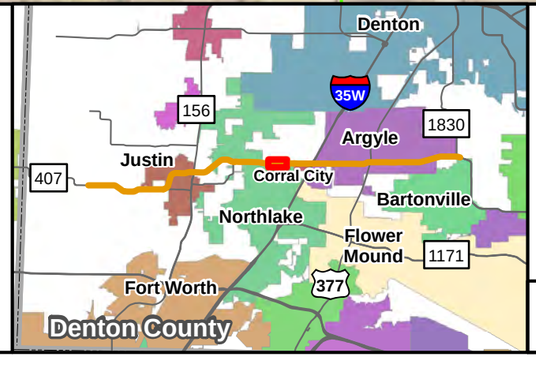


Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Urban

Kay Ln

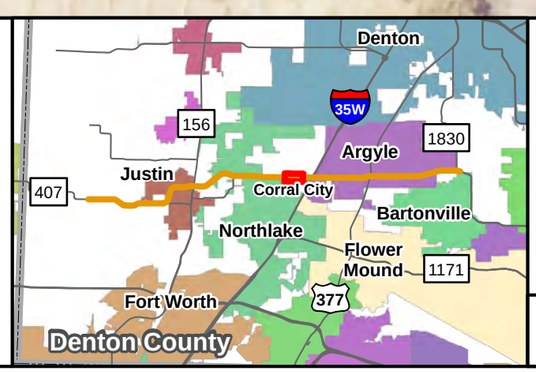
Begin Other TxDOT Project

545+00 550+00 30+00 35+00 40+00 45+00

Cleveland Gibbs Rd

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Other TxDOT Project Right of Way
- Urban

Harvest Way

35W

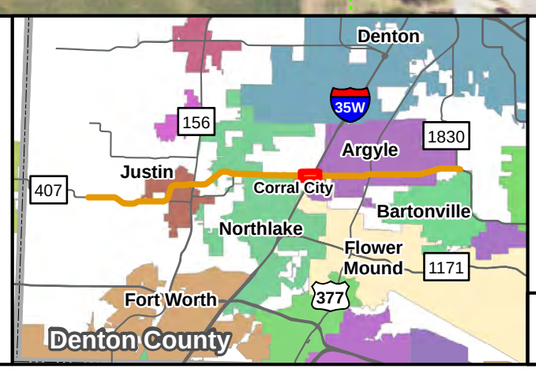
Corral City Dr

Avalon Blvd

45+00 50+00 55+00 60+00 65+00 70+00 75+00

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Feet

Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Existing Easements
- Other TxDOT Project Right of Way

Graham Branch

End Other TxDOT Project

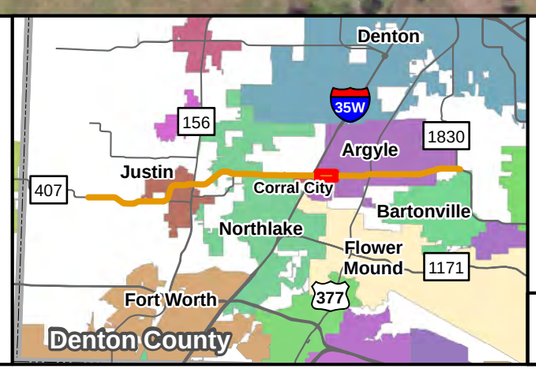
Avalon Blvd

Gateway Dr

75+00 80+00 85+00 90+00 95+00 100+00 105+00

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Base Map Source: TNRIS (2022)

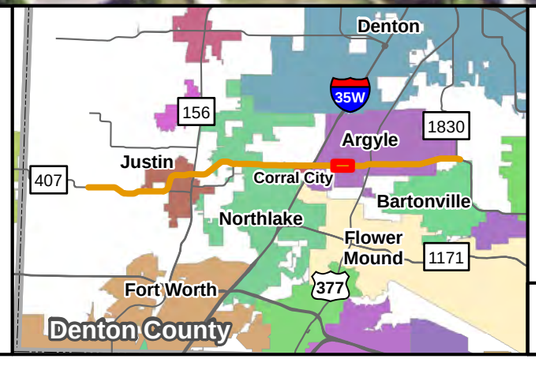
Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Other TxDOT Project Right of Way
- Crosstimbers: Savanna Grassland
- Urban

105+00
635+00
640+00
645+00
650+00
655+00
660+00
Woods Dr
Birch Ct

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Feet

Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Crosstimbers: Post Oak Woodland
- Crosstimbers: Savanna Grassland
- Edwards Plateau: Oak/ Hardwood Motte
- Urban

Stonecrest Rd

Robin Ln

660+00

665+00

670+00

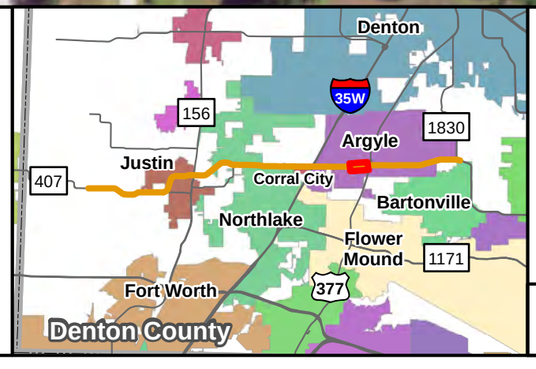
675+00

680+00

685+00

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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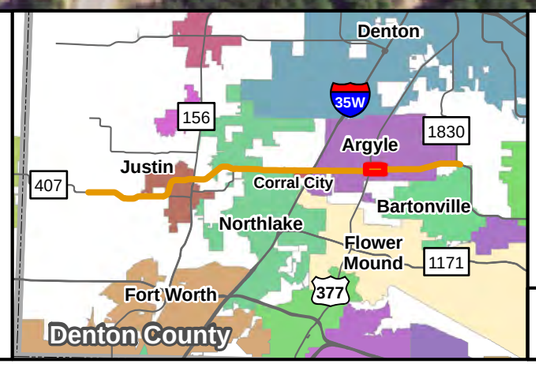
Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Crosstimbers: Post Oak Woodland
- Crosstimbers: Savanna Grassland
- Edwards Plateau: Oak/ Hardwood Motte
- Urban

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
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Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Crosstimbers: Post Oak Woodland
- Crosstimbers: Savanna Grassland
- Urban

Myrtle Dr

Ben Boyd Rd

720+00

725+00

730+00

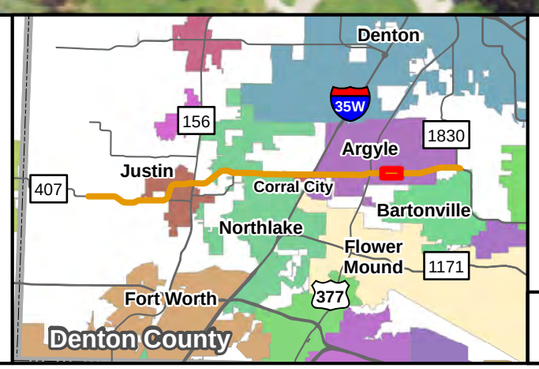
735+00

740+00

745+00

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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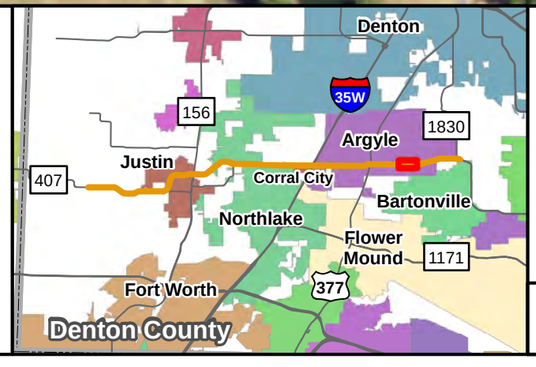
Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Existing Easements
- Crosstimbers: Savanna Grassland
- Urban

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
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Feet

Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Existing Easements
- Central Texas: Riparian Hardwood Forest
- Crosstimbers: Post Oak Woodland
- Urban

Gibbons Rd

780+00

785+00

790+00

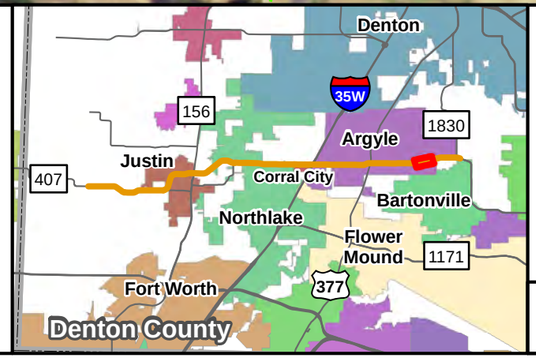
795+00

800+00

805+00

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
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Feet

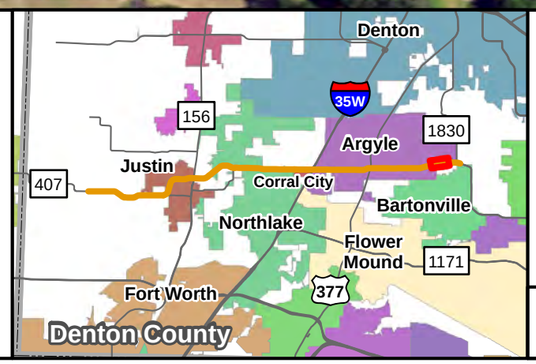
Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Existing Easements
- Agricultural
- Crosstimbers: Post Oak Woodland
- Crosstimbers: Savanna Grassland
- Urban

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
W E
S

0 100 200
Feet

Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Existing Easements
- Crosstimbers: Post Oak Woodland
- Crosstimbers: Savanna Grassland
- Urban

1830

End Project

407

Stonebridge Rd

840+00

845+00

850+00

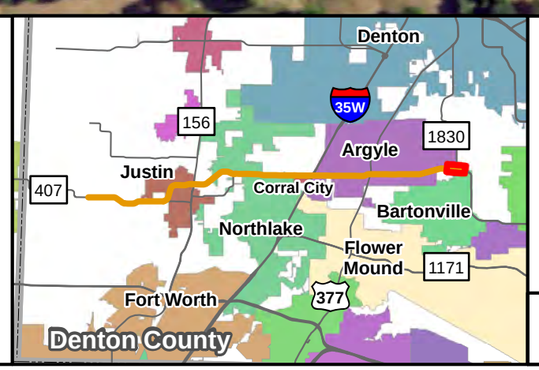
855+00

860+00

865+00

Figure 4
Observed Vegetation Map
FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
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Base Map Source: TNRIS (2022)

Legend

- Project Centerline
- Existing Right of Way
- Proposed Right of Way
- Central Texas: Riparian Hardwood Forest
- Crosstimbers: Post Oak Woodland
- Urban

Begin Project

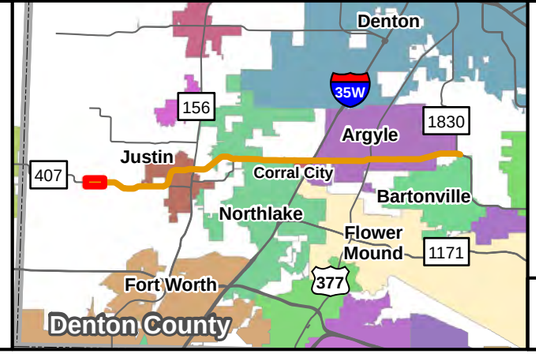
145+00
150+00
155+00
160+00
165+00
170+00
175+00

Bill Cook Road

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
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Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location

Trail Creek

Dove Hill Rd

180+00

185+00

190+00

195+00

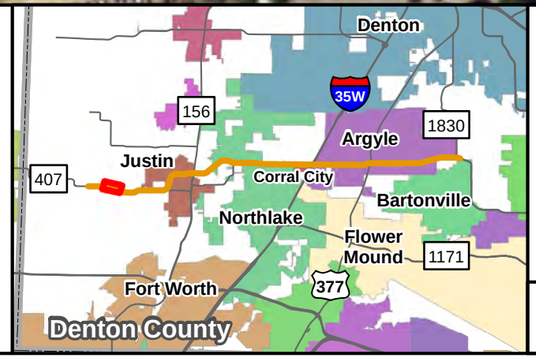
200+00

205+00

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048,
1310-05-002, & 1310-01-049



N
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Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location

Collingwood Dr

Strader Ln

Trail Creek

215+00

220+00

225+00

230+00

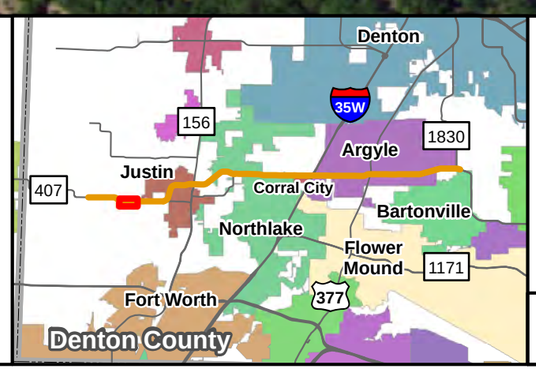
235+00

240+00

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
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0 100 200
Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location

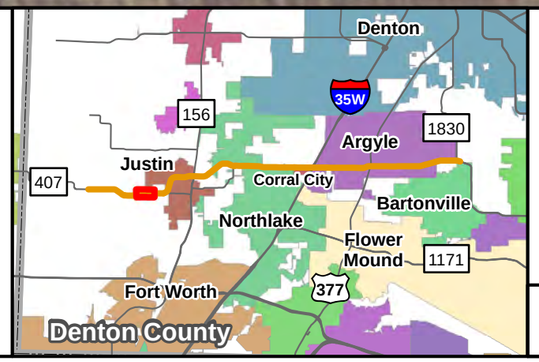
Strader Ln

240+00
245+00
250+00
255+00
260+00
265+00
270+00

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
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Feet

Base Map Source: TNRIS (2022)

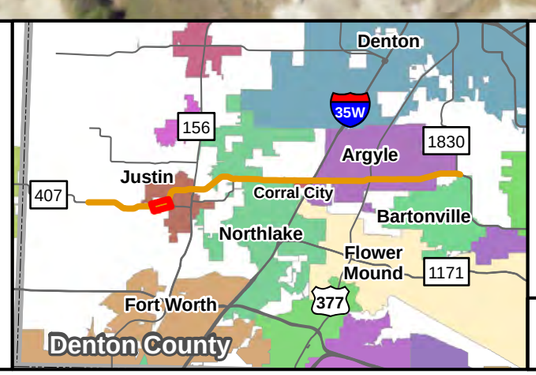
Legend

- Existing ROW
- Proposed ROW
- Project Location

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Base Map Source: TNRIS (2022)

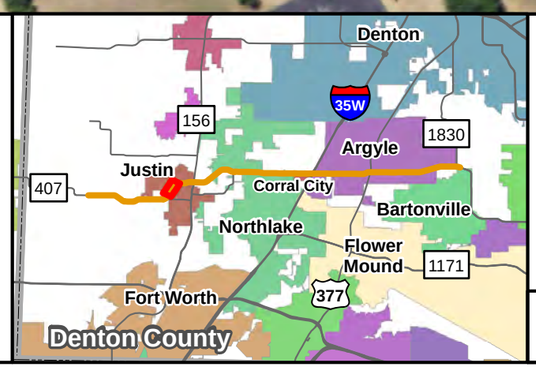
Legend

- Existing ROW
- Proposed ROW
- Project Location

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N W E S

0 100 200 Feet

Base Map Source: TNRIS (2022)

Legend

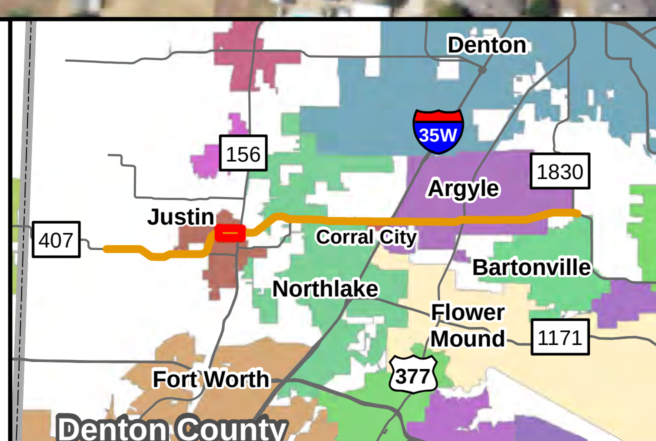
- Existing ROW
- Proposed ROW
- Project Location

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049

Page 7 of 24



N
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Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location

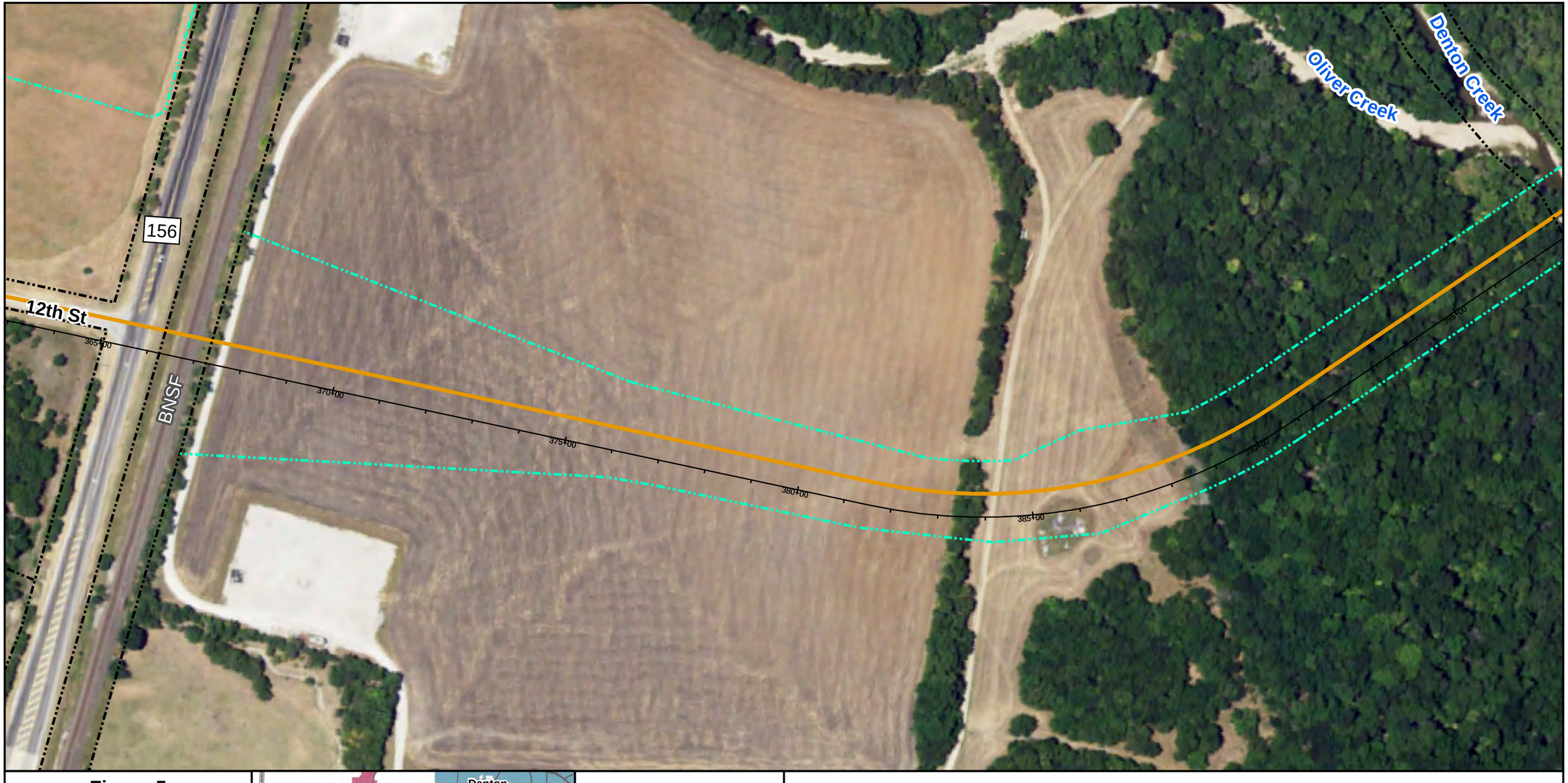
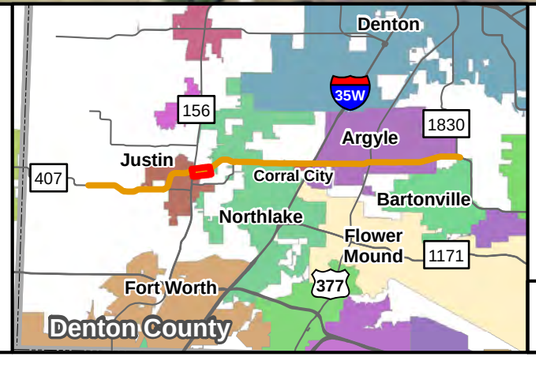


Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
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0 100 200
Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location

Oliver Creek

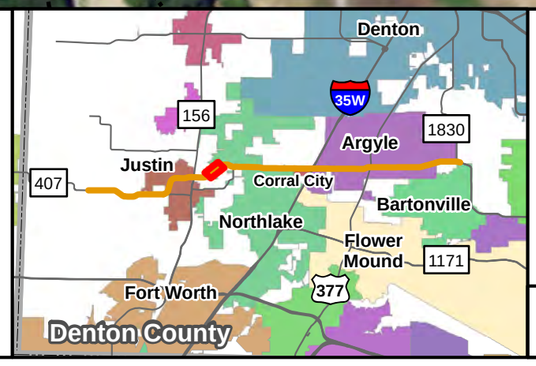
Denton Creek

395+00 400+00 405+00 410+00 415+00 420+00 425+00

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048,
1310-05-002, & 1310-01-049



0 100 200 Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location

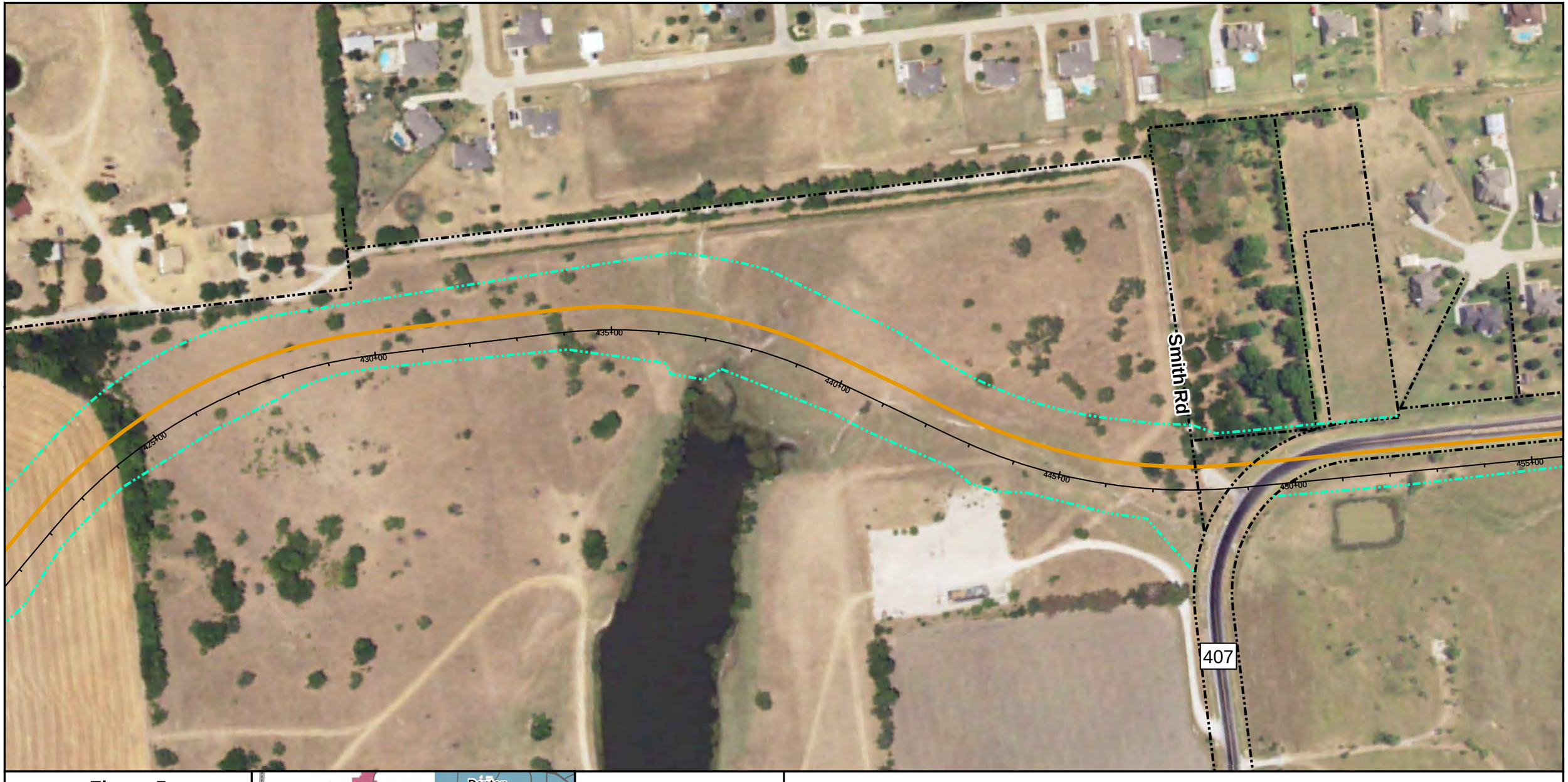
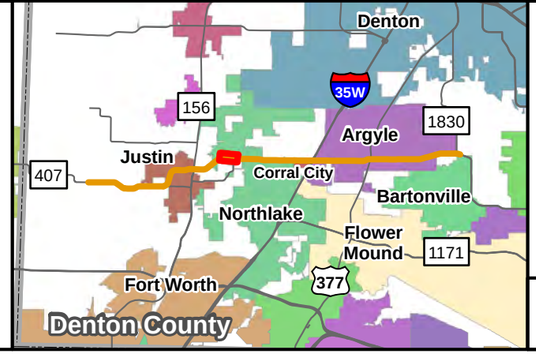


Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
W E
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0 100 200
Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location

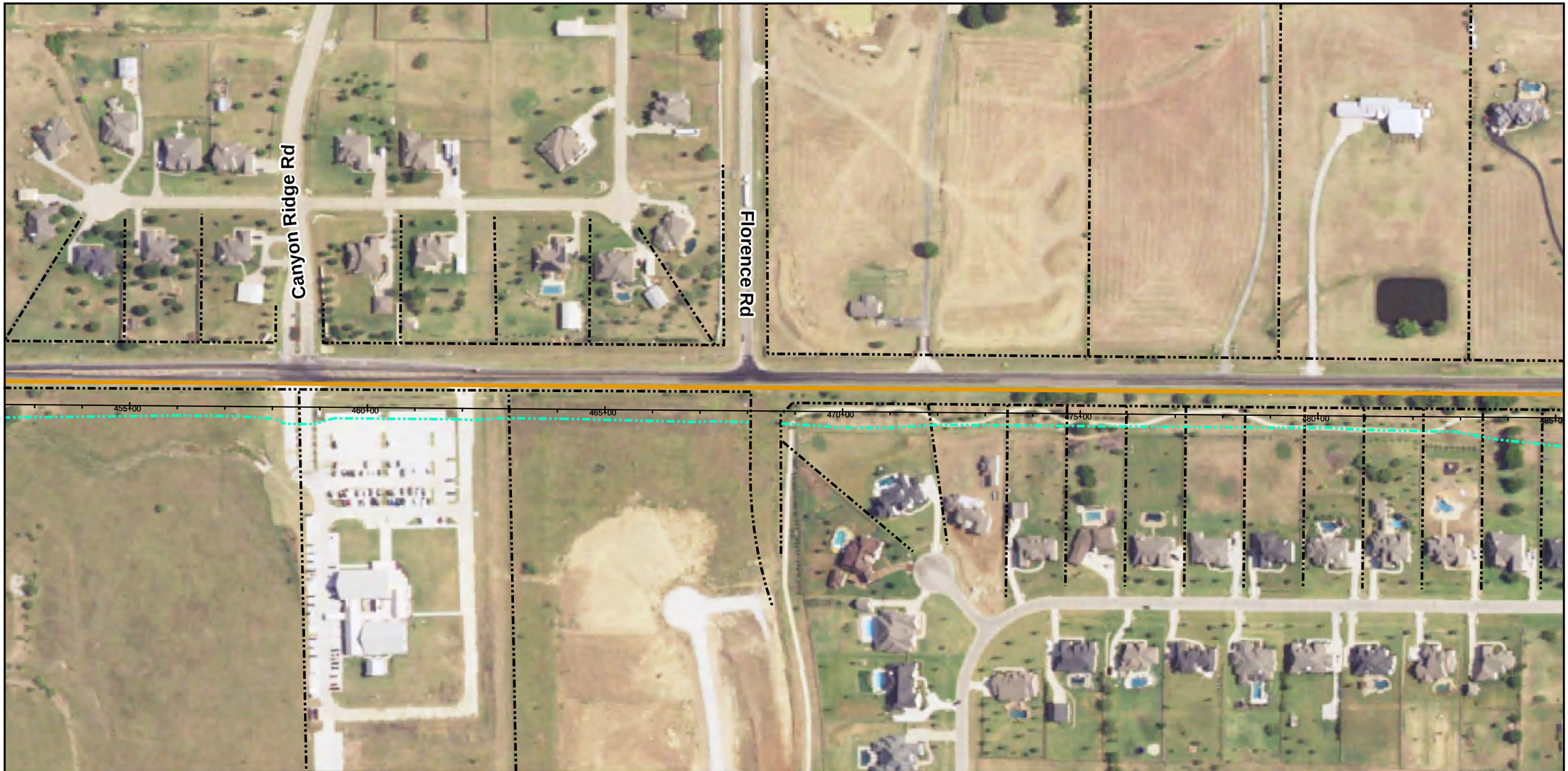
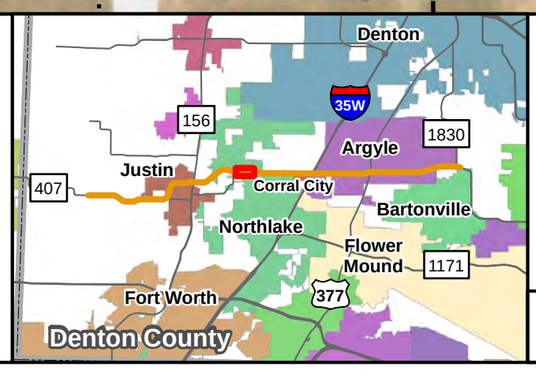


Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location

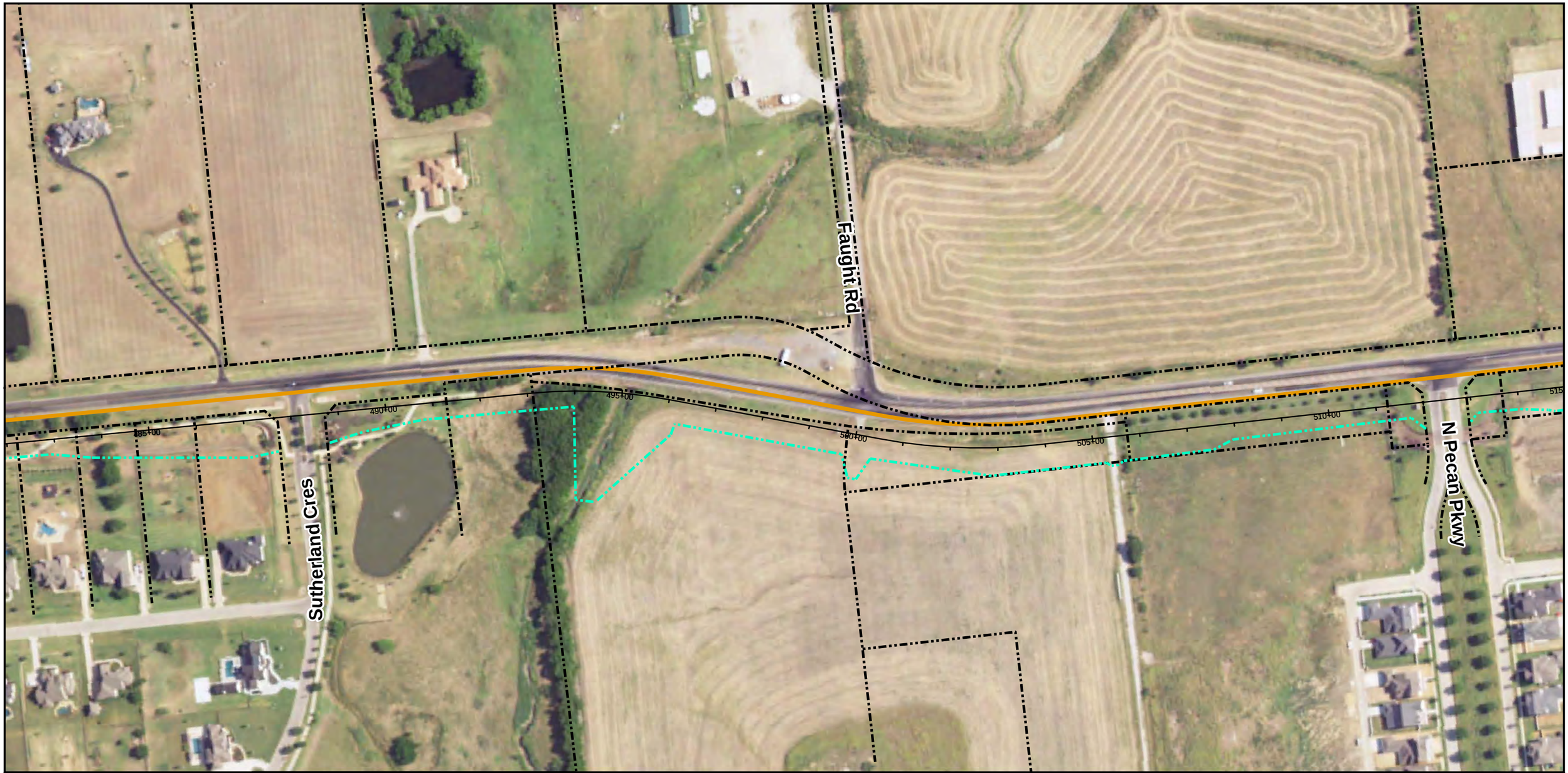
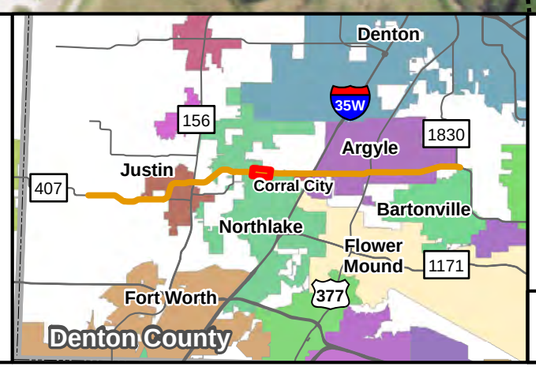


Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
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0 100 200 Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location

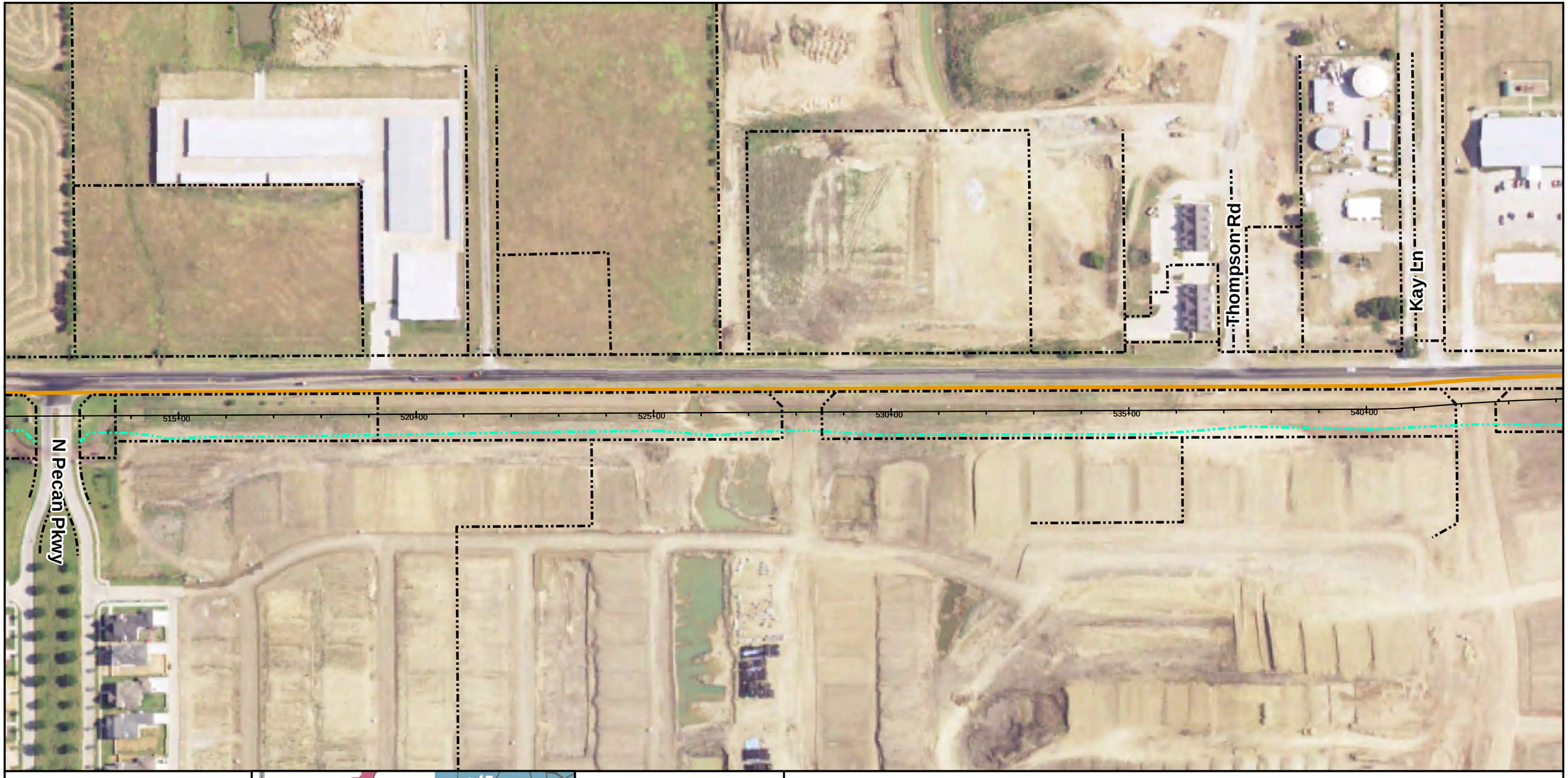
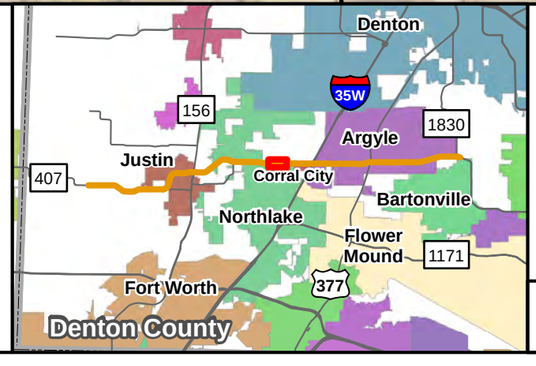


Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location

Kay Ln

Begin Other TxDOT Project

Map ID 1

Map ID 2

545+00

550+00

30+00

35+00

40+00

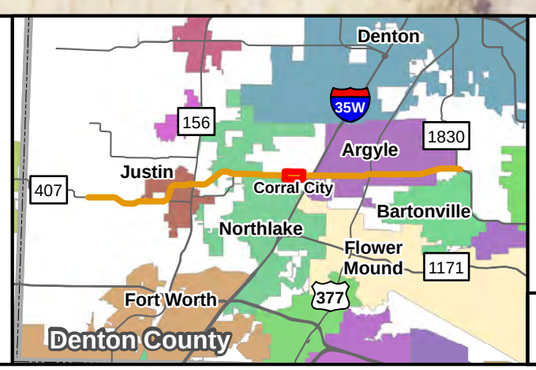
45+00

Cleveland Gibbs Rd

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location
- Other TxDOT Project
- Other TxDOT Project Right of Way
- Low Environmental Concern

