Draft
Environmental Assessment

US 380, TxDOT Dallas District

From State Loop 288 to West of County Road 26 (County Line)
CSJ Number: 0135-10-050 and 0135-10-057
Denton County, Texas
February 2018

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 16, 2014, and executed by FHWA and TxDOT.

Table of Contents

List of Acronyms v
1.0 Introduction 1
2.0 Project Description 2
2.1 Existing Facility 2
2.1.1 East of State Loop 288 to Riverside Drive 2
2.1.2 Riverside Drive to West of Fishtrap Road 2
2.1.3 East of Fishtrap Road to 0.25 mile west of CR 26 2
2.2 Proposed Project 2
2.2.1 East of SL 288 to Riverside Drive 2
2.2.2 Riverside Drive to West of Fishtrap Road 3
2.2.3 East of Fishtrap Road to 0.25 mile west of CR 26 3
2.2.4 Logical Termini 3
2.2.5 Independent Utility 4
3.0 Purpose and Need 4
3.1 Need 4
3.2 Supporting Facts and/or Data 5
3.2.1 Traffic Projections 5
3.3 Purpose 7
4.0 Alternatives 9
4.1 Six-Lane Build Alternative 9
4.1.1 Local Government Involvement 9
4.2 No Build Alternative 10
4.3 Preliminary Alternatives Considered but Eliminated from Further Consideration 10
4.3.1 Eight-Lane Build Alternative 10
5.0 Affected Environment and Environmental Consequences 11
5.1 Right-of-Way/Displacements 11
5.1.1 Existing Conditions 11
5.1.2 Environmental Consequences 11
5.1.3 Impacts of the No Build Alternative 12
5.2 Land Use 12
5.2.1 Existing Conditions 12
5.2.2 Environmental Consequences 13
5.2.3 Impacts of the No Build Alternative 14
5.2.4 Encroachment Alteration Effects 14
5.3 Farmlands 14
5.3.1 Existing Conditions 14
5.3.2 Environmental Consequences 16
5.3.3 Impacts of the No Build Alternative 17
5.3.4 Encroachment Alteration Effects 17
5.4 Utilities/Emergency Services 17
5.4.1 Existing Conditions 17

5.4.2 Environmental Consequences 18
5.4.3 Impacts of the No Build Alternative 19
5.5 Bicycle and Pedestrian Facilities 19
5.5.1 Existing Conditions 19
5.5.2 Environmental Consequences 19
5.5.3 Impacts of the No Build Alternative 19
5.5.4 Encroachment Alteration Effects 19
5.6 Community Impacts 19
5.6.1 Existing Conditions 20
5.6.2 Environmental Consequences 23
5.6.3 Encroachment Alteration Effects 25
5.7 Visual/Aesthetics Impacts 25
5.7.1 Existing Conditions 25
5.7.2 Environmental Consequences 26
5.7.3 Impacts of the No Build Alternative 26
5.8 Cultural Resources 26
5.8.1 Archeology 27
5.8.2 Historic Properties 27
5.9 Department of Transportation (DOT) ACT Section 4(f), Land and Water Conservation Fund (LWCF) Act Section 6(f), and Texas Parks and Wildlife Code (PWC) Chapter 26 28
5.10 Water Resources 28
5.10.1 Clean Water Act Section 404 28
5.10.2 Clean Water Act Section 401 36
5.10.3 Executive Order 11990 Wetlands 37
5.10.4 Rivers and Harbors Act 37
5.10.5 Clean Water Act Section 303(d) 37
5.10.6 Clean Water Act Section 402 39
5.10.7 Floodplains 40
5.10.8 Wild and Scenic Rivers 41
5.10.9 Coastal Barrier Resources 41
5.10.10 Coastal Zone Management 41
5.10.11 Edwards Aquifer 41
5.10.12 International Boundary and Water Commission 41
5.10.13 Drinking Water Systems 41
5.11 Biological Resources 42
5.11.1 Vegetation 42
5.11.2 Wildlife 44
5.11.3 Threatened and Endangered Species 46
5.12 Air Quality 48
5.12.1 Existing Conditions 48
5.12.2 Environmental Consequences 49
5.12.3 Impacts of the No Build Alternative 51
5.12.4 Encroachment Alteration Effects 51
5.13 Hazardous Materials 51

5.13.1 Existing Conditions 51
5.13.2 Environmental Consequences 52
5.13.3 Impacts of the No Build Alternative 59
5.13.4 Encroachment Alteration Effects 59
5.14 Traffic Noise 59
5.14.1 Environmental Consequences 59
5.14.2 Impacts of the No Build Alternative 66
5.15 Induced Growth 66
5.15.1 Impacts of the No Build Alternative 66
5.16 Cumulative Impacts 66
5.16.1 Impacts of the No Build Alternative 67
5.17 Construction Phase Impacts 67
5.17.1 Environmental Consequences 67
6.0 Agency Coordination 69
7.0 Public Involvement 70
7.1 Stakeholder Outreach 70
7.2 Public Meeting and Public Hearing 70
7.3 LEP Accommodations 70
8.0 Environmental Permits, Issues and Commitments 71
8.1 Farmlands 71
8.2 Utilities 71
8.3 Cultural Resources 71
8.4 Water Resources 71
8.4.1 CWA Section 404 71
8.4.2 CWA Section 401 72
8.4.3 Rivers and Harbors Act 72
8.4.4 CWA Section 303(d) 72
8.4.5 CWA Section 402 72
8.4.6 Floodplains 73
8.5 Biological Resources 73
8.6 Hazardous Materials 74
9.0 Conclusion 77
References 78
Appendices
Appendix A – Project Location Map
Appendix B – Project Photos
Appendix C – Schematics
Appendix D – Typical Sections
Appendix E – Plans and Program Excerpts
Appendix F – Resource-specific Maps
Appendix G – Resource Agency Coordination

List of Acronyms

AADT	Average Annual Daily Traffic
ACHP	Advisory Council on Historic Preservation
ACS	American Community Survey
AJD	Approved Jurisdictional Determination
AOI	Area of Influence
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
APE	Area of Potential Effect
AST	above-ground storage tank
ASTM	American Society for Testing and Materials
BFE	base flood elevation
BGEPA	Bald and Golden Eagle Protection Act of 1940
BMPs	Best Management Practices
CDP	Census Designated Places
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
CMP	Congestion Management Process
CO	carbon monoxide
CoC	chemical of concern
COR	Corrective Action
CR	County Road
CSJ	Control-Section-Job
CWA	Clean Water Act
DFW	Dallas-Fort Worth
DOT	U.S. Department of Transportation
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EJ	Environmental Justice
EMST	Ecological Mapping Systems of Texas
EO	Executive Order
EPA	United States Environmental Protection Agency
EPIC	Environmental Permits, Issues, and Commitments
ERNS	Environmental Response Notification System
ESA	Endangered Species Act
FEMA	Federal Emergency Management 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 Administration
GEN	Generator
GIS	Geographic Information System
HCA	Hazard Communication Act
HHS	United States Department of Health and Human Services
HM	Hazardous Material

IHWCA	Industrial Hazardous Waste Corrective Action
ISA	Initial Site Assessment
LEP	Limited English Proficiency
LOS	Level of Service
LPST	Leaking Petroleum Storage Tank
LWCF	Land and Water Conservation Fund
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
MS4	municipal separate storm sewer system
MSAT	mobile source air toxics
MSDS	Material Safety Data Sheet
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NCHRP	National Cooperative Highway Research Program
NCTCOG	North Central Texas Council of Governments
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWP	Nationwide Permit
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
PA-TU	Programmatic Agreement for Transportation Undertakings
PCN	Pre-construction Notification
PJD	Preliminary Jurisdictional Determination
PM	particulate matter
PST	Petroleum Storage Tank
PWC	Parks and Wildlife Code
RCRA	Resource Conservation and Recovery Act
ROW	right-of-way
RRC	Railroad Commission of Texas
RTC	Regional Transportation Council
RTHL	Recorded Texas Historical Landmark
SAL	State Antiquities Landmark
SDWIS	Safe Drinking Water Information System
SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SL	State Loop
SOV	Single Occupancy Vehicle
ST IC	State/Tribal Institutional Control
STIP	Statewide Transportation Improvement Program
SST	Smith Systems Transportation Inc.
SW3P	Stormwater Pollution Prevention Plan
TAQA	traffic air quality analysis

TCEQ	Texas Commission on Environmental Quality
TERP	Texas Emissions Reduction Plan
THC	Texas Historical Commission
TIP	Transportation Improvement Program
TMA	Transportation Management Area
TMDL	Total Maximum Daily Load
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TRB	Transportation Research Board
TSD	Treatment, Storage and Disposal
TSWQS	Texas Surface Water Quality Standards
TSZ	Traffic Survey Zone
TWDB	Texas Water Development Board
TxDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
US	United States Highway
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USIBWC	United States Section, International Boundary and Water Commission
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program
VMT	Vehicle Miles Traveled
VPD	Vehicles Per Day
WOUS	Waters of the United States
WQI	Water Quality Impairments

1.0 Introduction

The Texas Department of Transportation (TxDOT) is preparing an Environmental Assessment (EA) for proposed improvements of the existing United States Highway (US) 380 from State Loop (SL) 288 to West of County Road (CR) 26 at the Collin/Denton County line (Appendix A, Figure 1). The proposed project would connect to another US 380 project in the east end at the Denton/Collin County line (CSJ 0135-11-018) located within the city limits of the Town of Prosper north of US 380, and City of Frisco south of US 380. Within the project limits, US 380 shares designation with US 377 from SL 288 to the US 377/US 380 intersection. US 380 is also locally known as University Drive.

The proposed project traverses the City of Denton, Town of Cross Roads, City of Frisco, Town of Providence Village, Town of Little Elm, Town of Prosper and three Census Designated Places (CDP)- Paloma Creek, Paloma Creek, South, and Savannah (large neighborhoods in the project area) (Appendix A, Figure 1). The proposed project would include reconstruction and widening of existing US 380 from a four-lane undivided rural roadway to a six-lane divided urban roadway from the US 377/US 380 intersection to the Denton/Collin County line, consisting of two 12-foot wide inside travel lanes and one 14-foot wide outside shared-use lane (for bicycle accommodation) with raised medians and curb and gutter in each direction (Appendices C and D). Five new grade separations are planned at Legacy Drive, Teel Parkway, Navo Road, Farm-to-Market (FM) 423, and FM 720. Two existing bridges at Little Elm Creek and Doe Branch will be widened (adding one lane in each direction), with no additional right-of-way (ROW) required. Three existing bridges west of US 377 would not be widened but the bridge design would add a raised median and sidewalks. Left and right turn lanes would be added at designated locations. A minimum of five-foot wide sidewalks would be located along the outer lanes of the roadway. The proposed roadway would also include intersection improvements at designated locations. The detailed descriptions of the existing and proposed facility are provided in Section 2.0.

The purpose of this EA is to study the potential environmental consequences of the project and determine whether such consequences warrant preparation of an Environmental Impact Statement (EIS). The EA is prepared to comply with TxDOT's environmental review rules and with the requirements of the National Environmental Policy Act (NEPA). The EA will be made available for public review. Following the prescribed comment period, TxDOT will consider any comments submitted. If TxDOT determines that there are no significant adverse effects, a Finding of No Significant Impact (FONSI) will be prepared and signed, which will be made available to the public.

2.0 Project Description

2.1 Existing Facility

2.1.1 East of State Loop 288 to Riverside Drive

The existing roadway is a six-lane urban section with curb and gutter and a flush median. The existing ROW ranges from 120 to 228 feet in width (Appendix D). There are currently no bicycle or pedestrian facilities associated with US 380 within this area. Refer to Appendix B for the Project Photos and Appendix D for the existing typical sections.

2.1.2 Riverside Drive to West of Fishtrap Road

The existing roadway is a six-lane rural highway with shoulders and a flush median. The existing ROW ranges from 120 to 330 feet in width (Appendix D). There are currently no bicycle or pedestrian facilities associated with US 380 within this area. Lake Lewisville crosses through the project area east of Riverside Drive. The existing three bridges across the Lake were constructed in 2000. Refer to Appendix B for the Project Photos and Appendix D for the existing typical sections.

2.1.3 East of Fishtrap Road to 0.25 mile west of CR 26

The existing roadway is a four-lane rural highway with a flush median and shoulders. The existing ROW ranges from 132 to 260 feet in width (Appendix D). There are currently no bicycle or pedestrian facilities associated with US 380 within this area. Two bridges currently cross Little Elm Creek and Doe Branch. The existing bridges were constructed in 1997. Refer to Appendix B for the Project Photos and Appendix D for the existing typical sections.

2.2 Proposed Project

The proposed project includes reconstruction and widening of existing US 380 from a four-lane undivided rural to a six-lane divided urban roadway consisting of two 11- to 12-foot wide inside travel lanes and 14-foot wide outside shared-use lanes (for bicycle accommodation), with raised medians and curb and gutter in each direction. The proposed roadway would also include intersection improvements at designated locations. Left and right turn lanes would be added at designated locations. In addition, interchange improvements are proposed including five new grade separations. A minimum of five-foot sidewalks would be located along the outer lanes of the roadway. Details by section of the project are described below.

2.2.1 East of SL 288 to Riverside Drive

Proposed improvements consist of restriping the existing section to include two 14-foot wide outside shared-use lanes, four inside 11-foot wide lanes, a 16-foot wide raised median, and 5-foot wide sidewalks. From Mayhill Road to Greenbelt Corridor Park, the proposed 10-foot wide sidewalk on the north side would be constructed by others (Appendices C and D). The typical total roadway width would be 92 feet, which would fit within the existing curb and gutter section, except at intersections. The pavement width at the intersections would increase to accommodate the right turn lanes. Left

turn lanes would be 11 feet in width at existing named cross streets. Additional ROW would be required to accommodate the proposed improvements.

2.2.2 Riverside Drive to West of Fishtrap Road

Proposed improvements to this segment include removal of existing shoulders to add curb and gutter, and the addition of a raised median and sidewalks. The proposed typical section would contain two 14-foot wide outside shared-use lanes, four inside 11-foot wide lanes, and a 14-foot wide raised median with curb and gutter (Appendices C and D). The typical total width of the roadway would be 90 feet. The pavement width would increase at intersections to accommodate the right turn lanes. Left turn lanes would be 11 feet in width at existing named cross streets. No additional ROW would be required through this section.