Harvest Way

35W

Corral City Dr

Avalon Blvd

45+00 50+00 55+00 60+00 65+00 70+00 75+00

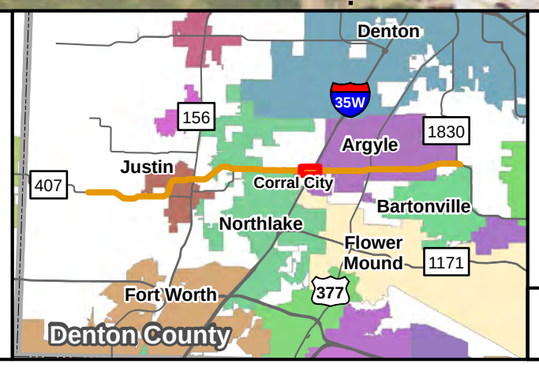
Map ID 3

Map ID 4

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Other TxDOT Project
- Other TxDOT Project Right of Way
- Existing Easements
- Low Environmental Concern

Graham Branch

End Other TxDOT Project

Avalon Blvd

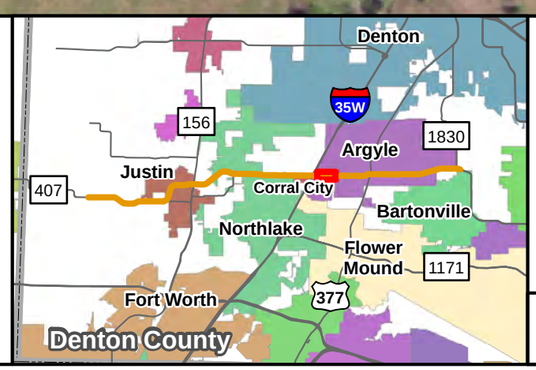
Gateway Dr

75+00 80+00 85+00 90+00 95+00 100+00 105+00

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Base Map Source: TNRIS (2022)

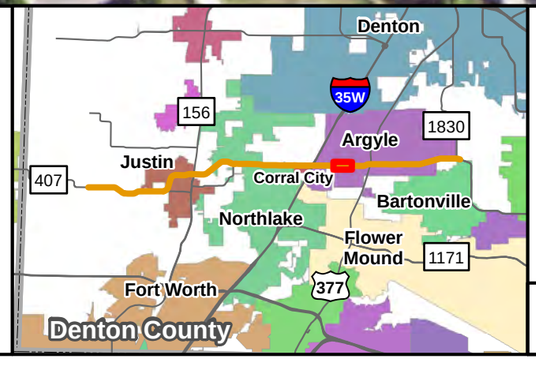
Legend

- Existing ROW
- Proposed ROW
- Project Location
- Other TxDOT Project
- Other TxDOT Project Right of Way

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Base Map Source: TNRIS (2022)

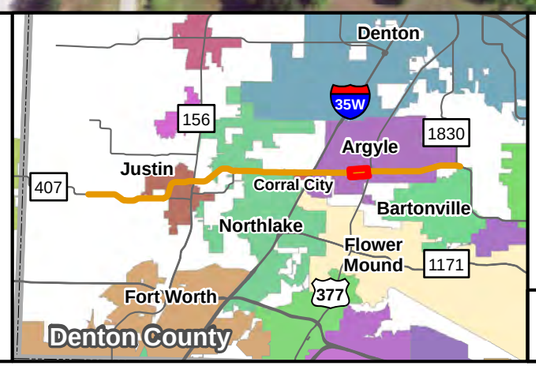
Legend

- Existing ROW
- Proposed ROW
- Project Location

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Base Map Source: TNRIS (2022)

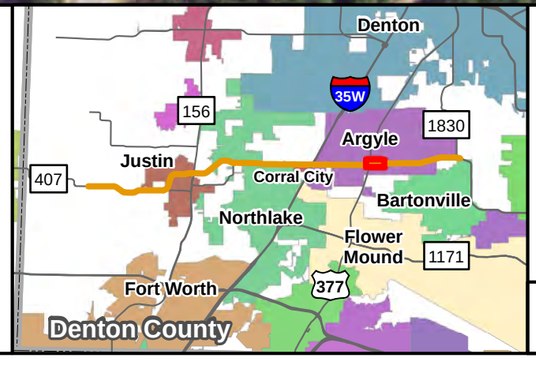
Legend

- Existing ROW
- Proposed ROW
- Project Location

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
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0 100 200 Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location
- Low Environmental Concern

Myrtle Dr

Ben Boyd Rd

720+00

725+00

730+00

735+00

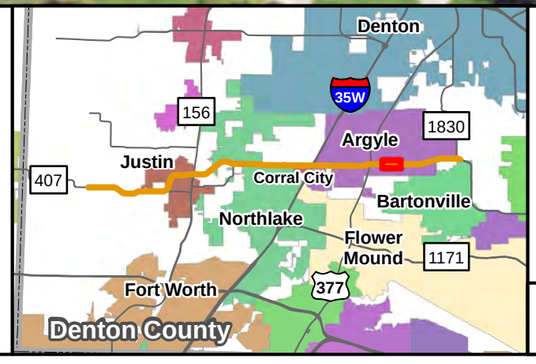
740+00

745+00

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048,
1310-05-002, & 1310-01-049



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Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location
- Existing Easements

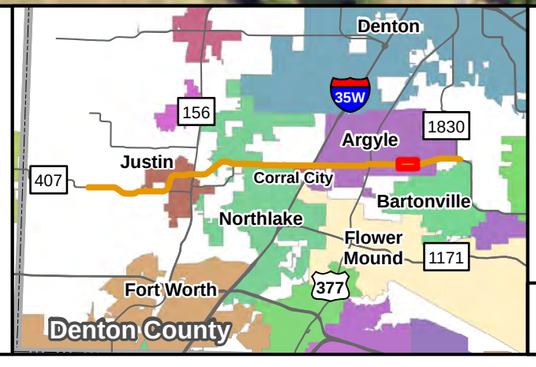
Fincher Branch

750+00
755+00
760+00
765+00
770+00
775+00

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location
- Existing Easements

Gibbons Rd

780+00

785+00

790+00

795+00

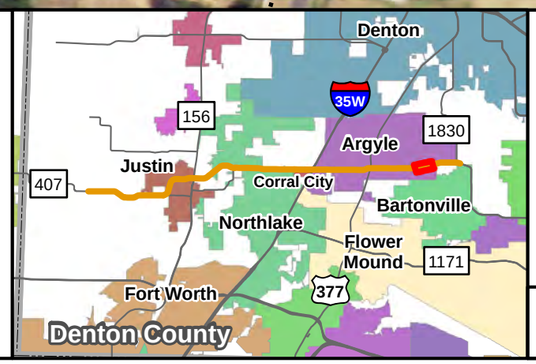
800+00

805+00

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Feet

Base Map Source: TNRIS (2022)

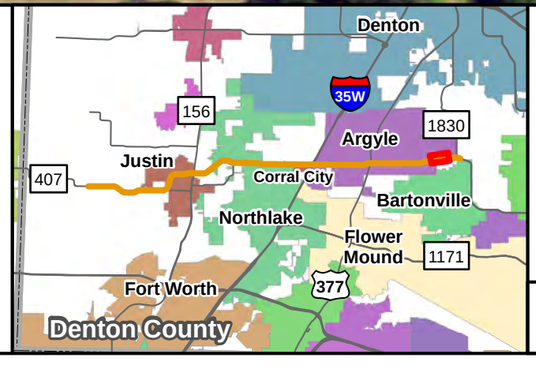
Legend

- Existing ROW
- Proposed ROW
- Project Location
- Existing Easements

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location
- Existing Easements

1830

End Project

407

Map ID 15

Stonebridge Rd

8400+00

8450+00

8500+00

8550+00

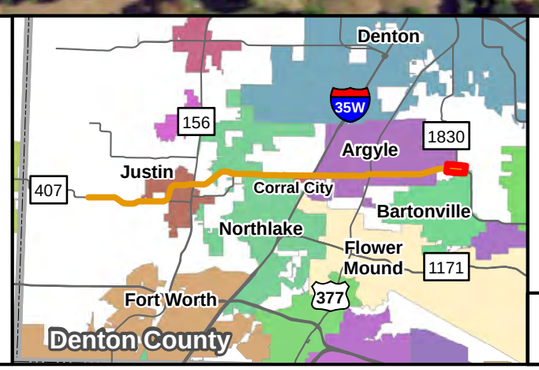
8600+00

8650+00

Figure 5
Hazardous Materials Sites Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



N
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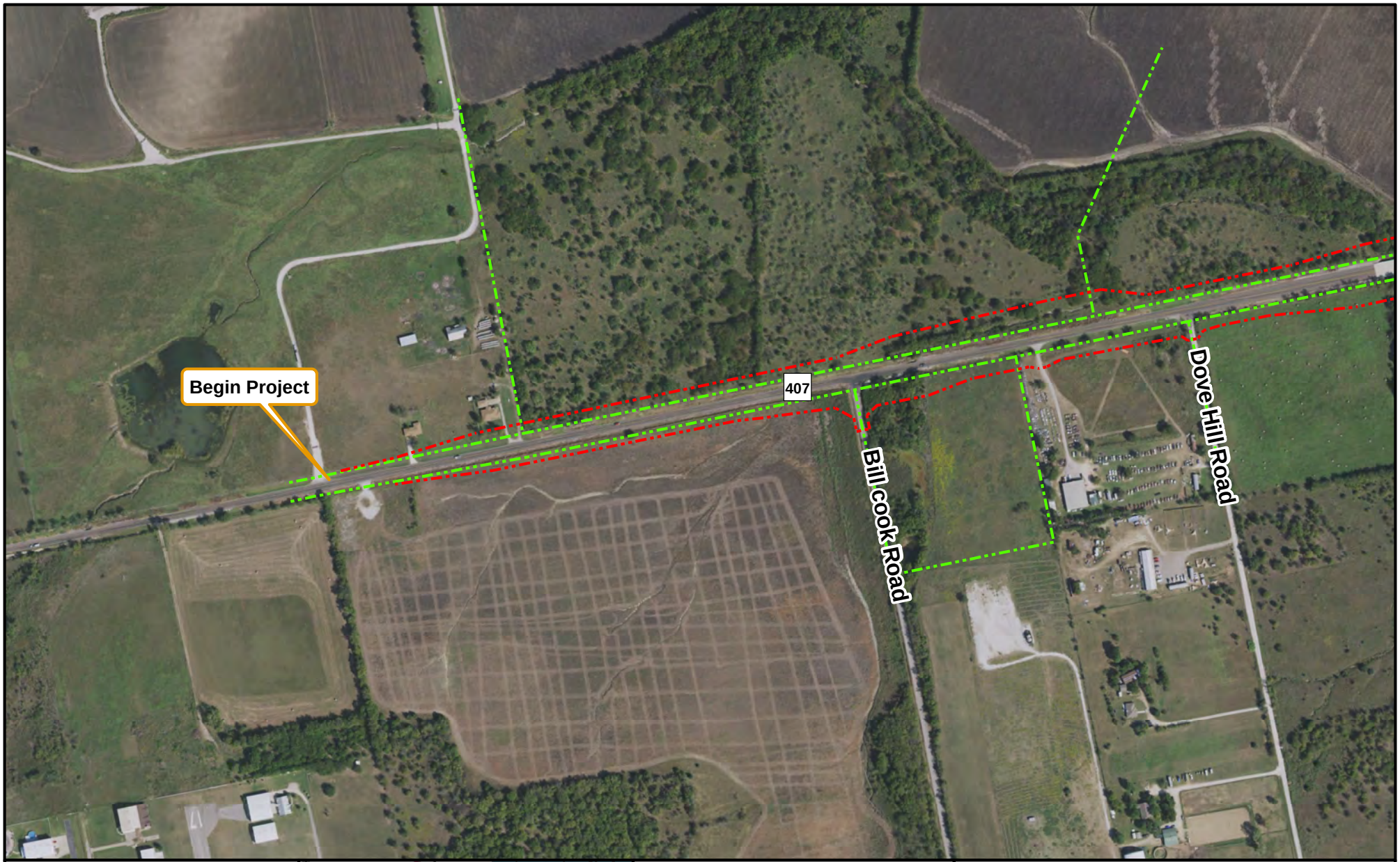
0 100 200 Feet

Base Map Source: TNRIS (2022)

Legend

- Existing ROW
- Proposed ROW
- Project Location
- Low Environmental Concern

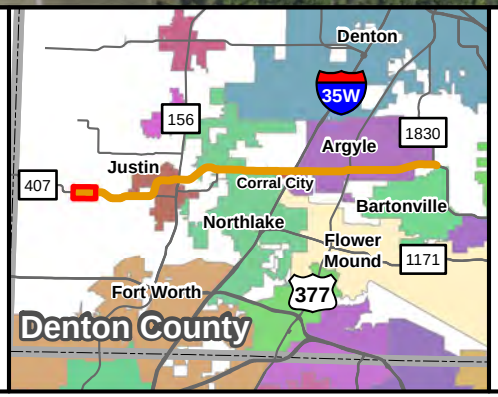


Noise Receiver Location Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

1 of 18



N
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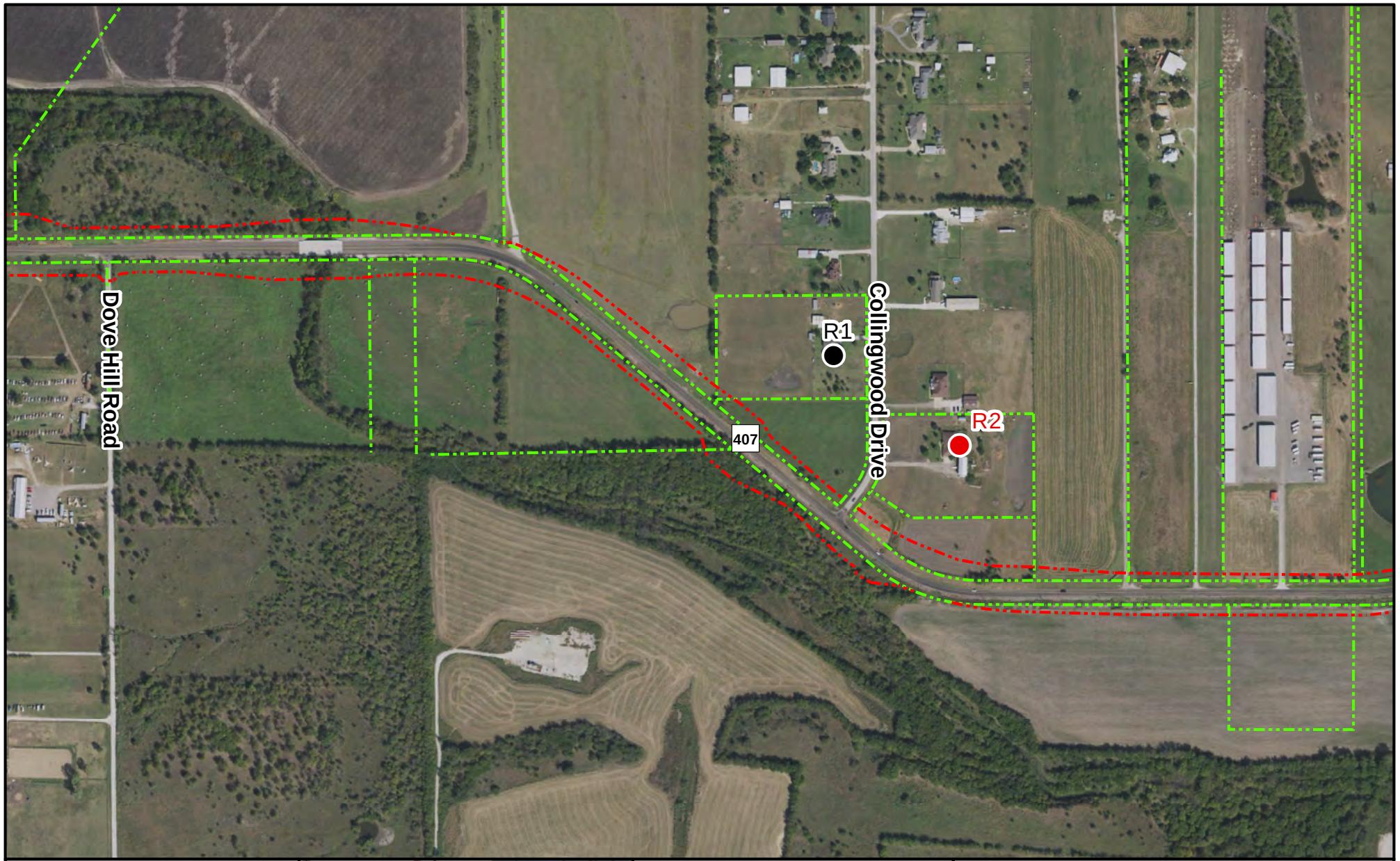
Feet

Legend

- Existing Right of Way
- Proposed Right of Way
- Non Impacted Receivers
- Impacted Receivers
- Impact-Benefitted Receivers
- Barriers Analyzed, Not Proposed
- Proposed Noise Barrier
- Background Measurements
- Validation Sites
- Camera Field of View

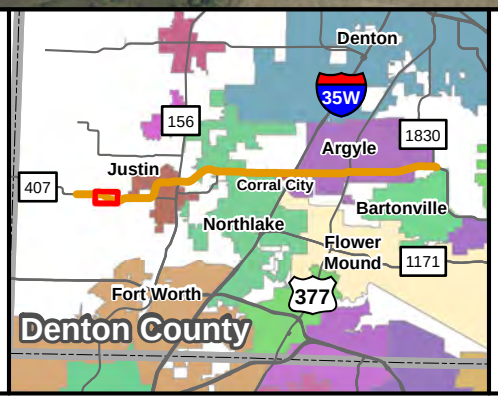


Noise Receiver Location Map FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

2 of 18



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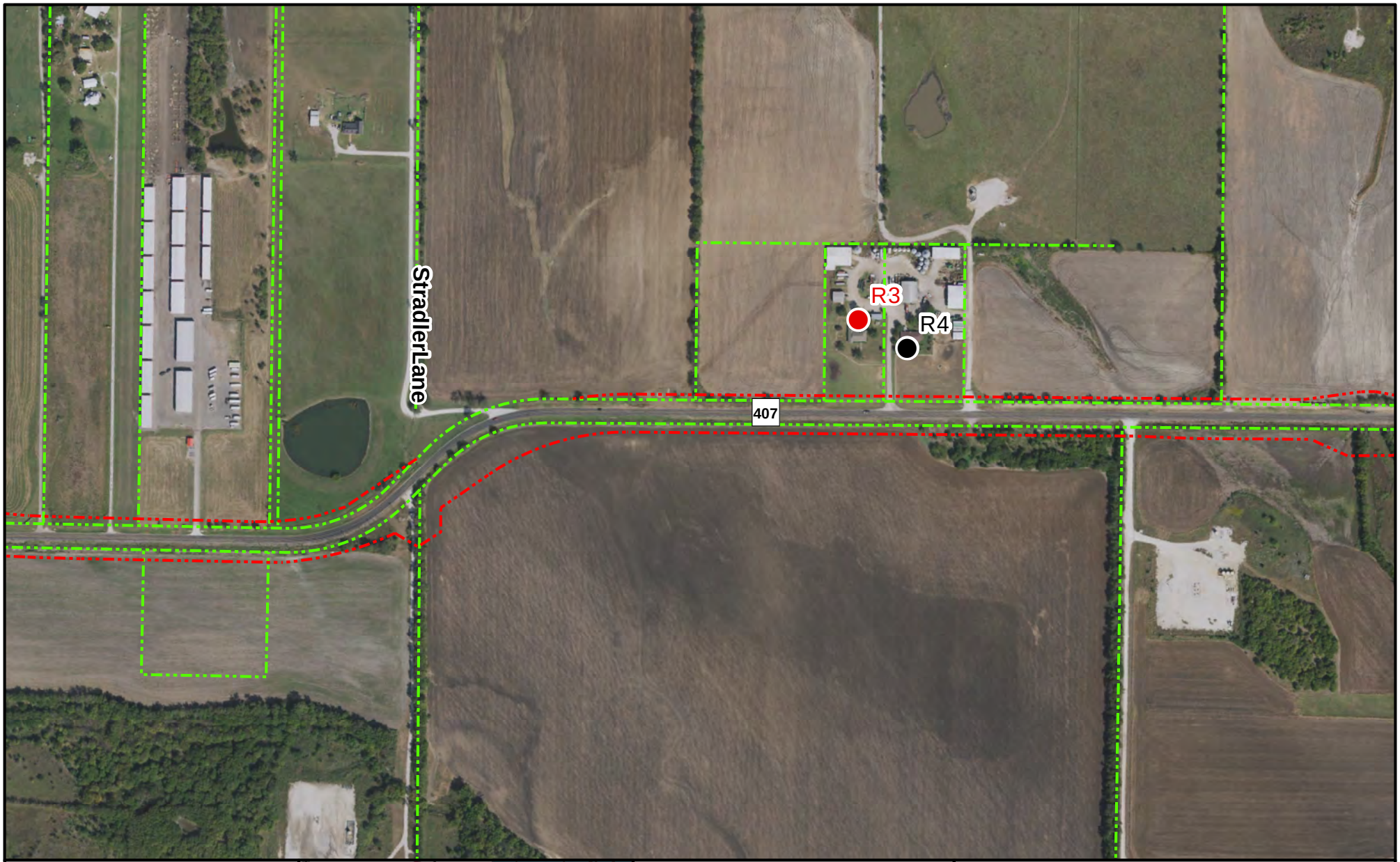
Feet