2.2.3 East of Fishtrap Road to 0.25 mile west of CR 26

This segment of the proposed project would include removal of existing shoulders and widening the existing roadway to accommodate six lanes with a raised median. The proposed typical section includes two 14-foot wide outside shared-use lanes, four 12-foot wide inside travel lanes, a 16-foot wide raised median with curb and gutter, and five-foot wide sidewalks (Appendices C and D). The typical width of the roadway would be 100 feet. The pavement width would increase at intersections to accommodate left and right turn lanes. The existing ROW width varies within this segment. Additional ROW would be required to accommodate the proposed improvements. The proposed roadway would be reconstructed to provide grade separations for US 380 main lanes at the intersections of FM 720, Navo Road, FM 423, Teel Parkway, and Legacy Parkway (Appendix D). These grade separations would typically contain six 12-foot wide lanes, two-foot curb offsets (for both the inside and outside lanes), and a four-foot raised median with curb and gutter for the main lanes. Access to cross streets would be provided by exit ramps at the intersections. U-turns would be provided at these interchange locations. Additional ROW would be required to accommodate the proposed improvements at these intersections.

Sidewalks would be provided in accordance with TxDOT Guidelines on sidewalk construction. The proposed sidewalks would meet Americans with Disabilities Act (ADA) design criteria. The proposed roadway functional classification would be an urban principal arterial with a design speed of 45 miles per hour (mph) for the entire project limits.

2.2.4 Logical Termini

Planned construction would occur along an existing roadway and would occur within the existing road ROW to the extent possible given design requirements. Logical termini for project development are defined as (1) rational end points for a transportation improvement, and (2) rational end points for a review of the environmental impacts. The western terminus of the proposed project is SL 288 in the City of Denton and the eastern terminus is west of CR 26 near the Collin/Denton County line, which is the western terminus of a separate US 380 roadway improvement project (CSJ 0135-11-018). The logical termini for the proposed project encompass areas of construction and drainage improvements, and provide for the representation of environmental factors that may be affected by the proposed facility.

The proposed facility would be constructed within the existing ROW to the extent possible, and would require approximately 27 acres of additional ROW, 1.2 acres of temporary construction easements, 3.5 acres of existing drainage easements, and 0.8 acre of proposed drainage easements (Appendix A, Figure 2). No residential or commercial property displacements or relocations are anticipated. The total existing and proposed ROW associated with the project is approximately 398 acres.

The proposed project includes approximately 40,964 linear feet (7.7 miles) of roadway widening, approximately 22,875 linear feet (4.3 miles) of roadway rehabilitation, and approximately 13,875 linear feet (2.6 miles) of complete roadway reconstruction. The project schematics are included in Appendix C.

The estimated construction, engineering, and ROW costs for the proposed roadway improvements are approximately $178 million as of October 2017. Construction is expected to begin after engineering is completed and funding, environmental clearances, and permits have been acquired. TxDOT is funding the preliminary engineering design, environmental studies, and construction for the proposed project.

The proposed project is not consistent with the North Central Texas Council of Governments (NCTCOG) financially constrained 2040 Metropolitan Transportation Plan (MTP) and the 2017-2020 Transportation Improvement Program (TIP), as amended, which was 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 Administration (FTA) on September 7, 2016 and December 19, 2016, respectively. TxDOT will not take final action on this environmental document until the proposed project is consistent with a currently conforming MTP and TIP.

2.2.5 Independent Utility

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 C.F.R. § 771.111(f)(2). This means a project must be able to provide benefit by itself and not be a waste of money or 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 would improve mobility on US 380 between US 377 and CR 26 by increasing capacity and reducing traffic congestion, and would provide a US 380 roadway facility between SL 288 and US 377 that meets current design standards. The proposed improvements would satisfy the project's need, and this would be true even if no other roads, including the US 380 project to the east of this project, were built nearby. Because the project stands alone, it cannot and does not irretrievably commit federal funds.

3.0 Purpose and Need

3.1 Need

The proposed project is needed because the capacity of US 380 between US 377 and the CR 26 is inadequate to accommodate current and future traffic volumes, resulting in congestion, reduced

mobility, and an operational Level of Service of 'F' on this stretch of highway. In addition, US 380 between SL 288 and US 377 does not meet current design standards.

3.2 Supporting Facts and/or Data

Population Growth

The proposed project is located partially within city and town limits within Denton County (Appendix F, Figure 1). Based on NCTCOG's 2040 Regional Growth Forecast as listed in Table 3-1, the population of the larger cities and towns, and Denton and Collin Counties are forecasted to continue to increase.

Table 3-1. Existing Population and Population Projections

Location	Total Population	Population Projections	Percent Change (2010-2040)
	2010	2040	
City of Denton	113,383	159,946	41%
Town of Little Elm	25,898	33,821	31%
Town of Prosper	9,423	72,414	668%
City of Frisco	116,764	328,487	181%
Denton County	652,270	1,241,681	90%
Collin County	778,427	1,560,421	100%

Source: U.S. Census Bureau 2010; NCTCOG 2015; and Texas Water Development Board 2015.

The population in both Denton and Collin counties and the Town of Prosper and City of Frisco are projected to increase substantially between 2010 and 2040. According to the Census Bureau, the City of Frisco in the second fastest-growing large city in the United States (USA Today 2017).

3.2.1 Traffic Projections

Traffic volumes are expected to increase substantially by 2040 due to increased urbanization in the area. Widening and reconstruction of the roadway is needed to better manage congestion and accommodate continued traffic growth.

The need to accommodate increasing traffic is supported through analysis of future traffic demand that is anticipated to utilize the facility. Table 3-2 presents the projected Average Daily Traffic (ADT) for 2023 (estimated time of completion [ETC] year) and 2040 (future year) traffic levels.

Table 3-2 ETC Year and Projected Traffic Volumes

Section of Roadway	2023 ETC (ADT)	2040 Future (ADT)	Percent Change (2023-2040)
SL 288 to Lakeview	49,150	72,700	47.9
Lakeview to US 377	48,550	71,900	48.1
US 377 to FM 424	41,750	63,900	53.1
FM 424 to FM 720	48,050	71,400	48.6
FM 720 to FM 2931	47,250	67,450	42.8
FM 2931 to Navo Road	53,150	78,300	47.3
Navo Road to FM 423	55,650	82,900	48.9
FM 423 to CR 26	54,850	85,850	56.5

Source: TxDOT 2016

Traffic on the existing facility is expected to remain congested as a result of anticipated traffic and population growth. Traffic volumes would have an average increase of 49 percent between 2023 and 2040.

The need for the transportation improvements was established by evaluating the level of service and capacity based on existing and predicted travel demand. Level of service (LOS) is a grading system for the amount of congestion on a roadway facility and is used to identify operational deficiencies of existing roadways. The Transportation Research Board (TRB) defined the ranges of operational conditions as LOS "A" though "F", with A being the least congested (best operating conditions) and F being the worst. The LOS descriptions are shown in Table 3-3.

Table 3-3 Level of Service Characteristics

Level of Service (LOS)	Description
A	Free flow with low volumes and high speeds
B	Reasonably free flow, but speeds beginning to be restricted by traffic conditions
C	In stable flow zone, but most drivers are restricted in the freedom to select their own speeds
D	Approaching unstable flow; drivers have little freedom to select their own speeds
E	Unstable flow; may be short stoppages
D	Unacceptable congestion; stop-and-go; forced flow

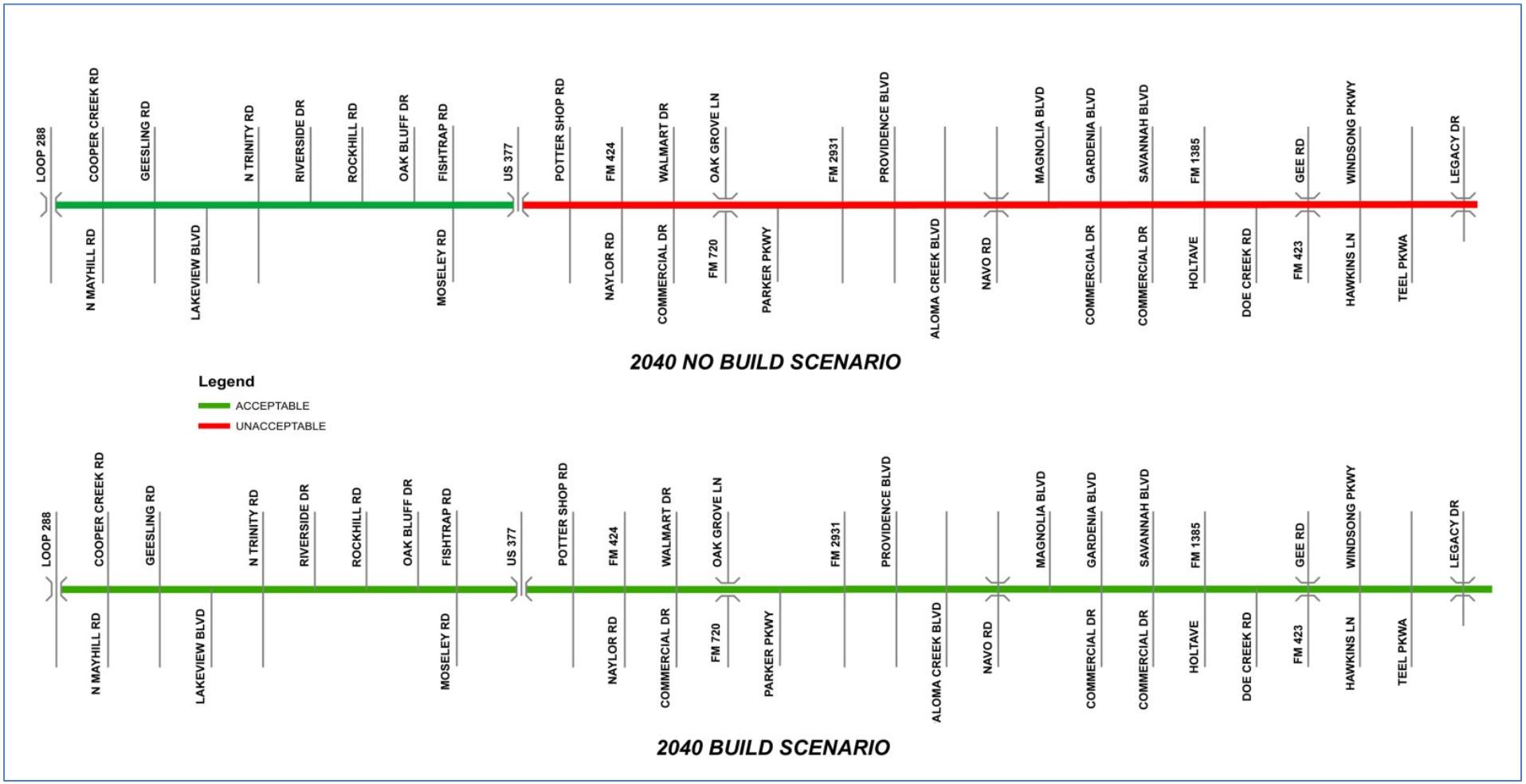
Source: Developed from FHWA 2017

Roadways with LOS of E and F are identified as being moderately, seriously, or severely congested, respectively. Roadways with LOS A through D (tolerable) are identified as not congested. Exhibit 1 shows the 2040 Build and No Build scenarios for the project. Acceptable LOS would be defined as LOS A through D, and unacceptable LOS is LOS E and F. If the proposed project is implemented all segments of the roadway would have an acceptable LOS.

3.3 Purpose

The purpose of the proposed project is to improve mobility by increasing capacity and reducing traffic congestion, and to meet current design standards.

Exhibit 1- 2040 Build and No Build LOS



Source: AECOM 2017

4.0 Alternatives

This section discusses the following alternatives: (1) Build Alternative, (2) No Build Alternative, and (3) Preliminary Alternative Considered but Eliminated for Further Consideration.

4.1 Six-Lane Build Alternative

As currently proposed, the Build Alternative (previously described in Section 2.2) would include two 11- to 12-foot wide inside travel lanes, and a single 14-foot wide outside shared-use lanes (for bicycle accommodations) with a raised median, and a curb and gutter in each direction. Additionally, the proposed roadway improvements would include intersection improvements and left and right lanes at designated locations. The Build Alternative would meet the proposed project's purpose and need by increasing capacity to accommodate current and future projected traffic volumes; thereby facilitating congestion management and improving mobility in the proposed project area.

The major design features of the proposed project include:

- Reconstruction and widening the roadway from 4 lanes to 6 lanes with a raised median, 14-foot wide shared-use lanes and curb and gutter in each direction
- Left and right turn lanes would be added at designated locations
- Intersection improvements to accommodate existing cross streets
- Five grade separations at FM 720, Legacy Dr., Teel Parkway, Navo Road, and FM 423
- Two existing bridges at Little Elm Creek and Doe Branch would be widened (adding one lane in each direction), no ROW would be acquired
- Three existing bridges west of US 377 would not be widened but the bridge design would add a raised median and sidewalks
- A minimum of five-foot wide sidewalks would be located along the outer lanes of the roadway

The proposed project is consistent with local land use plans and policies in the area and would improve mobility and reduce congestion in the proposed project area.

4.1.1 Local Government Involvement

Prior to the public meeting and during design of the proposed project, TxDOT held numerous stakeholder meetings with local cities, towns, school districts, and the county to discuss the proposed project. Several design changes were implemented to accommodate desires of the local communities and accommodate future land development. Some of the stakeholders involved in the stakeholder meetings included NCTCOG, City and Towns of Cross Roads, Denton, Frisco, Little Elm and Prosper; Denton County; and local school districts. Based on input from the stakeholders, TxDOT removed a proposed grade separation and added grade separations at three additional locations; an additional shared-use path for a portion of the proposed project was added; and at the request of the town of Little Elm and the local school district, a grade separation was at added at Navo Road to improve safety for students traveling to and from the new high school.

4.2 No Build Alternative

The No Build Alternative was considered as an alternative while assessing improvements to the proposed project area. From east of Fishtrap Road to CR 26, the No Build Alternative would retain the existing roadway network and would remain as a four lane rural highway without raised medians.

The No Build Alternative would not improve congestion or mobility; therefore, it would not meet the need and purpose of the proposed project. The No Build Alternative was eliminated as a viable project alternative, but was used as a comparison for impact evaluations.

The No Build Alternative avoids impacts associated with new construction, such as ROW acquisition, and allows construction funds to be shifted to other needed projects. Although the No Build Alternative avoids temporary and long term construction impacts, an unmodified US 380 corridor would not be able to keep up with the projected growth in traffic demand.

4.3 Preliminary Alternatives Considered but Eliminated from Further Consideration

4.3.1 Eight-Lane Build Alternative

The eight-lane build alternative was analyzed by the traffic engineers; however, it was eliminated from detailed study because the proposed six-lane alternative improves traffic and congestion to a level that meant eight lanes would not be required to improve LOS to an acceptable level. Therefore, the eight-lane build alternative was not justifiable and the six-lane build alternative was brought forward as the recommended alternative.

5.0 Affected Environment and Environmental Consequences

During the scoping process, each resource or subject matter was evaluated to determine if the Build or No Build alternatives would impact the resource or subject matter. The resources or subject matters that were either eliminated from further consideration or were studied in detail are listed and discussed below.

The technical reports prepared for the proposed project are listed below. Several technical memoranda and other documents were prepared in support of this Environmental Assessment (EA). A list of these documents is presented below in Table 5-1 and a summary of these reports is included in the respective sections below.

Table 5-1. Summary Technical Memoranda or Document

Technical Memoranda or Document	Date
Archeological Resources Background Study	July 2017
Air Quality Technical Report	August 2017
Community Impact Assessment Technical Report form	October 2017
Hazardous Materials Initial Site Assessment (ISA) and Hazardous Material Impact Evaluation	September 2017
Historic Resources Survey Report	November 2017
Traffic Noise Technical Report	July 2017
Wetlands/Waters of the U.S. Delineation Report and Functional Assessment	July 2017
Water Resources Technical Report	July 2017
Indirect and Cumulative Impacts Technical Report	October 2017
Biological Evaluation and Tier I forms	January 2018

Technical reports can be reviewed at the TxDOT, Dallas District office at 4777 East US Highway 80, Mesquite, Texas 75150, or by contacting the district office at 1-214-320-6100.

5.1 Right-of-Way/Displacements

5.1.1 Existing Conditions

The existing ROW for the project area is approximately 371 acres. The original as-built plans were signed in 1997.

5.1.2 Environmental Consequences

The proposed project would require 27 acres of new ROW. In addition, 1.2 acres of temporary construction easements, 3.5 acres of existing drainage easements, and 0.8 acre of proposed drainage easements are part of the proposed project (Appendix A, Figure 2). No residential or commercial property displacements or relocations are anticipated. The location of proposed ROW is

shown in Appendix A, Figure 2. The proposed project would not cause any residential, business or institutional displacements. However, as discussed in Section 5.4, natural gas pipeline equipment may need to be relocated, as shown in Appendix B, Figure 1, Photo 18, and a small amount of ROW at the edge of a neighborhood park at the Paloma Creek subdivision would be acquired.

When property acquisition is required, TxDOT's acquisition and relocation assistance program will provide assistance and counseling to property owners that would be required to relocate. The relocation assistance program is conducted in accordance with the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended; 49 CFR Part 24, Subparts C through F; and TxDOT policies and procedures. Relocation resources will be available, without discrimination, to all affected property owners.

Compliance procedures for federal projects under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) include:

- Provide uniform, fair and equitable treatment of persons whose real property is acquired or who are displaced in connection with federally funded projects;
- Ensure relocation assistance is provided to displaced persons to lessen the emotional and financial impact of displacement;
- Ensure that no individual or family is displaced unless decent, safe, and sanitary housing is available within the displaced person's financial means;
- Help improve the housing conditions of displaced persons living in substandard housing; and,
- Encourage and expedite acquisition by agreement and without coercion,

5.1.3 Impacts of the No Build Alternative

No ROW acquisition or relocations would be anticipated as a result of the No Build Alternative.

5.2 Land Use

5.2.1 Existing Conditions

Land uses were identified within a half-mile distance from the project ROW. Existing land use data is based on Geographic Information System (GIS) data provided by NCTCOG (NCTCOG 2015). Land uses were further verified with desktop research and field investigations, and data was revised as needed. Similar land use categories were combined to simplify the types of land use categories.

As illustrated on Appendix F, Figure 2, 12 distinct land use categories were identified within a half-mile of the project ROW. Farm/ranch land use is approximately 26 percent, residential land use is 26 percent, and vacant land use is 20 percent; these land uses are the highest percentages according to the NCTCOG land use data.

Table 5-2 summarizes the existing land use by category within a half mile of the ROW.

Table 5-2 Land Use within a Half-Mile of the Project ROW

Land Use Category	Acres	Percent of the Land Use within a Half-mile of the Project ROW
Cemeteries	7.4	0.1
Commercial	331.7	3.3
Education/Public	243.8	2.4
Farmland/Ranch	2,596.3	25.9
Improved Acreage*	96.7	0.9
Industrial	198.5	1.9
Parks/Recreation	952.2	9.5
Residential	2,638.5	26.3
Timberland	324.3	3.2
Utilities	46.9	0.6
Vacant	2,025.2	20.2
Water	575.8	5.7
Total	**10,030.3**	**100**

Source: NCTCOG 2015
* Improved acreage is defined as land use that is mostly undeveloped yet includes a non-residential structure with road access as a minor part of the use.

5.2.2 Environmental Consequences

All land uses that would be directly impacted by the proposed project would be permanently converted to transportation use, or easements. The proposed project would have the greatest impact on farmland/ranch, and vacant land uses. Table 5-3 displays the land use types and acres of each that would be affected by the proposed new ROW.

Table 5-3 Land Use Impacts within the New ROW

Land Use Category	Acres	Percent of New ROW
Commercial	1.9	7.2
Education/Public	0.9	3.3
Farmland/Ranch	10.9	40.5
Improved Acreage	0.1	0.4
Industrial	0.1	0.4
Parks/Recreation	0.9	3.4
Residential	4.7	16.7
Timberland	0.8	2.6
Vacant	6.7	25.5
Total	**27**	**100**

Source: NCTCOG 2015

5.2.3 Impacts of the No Build Alternative

The No Build Alternative would not result in the acquisition of additional ROW and no existing land uses would be converted to transportation uses.

5.2.4 Encroachment Alteration Effects

The proposed project would expand the existing roadway ROW by approximately 27 acres. The proposed ROW is adjacent to the existing ROW, and would not encroach on existing development or provide new access to undeveloped areas. In the future, due to the installation of raised medians, land use changes - especially for commercial business - may be more prevalent near median openings and intersections.

5.3 Farmlands

The Farmland Protection Policy Act (FPPA), as codified in 7 United States Code (USC) §4201 through 4209, was enacted in 1981 "…to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, and to assure that Federal programs are administered in a manner that, to the extent practicable, will be compatible with State, unit of local government, and private programs and policies to protect farmland" (7 USC 4201(b)). The FPPA requires federal agencies "…to identify and take into account the adverse effects of their programs on the preservation of farmland, to consider alternative actions, as appropriate, that could lessen adverse effects, and to ensure that their programs, to the extent practicable, are compatible with State and units of local government and private programs and policies to protect farmland."

According to the FPPA, the United States Department of Agriculture (USDA) is the agency "…primarily responsible for the implementation of Federal policy with respect to United States farmland…" The USDA granted the Natural Resources Conservation Service (NRCS) the authority to determine the criteria used to designate certain soil units as prime farmland, and the responsibility to maintain a nationwide inventory of prime and unique farmland. Under 7 Code of Federal Regulations (CFR) Part 657, the NRCS identifies and defines the soil units that qualify as FPPA-protected farmland, and the protected farmland is evaluated using the criteria and process provided by the NRCS in 7 CFR Part 658.

The FPPA provides protection to farmlands, which are classified into four distinct types: prime farmland, unique farmland, and farmland, other than prime or unique farmland, that is of statewide or local importance.

5.3.1 Existing Conditions

The project area is underlain by 34 soil units as mapped by the USDA NRCS. These soils generally occur in nearly level to sloping landscape positions ranging from 0 percent to 15 percent slopes. Drainage characteristics of the soils range from well drained to moderately well drained (Table 5-4). The Kaufman Clay soil map unit has a hydric soil rating of five (5), or 100 percent hydric, while the other 33 map units have a hydric soil rating of zero (0) or 0 percent hydric.

Table 5-4 Soil Descriptions

Farmland Classification— Summary by Map Unit — Denton County, Texas							
	Map Unit Symbol	Map Unit Name	Natural Drainage Class	Farmland Rating	Acres within Project Area	Percent of Project Area	Hydric Soil Rating
1	2	Altoga silty clay, 2 to 5 percent slopes	Well drained	Farmland of statewide importance	1.8	0.4%	0
2	3	Altoga silty clay, 5 to 8 percent slopes	Well drained	Not prime farmland	1.2	0.3%	0
3	7	Arents, hilly	Well drained	Not prime farmland	0.3	0.1%	0
4	12	Birome fine sandy loam, 3 to 5 percent slopes	Well drained	Not prime farmland	33.4	8.3%	0
5	13	Birome-Rayex-Aubrey complex, 2 to 15 percent slopes	Well drained	Not prime farmland	9.3	2.3%	0
6	18	Branyon clay, 0 to 1 percent slopes	Moderately well drained	All areas are prime farmland	56.1	13.9%	0
7	19	Branyon clay, 1 to 3 percent slopes	Moderately well drained	All areas are prime farmland	12.3	3.1%	0
8	20	Bunyan fine sandy loam, frequently flooded	Well drained	Not prime farmland	12.7	3.2%	0
9	21	Burleson clay, 0 to 1 percent slopes	Moderately well drained	All areas are prime farmland	14.6	3.6%	0
10	22	Burleson clay, 1 to 3 percent slopes	Moderately well drained	All areas are prime farmland	11.9	3.0%	0
11	23	Callisburg fine sandy loam, 1 to 3 percent slopes	Well drained	All areas are prime farmland	29.7	7.4%	0
12	24	Callisburg fine sandy loam, 3 to 5 percent slopes	Well drained	All areas are prime farmland	4.0	1.0%	0
13	25	Callisburg soils, 2 to 5 percent slopes, severely eroded	Well drained	Not prime farmland	0.5	0.1%	0
14	30	Energy fine sandy loam, frequently flooded	Well drained	Not prime farmland	0.3	0.1%	0
15	32	Ferris-Heiden clay, 5 to 15 percent slopes	Well drained	Not prime farmland	7.9	2.0%	0
16	34	Frio silty clay, frequently flooded	Well drained	Not prime farmland	3.5	0.9%	0
17	35	Gasil fine sandy loam, 1 to 3 percent slopes	Well drained	All areas are prime farmland	30.1	7.5%	0
18	36	Gasil fine sandy loam, 3 to 8 percent slopes	Well drained	Not prime farmland	10.7	2.7%	0
19	38	Gasil and Konsil soils, 1 to 5 percent slopes	Well drained	All areas are prime farmland	<0.1	<0.1%	0
20	39	Gowen clay loam, occasionally flooded	Well drained	Not prime farmland	3.4	0.8%	0
21	41	Heiden clay, 1 to 3 percent slopes	Well drained	All areas are prime farmland	2.4	0.6%	0

Farmland Classification— Summary by Map Unit — Denton County, Texas							
	Map Unit Symbol	Map Unit Name	Natural Drainage Class	Farmland Rating	Acres within Project Area	Percent of Project Area	Hydric Soil Rating
22	42	Heiden clay, 3 to 5 percent slopes	Well drained	All areas are prime farmland	4.4	1.1%	0
23	HoB	Houston Black clay, 1 to 3 percent slopes	Moderately well drained	Prime Farmland	0.2	<0.1%	0
24	49	Kaufman clay, frequently flooded	Moderately well drained	Not prime farmland	3.4	0.8%	5
25	50	Konsil fine sandy loam, 1 to 3 percent slopes	Well drained	All areas are prime farmland	17.6	4.4%	0
26	51	Konsil fine sandy loam, 3 to 8 percent slopes	Well drained	Not prime farmland	4.4	1.1%	0
27	53	Lewisville clay loam, 3 to 5 percent slopes	Well drained	All areas are prime farmland	7.0	1.7%	0
28	60	Navo clay loam, 1 to 3 percent slopes	Moderately well drained	Farmland of statewide importance	12.3	3.0%	0
29	62	Navo-Urban land complex, 0 to 3 percent slopes	Moderately well drained	Not prime farmland	7.0	1.7%	0
30	64	Ovan clay, frequently flooded	Moderately well drained	Not prime farmland	42.5	10.6%	0
31	71	Silawa loamy fine sand, 2 to 5 percent slopes	Well drained	All areas are prime farmland	<0.1	<0.1%	0
32	83	Wilson clay loam, 0 to 1 percent slopes	Moderately well drained	Farmland of statewide importance	12.0	3.0%	0
33	84	Wilson clay loam, 1 to 3 percent slopes	Moderately well drained	Farmland of statewide importance	40.7	10.1%	0
34	85	Wilson-Urban land complex, 0 to 2 percent slopes	Moderately well drained	Not prime farmland	1.0	0.3%	0
33	W	Water	-	Not prime farmland	3.8	0.9%	0

Source: NRCS website (http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx, accessed June 1, 2017).

Shallow excavation for the installation of signs, drainage modifications, minor cut and fill activities, and leveling of certain portions of the proposed project area would result in soil mixing and potential short-term erosion during the construction period. TxDOT's Hydraulic Design Manual (TxDOT 2016c) provides a discussion of storm water controls, including silt fences, to be implemented during construction to minimize soil erosion.

5.3.2 Environmental Consequences

Soils associated with prime and unique farmlands and farmlands of statewide or local importance are subject to protection under the FPPA. There are no designated unique farmland soils in the State of Texas. Prime farmland soils, as defined by the NRCS, are soils that are best suited to producing food, feed, fiber, forage, oilseed, and other agricultural crops. Prime farmland soils produce the highest yields with minimal inputs of energy and economic resources because of their quality, growing season, and moisture supply. Farming of these soils results in the least damage to the

environment. According to the FPPA, land already in or committed to urban development or water storage, including land with a density of 30 structures per 40-acre area; lands identified as ‘‘urbanized area’’ on the Census Bureau Map or as urban area mapped with a ‘‘tint overprint’’ on USGS topographical maps; or as ‘‘urban-built-up’’ on the USDA Important Farmland Maps, are not subject to the FPPA.

The proposed project ROW is underlain by multiple soil types as listed in Table 5-4. Approximately 11.8 acres of prime farmland and approximately 5.0 acres of farmland of statewide importance are included in the area of proposed for acquisition. An additional area of approximately 7.5 acres of proposed new ROW for acquisition is mapped by the NRCS as prime farmland and farmland of statewide importance; however, these mapped farmland areas are located in urbanized settings and therefore would no longer meet the NRCS definition of farmland. A Farmland Conversion Rating Form (NRCS-CPA-106) has been completed. The resulting score was less than 60; therefore, the proposed project area did not require further consideration for protection or coordination with the NRCS.