Legend

- Existing Right of Way
- Proposed Right of Way
- Non Impacted Receivers
- Impacted Receivers
- Impact-Benefitted Receivers
- Barriers Analyzed, Not Proposed
- Proposed Noise Barrier
- Background Measurements
- Validation Sites
- Camera Field of View

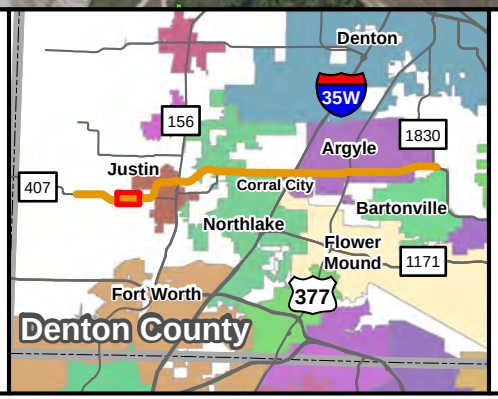


Noise Receiver Location Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

3 of 18



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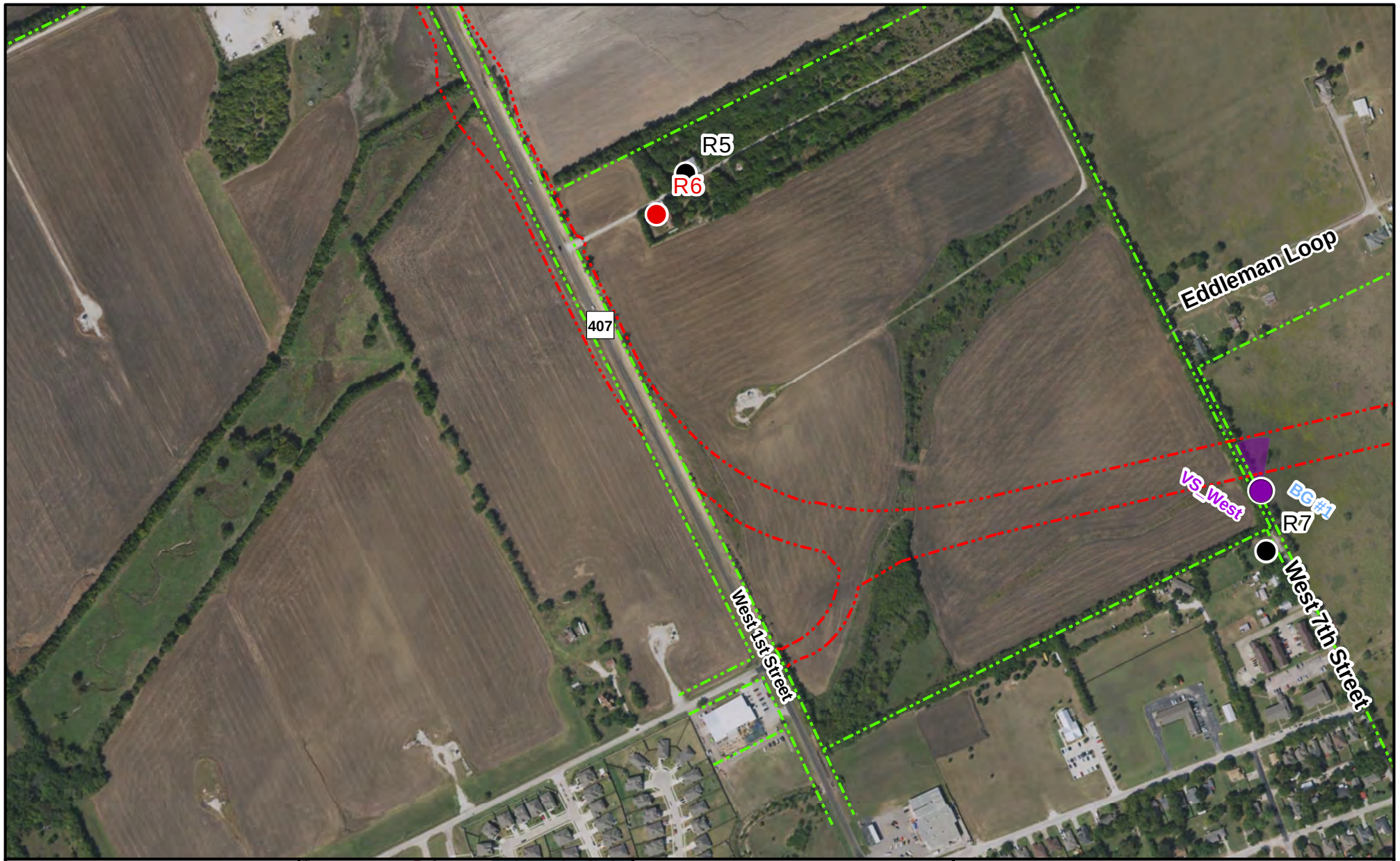
Feet

Legend

- Existing Right of Way
- Proposed Right of Way
- Non Impacted Receivers
- Impacted Receivers
- Impact-Benefitted Receivers
- Barriers Analyzed, Not Proposed
- Proposed Noise Barrier
- Background Measurements
- Validation Sites
- Camera Field of View



Noise Receiver Location Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

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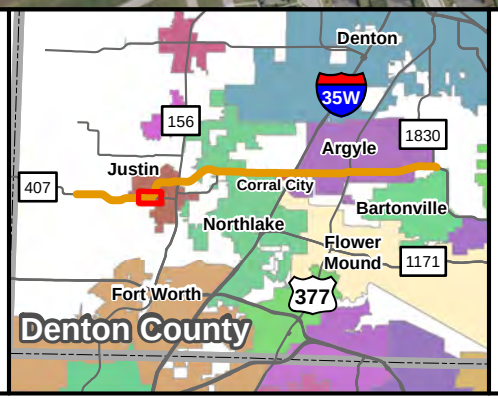

N
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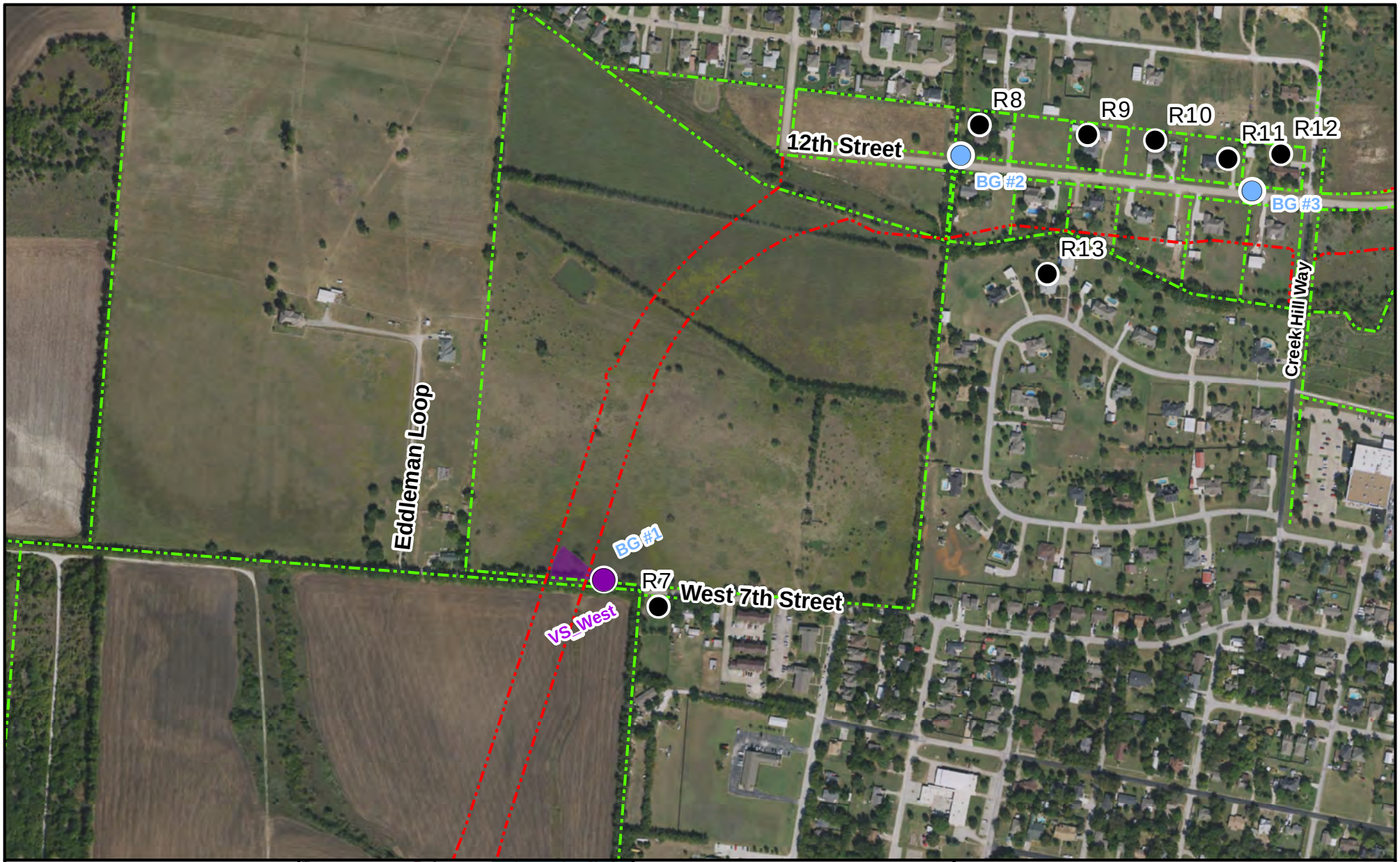
0 250 500
Feet

Legend

- Existing Right of Way
- Proposed Right of Way
- Non Impacted Receivers
- Impacted Receivers
- Impact-Benefitted Receivers
- Barriers Analyzed, Not Proposed
- Proposed Noise Barrier
- Background Measurements
- Validation Sites
- Camera Field of View



Noise Receiver Location Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

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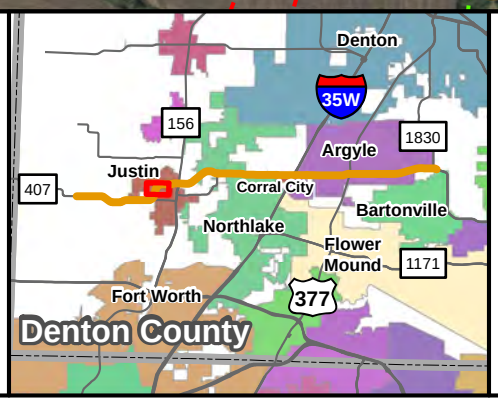

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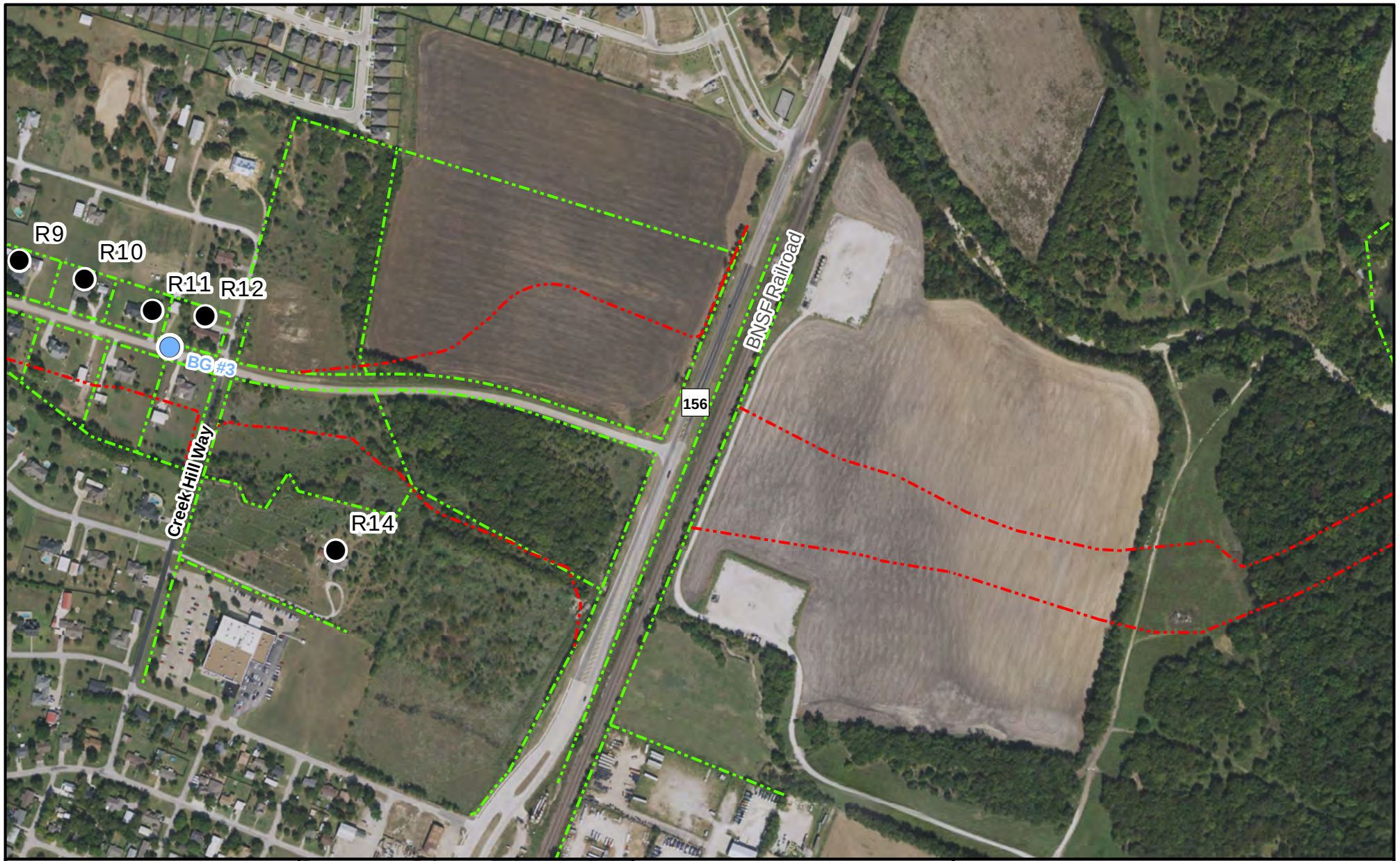
Feet

Legend

- Existing Right of Way
- Proposed Right of Way
- Non Impacted Receivers
- Impacted Receivers
- Impact-Benefitted Receivers
- Barriers Analyzed, Not Proposed
- Proposed Noise Barrier
- Background Measurements
- Validation Sites
- Camera Field of View



Noise Receiver Location Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

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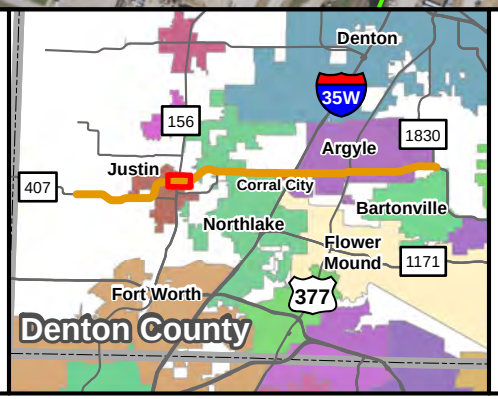

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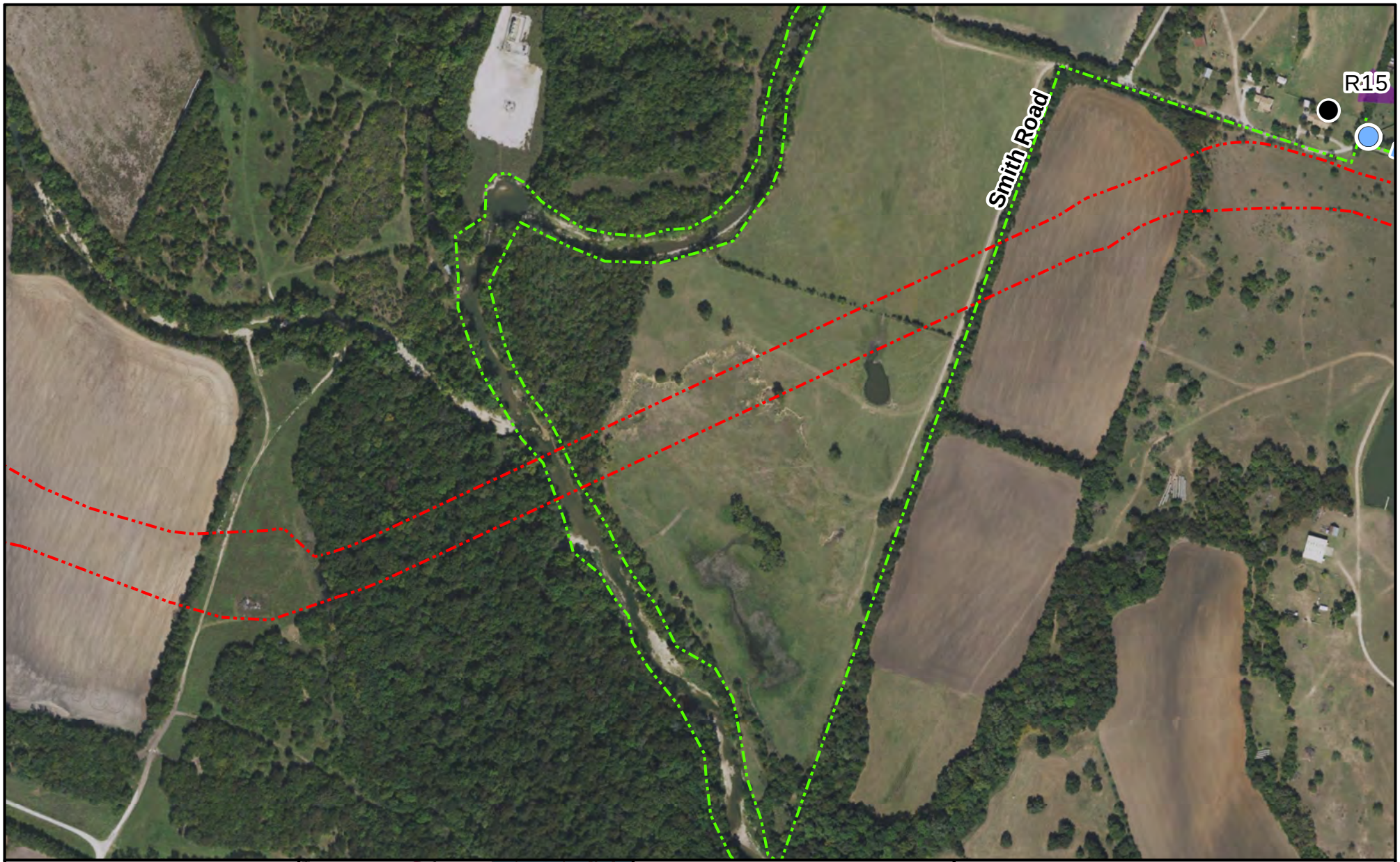
Legend

- Existing Right of Way
- Proposed Right of Way
- Non Impacted Receivers
- Impacted Receivers
- Impact-Benefitted Receivers
- Barriers Analyzed, Not Proposed
- Proposed Noise Barrier
- Background Measurements
- Validation Sites
- Camera Field of View



Noise Receiver Location Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

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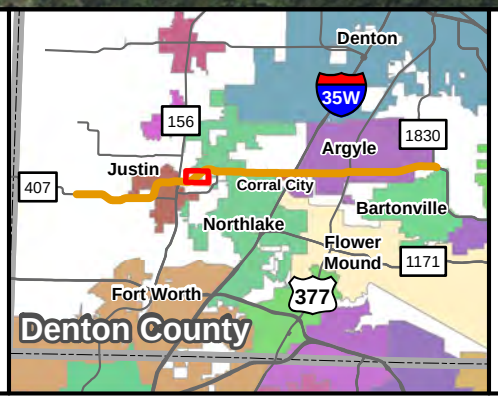

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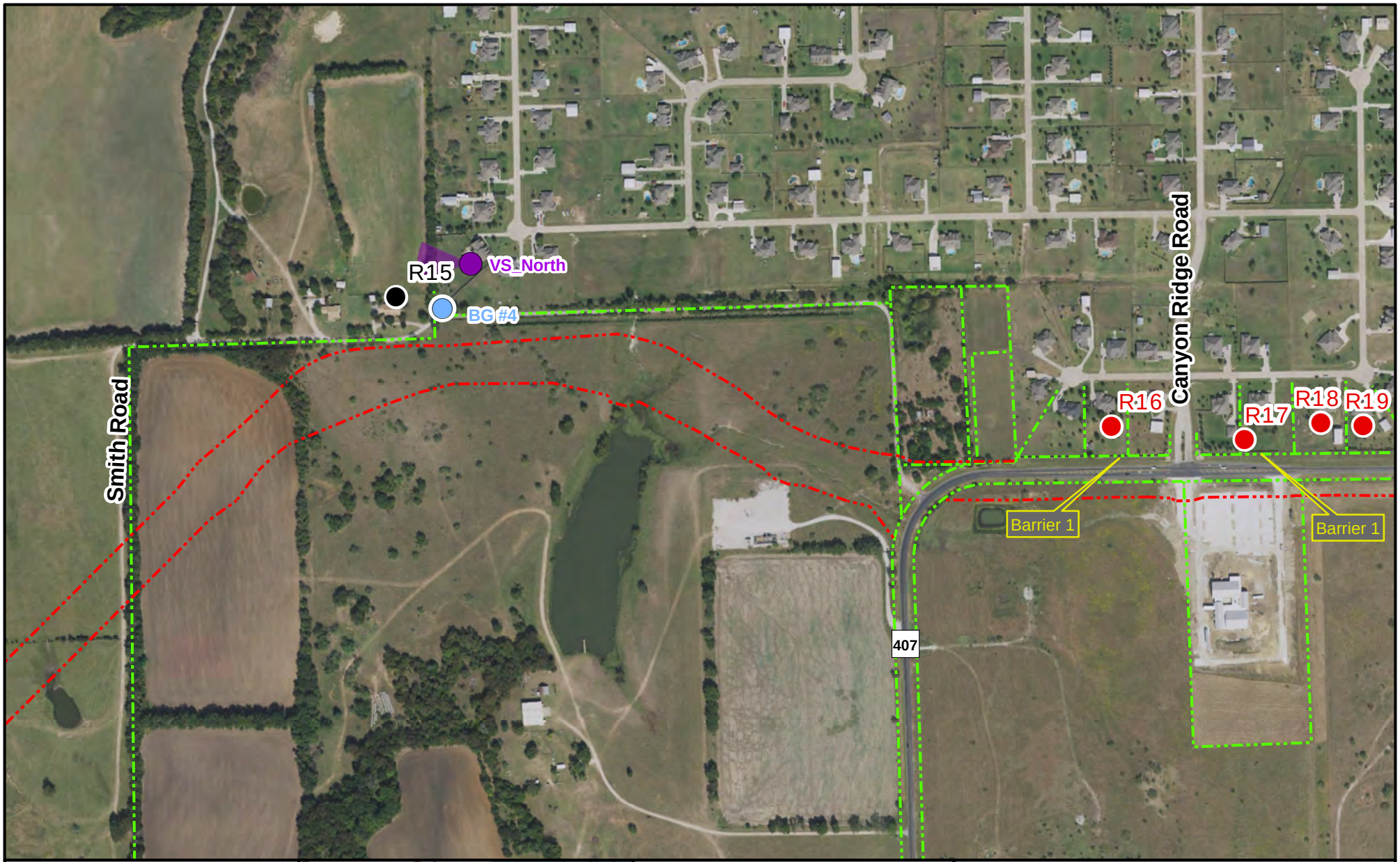
Feet

Legend

- Existing Right of Way
- Proposed Right of Way
- Non Impacted Receivers
- Impacted Receivers
- Impact-Benefitted Receivers
- Barriers Analyzed, Not Proposed
- Proposed Noise Barrier
- Background Measurements
- Validation Sites
- Camera Field of View



Noise Receiver Location Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

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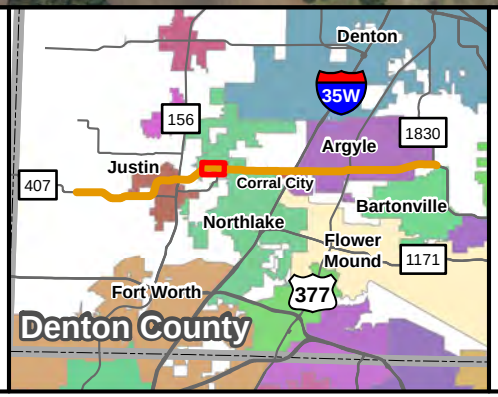

N
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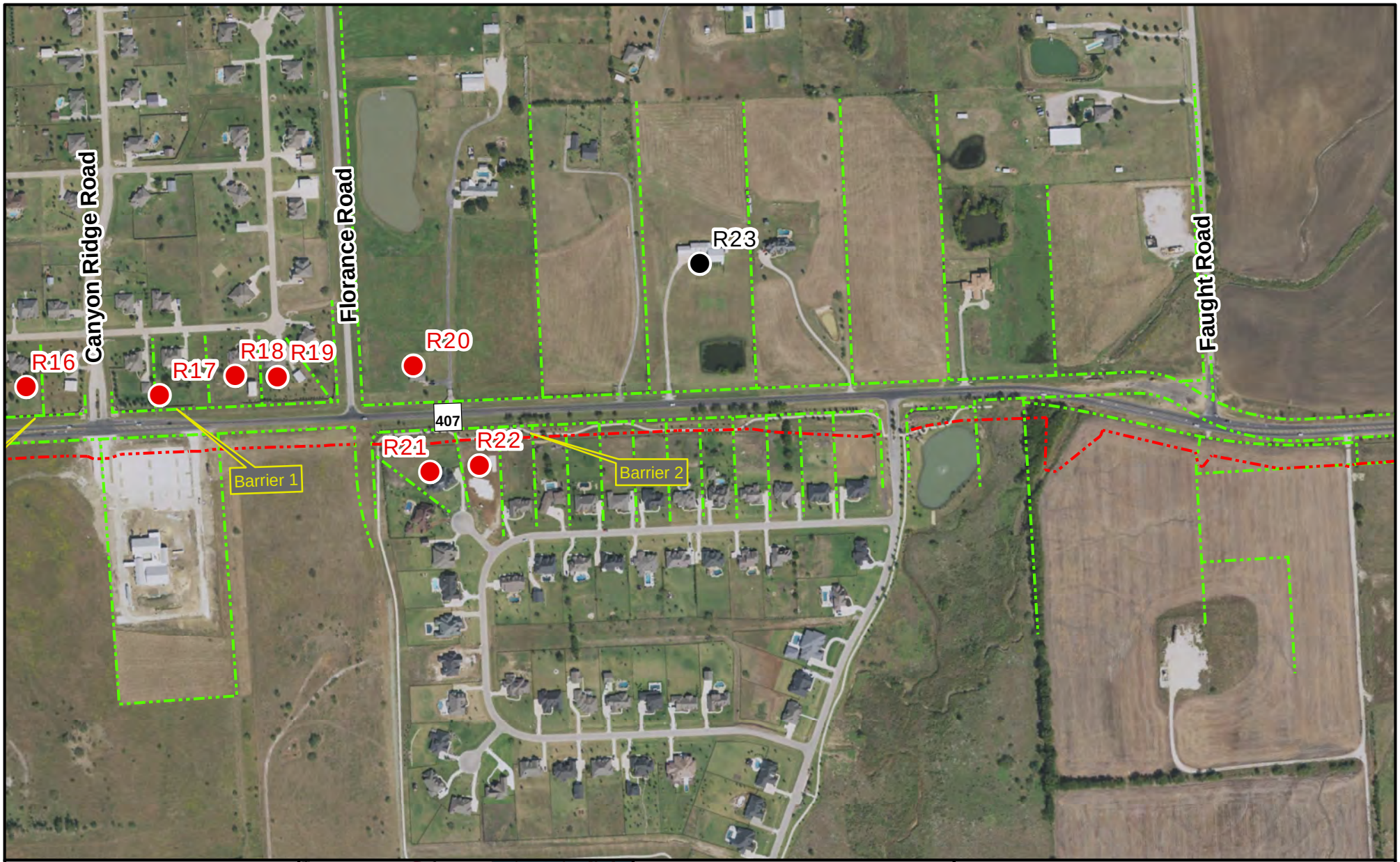
Feet

Legend

- Existing Right of Way
- Proposed Right of Way
- Non Impacted Receivers
- Impacted Receivers
- Impact-Benefitted Receivers
- Barriers Analyzed, Not Proposed
- Proposed Noise Barrier
- Background Measurements
- Validation Sites
- Camera Field of View



Noise Receiver Location Map FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048, 1310-01-049, 1568-02-016

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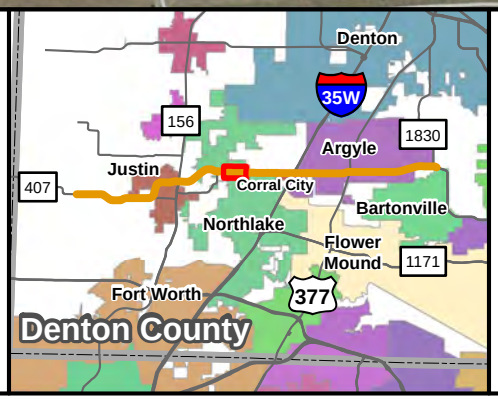

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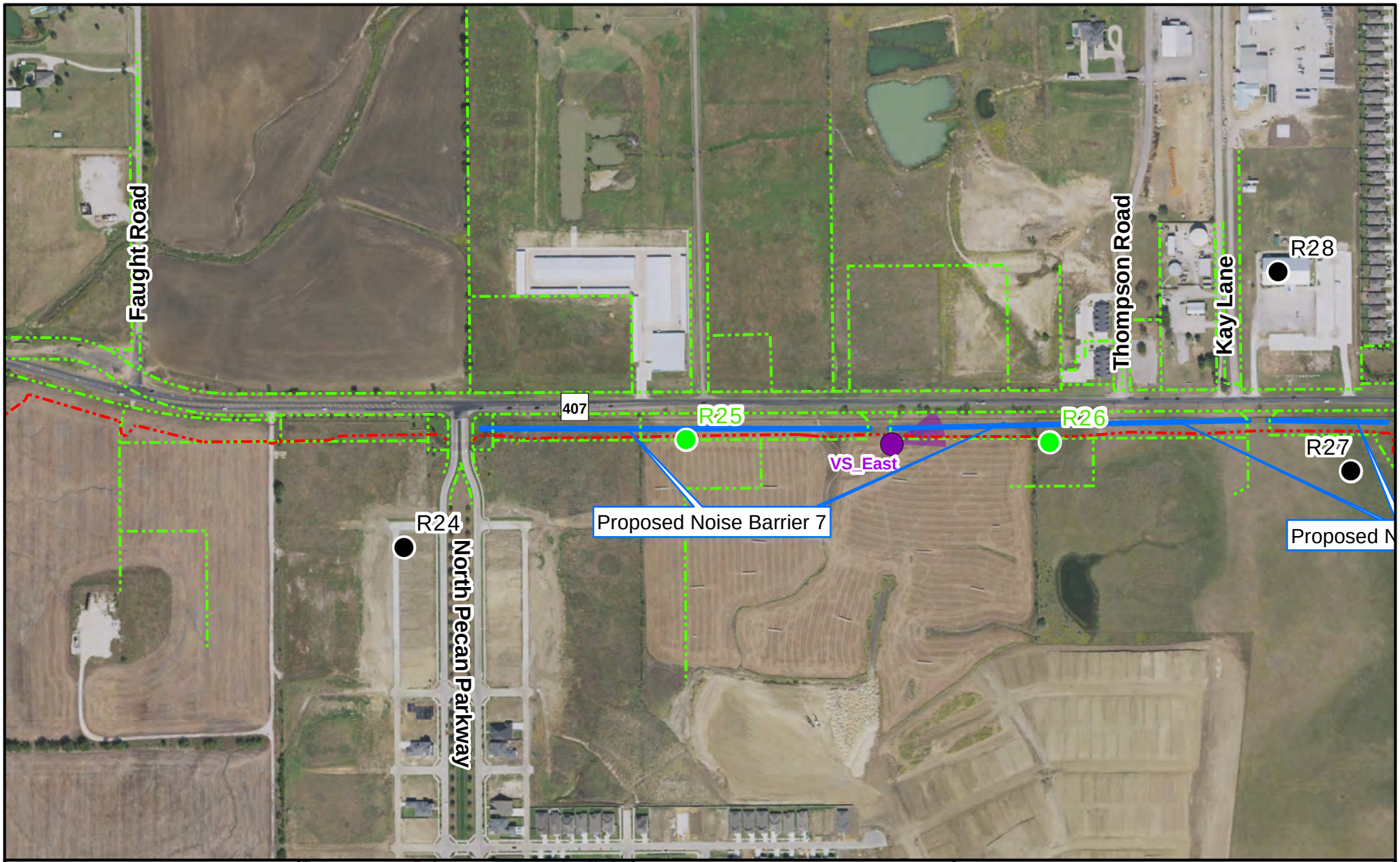
- Existing Right of Way
- Proposed Right of Way
- Non Impacted Receivers
- Impacted Receivers
- Impact-Benefitted Receivers
- Barriers Analyzed, Not Proposed
- Proposed Noise Barrier
- Background Measurements
- Validation Sites
- Camera Field of View

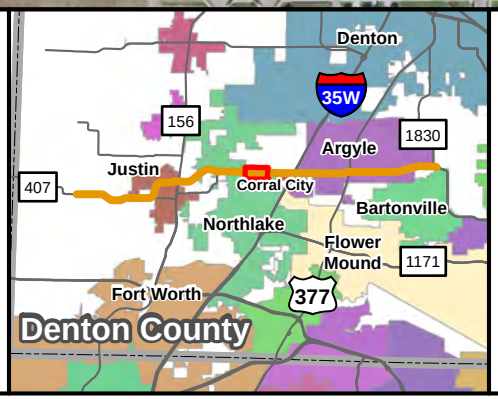


Noise Receiver Location Map FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

10 of 18



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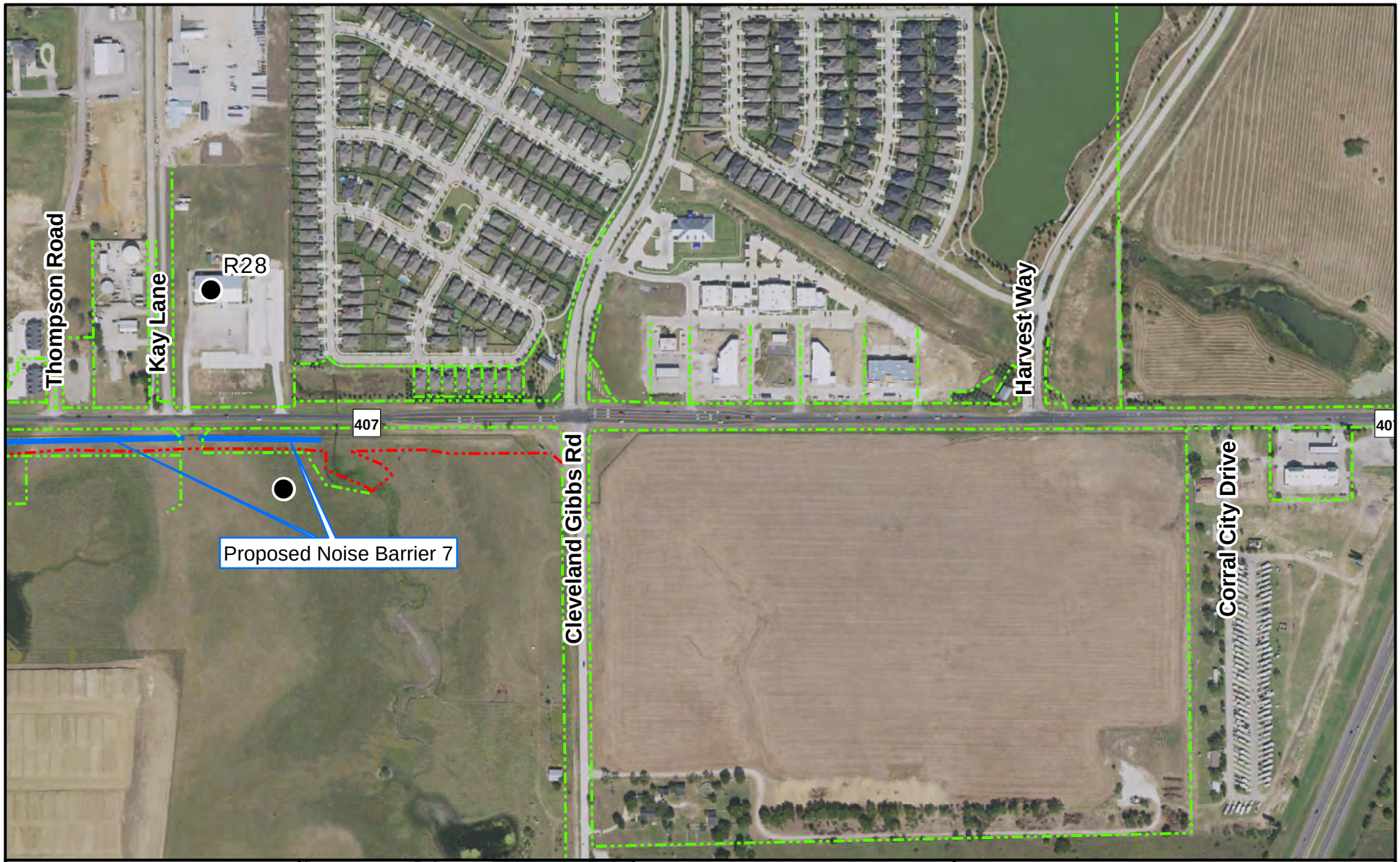

Noise Receiver Location Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

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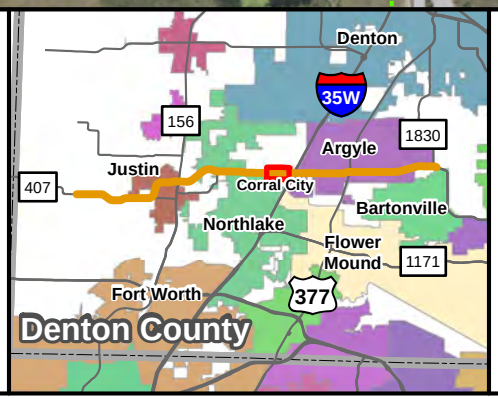