Erosion and sedimentation best management practices (BMPs) as specified by Texas Commission on Environmental Quality (TCEQ) would be implemented during construction to protect water quality.

Use of BMPs during construction would minimize potential adverse impacts from erosion and sedimentation, especially to areas of water crossings and areas with steep embankments.

5.3.3 Impacts of the No Build Alternative

Under the No Build Alternative, the existing soils, including soils associated with prime and unique farmlands, would not be directly impacted by roadway construction. However, soil impacts could occur from other development projects and activities.

5.3.4 Encroachment Alteration Effects

US 380 is an established roadway; however, some areas within the proposed new ROW and surrounding areas are currently undeveloped and are classified by NCTCOG as farmland/ranch land use. Farmland impacts would be limited to areas directly adjacent to the existing roadway and would not result in the division or separation of existing agricultural land. Farmlands would continue to function as they do under existing conditions; therefore, encroachment alteration effects stemming from farmland impacts are not anticipated as a result of the Build Alternative.

5.4 Utilities/Emergency Services

5.4.1 Existing Conditions

As shown on Appendix F, Figure 1, several existing utilities are within or in proximity to the proposed project area. Utilities include water wells, oil and gas wells, underground pipelines, and an electrical transmission line. The location and types of underground fiber optic lines were not specifically identified for this analysis. During final engineering design, the locations of other unknown utilities will be identified.

TCEQ's Water Utility Database and the Texas Water Development Board (TWDB) groundwater database was searched for information pertaining to water wells located in the proposed project area. There are active community water utilities in Denton County, including the City of Denton. Based on research performed, there are 100 active public water systems in Denton County identified by the TCEQ Safe Drinking Water Information System (SDWIS) (TCEQ 2016). The TWDB identified three groundwater wells within a quarter mile of the proposed project; uses for these wells were, domestic, public supply, and unused. No groundwater wells are located within the project ROW.

An oil and gas well record search was conducted based on ArcGIS dataset files and well records maintained by the Railroad Commission of Texas (RRC). No gas wells are mapped within a quarter mile of the existing and proposed ROW. Based on review of the RRC's well database, no oil and gas wells are identified within one mile of the proposed project.

Four pipelines cross or are within a half mile of the proposed project. These pipelines are owned by Atmos Energy Pipeline, Explorer Pipeline, and Energy Transfer LP. Based on records reviewed, these pipelines contain natural gas. These utilities would not be affected by or affect the proposed project.

No police stations are located in proximity to the proposed project. Two hospitals and four fire stations are located within a half mile of the proposed project (Appendix F, Figure 2).

5.4.2 Environmental Consequences

Utilities such as water lines, sewer lines, gas lines, telephone cables, electrical lines, and other subterranean and aerial utilities would require adjustment. Aerial and/or underground utilities would be adjusted and the required adjustments may or may not be provided for by the affected utility. The extent of utility adjustments is not known at this time and would be determined during final design. Coordination of any utility adjustments would take place during the design phase or before construction begins. All utility adjustments would be in accordance with TxDOT policies. The adjustment and relocation of any utilities would be handled so that no substantial interruptions in service would occur while these adjustments are being made. De-watering would occur as needed during construction. The depth to shallow groundwater is anticipated to vary depending generally on presence and thickness of water-bearing layers in the subsurface and the distance from Lake Lewisville, a potential source of surface to groundwater interaction. Shallow groundwater would likely occur within 20 to 30 feet of the ground surface in some areas and may be shallower in the vicinity of the lake based on the area geology. Geotechnical studies would be performed during final design to evaluate the need for dewatering based on the depth shallow groundwater and soil properties.

The effect on mobility should improve response time of emergency services. Although most areas could be accessed from the proposed median openings, in areas with raised medians the emergency responders would be required to make U-turns but would likely use emergency vehicle traffic signal preemption technology to change lights to get through traffic more rapidly. In addition, the proposed improvements would increase the safety of motor vehicles and pedestrians, thereby reducing the risk of accidents. The proposed project follows TxDOT's Access Management Manual date July 2011, and meets requirements for access of emergency vehicles. Any future needs for emergency vehicles crossings will be accommodated per the requirements of the TxDOT Access Management Manual.

5.4.3 Impacts of the No Build Alternative

If the No Build Alternative were implemented, the proposed improvements would not be constructed. Scheduled maintenance on the existing facility would continue and may result in limited utility related impacts. The No Build Alternative would not improve mobility in the project area for use by police, fire, and health care (ambulance) services.

5.5 Bicycle and Pedestrian Facilities

5.5.1 Existing Conditions

The existing US 380 roadway does not have continuous sidewalks or bicycle lanes to accommodate other modes of transportation such as bicyclists and pedestrians.

5.5.2 Environmental Consequences

In accordance with the federal Policy Statement on Bicycle and Pedestrian Accommodations Regulations and Recommendations by U.S. Department of Transportation (March 2010), TxDOT is including bicycle and pedestrian accommodations in the proposed project. The proposed project would include installation of continuous sidewalks, and the outside lanes would be 14-foot wide (shared-use lanes) to accommodate bicycle traffic making local services and facilities safer to access for pedestrians and bicyclists (Appendices C and D). All intersections will be designed in compliance with the Americans with Disabilities Act (ADA) per federal requirements.

5.5.3 Impacts of the No Build Alternative

The No Build Alternative would not put in place accommodations for bicycle and pedestrians in the project area.

5.5.4 Encroachment Alteration Effects

Accommodating bicyclists and pedestrian along the project corridor could increase the use of this facility for other modes of transportation.

5.6 Community Impacts

The assessment of the community resources for the proposed project includes Community/Public Facilities, Community Cohesion/Access and Travel Patterns, Environmental Justice (EJ) and Limited English Proficient populations in the project area. A *Community Impacts Assessment Technical Report form* was also prepared for the proposed project and is available for review at the TxDOT Dallas District Office. Other impacts such as Traffic Noise and Construction Phase impacts are discussed in Sections 5.14 and 5.17.

5.6.1 Existing Conditions

5.6.1.1 *Community/Public Facilities*

The proposed project crosses six towns or cities. The Town of Prosper and City of Frisco are the two of the fastest growing communities in Texas; the cities/towns are expected to have population increases of 600 and 180 percent between 2010 and 2040, respectively. Denton and Collin counties are expected to have population increases of 90 and 100 percent, respectively, between 2010 and 2040 putting pressure on the existing transportation routes to accommodate the growing population.

Starting at the western end of the proposed project at the SL 288 interchange, land use is primarily commercial (primarily gas stations, and car repair shops) and industrial (George Pacific packaging, Safety Clean, and United Copper). Heading farther east, the community character is undeveloped and residential properties are on large acreages until near Lake Lewisville, part of the United States Army Corps of Engineers reservoir on the Elm Fork of the Trinity River. The proposed project crosses the northern end of the Lake Lewisville in two places, requiring short bridges. In the location of the reservoir there is Fish Trap Park located south of the proposed project and the Greenbelt Corridor Ray Roberts/Lake Lewisville, both operated by the Texas Parks and Wildlife Department. East of Lake Lewisville, land in the project area is mostly undeveloped to approximately US 377, with mixed-use land to the north and a large mining operation near the US 377 intersection with US 380. Heading farther east, there is a mix of commercial and residential development; many areas near the eastern limit of the project are going through rapid single family residential development with associated commercial development. A high school was recently constructed on the corner of US 380 and Navo Road. Land Use and Community Resources are shown in Appendix F, Figure 2.

Many Census blocks within or in close proximity to the proposed project area are unpopulated. However, several neighborhoods and apartment complexes are located along the project corridor, as shown in Appendix F, Figure 2.

The proposed project improvements would require a total of approximately 27 acres of new ROW. Most of the surrounding land use is farm/ranch, vacant, and residential. As discussed in the *Community Impacts Assessment Technical Report form* (October 2017), several community or public facilities were identified with a half mile of the proposed project ROW. A small amount of ROW would be required from Paloma Creek Park, a neighborhood park, but the project would not impact any playground equipment or soccer fields, although it may impact a neighborhood sign. The park is for neighborhood residents and the park is owned by the Homeowners Association. (Appendix A, Figure 2, Sheet 7).

As discussed in Section 5.14, approximately 27 individual residences, front row apartments at The Luxe 3Eighty and Estate at 3Eight apartment complexes, three restaurants with outdoor patios, the Pet Haven Cemetery, and 12 homes in the Paloma Creek subdivision (approximately 24 receivers) would have projected noise impacts as a result of the proposed project, based on FHWA noise abatement criteria. Noise abatement measures were considered for impacted receivers; however, none were proposed for incorporation into the project.

5.6.1.2 *Access and Travel Patterns/Community Cohesion*

The proposed project crosses six towns or cities. At the western end of the project near SL 288, land use is primarily commercial and industrial. Between the commercial areas near SL 288 and Lewisville Lake, the community character is generally undeveloped or consists of suburban residential development on large tracts of land. The project area includes residential and commercial development. Lewisville Lake, part of the United States Army Corps of Engineers (USACE) reservoir on the Elm Fork of the Trinity River, is located in the central portion of the project area. Within the USACE owned property, Fish Trap Park is located south of the proposed project and Greenbelt Corridor Ray Roberts/Lewisville Lake is located north of the proposed project, both operated by Texas Parks and Wildlife Department. East of Lewisville Lake, land is mostly undeveloped except in the vicinity of US 377. The US 377 intersection with US 380 is characterized as mixed-use land to the north and there is a large mining operation to the south. Father east of this intersection, there is a mix of commercial and residential development; many areas near the eastern limit of the project are undergoing recent and rapid single family residential development and nearby associated commercial development.

Currently the existing roadway is an undivided rural roadway with middle turn lanes in most areas. The local community primarily travels by using passenger vehicle. Bicycling and walking along US 380 is challenging due to high vehicle speeds, heavy traffic, and lack of continuous sidewalks.

5.6.1.3 *Environmental Justice*

Executive Order (EO) 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations" requires each Federal Agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low income populations." FHWA has identified three fundamental principles of environmental justice:

1. To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects on minority and/or low-income populations;
2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and
3. To prevent the denial of, reduction in, or significant delay in receipt of benefits by minority populations

A minority population is defined as a group of people and/or a community experiencing common conditions of exposure or impact that consists of persons classified by the U.S. Census Bureau as Black, Asian, American Indian or Alaska Native, Hispanic, or other non-white persons, including those persons of two or more races. A low income population is defined as a group of people and/or a community that, as a whole, lives below the national poverty level. The average poverty level threshold for a family of four people, as defined by the U.S. Department of Health and Human Services (HHS) thresholds, was a total annual household income of $24,600 in 2017. For purposes of determining low-income populations, median household was examined, using the U.S. Census

poverty thresholds for 2010 to 2014 (a 5-year average), as reported in the American Community Survey (ACS).

The proposed project crosses four U.S. Census tracts, five U.S. Census block groups, and 66 U.S. Census blocks (Appendix F, Figure 3). U.S. Census tracts are reported for an area that typically contains approximately 4,000 persons; these units are considered small statistical subdivisions of a county. A U.S. Census block group is a collection of U.S. Census blocks within a defined U.S. Census tract.

Of the 66 U.S. Census blocks, 56 of the Census blocks have a reported zero population. Determination of the ethnicity of area population was therefore based on useable population data reported to be greater than zero. The average median household income for the 5 U.S. Census block groups is $46,515, according to the 2014 U.S. Census ACS 5-year survey.

Data compiled for the individual Census blocks within the project area were evaluated to identify minority and low-income populations within a relatively small geographic area. Minority populations within Census blocks, block groups, and tracts would be considered high if the minority population was greater than 50 percent of the total population in the project area. Low-income populations were considered to represent a high percentage of the total area population when the median household income was reported as being below the 2017 HHS poverty level for a family of four (i.e., less than $24,600).

Of the 140 Census blocks in the project area, 12 Census blocks have a 50 percent or higher minority population, including Census Tract 201.04, Block 3034; Census Tract 201.05, Blocks 1081 and 3023; Census Tract 201.06, Blocks 1081 and 2000; Census Tract 201.08, Blocks 1003 and 2002; Census Tract 201.09, Block 1002; Census Tract 205.06, Block 1036; Census Tract 206.02, Block 1000; Census Tract 214.05, Block 1002, and 214.05, Block 1004. A table with race, ethnicity, and income data for all 140 Census blocks in the project area is included in the *Community Impact Assessment Technical Report Form* dated October 2017. Census blocks with high minority populations are shown with cross-hatching in Appendix F, Figure 3. No Census block groups with low-income populations defined as median household incomes below the 2017 HHS poverty level were identified in the project area.

5.6.1.4 *Limited English Proficiency*

EO 13166, Improving Access to Services for Persons with Limited English Proficiency (LEP), requires 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 that LEP persons can have meaningful access to them.

According to the latest ACS 2011-2015 5-year estimates, less than 5 percent of persons residing within the two Census tracts of the proposed project area speak English less than “very well,” which is considered LEP.

The LEP population and languages spoken for the Census tracts and block groups in the proposed project area, Collin and Denton Counties and local town and cites encompassing the proposed

project is included in the *Community Impacts Assessment Technical Report Form* (October 2017). Of the LEP population, a majority is Spanish speaking and there are also Asian/Pacific Island and Indo-European speaking LEP populations in the local area. The LEP populations ranged from None of Census block groups have over a 50 percent LEP population; therefore, the proposed project is not anticipated to have a disproportionately negative effect on LEP households in the project area. No indicators of LEP populations, such as signage in languages other than English, were observed in the vicinity of the project during field investigations and surveys.

5.6.2 Environmental Consequences

5.6.2.1 *Community/Public Facilities*

As discussed in Section 5.6.1.1, the only community/public facility within the proposed project ROW that would be impacted is Paloma Creek Park, a neighborhood park. A small amount ROW would be required from Paloma Creek Park, but the project would not impact any playground equipment or soccer fields, although it may impact a neighborhood sign (Appendix F, Figure 2). Noise impacts to residential areas are discussed in detailed in Section 5.14. Visual impacts are discussed in Section 5.7. The proposed project would improve an existing roadway facility, and construction would be within the existing and proposed ROW and within proposed drainage and driveway easement areas.

The proposed project would add continuous sidewalks, and the outside lanes would be 14-feet wide (shared-use lanes) to accommodate bicycle traffic, making local services and facilities safer to access for pedestrians and bicyclists.

As discussed in Section 5.14, approximately 27 individual residences, front row apartments at The Luxe 3Eighty and Estate at 3Eight apartment complexes, three restaurants with outdoor patios, the Pet Haven Cemetery, and 12 homes in the Paloma Creek subdivision (approximately 24 receivers) would have projected future noise impacts based on FHWA noise abatement criteria. Noise abatement measures were considered for impacted receivers; however, none were proposed for incorporation into the project.

5.6.2.2 *Access and Travel Patterns/Community Cohesion*

Adjacent communities could be affected by temporary construction impacts and changes in travel patterns and access. Adjacent neighborhoods and businesses could be affected by temporary impacts during construction. The proposed project would add raised medians for vehicle and pedestrian safety. The proposed project has, on average, a traffic signal approximately every 0.5 mile; therefore, requiring people to turn at designated median openings and U-turns to access local services and facilities. During initial project coordination, stakeholders expressed their concerns regarding the need for additional median openings. Median opening requests will be revisited during the final design of the proposed project.

During the schematic phase of project development, a detailed travel demand model was not used to estimate travel times along the corridor and specific travel times between intersections or from neighborhoods to businesses or community facilities is not available. Based on proposed improvements to the corridor, the overall estimated travel times are expected to decrease due to the

improved level of service. The proposed improvements would allow traffic to move freely, with fewer interruptions, and at higher overall speeds. In addition, the intersection design improves the safety of motor vehicles and pedestrians. Adjacent properties may have changes in driveway locations; however, access would be maintained for all adjacent property owners. Access to existing neighborhoods is accommodated in the roadway design.

The proposed project would add continuous sidewalks and the outside lanes would be 14-foot wide (shared use lanes) to accommodate bicycle traffic, making local services and facilities safer to access for pedestrians and bicyclists (Appendix C and D).

The proposed roadway would not further separate or isolate existing cities, towns, or neighborhoods and there would be no anticipated impact to community cohesion.

5.6.2.3 *Environmental Justice*

No Census block groups have median household income below the 2017 HHS poverty level, defined as low-income. One noise receiver which represents one residential home is located in a Census block with a 50 percent or higher minority population. This residential home is anticipated to have future noise impacts according to the Noise Abatement Criteria (NAC), and noise abatement measures would not be feasible or reasonable based on FHWA guidance.

The traveling public and adjacent communities, including minority or low-income individuals/populations, could be affected by temporary construction impacts and changes in travel patterns and access. Based on proposed improvements to the corridor, the overall estimated travel times are expected to decrease due to the improved level of service. The proposed improvements would allow traffic to move freely, with fewer interruptions, and at higher overall speeds. In addition, the intersection design improves the safety of motor vehicles and pedestrians. Adjacent properties including minority and low-income individuals/populations may have changes in driveway locations; however, access would be maintained for all adjacent property owners.

The proposed project would add continuous sidewalks, and the outside lanes would be 14-foot wide (shared-use lanes) to accommodate bicycle traffic. These improvements would improve access to local services and facilities for pedestrians and bicyclists. The improvements benefit adjacent communities including minority and low-income individuals/populations.

The project impacts discussed would not be disproportionately high and adverse and would not be predominantly borne by minority or low-income populations.

TxDOT has ensured that opportunities for community input in the NEPA process have been, and would continue to be, provided. A reasonable attempt to solicit public comments was made at the public meeting held in the project area on May 12, 2016. English and Spanish language Public Notices were published in local newspapers, including the Dallas Morning News, Denton Record-Chronicle, Frisco Enterprise, Liberty Vindicator, Little Elm Journal, and Al Dia (Spanish Language Newspaper). Notices concerning the Public Meeting were developed in English and Spanish languages and mailed to adjacent landowners, elected officials, government officials, local organizations, civic groups, and published on the TxDOT website. The mailed notices and newspaper

announcements provided opportunities for citizens to request language interpreters. No requests were received. LEP populations were informed and will continue to be notified during regulatory process of the proposed project.

ROW acquisition for the proposed project would result in loss of property and sales tax revenues for local jurisdictions. Conversion of land to roadway ROW would have a negative impact on the local economy as current tax generating properties would no longer be on the tax rolls.

5.6.2.4 *Impacts of the No Build Alternative*

Under the No Build, there would be no direct impacts to adjacent properties. No mobility improvements such as sidewalks to accommodate bicyclists would be implemented.

5.6.3 Encroachment Alteration Effects

Environmental justice individuals/populations and nearby neighborhood/communities could be adversely impacted as traffic increases in future years. Due to the installation of raised medians, land use changes - especially for commercial business - may be more likely to occur near median openings and near intersections. The proposed project is expected to have minimal induced development; therefore, limited encroachment alteration impacts to community resources, including EJ populations, would be anticipated.

5.7 Visual/Aesthetics Impacts

Aesthetic quality refers to an individual's perception of natural beauty in a landscape. It can be determined by the presence of designated scenic areas, overlooks along trails or roadways, or a positive endorsement of a particular view by the public. Aside from general descriptors, a number of other factors may be taken into account when considering the aesthetic quality of a certain feature or landscape.

Among the factors are the following:

- Uniqueness of the landscape in relation to the region as a whole;
- Whether the scenic area is a foreground, middle-ground, or background view;
- Focus of the view;
- Scale of elements in a scene;
- Number of potential viewers;
- Duration of the view; and
- The amount of previous modifications or disturbances to the landscape.

5.7.1 Existing Conditions

Based on the listed criteria, the proposed project area exhibits a low to medium degree of aesthetic quality, with few unique views. A majority of the study area is categorized as farmland/ranch, vacant,

and residential. The vegetation communities in the undeveloped areas are primarily composed of urban vegetation (80 percent), Riparian vegetation (15 percent), and the remaining 5 percent is composed of row crops, grassland, shrubs and woodland. Existing views of the proposed project area are shown in the project photographs (Appendix B).

In areas of existing roadway ROW, residents and travelers would be accustomed to the vistas and aesthetic nature of those roadway portions. Adjacent to Lake Lewisville and in the 100-year floodplain of the lake, the scenic attributes are primarily vistas of wet vegetation, mixed woodland and forests, and the lake. The scenic vistas are generally associated with a rural lifestyle, except near the commercially developed areas along the project corridor, and possess an intrinsic value for those who live and travel through the area. The urbanized areas are comprised of commercial, light industrial and residential uses that are typically encountered near highway corridors.

5.7.2 Environmental Consequences

Visual impacts were evaluated based on professional judgment and the project design concepts to predict viewer groups' perceptions of the change to the environment. The extent of any potential impact is based on compatibility of the impact, viewer sensitivity of the impact, and the degree of the impact. Permanent and temporary visual impacts due to roadway improvements, construction activities, and displacement of businesses and sheds are expected.

Construction of the proposed project would remove some existing vegetation within the project ROW. Where practical, mitigation measures would establish vegetation within medians, in order to blend into the existing landscape, and promote roadside native wildflower planting programs. Ambient light levels would be considered during final design to minimize impacts to residences and businesses near the proposed project. To the extent possible, the proposed project would be designed to create a visually and aesthetically pleasing experience for the traveler and the adjacent residents and landowners.

The proposed project would construct five new overpasses at major intersections. These overpasses would be 16.5 feet minimum clearance. Although the proposed overpasses would be new structures in the viewshed, nearby areas are primarily farmland/ranch, vacant, commercial, and residential areas. Although there are many viewers of the proposed project, their sensitivity is most likely low because the viewer groups have likely become accustomed to the view of the existing highway.

5.7.3 Impacts of the No Build Alternative

The No Build Alternative would not change the existing visual and aesthetic qualities in the area. The US 380 corridor would continue to be a local visual landmark and serve as the primary transportation corridor in the area.

5.8 Cultural Resources

Cultural Resources are structures, buildings, archeological sites, districts (a collection of related structures, buildings, 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. In addition, state laws such as the Antiquities Code of Texas apply to these projects. Compliance with these laws often requires consultation with the Texas Historical Commission/Texas State Historic Preservation Officer (THC/SHPO) and/or federally-recognized tribes to determine the project's effect on cultural resources. Review and coordination of this project followed approved procedures for compliance with federal and state laws.

5.8.1 Archeology

5.8.1.1 *Existing Conditions*

For archeological resources the area of potential effects (APE) is the footprint of the proposed improvements. There are no recorded archeological sites within the APE.

5.8.2 Historic Properties

5.8.2.1 *Existing Conditions*

A review of the National Register of Historic Places (NRHP), the list of State Antiquities Landmarks (SAL), and the list of Recorded Texas Historic Landmarks (RTHL) indicated that no such resources have been previously documented within the historic resources APE. The APE was defined as existing ROW where the proposed project would not require new ROW, 150 feet from proposed ROW or easements in sections where the roadway would be widened and require new ROW or easements, and 150 feet from the limits of proposed grade separation structures. A reconnaissance survey was conducted of the APE; 54 historic-age resources (constructed before 1976) located on 27 parcels were documented. None of the documented resources are recommended eligible for the NRHP as a result of the survey.

Pursuant to Stipulation IX "Undertakings with Potential to Cause Effects" of the 2015 Programmatic Agreement among FHWA, the Texas SHPO, the Advisory Council on Historic Preservation (ACHP), and TxDOT, TxDOT determined that no historic properties would be affected. Because there are no eligible resources, there would be no direct, indirect, or cumulative effects to historic properties, including encroachment alteration effects. Individual coordination with the SHPO is not required.

5.8.2.2 *Environmental Consequences*

<u>Archeology</u>
Based on the results of background research, the proposed project is not expected to have any effects on archeological resources. No additional archeological investigations within the proposed APE are warranted at this time. Tribal coordination was required. No tribal objections to the proposed project were received, see Appendix G.

<u>Historic Properties</u>
In compliance with the First Amended Statewide Programmatic Agreement for Transportation Undertakings (PA-TU), a TxDOT historian determined that there are no historic non-archeological properties present in the APE. Individual project coordination with SHPO is not required.

5.8.2.3 *Impacts of the No Build Alternative*

As there are no archeological sites or historic properties within the APE, the No Build Alternative would have no impacts to these resources.

5.8.2.4 *Encroachment Alteration Effects*

There are no known archeological sites or historic properties within 1,300 feet of the APE. Therefore, any changes to the environment around the project would have no effect on NRHP-eligible cultural resources. The project would have no indirect effects to archeological sites and historic properties.

5.9 Department of Transportation (DOT) ACT Section 4(f), Land and Water Conservation Fund (LWCF) Act Section 6(f), and Texas Parks and Wildlife Code (PWC) Chapter 26

The proposed project would not require the use of, nor substantially impair the purposes of, any publicly owned land from a public park, recreational area, wildlife and waterfowl refuge lands, or historic sites of national, state, or local significance; therefore, a Section 4(f) Evaluation is not required.

Section 6(f) of the Land and Water Conservation Fund Act requires that recreational facilities receiving U.S. Department of Interior funding from the Land and Water Conservation Fund Act as allocated by Texas Parks and Wildlife Department (TPWD) may not be converted to non-recreational uses unless approval is received from TPWD and the National Park Service (NPS). There are no Section 6(f) resources in the proposed project area.

Chapter 26 of the Texas Parks and Wildlife Code includes provisions similar to the federal Section 4(f) regulation, including requiring a finding that there is no feasible and prudent alternative to the use or taking of the protected land, that the project includes all reasonable planning to minimize harm and that a public hearing be held prior to the approval of the use of land from these publicly-owned park properties. There are no Chapter 26 resources in the proposed project area.

5.10 Water Resources

5.10.1 Clean Water Act Section 404

Section 404 of the Clean Water Act (CWA) authorizes the USACE to regulate discharges of dredged or fill material into waters of the United States, including wetlands. Additionally, the discharge of dredged or fill material into jurisdictional waters requires CWA Section 401 water quality certification from the TCEQ. EO 11990, Protection of Wetlands, directs federal agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands on federal lands.

5.10.1.1 *Existing Conditions*

Nineteen potentially jurisdictional Waters of the United States (WOUS) were identified within the existing and proposed ROW during field investigations performed in July 2016. These potentially jurisdictional WOUS include: Cooper Creek (WOUS 1); Timber Branch (WOUS 2); Elm Fork Trinity River (WOUS 4), an adjacent forested wetland (W 1), an unnamed slough (WOUS 5), and an unnamed tributary (WOUS 3); Cantrell Slough (WOUS 10) and two unnamed tributaries (WOUS 8 and 9); Lake Lewisville (WOUS 11) and three unnamed tributaries (WOUS 6, 7, and 12); Doe Branch (WOUS 15) and two unnamed tributaries (WOUS 13 and 14); two manmade drainage ditches (Ditches 1 and 2); and an erosional channel (EC 1). These waters are depicted on Appendix F, Figure 4. Detailed descriptions of the potentially jurisdictional WOUS are included below and summarized in Table 5-5.

<u>Crossing 1 (Cooper Creek – WOUS 1)</u>

Cooper Creek is depicted on United States Geological Survey (USGS) topographic maps and on National Wetlands Inventory (NWI) maps. On NWI maps it is depicted as a seasonally flooded intermittent riverine streambed. It lies within the regulatory floodplain, Zone AE, and a designated floodway. At the time of the field visit water was observed standing within the channel at a depth of approximately four to six inches. Wetland Determination Data Forms were completed on either side of the stream. No wetlands were identified at the crossing. Vegetation along Cooper Creek consists of maintained ROW and riparian woodland. The tree stratum is dominated by boxelder (*Acer negundo*), black willow (*Salix nigra*), green ash (*Fraxinus pennsylvanica*), and American elm (*Ulmus americana*). The sapling/shrub stratum is dominated by boxelder and hackberry (*Celtis laevigata*). The herbaceous stratum is dominated by giant ragweed (*Ambrosia trifida*), johnsongrass (*Sorghum halepense*), Virginia wildrye (*Elymus virginicus*), curly dock (*Rumex crispus*), annual sumpweed (*Iva annua*), and rough cocklebur (*Xanthium strumarium*). The woody vine stratum is dominated by poison ivy (*Toxicodendron radicans*).

<u>Crossing 2 (Manmade Ditch Through Upland Area – Ditch 1)</u>

Ditch 1 is not depicted on USGS topographic maps or NWI maps. It does not lie within the regulatory floodplain. It appears to be a manmade drainage ditch and is only visible on the south side of US 380. No Ordinary High Water Mark (OHWM) was observed. At the time of the field visit water was observed standing within the channel at a depth of approximately one to two inches. Wetland Determination Data Forms were completed inside and outside of the ditch. The area within the ditch met the wetland criteria. Vegetation within and along Ditch 1 consists of maintained ROW. The sapling/shrub stratum is dominated by green ash, black willow, and American sycamore (*Platanus occidentalis*). The herbaceous stratum is dominated by johnsongrass, and barnyardgrass (*Echinochloa crus-galli*).