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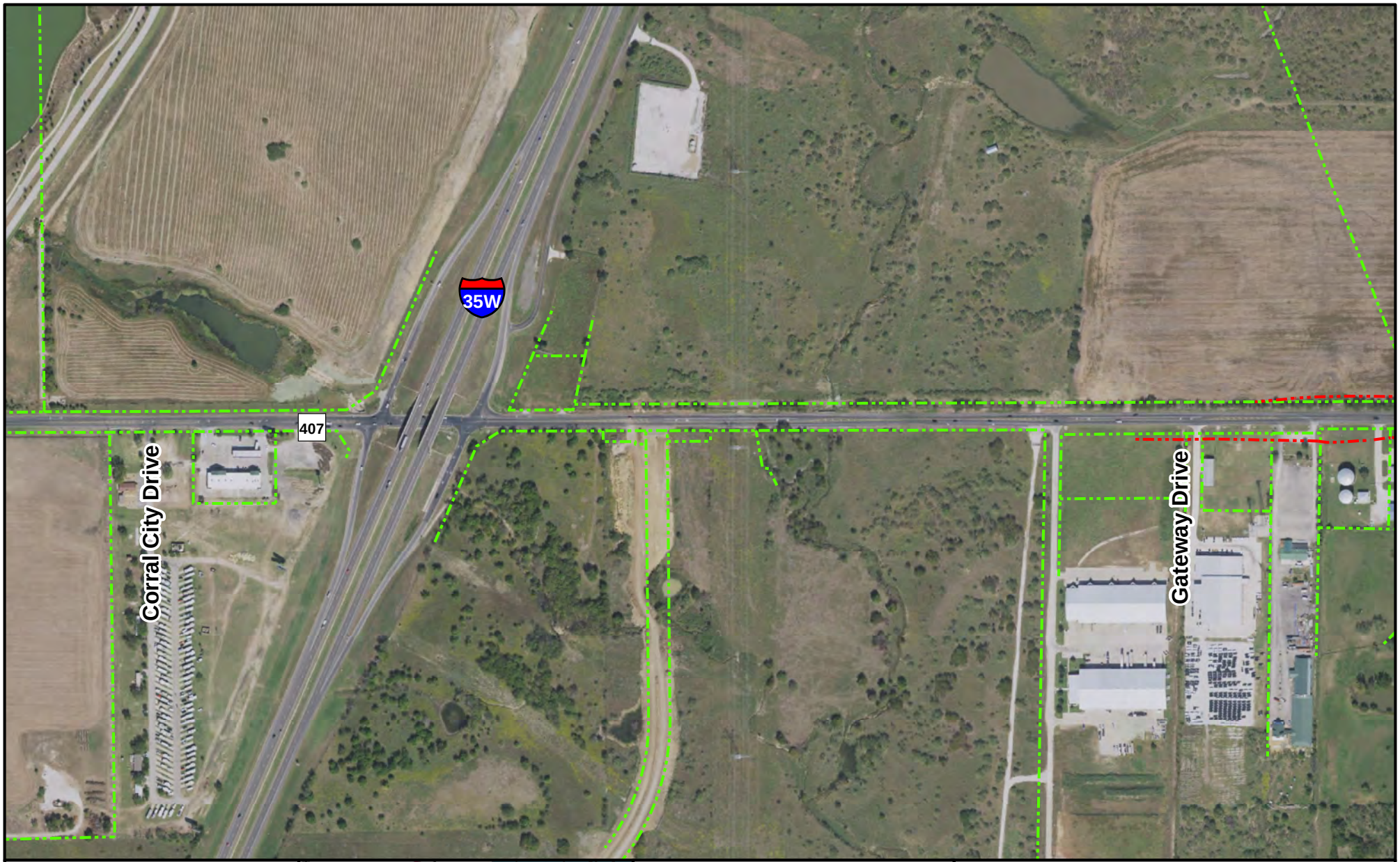

Noise Receiver Location Map FM 407

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CSJs: 1310-01-048,
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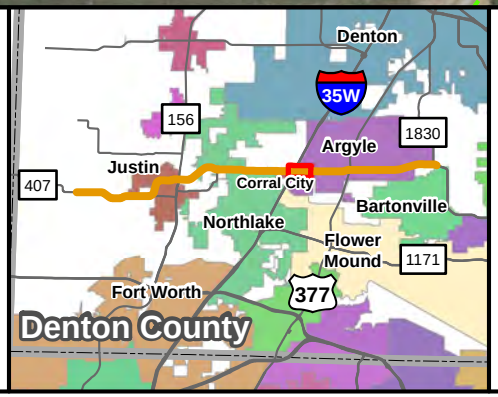

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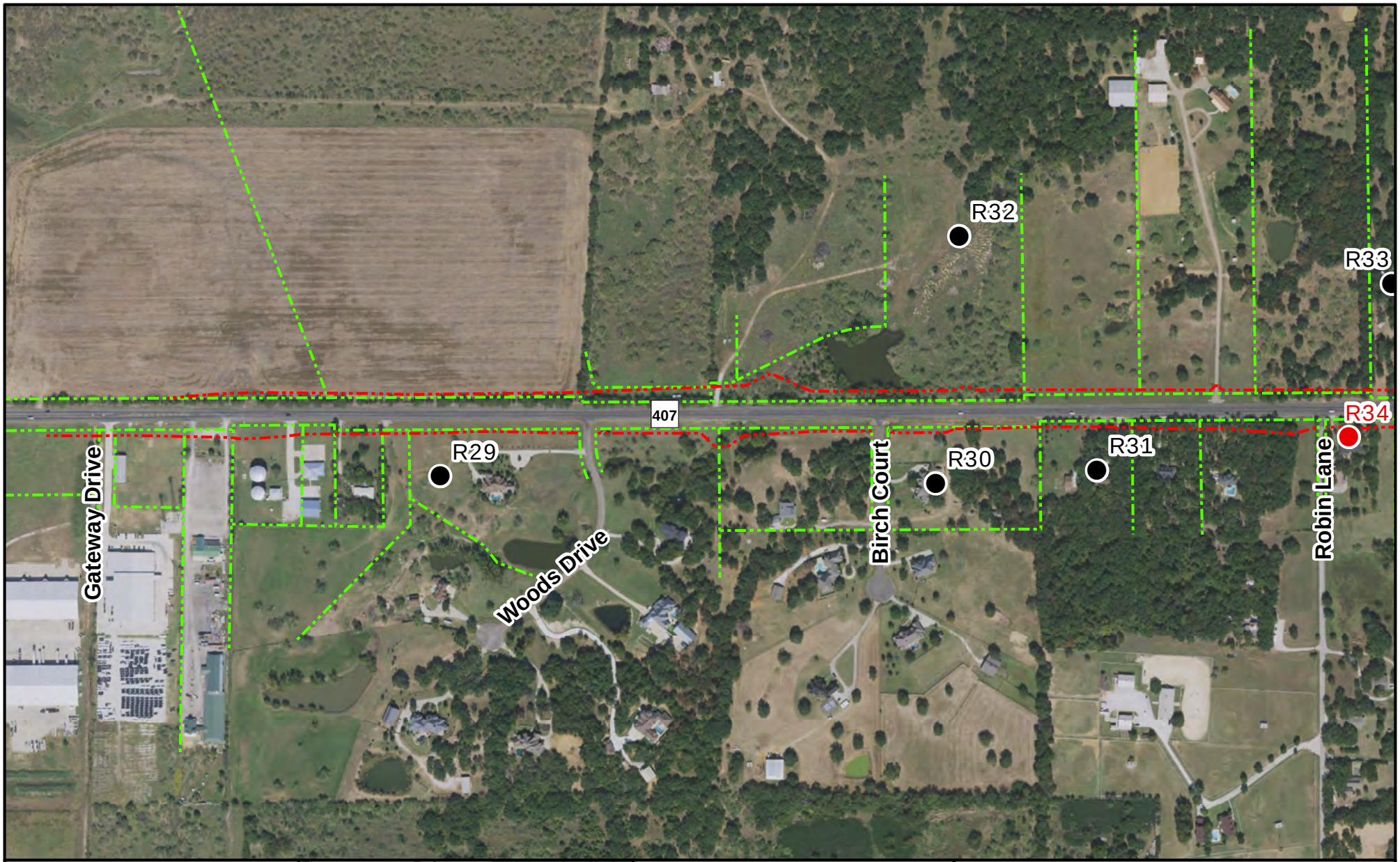
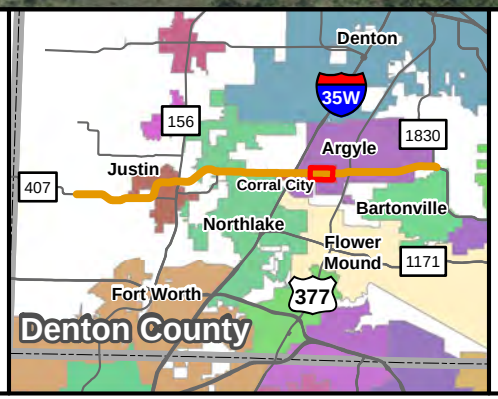


Noise Receiver Location Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

13 of 18



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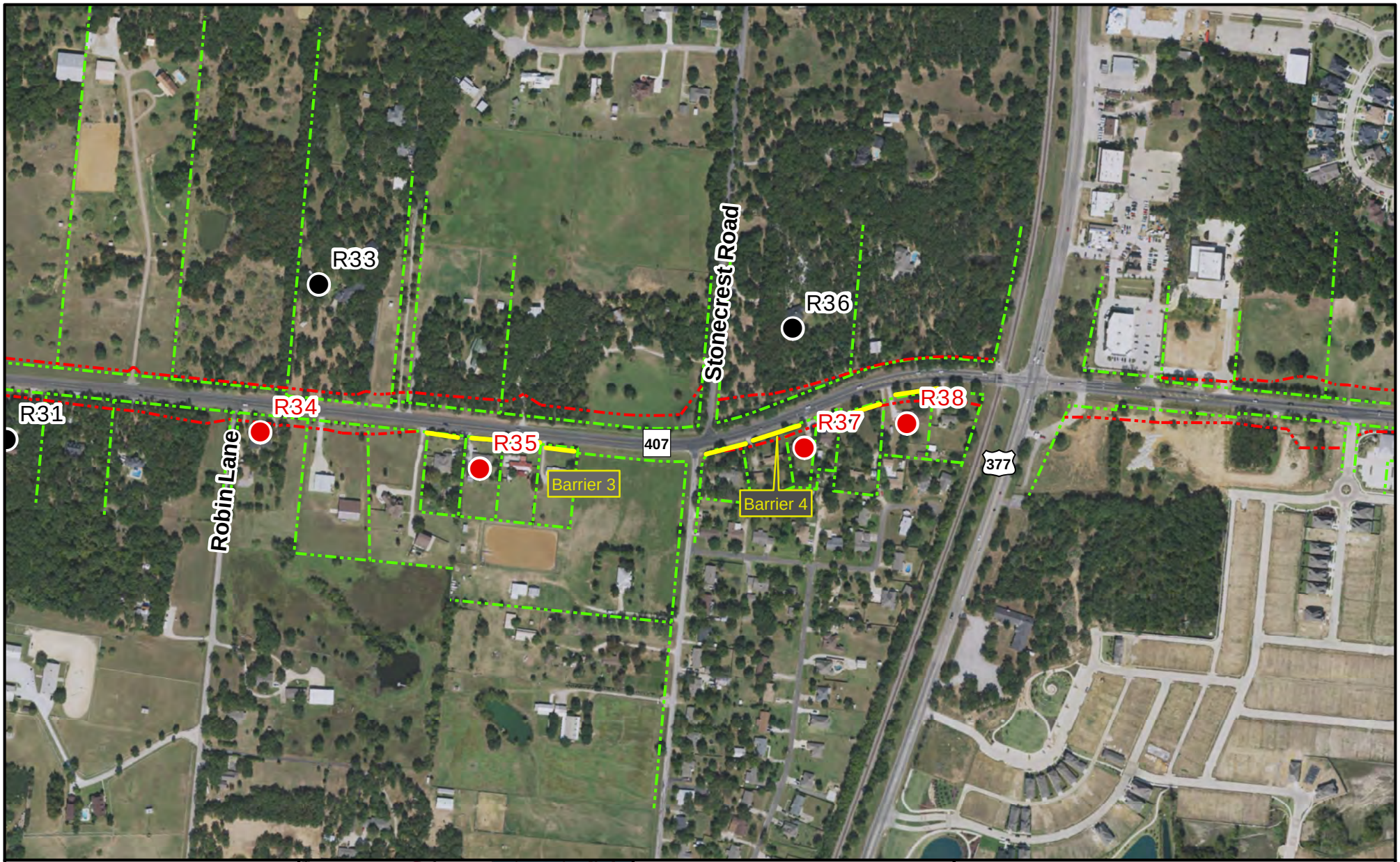

Noise Receiver Location Map FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

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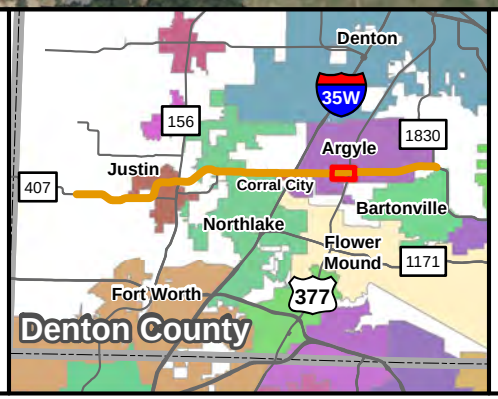

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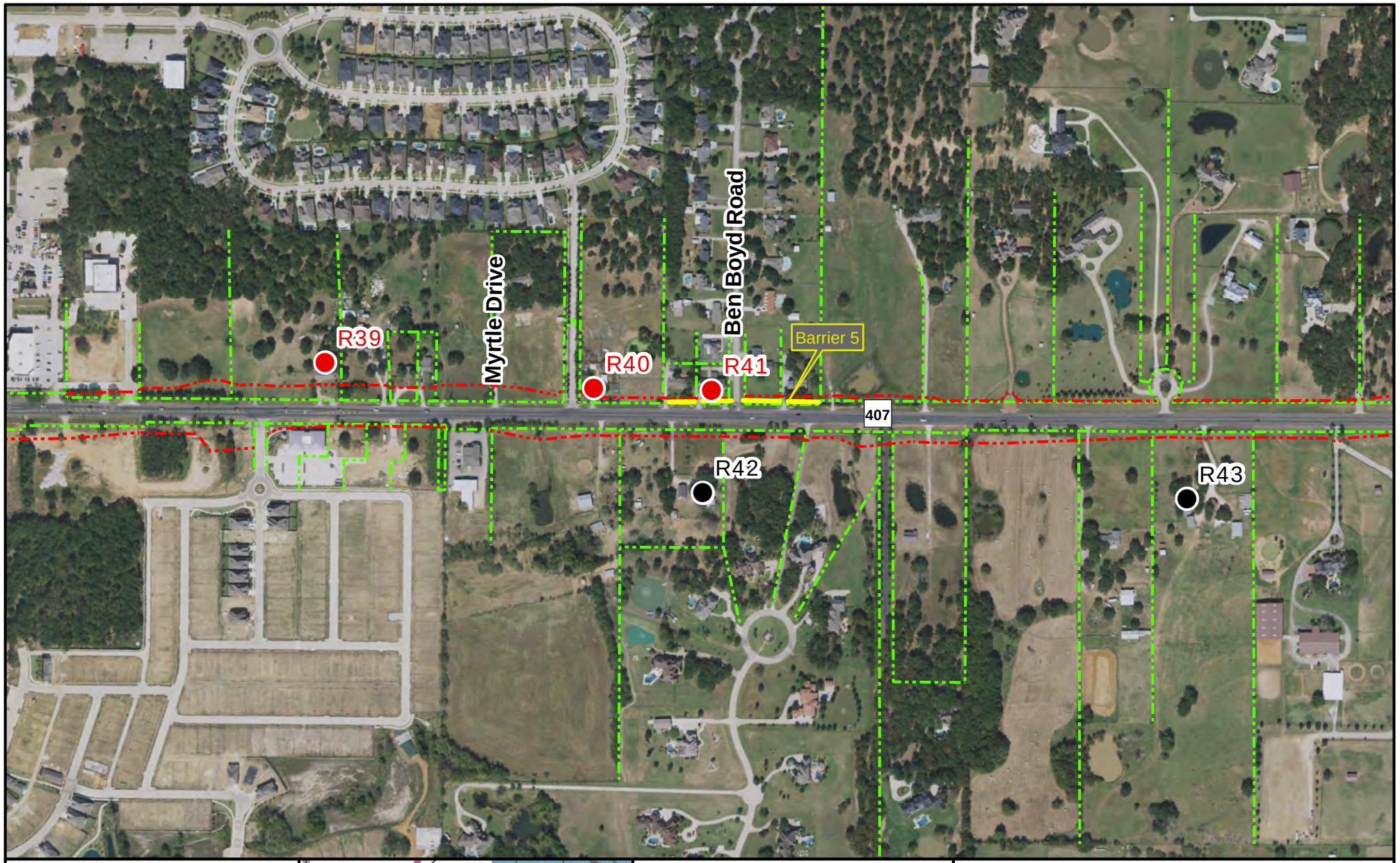

Noise Receiver Location Map FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

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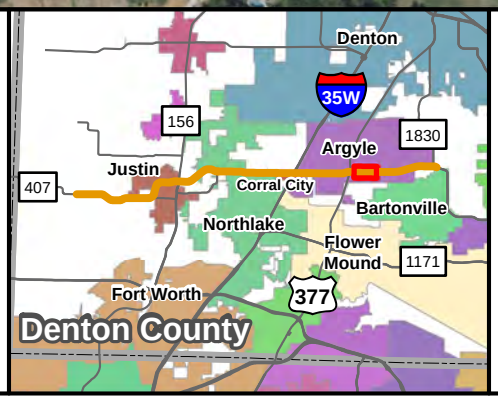

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Noise Receiver Location Map FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

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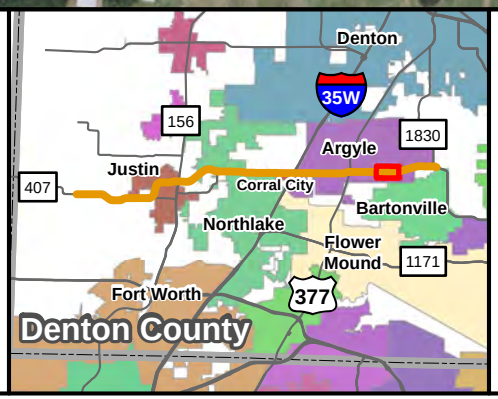

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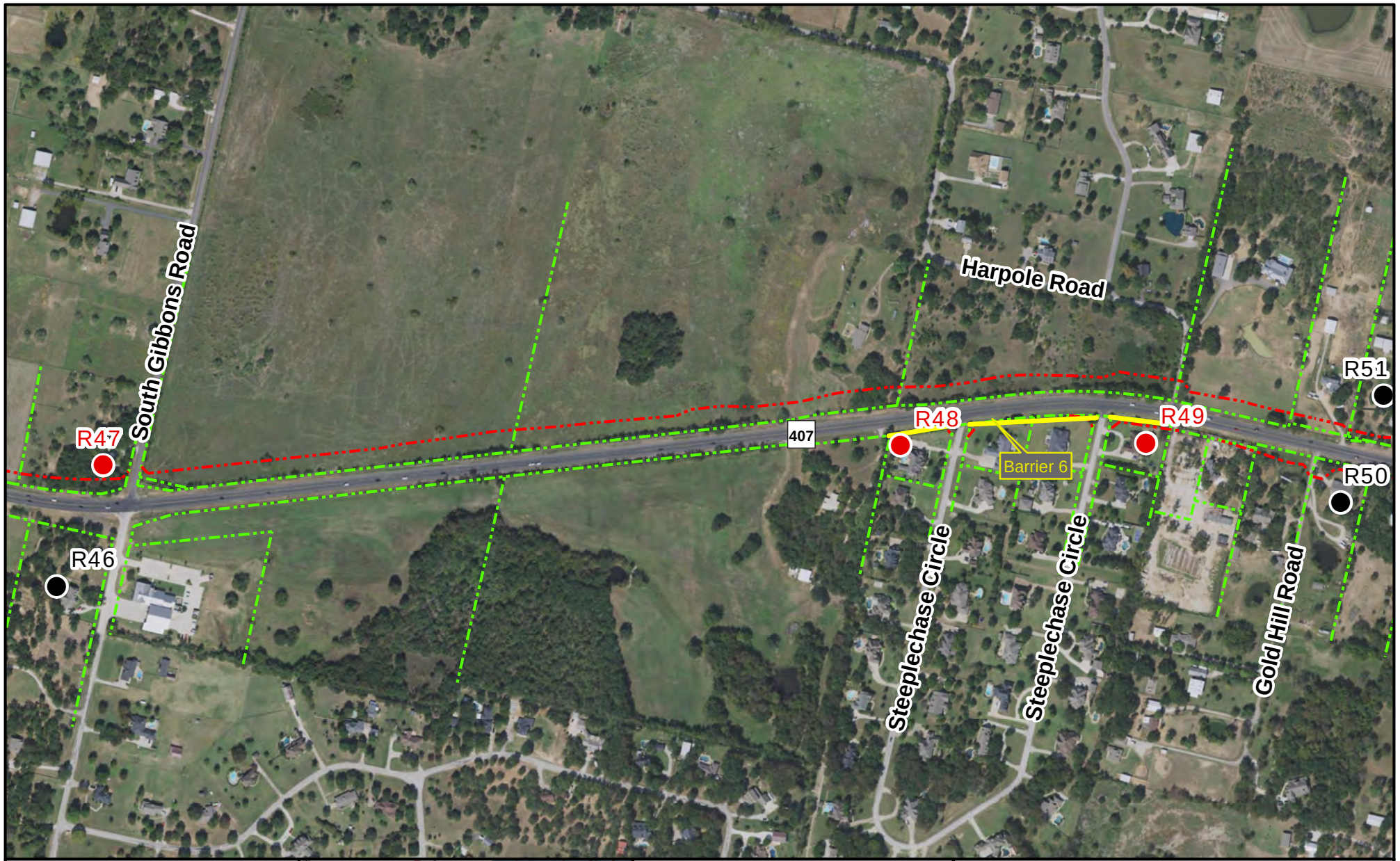

Noise Receiver Location Map FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