<u>Crossing 3 (Manmade Drainage Ditch Through Upland Area – Ditch 2)</u>

Ditch 2 is not depicted on USGS topographic maps or NWI maps. It does not lie within the regulatory floodplain. It appears to be a manmade drainage ditch. No OHWM was observed. At the time of the field visit water was observed standing within the channel at a depth of approximately one to two inches. Wetland Determination Data Forms were completed inside and outside of the ditch. The area within the ditch did not meet wetland criteria. Vegetation within and along Ditch 2 consists of riparian woodland. The tree stratum is dominated by green ash, American elm, boxelder, and black

willow. The sapling/shrub stratum is dominated by American elm, cedar elm (*Ulmus crassifolia*), and Chinese privet (*Ligustrum sinense*). The woody vine stratum is dominated by poison ivy.

Crossing 4 (Timber Branch – WOUS 2)

WOUS 2 is depicted on USGS topographic maps and on NWI maps. On NWI maps it is identified as a seasonally flooded intermittent riverine streambed. It does not lie within the regulatory floodplain. An OHWM was only present on the north side of US 380. At the time of the field visit water was observed standing within the channel at a depth of approximately six inches. Wetland Determination Data Forms were completed on either side of the channel. The tree stratum is dominated by red mulberry (*Morus rubra*), pecan (*Carya illinoinensis*), and hackberry. The sapling/shrub stratum is dominated by hackberry, pecan, Osage orange (*Maclura pomifera*), American elm, yaupon (*Ilex vomitoria*), and common persimmon (*Diospyros virginiana*). The herbaceous stratum is dominated by Virginia wildrye. The woody vine stratum is dominated by poison ivy and saw greenbrier (*Smilax bona-nox*).

Crossing 5 (Unnamed Tributary to Elm Fork Trinity River – WOUS 3)

WOUS 3 is depicted on USGS topographic maps and on NWI maps. On NWI maps it is identified as a seasonally flooded intermittent riverine streambed. It does not lie within the regulatory floodplain. Wetland Determination Data Forms were completed on either side of the channel. No water was observed within the channel at the time of the field visit. Vegetation is primarily herbaceous with a narrow area of small trees and saplings near the edge of the existing ROW. The tree stratum is dominated by hackberry, cedar elm, and black willow. The sapling/shrub stratum is dominated by Chinese privet, hackberry, American elm, and cedar elm. The herbaceous stratum is dominated by Cherokee sedge (*Carex cherokeensis*). The woody vine stratum is dominated by poison ivy and saw greenbrier.

Crossing 6 (Elm Fork Trinity River – WOUS 4, Adjacent Forested Wetland, Unnamed Slough – WOUS 5, and Unnamed Tributary to Lake Lewisville – WOUS 6)

The Elm Fork Trinity River is depicted on USGS topographic maps and on NWI maps. It is depicted on NWI maps as a diked/impounded, permanently flooded, lacustrine, limnetic lake with an unconsolidated bottom. It lies within the regulatory floodplain, Zone AE. At the time of the field visit water was observed flowing within the channel at a depth of approximately ten to twenty feet. A forested wetland was identified on both sides of the channel. Wetland Determination Data Forms were completed on either side of the river and at various locations within the adjacent wetland and along the wetland boundary. The tree stratum is dominated by American elm, eastern cottonwood (*Populus deltoides*), green ash, and black willow. The sapling/shrub stratum is dominated by boxelder, hackberry, green ash, and cedar elm. The herbaceous stratum is dominated by giant ragweed. The woody vine stratum is dominated by poison ivy.

Vegetation within the adjacent forested wetland is primarily woody and consists of trees, saplings, shrubs, and vines. The tree stratum is dominated by American elm, hackberry, pecan, common persimmon, eastern cottonwood, black willow, green ash, boxelder, cedar elm, water hickory (*Carya aquatica*), American sycamore, and honeylocust (*Gleditsia triacanthos*). The sapling/shrub stratum is dominated by deciduous holly (*Ilex decidua*), green ash, American elm, hackberry, red mulberry, boxelder, cedar elm, and American sycamore. The herbaceous stratum is dominated by giant

ragweed, johnsongrass, and green flatsedge (*Cyperus virens*). The woody vine stratum is dominated by poison ivy, and peppervine (*Nekemias arborea*).

WOUS 5 is depicted on USGS topographic maps, but not on NWI maps. It appears to be a slough that only flows when the Elm Fork Trinity River is high enough to flow into it. It lies within the regulatory floodplain, Zone AE, south of US 380 and flows to the east parallel to the roadway. At the time of the field visit water was observed flowing within the channel at a depth of approximately four to eight feet. Vegetation along the slough is the same as that along the river and within the adjacent forested wetland.

WOUS 6 is depicted on USGS topographic maps and on NWI maps. On NWI maps it is identified as a riverine, intermittent, seasonally flooded streambed. It lies within the regulatory floodplain, Zone AE. At the time of the field visit a pool of water was observed standing within the channel at a depth of approximately four to six inches. It flows through a portion of the forested wetland associated with the Elm Fork Trinity River that extends east of Rock Hill Road through a culvert. Vegetation along WOUS 6 is primarily woody except for an area of what appears to be a pipeline easement. The tree stratum is dominated by American elm, cedar elm, and black willow. The sapling/shrub stratum is dominated by common persimmon, black willow, American elm, and green ash. The herbaceous stratum is dominated by giant ragweed, annual sumpweed, barnyardgrass, and johnsongrass. The woody vine stratum is dominated by southern dewberry (*Rubus trivialis*).

<u>Crossing 7 (Unnamed Tributary to Lake Lewisville – WOUS 7)</u>
WOUS 7 is depicted on USGS topographic maps and on NWI maps. On NWI maps it is identified as a seasonally flooded intermittent riverine streambed. It does not lie within the regulatory floodplain. A few scattered pools of water were observed standing within the channel at the time of the field visit. Wetland Determination Data Forms were completed adjacent to the channel. Vegetation along the channel is herbaceous and appears to be mown regularly. The herbaceous stratum is dominated by johnsongrass, common bermudagrass (*Cynodon dactylon*), southern cattail (*Typha domingensis*), common spikerush (*Eleocharis palustris*), soft rush (*Juncus effusus*), and Vasey's grass (*Paspalum urvillei*).

<u>Crossing 8 (Unnamed Tributary to Cantrell Slough – WOUS 8)</u>
WOUS 8 is depicted on USGS topographic maps and on NWI maps. On NWI maps it is identified as a seasonally flooded intermittent riverine streambed. It does not lie within the regulatory floodplain. No OHWM was visible on the north side of US 380. At the time of the field visit water was observed standing within the channel at a depth of approximately six inches. A Wetland Determination Data Form was completed adjacent to the channel. Vegetation is primarily herbaceous with woody species along the ROW boundary. The tree stratum is dominated by hackberry, Osage orange, and black willow. The sapling/shrub stratum is dominated by American elm. The herbaceous stratum is dominated by johnsongrass, perennial ryegrass (*Lolium perenne*), and Canada goldenrod (*Solidago canadensis*).

<u>Crossing 9 (Unnamed Tributary to Cantrell Slough – WOUS 9)</u>
WOUS 9 is depicted on USGS topographic maps but not on NWI maps. It does not lie within the regulatory floodplain. No OHWM was visible on the north side of US 380. At the time of the field visit

water was observed standing within the channel at a depth of approximately four inches. A Wetland Determination Data Form was completed adjacent to the channel. Vegetation is primarily herbaceous, with woody species along the ROW boundary. The tree stratum is dominated by cedar elm and honeylocust. The sapling/shrub stratum is dominated by cedar elm, honeylocust, and eastern red cedar (*Juniperus virginiana*). The herbaceous stratum is dominated by johnsongrass, perennial ryegrass, and white tridens (*Tridens albescens*).

Crossing 10 (Cantrell Slough – WOUS 10)

Cantrell Slough is depicted on USGS topographic maps and on NWI maps. On NWI maps it is identified as a seasonally flooded palustrine forested broad-leaved deciduous wetland. It lies within the regulatory floodplain, Zone AE. At the time of the field visit water was observed standing within the channel at a depth of approximately six to twenty-four inches. A Wetland Determination Data Form was completed adjacent to the channel. Vegetation is primarily herbaceous, with woody species along the ROW boundary. The sapling/shrub stratum is dominated by cedar elm and hackberry. The herbaceous stratum is dominated by giant ragweed, johnsongrass, and southern crabgrass (*Digitaria ciliaris*).

Crossing 11 (Erosional Channel 1)

Erosional Channel 1 is not depicted on USGS topographic maps or NWI maps. A portion of the channel lies within the regulatory floodplain, Zone AE. It appears to be an erosional channel. Flow is to the north and there is no OHWM south of US 380. At the time of the field visit water was observed flowing within the channel at a depth of approximately twenty-four inches. A Wetland Determination Data Form was completed adjacent to the channel. Vegetation is primarily herbaceous, with some shrubs along the ROW boundary. The sapling/shrub stratum is dominated by Chickasaw plum (*Prunus angustifolia*). The herbaceous stratum is dominated by common bermudagrass, perennial ryegrass, johnsongrass, and purple passionflower (*Passiflora incarnata*).

Crossing 12 (Lake Lewisville – WOUS 11)

WOUS 11 is depicted on USGS topographic maps and on NWI maps. On NWI maps it is identified as diked/impounded seasonally flooded palustrine forested broad-leaved deciduous wetland and diked/impounded permanently flooded lacustrine limnetic lake with an unconsolidated bottom. It lies within the regulatory floodplain, Zone AE. At the time of the field visit water was observed standing within the channel at a depth of approximately ten to twenty feet. Wetland Determination Data Forms were completed on either side of the lake. Vegetation is primarily herbaceous, with trees along the ROW boundary. The tree stratum is dominated by green ash, water hickory, honeylocust, and black willow. The sapling/shrub stratum is dominated by honeylocust and common persimmon. The herbaceous stratum is dominated by giant ragweed, annual sunflower (*Helianthus annua*), annual sumpweed, and swamp smartweed (*Polygonum hydropiperoides*).

Crossing 13 (Unnamed Tributary to Lake Lewisville – WOUS 12)

WOUS 12 is depicted on USGS topographic maps and on NWI maps. On NWI maps it is identified as a seasonally flooded intermittent riverine streambed. It does not lie within the regulatory floodplain. No water was observed within the channel at the time of the field visit. A Wetland Determination Data Form was completed adjacent to the channel. Vegetation is herbaceous and appears to be mown regularly. The dominant species is common bermudagrass.

Crossing 14 (Unnamed Tributary to Doe Branch – WOUS 13)

WOUS 13 is depicted on USGS topographic maps and on NWI maps. On NWI maps it is identified as a seasonally flooded intermittent riverine streambed. It does not lie within the regulatory floodplain. At the time of the field visit water was observed flowing within the channel at a depth of approximately twenty-four inches. Wetland Determination Data Forms were completed on either side of the channel. Vegetation is primarily herbaceous and appears to be mown regularly. There are some saplings present. The sapling/shrub stratum contains hackberry and boxelder. The herbaceous stratum is dominated by common bermudagrass, giant ragweed, winged pigweed (*Cycloloma atriplicifolium*), johnsongrass, purple passionflower, Canada goldenrod, southern cattail, and curly dock.

Crossing 15 (Unnamed Tributary to Doe Branch – WOUS 14)

WOUS 14 is depicted on USGS topographic maps and on NWI maps. On NWI maps it is identified as a seasonally flooded palustrine forested broad-leaved deciduous wetland. It does not lie within the regulatory floodplain. At the time of the field visit water was observed standing within the channel at a depth of approximately twenty-four inches. Wetland Determination Data Forms were completed on either side of the channel. Vegetation is primarily herbaceous and appears to be mown regularly. Some saplings/shrubs are present. The sapling/shrub stratum contains black willow. The herbaceous stratum is dominated by common bermudagrass, cuman ragweed (*Ambrosia psilostachya*), giant ragweed, annual sumpweed, johnsongrass, and rough cocklebur.

Crossing 16 (Doe Branch – WOUS 15)

WOUS 15 is depicted on USGS topographic maps and on NWI maps. On NWI maps it is identified as a seasonally flooded palustrine forested broad-leaved deciduous wetland. It lies within the regulatory floodplain, Zone AE. At the time of the field visit water was observed flowing within the channel at a depth of approximately twelve to eighteen inches. Wetland Determination Data Forms were completed adjacent to the channel. Vegetation is herbaceous and appears to be mown regularly. The herbaceous stratum is dominated by common bermudagrass, rough cocklebur, Vasey's grass, giant ragweed, narrowleaf cattail (*Typha angustifolia*), common spikerush, green flatsedge, and purple passionflower.

Table 5-5 Summary of Potentially Jurisdictional WOUS Within the Project Area

Single and Complete Crossing #	Name of Water Body	Width of Average OHWM within ROW (feet)**	Water of the U.S.? (Yes/No)	Linear Feet/Acres of Potentially Jurisdictional WOUS Within the Existing ROW***	Linear Feet/Acres of Potentially Jurisdictional WOUS Within the Proposed ROW	Linear Feet/Acres of Impacts	Permit Required if PJD Requested?	NWP 14 Permit Potentially Required?	PCN Potentially Required?
1	Cooper Creek (WOUS 1)	64	Yes	668 ln ft/ 0.64 acre	None	84 ln ft/ 0.08 acre	Yes	No	No
2	Manmade Drainage Ditch Through Upland Area (Ditch 1)	NA	No*	13 ln ft/ 0.003 acre	None	4 ln ft/ 0.0002 acre	Yes	No	No
3	Manmade Drainage Ditch Through Upland Area (Ditch 2)	NA	No	No OHWM; not a wetland	None	No OHWM; not a wetland	No	No	No
4	Timber Branch (WOUS 2)	6	Yes	75 ln ft/ 0.01 acre	None	44 ln ft/ 0.01 acre	Yes	Yes	No
5	Unnamed Tributary to Elm Fork Trinity River (WOUS 3)	14	Yes	382 ln ft/ 0.1 acre	20 ln ft/ 0.002 acre	67 ln ft/ 0.02 acre	Yes	Yes	No
6	Elm Fork Trinity River (WOUS 4)	130	Yes	330 ln ft/ 0.99 acre	None	None	Yes	No	No
	Adjacent Forested Wetland (Wetland 1)	NA	Yes	20.88 acres	None	0.11 acre	Yes	Yes	Yes
	Unnamed Slough (WOUS 5)	80	Yes	1,422 ln ft/ 0.55 acre	None	None	Yes	No	No
	Unnamed Tributary to Lake Lewisville (WOUS 6)	5	Yes	258 ln ft/ 0.03 acre	None	None	Yes	No	No
7	Unnamed Tributary to Lake Lewisville (WOUS 7)	7	Yes	699 ln ft/ 0.11 acre	None	23 ln ft/ 0.002 acre	Yes	Yes	No
8	Unnamed Tributary to Cantrell Slough (WOUS 8)	4	Yes	21 ln ft/ 0.002 acre	None	21 ln ft/ 0.002 acre	Yes	Yes	No
9	Unnamed Tributary to Cantrell Slough (WOUS 9)	3	Yes	None	14 ln ft/ 0.001 acre	10 ln ft/ 0.001 acre	Yes	Yes	No
10	Cantrell Slough (WOUS 10)	35	Yes	204 ln ft/ 0.21 acre	145 ln ft/ 0.07 acre	213 ln ft/ 0.13 acre	Yes	Yes	Yes
11	Erosional Channel 1	13	No*	36 ln ft/ 0.01 acre	None	36 ln ft/ 0.01 acre	Yes	Yes	No

Single and Complete Crossing #	Name of Water Body	Width of Average OHWM within ROW (feet)**	Water of the U.S.? (Yes/No)	Linear Feet/Acres of Potentially Jurisdictional WOUS Within the Existing ROW***	Linear Feet/Acres of Potentially Jurisdictional WOUS Within the Proposed ROW	Linear Feet/Acres of Impacts	Permit Required if PJD Requested?	NWP 14 Permit Potentially Required?	PCN Potentially Required?
12	Lake Lewisville (WOUS 11)	598	Yes	260 ln ft/ 3.57 acre	None	225 ln ft/ 0.06 acre	Yes	Yes	No
13	Unnamed Tributary to Lake Lewisville (WOUS 12)	24	Yes	18 ln ft/ 0.01 acre	None	11 ln ft/ 0.004 acre	Yes	Yes	No
14	Unnamed Tributary to Doe Branch (WOUS 13)	11	Yes	266 ln ft/ 0.07 acre	None	88 ln ft/ 0.01 acre	Yes	Yes	No
15	Unnamed Tributary to Doe Branch (WOUS 14)	20	Yes	245 ln ft/ 0.11 acre	None	73 ln ft/ 0.02 acre	Yes	Yes	No
16	Doe Branch (WOUS 15)	38	Yes	218 ln ft/ 0.19 acre	None	3 ln ft/ 0.0001 acre****	Yes	Yes	No

*While we believe that an Approved Jurisdictional Determination (AJD) may determine these to be non-jurisdictional manmade ditches through uplands and an erosional channel, the decision to pursue a Preliminary Jurisdictional Determination (PJD) would result in these being treated as jurisdictional WOUS.

**The average OHWM within the ROW is an estimate made during field investigations.

***Linear feet/acres of potentially jurisdictional WOUS within the existing ROW includes the portion that is currently culverted for streams where the existing structure is a culvert and the portion within existing drainage easements.

****Impacts at Crossing 16 would be from construction of bridge columns.

5.10.1.2 *Environmental Consequences*

If the Build Alternative is implemented, a Nationwide Permit (NWP) 14, Linear Transportation Projects with Pre-Construction Notification (PCN), would likely be used to permit the anticipated impacts to both Wetland 1 and WOUS 10 (Cantrell Slough).

5.10.1.3 *Impacts of the No Build Alternative*

The No Build Alternative would not result in impacts to waters of the United States. Water bodies within or traversing existing roadway ROW would continue to be maintained to expedite the conveyance of storm water flows. Vegetated riparian areas adjacent to some of the water bodies within existing ROW would likely persist in their present condition.

5.10.1.4 *Encroachment Alteration Effects*

Encroachment alteration effects are those effects that alter the behavior and functioning of the physical environment, and are related to design features, but are removed in time or distance from the direct effect. Anticipated fill impacts to waters of the United States, including wetlands, would generally be limited to the proposed project footprint. Temporary and permanent impacts to waters of the United States would not be expected to disrupt any natural processes in the project area.

5.10.2 Clean Water Act Section 401

The discharge of dredged or fill material into jurisdictional waters requires CWA Section 401 water quality certification from the TCEQ.

5.10.2.1 *Environmental Consequences*

The TCEQ has provided Section 401 water quality certification for permits issued under the USACE's nationwide permit program; therefore, the use of NWP 14 would not require additional coordination relative to water quality certification. Should a USACE standard permit be required, it is anticipated that the proposed Build Alternative would meet the TCEQ's Section 401 Water Quality Certification Tier I (Small Projects), because it would impact less than 3 acres of waters of the United States, including wetlands, and less than 1,500 linear feet of streams. The project would implement all BMPs required by the TCEQ for Tier I projects and in accordance with the Tier I Checklist.

5.10.2.2 *Impacts of the No Build Alternative*

The No Build Alternative would not result in impacts to waters of the United States. Water bodies within or traversing existing roadway ROW would continue to be maintained to expedite the conveyance of storm water flows. Vegetated riparian areas adjacent to some of the water bodies within existing ROW would likely persist in their present condition.

5.10.2.3 *Encroachment Alteration Effects*

Anticipated fill impacts to waters of the United States, including wetlands, would generally be limited to the proposed project footprint. Temporary and permanent impacts to waters of the United States would not be expected to disrupt any natural processes in the project area. The potential for

project-related encroachment-alteration effects on water quality would be mitigated through permanent (post-construction) BMPs as described above. To minimize the potential for adverse impacts, BMPs would be regularly inspected and proactively maintained.

BMPs would be implemented to ensure that water quality impacts would not be substantial; therefore, mitigation is not required.

5.10.3 Executive Order 11990 Wetlands

EO 11990, Protection of Wetlands, established a national policy "…to avoid to the extent possible, the long-term and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative." Alternatives available to add capacity to an existing roadway are limited; however, the original roadway design for the proposed project was modified through reductions in required new ROW and other adjustments to avoid, to the extent practicable, potential adverse impacts to identified waters of the United States, including wetlands.

5.10.4 Rivers and Harbors Act

Section 14 of the Rivers and Harbors Act, as codified in 33 USC 408 (Section 408) allows the USACE to grant other entities permission for temporary or permanent alteration or use of a USACE Civil Works project. Lake Lewisville is a Civil Works project owned and operated by the USACE. TxDOT will coordinate with the USACE relative to the project improvements proposed to occur within USACE-controlled areas of Lake Lewisville.

5.10.5 Clean Water Act Section 303(d)

The TCEQ is required under Section 303(d) of the CWA to identify water bodies that do not meet, or are not expected to meet, applicable water quality standards for their designated uses.

5.10.5.1 *Environmental Consequences*

The TCEQ has developed surface water quality standards that apply to all surface waters in the state of Texas (Texas Administrative Code Title 30, Chapter 307). These standards were last amended in June 2010 and represent rules designed to establish goals for water quality throughout the state. However, during the following triennial review, the TCEQ revised and adopted the 2014 standards and submitted the package to the United States Environmental Protection Agency (EPA). This means that the 2014 standards are in effect for non-federal programs unless specifically disapproved by the EPA while the entire package is under review. The standards provide a basis on which TCEQ regulatory programs can establish reasonable methods to implement and attain the established goals for water quality.

The TCEQ routinely collects data from surface water-quality monitoring sites on the classified segments within each of the watersheds listed above. As required under Sections 303(d) and 305(b) of the federal Clean Water Act (CWA), this list identifies the water bodies in or bordering Texas for which effluent limitations are not stringent enough to implement water quality standards, and for

which the associated pollutants are suitable for measurement by maximum daily load. Pursuant to these acts, the TCEQ has developed a Water Quality Impairments (WQI) index which identifies all water bodies with one or more impairments.

The TCEQ's Texas CWA Section 303(d) List identifies impaired waters (i.e., water bodies that do not meet minimum standards in specific categories). The TCEQ assigns each water body in the state a category designation from 1 to 5. The higher the category number, the higher the level of effort that is required to manage the water quality. Category 1 water bodies meet all designated uses and require only routine monitoring and preventive action. Category 5 waters require TCEQ action to restore water quality. The standards provide a basis on which TCEQ regulatory programs can establish reasonable methods to implement and attain the established goals for water quality. A water body is considered impaired if its designated use(s) is affected by a pollutant or condition of concern and the water quality standards are not met. Water bodies assigned to Category 4 or 5 are considered by the TCEQ to be impaired waters.

In addition, the TCEQ also develops a schedule identifying Total Maximum Daily Load (TMDL) that will be initiated in the next two years for priority impaired waters. TMDL is a regulatory term for the CWA describing a value of the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards. Issuance of permits to discharge into 303(d)-listed water bodies is described in the TCEQ regulatory guidance document Procedures to Implement the Texas Surface Water Quality Standards (June 2010, RG-194). A management strategy will be assigned to address each impairment. Specific strategies may include TMDL development, water quality standards evaluation, or additional monitoring.

The proposed US 380 study area is located in Basin 8, which is also known as the Trinity River Basin. Five surface water segments occur within five miles of the proposed project. Only two of the five water segments transect the proposed project corridor. These are Lake Lewisville (Segment 0823) and Doe Branch stream (Segment 0823D).

Table 5-6 Surface Waters in the Project Area

Segment No.	Segment Name	Description	Impaired
0823	Lake Lewisville	From Lewisville Dam in Denton County to a point 100 meters (110 yards) upstream of US 380 in Denton County, up to normal pool elevation of 515 feet (impounds Elm Fork Trinity River)	No
0823A	Little Elm Creek	From confluence with Lake Lewisville in Denton Co., up to 1.4 km above FM 453 in Collin Co.	No
0823C	Clear Creek	From the confluence with Lake Lewisville in Denton County to the headwaters west of Montague in Montague County	No
0823D	Doe Branch	From the confluence (NHD RC 12030103023518) with Lake Lewisville /Elm Fork Trinity in Denton County to the headwaters (NHD RC 12030103005935) northeast of Celina, Collin Co., TX.	No
0839	Elm Fork	From a point 100 meters (110 yards) upstream of US 380 in Denton County to Ray Roberts Dam in Denton County	No

Source: TCEQ 2014.
Notes: FM = Farm-to-Market; SH = State Highway; TSWQS = Texas Surface Water Quality Standards.

The proposed project includes a total of zero impaired water quality segments within five miles of the project corridor.

All storm water would discharge directly to Segment 0823, Lake Lewisville, which is not listed on the 2014 303(d) List (EPA-approved on November 19, 2015), extending from Lewisville Dam in to a point 100 meters upstream of US 380 in Denton County.

5.10.5.2 *Impacts of the No Build Alternative*

The No Build Alternative would not result in impacts to waters of the United States. Water bodies within or traversing existing roadway ROW would continue to be maintained to expedite the conveyance of storm water flows. Vegetated riparian areas adjacent to some of the water bodies within existing ROW would likely persist in their present condition. No changes to the water quality of Lake Lewisville are expected.

5.10.6 Clean Water Act Section 402

Pursuant to Section 402 of the CWA, under TCEQ regulations for implementing the Texas Pollutant Discharge Elimination System (TPDES), this project would require a construction general permit (CGP), and the preparation of a Storm Water Pollution Prevention Plan (SW3P).

5.10.6.1 *Environmental Consequences*

The project would disturb more than 5 acres of earth and is thus considered a “large construction activity” under the Construction General Permit (CGP). TxDOT will obtain coverage by preparing and implementing an SW3P, posting a construction site notice, submitting a notice of intent (NOI) and associated fee to TCEQ, submitting the NOI to the operator of any Municipal Separate Storm Sewer System (MS4) into which storm water will be directly discharged, and otherwise complying with the CGP terms.

5.10.6.2 *Impacts of the No Build Alternative*

The No Build Alternative would not require a construction general permit.

5.10.7 Floodplains

Portions of the proposed project are located within the Federal Emergency Management Agency (FEMA) 100-year floodplain as depicted on FEMA Flood Insurance Rate Map (FIRM) Nos. 48121C0380G, 48121C0385G, 48121C0405G, 48121C0410G, and 48121C0430G for Denton County, Texas (all dated April 18, 2011).

5.10.7.1 *Environmental Consequences*

Approximately 72.31 acres of 100-year floodplain of Lake Lewisville exist within the proposed project's ROW (Appendix F, Figure 5). Denton and Collin Counties are participants in the National Flood Insurance Program (NFIP).

Hydraulic design information would be coordinated with the local floodplain administrators for Denton County prior to construction so that the proposed project would not have an adverse effect on the floodplains/floodways in the project area. The proposed project would be designed so that natural drainage and/or ponding would not be affected and change the base flood elevations (BFEs) greater than one foot above the 100-year flood at any point in the community. The proposed project would not increase the BFEs to a level that would violate applicable floodplain regulations and ordinances. The proposed bridge structures traversing Lake Lewisville would be designed so that the floodplain would not be adversely affected, nor cause flooding to property owners upstream and downstream of the proposed project. No alteration or relocation of water bodies is anticipated as a result of the proposed project.

Section 60.3 (d)(3) of the NFIP regulations states that a community is to "prohibit encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base (100 year) flood discharge" (FEMA 2000).

Based on NFIP regulations, prior to issuance of construction permits involving activities in a regulated floodway, a letter of no objection must be obtained. The request for the letter of no objection must be supported by technical data stating that construction of the proposed project would not impact the base flood elevation, floodway elevations, or floodway data widths that are present prior to construction.

5.10.7.2 *Impacts of the No Build Alternative*

The No Build Alternative would not change the existing floodplain of Lake Lewisville.

5.10.7.3 *Encroachment Alteration Effects*

No encroachment alteration (or indirect) effects to floodplain are anticipated as a result of the proposed project.

5.10.8 Wild and Scenic Rivers

In Texas, the only river segment listed in the federal Wild and Scenic Rivers Act is the Rio Grande. The designated segment begins within Big Bend National Park and extends approximately 191 miles downstream. This segment is located over 500 miles west of the proposed project. Based on a project scoping analysis, it was determined that neither the No Build Alternative nor the Build Alternative would have an impact on this resource. No mitigation for wild and scenic rivers would occur.