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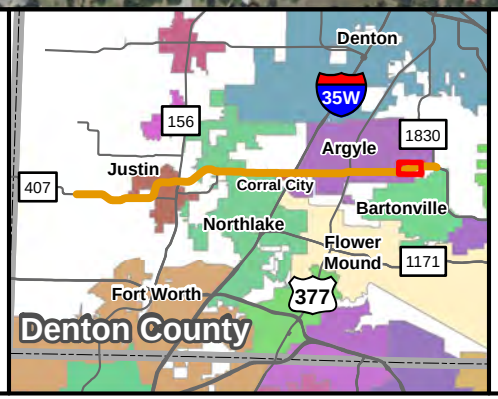

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Noise Receiver Location Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1310-01-048,
1310-01-049, 1568-02-016

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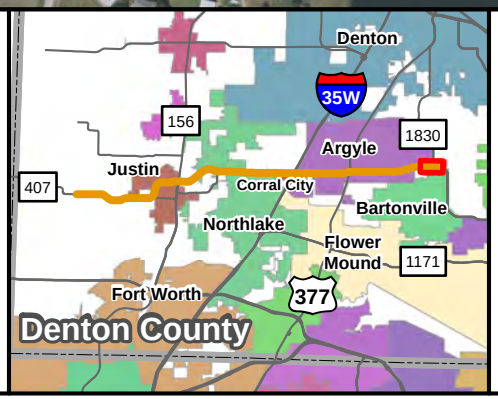

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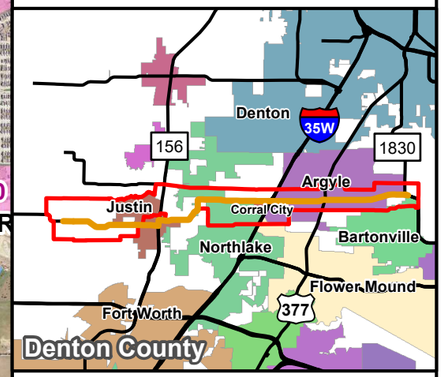
Figure 7
Indirect Impacts Map

FM 407
From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048,
1310-05-002, & 1310-01-049



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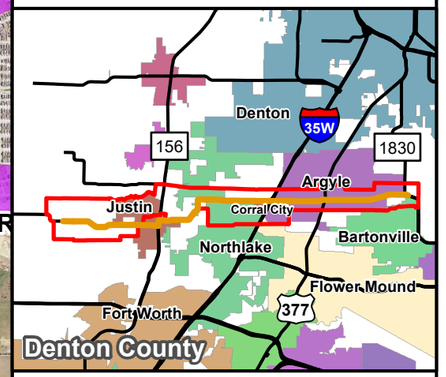
Legend

- Area of Influence
- Project Footprint
- Induced Growth
- Planned Development
- Development Under Construction
- Other TxDOT Project
- Stream
- Lake/Pond
- Potential Wetland
- 100-Year Floodplain

Figure 8
Cumulative Impacts Map
FM 407

From Bill Cook Road
To FM 1830
Denton County, TX

CSJs: 1568-02-016, 1310-01-048, 1310-05-002, & 1310-01-049



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Legend

- Area of Influence
- Project Location
- Induced Growth
- Foreseeable Actions
- Planned Actions
- Past/Present Actions (Under Construction)
- Other TxDOT Project
- 100-Year Floodplain

Base Map Source: TNRIS (2022)

Appendix F – Resource Agency Coordination

MEMO

September 24, 2024

TO: Administrative File
From: Renee Benn

District: Dallas
County: Denton
CSJ#: 1310-01-048, 1310-01-049 and 1568-02-016
Highway: FM 407
Project Limits: Bill Cook Rd to FM 1830 (about 12 miles)
Let Date: 2028
Project Summary: Widen from two to six lanes, some new alignment. New ROW required. No adverse effect to one historic property.

SUBJECT: Internal review under the Section 106 Programmatic Agreement (Section 106 PA) among the Texas Department of Transportation, Texas State Historic Preservation Officer, Advisory Council on Historic Preservation, and Federal Highway Administration; and the Memorandum of Understanding (MOU) between the Texas Historical Commission and the Texas Department of Transportation

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT.

Project Description

See attachment from TxDOT's Environmental Compliance Oversight System (ECOS) that describes the project, setting, and amount of right-of-way (ROW) and easements necessary for the project.

Determination of Eligibility

The TxDOT Section 106 PA defines the area of potential effects (APE) for this project as 150' (existing highway) and 300' (new location) from the existing and proposed ROW.

TxDOT historians reviewed the National Register of Historic Places (NRHP), the list of State Antiquities Landmarks (SAL), the list of Recorded Texas Historic Landmarks (RTHL), and TxDOT files and found no previously documented resources within the APE.

A historic resources survey report (HRSR) recorded 64 historic-age (built prior to 1983) properties in the APE. Property types include domestic, funerary, government, transportation and agricultural. TxDOT historians determined one of the properties NRHP-eligible:

> **208 Boss Range Road** (Property 05 in HRSR) is a circa 1905 two-story, Queen Anne-style house with wood siding and a hip-on-gable roof with three brick chimneys. Per the Justin Heritage Foundation, the house is known as the Gaston House after Stephen Gaston, an

area farmer who lived there with his family until 1915. The house has been vacant since around 2012 but is undergoing mothballing in preparation for future restoration, preservation, and use as a community center (Justin Heritage Foundation, 2024).

The house exhibits significant original architectural detailing and is a good surviving local example of the Queen Anne style. Despite the loss of the surrounding agricultural fields, it retains sufficient integrity of location, design, materials, workmanship, and feeling to convey its significance under *Criterion C*. It is therefore eligible for listing under *Criterion C* in the area of Architecture at the local level, with a period of significance (POS) of 1905. The NRHP boundary is limited to the existing parcel (*see Figure 5, page 314 of HRSR)*. For more information see pages 15-16 and 85-87 of HRSR.

The Gaston House lacks integrity of setting and association due to the loss of its surrounding fields and the construction of a modern neighborhood under construction around it on agricultural land formerly connected to the property. Although associated with the early 20th-century farming community in Justin, the complete loss of its associated farmland impacts its ability to convey this significance under *Criterion A*.

Stephen Gaston lived in the house for approximately 10 years before moving to south Texas. Although he and his family moved back to Justin in 1917, he lived and worked on a different property until his death 20 years later in 1937 (Justin Heritage Foundation, 2024). As such, the house does not hold significance under *Criterion B*.

The remaining historic-age properties are common designs that lack architectural merit, are not works of a master, and have no known historic associations with important events or persons, and are therefore not eligible for NRHP listing under *Criterion A*, *B*, or *C*.

Consultation

In May 2024, TxDOT sent a Section 106 letter with maps and photos to the Denton County Historical Commission (CHC) and asked about any known historic properties. To date, TxDOT has not received a response from the CHC.

Determination of Effects

Staff determined that the project poses no adverse effect to the historic property, given the following factors:

- There are no direct effects because no new ROW or easements will be acquired from the property and all construction activity will take place to the north of the property. The current and proposed roadway improvements are approximately 350 feet from the property's NRHP boundary.[1]

- There are no indirect adverse effects as the proposed roadway is shifting to the north of the current alignment, at grade. The new roadway will be located even further north of the property (*see map on page 308 of HRSR*). There is a grove of trees and proposed housing between the property and current and proposed alignment which will further shield it from effects.

[1] Note the HRSR states the property is 570' from the ROW, but that is the distance between the actual resource and the ROW, not the limit of the NRHP boundary (parcel boundary) to the ROW.

- There are no reasonably foreseeable cumulative effects now or in the future because there are no adverse direct or indirect effects.

Therefore, pursuant to Stipulation X, Appendix 6 “Undertakings with the Potential to Cause Effects per 36 CFR 800.16(i)” of the Section 106 PA and the MOU, TxDOT historians determined that there are no adverse effects to one historic, non-archeological property in the APE. In compliance with the Antiquities Code of Texas and the MOU, TxDOT historians determined project activities have no potential for adverse effects. Individual project coordination with SHPO is not required.

HIST Program Lead DocuSigned by: Jennifer Carpenter 2C1488B09CFC41C... for TxDOT 9/24/2024

Jennifer Carpenter Date

Project description from ECOS:

WPD Section I - Project Definition | WPD Section II - Tool | WPD Section III - Project Work Plan | WPD Section IV - Findings

Print this Page

Project Definition

Project Name: CSJ 1310-01-048, ETC - FM 407

CSJ: 1310 - 01 - 048

Anticipated Environmental Classification: EA

No — Is this an FHWA project that normally requires an EIS per 23 CFR 771.115(a)?

Project Association(s)

Auto Associate CSJ from DCIS

Manually Associate CSJ:

CSJ	DCIS Funding	DCIS Number	Env Classification	DCIS Classification	Main or Associate	Doc Tracked In	Actions
CSJ:131001049	Federal,State		EA	WNF	Associate	Main	
CSJ:156802016	Federal,State		EA	WNF	Associate	Main	
CSJ:156802017	State	ROW 1568-2-17	EA	ROW	Associate	Main	
CSJ:131001053	State	ROW 1310-1-53	EA	ROW	Associate	Main	
CSJ:131001054	State	ROW 1310-1-54	EA	ROW	Associate	Main	

DCIS Project Funding and Location

Funding

DCIS Funding Type: ☑ Federal ☑ State ☐ Local ☐ Private

Location

DCIS Project Number: | Highway: FM 407

District: DALLAS | County: DENTON

Project Limit -- From: FM 156

Project Limit -- To: WEST OF IH 35W

Begin Latitude: + 33 . 1014186 | Begin Longitude: - 97 . 2630938

End Latitude: + 33 . 1045498 | End Longitude: - 97 . 1398557

DCIS & P6 Letting Dates

DCIS District: 08/45 DCIS Approved: DCIS Actual:

P6 Ready To Let: P6 Proposed Letting:

DCIS Project Description

Type of Work: Spell

Layman's Description:
WIDEN ROAD - ADD LANES

DCIS Project Classification: WNF - WIDEN NON-FREEWAY

Design Standard:

Roadway Functional Classification: 4 - Minor arterial road or street

Jurisdiction

No — Does the project cross a state boundary, or require a new Presidential Permit or modification of an existing Presidential Permit?

Who is the lead agency responsible for the approval of the entire project?

☑ FHWA - Assigned to TxDOT ☐ TxDOT - No Federal Funding ☐ FHWA - Not Assigned to TxDOT

TXDOT — Who is the project sponsor as defined by 43 TAC 2.7?

No — Is a local government's or a private developer's own staff or consultant preparing the CE documentation, EA or EIS?

Yes — Does the project require any federal permit, license, or approval?

☑ USACE ☐ IBWC ☐ USCG ☐ NPS ☐ IAJR ☐ Other

No — Does the project occur, in part or in total, on federal or tribal lands?

Environmental Clearance Project Description

Project Area

Typical Depth of Impacts: 2 (Feet) Maximum Depth of Impacts: 10 (Feet)

New ROW Required: 160 (Acres)

New Perm. Easement Required: 0 (Acres) New Temp. Easement Required: 0 (Acres)

Project Description

Describe Limits of All Activities: Spell

The limits of all activities will extend for a total of 11.5 miles along FM 407 and on new location, from approximately 0.38 miles west of Bill Cook Road to 0.11 miles east of FM 1830 in Denton County, Texas. Activities would also include improvements along FM 156 from approximately 0.23 miles north to 0.17 miles south of 12th Street. The project will require the acquisition of approximately 70 feet of additional right-of-way, resulting in a new typical right-of-way width of approximately 150 feet that varies between 142 and 182 feet wide.

Describe Project Setting: Spell

The proposed project setting is a mix of rural and urban land, with large areas of undeveloped farm and ranch land along much of its limits. Areas of development can be found along the project in and around the cities of Justin, Northlake, Corral City (aka Draper), Argyle, and Bartonville, and include residential, commercial, and industrial land uses, as well as community facilities such as schools and parks. The project setting also includes Denton Creek, Fincher Branch, Graham Branch, Trail Creek, Whites Branch, various tributaries, and associated floodplains, with forested and riparian vegetation. Vegetation outside of the floodplains is primarily open scrubland, cultivated farmland, or mowed-maintained grass.

Describe Existing Facility:

The existing FM 407 consists of one 11-foot lane and one variable 0- to 3-foot outer shoulder in either direction. The existing FM 156 is generally one 12-foot lane in either direction with 3 to 10-foot shoulders on either side. Both roadways are at grade and non-controlled. Drainage is conveyed through parallel ditches. The typical right-of-way width along FM 407 is 80 to 120-foot (90-foot usual) and FM 156 varies from 117 to147-foot. There is an existing (TYPE T-552) bridge present over Trail Creek.

Describe Proposed Facility: (696 characters left) Spell

The proposed project would primarily take place along the existing FM 407 with additional right-of-way acquisition on either side of the road beginning approximately 0.38 miles west of Bill Cook Road and would include two new bridges over Trail Creek: one TX 54 I-Girder bridge spanning 140 feet and one TX 40 and TX 62 I-Girder bridge spanning 266 feet. Both bridges would include three 12-foot-wide travel lanes in each direction separated by an 18-foot-wide raised curbed median with 2-foot shoulders, a 1-foot outside rail barrier adjacent to a 10-foot outside, curbed shared-use path on one side of the bridge, and a 1-foot outside rail barrier on the opposite side of the bridge adjacent to a 6-foot outside, curbed sidewalk.
From approximately 850 feet west of Boss Range Road, the proposed project would realign FM 407 north/northeastward through agricultural fields, intersecting W 7th Street, and turning due east to be parallel to 12th Street. Boss Range Road would be extended north approximately 500 feet to intersect the realigned FM 407. The 12th Street intersection with FM 156 would be removed and the proposed project would include one TX 40 and TX 54 I-Girder bridge spanning 420 feet over the BNSF Railway and FM 156. This bridge would include three 12-foot-wide travel lanes in each direction separated by an 18-foot-wide raised curbed median with 2-foot shoulders, a 1-foot outside rail barrier adjacent to a 10-foot outside shared-use path on one side of the bridge, and a 1-foot outside rail barrier on the opposite side of the bridge. Jughandle-shaped access ramps are proposed to connect FM 407 to FM 156 and be supported by earthen embankments and bridges. These ramp bridges would include one 12-foot-wide lane in each direction with a 2-foot shoulder. The proposed FM 156 would include two 12-foot travel lanes in either direction with a 12- to 24-foot-

Yes **Would the project add capacity?**

Describe Proposed Facility: (696 characters left) Spell

outside rail barrier on the opposite side of the bridge. Jughandle-shaped access ramps are proposed to connect FM 407 to FM 156 and be supported by earthen embankments and bridges. These ramp bridges would include one 12-foot-wide lane in each direction with a 2-foot shoulder. The proposed FM 156 would include two 12-foot travel lanes in either direction with a 12- to 24-foot-wide raised median and one 5-foot-wide sidewalk on the west side. FM 407 and FM 156 drainage would primarily be conveyed through curb and gutter.
The proposed project alignment would continue east on a new location alignment and bridge over Denton Creek via one TX 54 I-Girder bridge composed of three 12-foot-wide travel lanes in each direction separated by an 18-foot-wide raised curbed median with 2-foot shoulders, a 1-foot outside rail barrier adjacent to a 10-foot outside shared-use path on one side of the bridge, and a 1-foot outside rail barrier on the opposite side of the bridge amounting to a total maximum bridge length of 2,184 feet.
The proposed project would continue east of Denton Creek, intersecting various private driveways until reaching the existing intersection of FM 407 and Smith Road where the proposed alignment would again match the existing FM 407 alignment. The project would continue east intersecting private driveways, municipal streets, and highways until reaching Cleveland-Gibbs Road where construction would stop (west of I-35W) and resume at Gateway Drive located approximately 1.13 miles east of I-35W; the portion of FM 407 between Cleveland-Gibbs Road and Gateway Drive will be improved under a different FM 407 project. The proposed project would continue eastward along the existing FM 407 alignment until the end of the proposed construction 0.11 miles east of FM 1830.

Yes **Would the project add capacity?**

From: noreply@thc.state.tx.us
To: Scott Pletka; reviews@thc.state.tx.us
Subject: 131001048 FM 407
Date: Friday, September 20, 2024 5:09:06 PM

Re: Project Review under Section 106 of the National Historic Preservation Act and/or the Antiquities Code of Texas
THC Tracking #202500461
Date: 09/20/2024
131001048 FM 407 (Permit 31791)
FM 407 at Bill Cook Rd
Argyle,TX 76226

Description: TxDOT proposes to widen FM 407. The submitted report is the draft archeological survey report for the accessible portions of the APE.

Dear TxDOT Staff:
Thank you for your submittal regarding the above-referenced project. This response represents the comments of the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC), pursuant to review under Section 106 of the National Historic Preservation Act and the Antiquities Code of Texas.

The review staff, led by Brad Jones, has completed its review and has made the following determinations based on the information submitted for review:

Archeology Comments

- No historic properties affected. However, if cultural materials are encountered during construction or disturbance activities, work should cease in the immediate area; work can continue where no cultural materials are present. Please contact the THC's Archeology Division at 512-463-6096 to consult on further actions that may be necessary to protect the cultural remains.
- THC/SHPO concurs with information provided.
- This draft report is acceptable. To facilitate review and make project information and final reports available through the Texas Archeological Sites Atlas, we appreciate submission of tagged pdf copies of the final report including one restricted version with all site location information (if applicable), and one public version with all site location information redacted; an online abstract form submitted via the abstract tab on eTRAC; and survey area shapefiles submitted via the shapefile tab on eTRAC. For questions on how to submit these please visit our video training series at: https://www.youtube.com/playlist?list=PLONbbv2pt4cog5t6mCqZVaEAx3d0MkgQC

Please note that these steps are required for projects conducted under a Texas Antiquities Permit.

We have the following comments: THC has reviewed the draft report and concurs with TxDOT's recommendations that in the 119.5 acres surveyed the identification efforts were adequate and no further consultation with our office is necessary. We look forward to reviewing the results of the survey of the remaining 40.7 acres when access is granted.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If the project changes, or if new historic properties are found, please contact the review staff. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: brad.jones@thc.texas.gov.

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit http://thc.texas.gov/etrac-system.

Sincerely,

for Bradford Patterson
Chief Deputy State Historic Preservation Officer

Please do not respond to this email.

Outlook

RE: TxDOT Sec. 106 Consultation Request - CSJ: 1310-01-048, FM 407, Denton Co., Dallas District

From Carissa Speck <cspeck@delawarenation-nsn.gov>
Date Tue 9/24/2024 10:54 AM
To Kevin Hanselka <Kevin.Hanselka@txdot.gov>
Cc Tiffany Martinez <tmartinez@delawarenation-nsn.gov>

Thank you for reaching out to the Delaware Nation Historic Preservation office. According to our files there are no historic properties or cultural resources of significance to Delaware Nation within the project location. Our office concurs with the determination of no effect. Please proceed as planned.

Carissa Speck
Director of Historic Preservation
Delaware Nation
(405) 901-1715 x 1301

From: Kevin Hanselka <Kevin.Hanselka@txdot.gov>
Sent: Monday, September 16, 2024 2:44 PM
To: theodorev@comanchenation.com; martina.minthorn@comanchenation.com; Carissa Speck <cspeck@delawarenation-nsn.gov>; jflynn@jenachoctaw.org; adidio@jenachoctaw.org; ahill@kiowatribe.org; holly@mathpo.org; Section106 <Section106@shawnee-tribe.com>; mallen@tonkawatribe.com; lbrown@tonkawatribe.com; robin.williams@wichitatribe.com; gary.mcadams@wichitatribe.com; mary.botone@wichitatribe.com
Cc: Kevin Hanselka <Kevin.Hanselka@txdot.gov>
Subject: TxDOT Sec. 106 Consultation Request - CSJ: 1310-01-048, FM 407, Denton Co., Dallas District

Sec. 106 Consultation

SEPTEMBER 16, 2024

We kindly request your comments on historic properties of cultural or religious significance to your Tribe that may be affected by the proposed project. Please see the following summary for project details and information. To access the associated reports, which include a detailed project description, APE definition and identification efforts, use the attached link. After 30 days, the link will expire. We will provide an updated link upon request.

Contacts:

Scott Pletka
512-416-2631

Summary:

Project ID (CSJ), Roadway, Limits, County and TxDOT District	*CSJ 1310-01-048, FM 407, Bill Cook Rd. to FM 1830, Denton County, Dallas District*
Lat/Longs:	*Begin: Lat. 33.087633, Long. -97.356099* *End: Lat. 33.103895, Long. -97.137451*
Project Sponsor:	*TxDOT*
Consultation Status:	☒ *Initial Consultation* ☐ *Continuation of Consultation*
Short Description:	*Widen Non-Freeway*
New Right of Way:	*160.2 acres*
Depth of Impacts:	*two feet typical and ten feet maximum*
Known Archeological Sites or Properties in project area:	*N/A*
Identification Efforts:	*Archeological Survey*

Notice:

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT.	

Recommendations:	*No archeological historic properties affected; additional inaccessible properties require survey*
Link to Detailed Report:	*https://txdot.box.com/s/tkmyzmqurwc9pjuu8b1zem0vzdm2bn8e*

Please provide any comments that you may have on the TxDOT findings and recommendations. Please provide your comments within 30 days of receipt of this letter. Any comments provided after that time will be addressed to the fullest extent possible.

J. Kevin Hanselka, Ph.D.
ENV Project Planner – Archeological Studies
Archeological Studies Program
Environmental Affairs Division
Texas Department of Transportation
Office: (214) 320-4472
Cell: (469) 781-3537
kevin.hanselka@txdot.gov
Work Hours: 8:30 am – 5:00 pm

Form

Documentation of Texas Parks and Wildlife Department Best Management Practices

Project Name: **FM 407 Bill Cook Road to FM 1380**

CSJ(s): **1310-01-048, etc.**

County(ies): **Denton**

Date Form Completed: **June 3, 2024**

Prepared by: **Christopher Davis, Bartlett & West**

Information on state-listed species, SGCN, water resources, and other natural resources can be found in the ECOS documents tab under the filenames specified in the e-mail sent to WHAB_TXDOT@tpwd.texas.gov.

1. Does the project impact any state parks, wildlife management areas, wildlife refuges, or other designated protected areas?

   ☒ No

   ☐ Yes

   <if yes, describe>

2. Does TxDOT need TPWD assistance in identifying and locating Section 404 mitigation opportunities for this project?

   ☒ No / N/A / Not yet determined

   ☐ Yes

   <if yes, describe>

3. Is there a species or resource challenge that TPWD can assist with additional guidance? If so, describe below:

   No assistance required at this time.

4. List all BMP that will be applied to this project per the document *Beneficial Management Practices: Avoiding, Minimizing, and Mitigating Impacts of Transportation Projects on State Natural Resources*.

***Note, these are BMP that TxDOT commits to implement at the time this form is completed. This list may change prior to or during construction based on changes to project impacts, design, etc.**

BMP to be Implemented:

Aquatic and Amphibian and Reptile BMP:

• For projects within existing right-of-way (ROW) when work is in water or will permanently impact a water feature and potential habitat exists for the target species complete the following:
o Minimize impacts to wetlands, temporary and permanent open water features, including depressions, and riverine habitats.
o Maintain the existing hydrologic regime and any connections between wetlands and other aquatic features.
o Use barrier fencing to direct animal movements away from construction activities and areas of potential wildlife-vehicle collisions in construction areas directly adjacent, or that may directly impact, potential habitat for the target species.
o Apply hydromulching and/or hydroseeding in areas for soil stabilization and/or revegetation of disturbed areas around wetlands and in riparian areas. If erosion control blankets or mats will be used, the product should not contain netting, but should only contain loosely woven natural fiber netting in which the mesh design allows the threads to move, therefore allowing expansion of the mesh openings. Plastic netting should be avoided.
o Project specific locations (PSLs) proposed within state-owned ROW should be located in uplands away from aquatic features.
o When work is directly adjacent to the water, minimize impacts to shoreline basking sites (e.g., downed trees, sand bars, exposed bedrock) and refugia/overwinter sites (e.g., brush and debris piles, crayfish burrows, aquatic logjams, and leaf packs).
o If gutters and curbs are part of the roadway design, install gutters that do not include the side box inlet and include sloped (i.e., mountable) curbs to allow small animals to leave roadway. If this modification to the entire curb system is not possible, install sections of sloped curb on either side of the storm water drain for several feet to allow small animals to leave the roadway. Priority areas for these design recommendations are those with nearby wetlands or other aquatic features.
• For projects that require acquisition of additional ROW and work within that new ROW is in water or will permanently impact a water feature, implement BMP for projects within existing ROW above plus those below:
o For sections of roadway adjacent to wetlands or other aquatic features, install wildlife barriers that prevent climbing. Barriers should terminate at culvert openings in order to funnel animals under the road. The barriers should be of the same length as the adjacent feature or 80 feet long in each direction, or whichever is the lesser of the two.
o For culvert extensions and culvert replacement/installation, incorporate measures to funnel animals toward culverts such as concrete wingwalls and barrier walls with overhangs.
o When riprap or other bank stabilization devices are necessary, their placement should not impede the movement of terrestrial or aquatic wildlife through the water feature. Biotechnical streambank stabilization methods using live native vegetation or a combination of vegetative and structural materials should be used.

Bird BMP:

The following Bird BMP apply to projects within the range and in suitable habitat for all bird SGCN listed on TPWD's RTEST application. Please note that projects within the range and in suitable habitat for the bald eagle (Haliaeetus leucocephalus) are required to comply with the Bald and Golden Eagle Protection Act.
In addition to complying with the Migratory Bird Treaty Act (MBTA) and Chapter 64 of the Parks and Wildlife Code (PWC) regarding nongame bird protections, perform the following BMP:
• Avoid vegetation clearing activities during the general bird nesting season, March through August, to minimize adverse impacts to birds.

• Prior to construction, perform daytime surveys for nests including under bridges and in culverts to determine if they are active before removal. Nests that are active should not be disturbed. If active nests are observed during surveys, TPWD recommends a 150-foot buffer of vegetation remain around the nests until the young have fledged or the nest is abandoned.
• Do not disturb, destroy, or remove active nests, including ground nesting birds, during the nesting season.
• If unoccupied, inactive nests will be removed, ensure that nests are not protected under the Endangered Species Act (ESA), MBTA, or BGEPA.
• Prevent the establishment of active nests during the nesting season on TxDOT owned and operated facilities and structures proposed for replacement or repair.
• Do not collect, capture, relocate, or transport birds, eggs, young, or active nests without a permit.
• Minimize extended human presence near nesting birds during construction and maintenance activities. Protect sensitive habitat areas with temporary barriers or fencing to limit human foot traffic and off-road vehicle use to alert and discourage contractors from causing any unintentional impacts.
• Minimize construction noise above ambient levels during general bird nesting season to minimize adverse impacts on birds.
• Minimize construction lighting during the general bird nesting season by scheduling work activities between dawn and dusk.

Freshwater Mussel BMP:

The following Freshwater Mussel BMP apply to projects within the range and in suitable habitat for mussel SGCN found below and that are also listed on TPWD's RTEST online application.
• In addition to Water Quality and Stream Crossing BMP, follow the most recent, "TPWD–TxDOT Annual Work Plan for Pre-Construction Surveys, Aquatic Resources Relocations, and Other Best Management Practices to Avoid, Minimize, and Mitigate Impacts to Freshwater Resources."
• When work is adjacent to the water: Water Quality BMP implemented as part of the Texas Commission on Environmental Quality (TCEQ) Stormwater Pollution Prevention Plan (SWPPP) for a construction general permit or any conditions of the 401 Water Quality Certification for the project will be implemented. (Note: SWPPP and 401 BMP are not listed in this document).

General Design and Construction BMP:

• Employees and contractors will be provided information prior to start of construction to educate personnel of the potential for all state-listed threatened species or other SGCN to occur within the project area and should be advised of relevant rules and regulations to protect plants, fish, and wildlife.
• Contractors will be informed to avoid harming all wildlife species if encountered and allow them to safely leave the project site. Due diligence should be used to avoid killing or harming any wildlife species in the implementation of transportation projects.
• Direct animals away from the construction area with the judicious use and placement of sediment control fencing to exclude wildlife. Exclusion fence should be buried at least 6 inches and be at least 24 inches high, maintained for the life of the project, and removed after construction is completed. Contractors should examine the inside of the exclusion area daily to determine if any wildlife species have been trapped inside the area of impact and provide safe egress opportunities prior to initiation of construction activities.
• Apply hydromulching and/or hydroseeding in areas for soil stabilization and/or revegetation of disturbed areas around wetlands and in riparian areas.
• If erosion control blankets or mats will be used, the product should not contain netting, but should only contain loosely woven natural fiber netting in which the mesh design allows the threads to move, therefore allowing expansion of the mesh openings. Plastic netting should be avoided.
• Project staging areas, stockpiles, temporary construction easements, and other project related sites should be situated in previously disturbed areas to avoid or minimize impacts to sensitive or unique habitats including intact native vegetation, floodplains, riparian corridors, wetlands, playa lakes, and habitat for wildlife species.
• When lighting is added, consider wildlife impacts from light pollution and incorporating dark-sky practices into design strategies. Minimize sky glow by focusing light downward, with full cutoff luminaries to avoid light emitting above the horizontal. The minimum amount of night-time lighting needed for safety and security should be used.

Insect Pollinator BMP:

The following Insect Pollinator BMP apply to projects within the range and in suitable habitat for insect SGCN found below and that are also listed on TPWD's RTEST online application.

• Mowing should only be applied to 30% or less of a site in a given year when practical. In general, mowing is inadequate for management of native insect pollinator habitat in the long term, except to remove annual non-native plants during establishment (i.e., high-mowing before they flower) or to facilitate a light disking. When conducted it should be done post bloom or when host plants have gone dormant for the growing season. This can also be done by leaving strips of habitat farthest from road or highway corridors un-mowed when practical.

• If mowing is required during period of active bloom or high pollinator activity it should be implemented during the heat of the day and with a high mower deck to allow for pollinators to escape and to give late season blooming species a chance to recover and bloom.

• Deep soil disturbances, such as, tilling or deep disking in areas that host aggregations of ground nesting bees should be avoided. Tilling and disking also may promote the invasion or germination of non-native plants. Different species of native ground-nesting bees prefer different soil conditions, although research suggests that many ground nesting bees prefer sandy, loamy sand or sandy loam soils. In areas with these soil types consider leaving open patches of soil.

• Allow dead trees to stand (so long as they do not pose a risk to property or people) and protect shrubs and herbaceous plants with pithy or hollow stems (e.g., cane fruits, sumac, elderberry), as these provide nesting habitat for tunnel-nesting native bees.

• Retain dead or dying branches whenever it is safe and practical at the edges of the ROW. Woodboring beetle larvae often fill dead trees and branches with narrow tunnels into which tunnel nesting bees will establish nests. Additionally, bumble bees may choose to nest in wood piles.

• Retain rotting logs at edges of the ROW where some bee species may burrow tunnels in which to nest.

• Protect sloped or well-drained ground sites where plants are sparse and direct access to soil is available. These are the areas where ground-nesting bees may dig nests. Turning the soil destroys all ground nests that are present at that depth and hinders the emergence of bees that are nesting deeper in the ground.

• Protect grassy thickets, or other areas of dense, low cover from mowing or other disturbance. These are the sites where bumble bees might find the nest cavities they need, as well as annual and perennial wildflowers that can provide important food resources.

• Where available and economical, native plants and seed should be procured from local eco-type providers. Seed mixes should be diverse and include as many ecoregion natives as possible ensuring full season floral resources. Species by Texas ecoregion can be found in the Texas Management Recommendations for Native Insect Pollinators in Texas document: https://tpwd.texas.gov/publications/pwdpubs/media/pwd_bk_w7000_1813.pdf.

• Planting at least three different native flowering plants within each of three blooming periods are recommended (spring, summer, early fall) in high rainfall regions of Texas. In drier regions of the state, a target of three native flowering plants within each of two blooming periods can be used.

• In areas along the I-35 corridor of central Texas consider increasing fall blooming nectar resources as this is a critical time period of monarch butterflies (Danaus plexippus) and nesting bees and has been identified as a critical need for these species in Texas.

• Habitat enhancements for native pollinators should include at least one native bunchgrass adapted to the site.

• Utilize an Integrated Pest Management Strategy (IPM) strategy for controlling weedy or invasive plants by minimizing broad use of certain herbicides and surfactants in close proximity to intact habitats utilized by native pollinators. Reduce application timing to periods of low pollinator activity and not during peak bloom season.

Rare Plant BMP:

The following plant BMP apply to projects within range of and in suitable habitat for all plant SGCN that are listed on TPWD's RTEST online application.

• Survey project area during appropriate seasons to allow for correct species identification. Habitat and survey seasons are usually during the flowering and/or fruiting period listed on the RTEST website, if available. Surveys should be performed within suitable habitat for the species. Survey effort is project-, species- and habitat-dependent. Botanical field surveys should be conducted by qualified individual(s) with botanical experience and according to commonly accepted survey protocols. Ensure that any

equipment, tools, footwear and clothing are clean prior to entering the project site area to avoid introducing invasive species. Prior to surveying, TPWD Staff is available to provide assistance with species identification and appropriate survey effort.
• If SGCN plants are located, the surveyor should attempt to determine the complete extent of the occurrence and the approximate number of individuals within the occurrence. Suitable GPS equipment should be used to map the boundaries of the population. Photographs should be taken and/or voucher specimens should be collected (if sufficient plants are present, i.e., more than 10 reproductive plants). Please note that a state collection permit is required from TPWD to collect voucher specimens of state-listed species and a federal collection permit is required from U.S. Fish and Wildlife Service (USFWS) to collect federally listed species. Photographs should capture diagnostic characters of the species for verification and should be discussed with TPWD Staff prior to surveys if surveyor is unfamiliar with the species. Vouchers should be deposited with TPWD Staff or in one of Texas' major herbaria (e.g., University of Texas at Austin, Botanical Research Institute of Texas, Texas A&M University, Sul Ross State University, etc.).
• If there is a known TXNDD SGCN plant population within the project area and project timing or other constraints do not allow for surveys, contact TPWD Transportation Staff as soon as possible to discuss other options.
• If an SGCN plant species is located during surveys of the project area, then complete the following during the construction phase:
a. Avoid impacts and minimize unavoidable impacts. Plant locations should be protected with temporary barrier fencing and contractors should be instructed to avoid protected areas. Conducting construction outside of the growing season or after a plant has produced mature fruit is the preferred way to avoid/minimize impacts to SGCN plant populations. Staging areas, stockpiles, and other project related sites on TxDOT ROW should not impact SGCN plant populations. After construction begins, minimize herbicide use near SGCN plant populations (if possible, use hand-held spot sprayers, several meters from rare plants, on still or days with little wind).
b. If there are unintended impacts to SGCN populations, these impacts should be reported to TPWD Transportation Staff.
c. If the project footprint is finalized or is subject to change AND impacts to SGCN plants cannot be avoided, notify TPWD Transportation Staff as soon as possible. Early notification will allow adequate time and opportunity to seed bank or otherwise conserve populations prior to construction.
• Submit observation(s) of SGCN plant populations and associated data to the TXNDD and WHAB_TxDOT@tpwd.texas.gov. A TXNDD Reporting Form with shapefiles delineating the outer boundary of the population are preferable. Include detailed information on who identified and how a species was identified (resources/references used; diagnostic characters observed). If an SGCN plant population is located near non-native invasive plants, this should be recorded and reported in TXNDD Reporting Form.
• Although these BMP do not apply to federally listed species, the observation of federally listed species should also be submitted to TPWD.
• During project period, conduct work during times of the year when plants are dormant and/or conditions minimize disturbance of the habitat.
• Develop a plan based on growing season, mower height/season, etc. for protecting sites into future. Maps should also be developed for rare plant area, which includes no mow areas. Known rare plant sites on ROWs and/or new sites found in future projects can be added to this map/plan.
• Conducting maintenance outside of the growing season or after a plant has produced mature fruit is the preferred way to avoid/minimize impacts to habitat.

Stream Crossings BMP:

• Use spanning bridges rather than culverts.
• If using a culvert, staggered culverts that concentrate low flows but provide conveyance of higher flows through staggered culverts placed at higher elevations is recommended.
• Bottomless culverts are recommended to allow for fish and other aquatic wildlife passage in the low flow channel. If bottomless culverts are not used, making a low flow channel for fish passage is recommended.
• Avoid placing riprap across stream channels and instead use alternative stabilization such as biotechnical stream bank stabilization methods including live native vegetation or a combination of vegetative and structural materials. When riprap or other bank stabilization devices are necessary, their

placement should not impede the movement of aquatic and terrestrial wildlife underneath the bridge. In some instances, rip rap may be buried, back-filled with topsoil and planted with native vegetation.
• Incorporate bat-friendly design into bridges and culverts.
• Design bridges for adequate vertical and horizontal clearances under the roadway to allow for terrestrial wildlife to safely pass under the road.
• A span wide enough to cross the stream and allow for dry ground and a natural surface path under the roadway is encouraged. For culverts, incorporation of an artificial ledge inside the culvert on one or both sides for use by terrestrial wildlife is recommended.
• Riparian buffer zones should remain undisturbed.

Terrestrial Amphibian and Reptile BMP:

• For open trenches and excavated pits, install escape ramps at an angle of less than 45 degrees (1:1) in areas left uncovered. Visually inspect excavation areas for trapped wildlife prior to backfilling
• Avoid or minimize disturbing or removing cover objects, such as downed trees, rotting stumps, brush piles, and leaf litter. If avoidance or minimization is not practicable, consider removing cover objects prior to the start of the project and replace them at project completion.
• Examine heavy equipment stored on site before use, particularly after rain events when reptile and amphibian movements occur more often, to ensure use will not harm individuals that might be seeking temporary refuge.
• Due to increased activity (mating) of reptiles and amphibian during the spring, construction activities like clearing or grading should attempt to be scheduled outside of the spring (March-May) season. Also, timing ground disturbing activities before October when reptiles and amphibians become less active and may be using burrows in the project area is also encouraged.
• When designing roads with curbs, consider using Type I or Type III curbs to provide a gentle slope to enable turtles and small animals to get out of roadways.
• If Texas tortoises (*Gopherus berlandieri*) or box turtles (*Terrepene spp.*) are present in a project area, they should be removed from the area and relocated between 100 and 200 meters from the project area. After removal of the individuals, the area that will be disturbed during active construction and project specific locations should be fenced off to exclude reentry by turtles, tortoises, and other reptiles. The exclusion fence should be constructed and maintained as follows:
o The exclusion fence should be constructed with metal flashing or drift fence material. o Rolled erosion control mesh material should not be used.
o The exclusion fence should be buried at least 6 inches deep and be at least 24 inches high.
o The exclusion fence should be maintained for the life of the project and only removed after the construction is completed and the disturbed site has been revegetated.
• After project is complete, revegetate disturbed areas with an appropriate locally sourced native seed mix. If erosion control blankets or mats will be used, the product should not contain netting, but should only contain loosely woven natural fiber netting in which the mesh design allows the threads to move, therefore allowing expansion of the mesh openings. Plastic netting should be avoided.

Vegetation BMP:

• Minimize the amount of vegetation cleared. Removal of native vegetation, particularly mature native trees and shrubs should be avoided. Impacted vegetation should be replaced with in-kind onsite replacement/restoration of native vegetation.
• To minimize adverse effects, activities should be planned to preserve mature trees, particularly acorn, nut or berry producing varieties. These types of vegetation have high value to wildlife as food and cover.
• It is strongly recommended that trees greater than 12 inches in diameter at breast height (DBH) that are removed be replaced. TPWD's experience indicates that for ecologically effective replacement, a ratio of three trees for every one (3:1) lost should be provided to either on-site or off-site. Trees less than 12 inches DBH should be replaced at a 1:1 ratio.
• Replacement trees should be of equal or better wildlife quality than those removed and be regionally adapted native species.
• When trees are planted, a maintenance plan that ensures at least an 85 percent survival rate after three years should be developed for the replacement trees.
• The use of any non-native vegetation in landscaping and revegetation is discouraged. Locally adapted native species should be used.
• The use of seed mix that contains seeds from only regional ecotype native species is recommended.

Water Quality:
In addition to BMP required for a TCEQ Storm Water Pollution Prevention Plan and/or 401 Water Quality Certification:
• Minimize the use of equipment in streams and riparian areas during construction. When possible, equipment access should be from banks, bridge decks, or barges.
• When temporary stream crossings are unavoidable, remove stream crossings once they are no longer needed and stabilize banks and soils around the crossing.
• Wet-Bottomed detention ponds are recommended to benefit wildlife and downstream water quality. Consider potential wildlife-vehicle interactions when siting detention ponds.
• Rubbish found near bridges on TxDOT ROW should be removed and disposed of properly to minimize the risk of pollution. Rubbish does not include brush piles or snags.

5. List all TxDOT species protection specifications that will be applied to this project (e.g., Amphibian and Reptile Exclusion Fence, Bat Houses, etc.)

Species protection specifications to be Implemented:

Appendix G – Comment and Response Matrix from the Notice of Availability of Draft EA/Public Hearing