5.10.9 Coastal Barrier Resources

The Coastal Barrier Resources Act does not apply since the proposed project is not located in the coastal barrier resource area. No coastal barriers are located within the proposed project area; therefore, the proposed project would have no impact on coastal barrier resources.

5.10.10 Coastal Zone Management

The Coastal Zone Management Act does not apply since the proposed project is not located in the Texas Coastal Zone. No Coastal Zone Management Act areas are located within the proposed project area; therefore, the proposed project would have no impact on coastal zone management areas.

5.10.11 Edwards Aquifer

The project will not be constructed over the recharge or contributing zones of the Edwards Aquifer; therefore, the project is not subject to regulation under TCEQ's Edwards Aquifer rules.

5.10.12 International Boundary and Water Commission

No project activities would cross or encroach upon the floodplains of any United States Section, International Boundary and Water Commission (USIBWC) flood control project or ROW. Therefore, no license or permit is required from the USIBWC.

5.10.13 Drinking Water Systems

The project is located over the Trinity Aquifer. The Trinity Aquifer extends across much of the central and northeastern part of the state. It is composed of several smaller aquifers contained within the Trinity Group. These aquifers consist of limestones, sands, clays, gravels, and conglomerates. Their combined freshwater saturated thickness averages about 600 feet in North Texas and about 1,900 feet in Central Texas. According to the TCEQ database, no public drinking water wells were identified within a quarter mile of the proposed project. As discussed in Section 5.4, additional water wells were identified in the TWDB groundwater database but those wells are not regulated as public

water wells. Therefore, no impacts to groundwater wells are anticipated. BMPs utilized to avoid water quality degradation would serve to protect groundwater quality.

5.10.13.1 *Encroachment Alteration Effects*

Encroachment alteration effects for water resources found within the proposed project area could occur primarily due to increased impervious surface area, which could result in increased non-point source runoff, altered recharge (flow and quality) into the aquifer system and surface waters, increased localized erosion, and degraded water quality downstream. Effects would also occur in limited areas where vegetation in the proposed project area is removed during construction, which could accelerate off-site erosion due to runoff. Construction of the proposed roadway improvements could encroach on the surface or subsurface drainage areas of adjacent aquatic features, altering the hydrologic regime in those features. Use of BMPs within the proposed project area would minimize water quality effects downstream. With regard to groundwater, adverse ecological effects could occur if highway runoff reaches the water table due to infiltration of overland flow, or if water quality impairment.

5.11 Biological Resources

5.11.1 Vegetation

The proposed project occurs within the transition zone between the Backland Prairie and Cross Timbers ecoregions. In accordance with the September 2013 Memorandum of Understanding (MOU) between TPWD and TxDOT (Revised 2017), the project area was mapped using the Ecological Mapping Systems of Texas (EMST) which categorized the project area into 23 different vegetation types.

Based on field investigations conducted on June 29 and 30, 2016 by qualified biologists, it was determined that the project area consists of 12 different vegetation types (Appendix F, Figure 6) as described in the *TPWD's Descriptions of Systems, Mapping Subsystems, and Vegetation Types for Phase III*. Field-verified vegetation types identified within the project area include: (1) Native Invasive: Mesquite Shrubland; (2) Native Invasive: Deciduous Woodland; (3) Central Texas: Floodplain Herbaceous Vegetation; (4) Central Texas: Floodplain Hardwood Forest; (5) Central Texas: Riparian Herbaceous Vegetation; (6) Central Texas: Riparian Hardwood Forest; (7) Blackland Prairie: Disturbance or Tame Grassland; (8) Open Water; (9) Swamp; (10) Row Crops; (11) Urban Low Intensity; and (12) Urban High Intensity.

Unusual vegetation features identified within the project area include unmaintained vegetation outside of the existing ROW, fencerow vegetation along the edges of existing ROW, and riparian vegetation along streams. Special habitat features that occur within the project area include water bodies associated with Lake Lewisville and cliff swallow nests under the US 377 overpass at US 380 and US 380 bridges over Lake Lewisville.

Disturbed areas would be restored and stabilized as soon as the construction schedule permits. Soil disturbance would be minimized in the ROW in order to minimize invasive species establishment. In accordance with the EO 13112 on Invasive Species and the Executive Memorandum on Beneficial

Landscaping, seeding and replanting with TxDOT approved seeding specifications would be performed.

5.11.1.1 *Environmental Consequences*

The Build Alternative would result in approximately 200.2 acres of potential permanent impacts (not including areas mapped as Open Water) and 0.7 acre of temporary impacts to vegetation. Permanent impacts were assumed for all areas within the proposed and existing ROW including drainage easements. Temporary vegetation impacts were assumed for driveway easements. TxDOT would only clear that which is necessary to construct and maintain the proposed project. Therefore, impacts presented in Table 5-7 are conservative and would likely be less.

Table 5-7 Potential Impacts to Field-verified MOU Vegetation*

EMST Vegetation Type	Ecological System Type	TxDOT-TPWD MOU Types	MOU Threshold (acres)	Temporary Impacts (acres)	Permanent Impacts (acres)	Total Impacts (acres)
Urban Low Intensity	Urban	Urban	NA	0.6	164	164.6
Urban High Intensity	Urban					
Total Potential Impacts to Urban MOU Vegetation						**164.6**
Row Crops	Agriculture	Agriculture	10	0	2.2	2.2
Total Potential Impacts to Agriculture MOU Vegetation						**2.2**
Blackland Prairie: Disturbance or Tame Grassland	Texas Blackland Tallgrass Prairie	Tallgrass Prairie, Grassland	2	0.1	3	3.1
Total Potential Impacts to Tallgrass Prairie, Grassland MOU Vegetation						**3.1**
Central Texas: Riparian Hardwood Forest	Southeastern Great Plains Riparian Forest	Riparian	0.1	0	0.6	0.6
Central Texas: Riparian Herbaceous Vegetation	Southeastern Great Plains Riparian Forest			0	0.6	0.6
Swamp	Azonal Wetland			0	17.7	17.7
Central Texas: Floodplain Hardwood Forest	Southeastern Great Plains Floodplain Forest			0	9.9	9.9
Central Texas: Floodplain Herbaceous Vegetation	Southeastern Great Plains Floodplain Forest			0	1.4	1.4
Total Potential Impacts to Riparian MOU Vegetation						**30.2**
Native Invasive: Deciduous Woodland	Native Invasive Shrub and Woodland	Disturbed Prairie	3	0	0.6	0.6
Native Invasive: Mesquite Shrubland	Native Invasive Shrub and Woodland			0	0.2	0.2
Total Potential Impacts to Disturbed Prairie MOU Vegetation						**0.8**
TOTAL						**200.9**

Note: This table does not include areas mapped as Open Water by EMST

As shown on Table 5-7, the proposed project would exceed impact thresholds set by the Threshold Programmatic Agreement between TxDOT and TPWD for Tallgrass Prairie, Grassland; and Riparian MOU vegetation types. Therefore, coordination with TPWD was required. TPWD coordination was completed on November 6, 2017.

5.11.1.2 *Impacts of the No Build Alternative*

Under the No Build Alternative, existing ROW would continue to be urban vegetation such as mowed and maintained, riparian areas, grassland, shrubs and woodland. Unmaintained areas within the proposed ROW would continue natural secession, as long as unrelated changes in land management practices or development do not occur.

5.11.1.3 *Encroachment Alteration Effects*

Potential impacts to vegetation would be confined to the easements and existing and proposed ROW; thus, encroachment-alteration effects would not occur.

5.11.2 Wildlife

5.11.2.1 *Existing Conditions*

The project area lies within the Texan biotic province. Common mammals that could occur throughout Denton County include Virginia opossum (*Didelphis virginiana*), nine-banded armadillo (*Dasypus novemcinctus*), eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), big brown bat (*Eptesicus fuscus*), Mexican free-tailed bat (*Tadarida brasiliensis*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), common gray fox (*Urocyon cinereoargenteus*), ringtail (*Bassariscus astutus*), common raccoon (*Procyon lotor*), long-tailed weasel (*Mustela frenata*), American badger (*Taxidea taxus*), striped skunk (*Mephitis mephitis*), bobcat (*Lynx rufus*), white-tailed deer (*Odocoileus virginianus*), hispid cotton rat (*Sigmodon hispidus*), eastern cottontail (*Sylvilagus floridanus*), and black-tailed jackrabbit (*Lepus californicus*) (Schmidly 1994). More than 200 bird species could migrate through the proposed project area throughout the year (City of Lewisville 2008).

<u>Migratory Bird Treaty Act of 1918</u>

The Migratory Bird Treaty Act (MBTA) of 1918 states that it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, young, feather, or egg in part or in whole without a Federal permit issued in accordance within the Act's policies and regulations. The contractor would remove all old migratory bird nests from any structure where work would be done from October 1 to February 15. In addition, the contractor would be prepared to prevent migratory birds from building nest(s) between February 15 and October 1. In the event that migratory birds are encountered on-site during project construction, efforts to avoid adverse impacts to protected birds, active nests, eggs and/or young would be implemented, per the Environmental Permits, Issues, and Commitments (EPIC) plans. Cliff swallow nests were observed under the US 377 overpass at US 380 and US 380 bridges over Lake Lewisville during the June 2016 field investigations.

Bald and Golden Eagle Protection Act of 1940, as amended

Within the United States or anywhere within its jurisdiction, bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are protected by the Bald and Golden Eagle Protection Act (BGEPA) of 1940. Suitable nesting and roosting habitat was identified adjacent to the action area in the forests adjacent to Lake Lewisville. No potential nesting or roosting habitat for bald or golden eagles was identified in the action area, as verified by a qualified biologist. Additionally, no bald eagles or bald eagle nests were observed in the action area during field investigations, and there are no known nests within 10 miles of the proposed project. Brent Ortego, former eagle specialist with TPWD, was consulted and confirmed that TPWD is not aware of any bald eagle nests near Lake Lewisville. Therefore, the proposed project is not anticipated to impact bald or golden eagles.

Essential Fish Habitat (EFH)

The Magnuson-Stevens Fishery Conservation and Management Act, as amended on October 11, 1996, requires all federal agencies whose actions would impact essential fish habitat (EFH) to consult with the National Marine Fisheries Service (NMFS) regarding potential adverse effects. The proposed project does not contain tidally influenced waters. Therefore, the requirements of the Magnuson-Stevens Fishery Management and Conservation Act do not apply.

5.11.2.2 *Environmental Consequences*

Implementation of the proposed Build Alternative would likely have temporary and permanent impacts to wildlife. Temporary impacts to wildlife could occur during construction as animals could be injured or killed by moving machinery. Permanent impacts could occur by the addition of new travel lanes resulting in an increase in roadkill. Habitat fragmentation would not be a concern for this project as no new edges would be created, just widening of existing edges.

In accordance with the MBTA, vegetation clearing would occur outside of the nesting season (February 15 through September 30). If vegetation clearing is to occur within the nesting season, additional surveys prior to construction to ensure active nests are not present would be required. If active nests are present, no work would occur in that area during the nesting and breeding season. The proposed project is not anticipated to have any effect on migratory birds. Additional Bird Best Management Practices (BMPs) listed in Table 5-8 would also be implemented.

The project would have no impact on bald or golden eagles, as no suitable roosting or nesting sites occur within the proposed project area.

5.11.2.3 *Impacts of the No Build Alternative*

The No Build alternative would not require new ROW. Therefore, the existing facility would continue to have the impacts typically associated with a highway, such as roadkill. No impacts to migratory birds, including bald or golden eagles would occur.

5.11.2.4 *Encroachment Alteration Effects*

Alteration effects to potential wildlife habitat due to the proposed project would only occur in the area between the existing and proposed ROW. Therefore, impacts to potential wildlife habitat would be limited to the area of direct impacts, and no encroachment alteration effects are expected.

5.11.3 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 assigns the responsibility of enforcement to the Secretary of the Interior and the U.S. Fish and Wildlife Service (USFWS). Chapters 68 and 88 of the TPWD code address TPWD's responsibilities regarding state-listed threatened and endangered species. A review of the threatened and endangered species lists for Denton County, Texas, maintained by the USFWS and the TPWD, identified federal and state-listed threatened, endangered, and candidate species, as well as species considered rare by the state. A list of these species, a description of their habitat requirements, identification of habitat present in the project area, and effect/impact calls are presented in the *Tier I Site Assessment* and *Biological Evaluation Form* prepared for this project (TxDOT 2018). This assessment was conducted through a background review, field visits to the project area in June 2016, and information received from The Texas Natural Diversity Database (TXNDD). The TXNDD and is a geo-referenced database of documented sightings of rare, threatened, and endangered species, as well as native plant communities of Texas maintained by TPWD (Appendix G).

5.11.3.1 *Environmental Consequences*

TPWD conducted a search of the TXNDD on December 18, 2017. Based on TPWD findings, no elements of occurrence records or managed areas were documented within 1.5 miles of the project area.

No habitat for federally protected species was identified in the action area, as verified by a qualified biologist during field investigations on June 29 and 30, 2016.

The action area supports some small patches of suitable habitat for three state-listed threatened species, the timber rattlesnake (*Crotalus horridus*), Texas heelsplitter (*Potamilus amphichaenus*), and Texas pigtoe (*Fusconaia askewi*). However, only one of these species (the Texas heelsplitter) was documented within 10 miles of the project area by the TXNDD. Suitable habitat for the Texas heelsplitter and Texas pigtoe occurs within Lake Lewisville and its tributaries (Appendix F, Figure 5). Woodlands within and adjacent to the project area provide habitat for the timber rattlesnake.

The proposed project also contains potential habitat for three Species of Greatest Conservation Need (SGCN): western burrowing owl (*Athene cunicularia hypugaea*), plains spotted skunk (*Spilogale putorius interrupta*), and Texas garter snake (*Thamnophis sirtalis annectens*). Culverts and open areas could provide suitable habitat for western burrowing owl. The plains spotted skunk could occur throughout the project area, primarily in undisturbed areas. Wet or moist areas within and adjacent to the project area provide habitat for Texas garter snake.

Direct impacts to these species would be mitigated by implementing TPWD-TxDOT Memorandum of Understanding (MOU) BMPs listed below in Table 5-8.

Table 5-8 Listed Species that Could Potentially Occur Within the Project Area and Applicable BMPs

Name	Status	BMP
Texas Heelsplitter (*Potamilus amphichaenus*)	State Threatened	Freshwater Mussel BMPs: • When work is in the water; survey project footprints for state-listed species where appropriate habitat exists. • When work is in the water and mussels are discovered during surveys; relocate state-listed and SGCN mussels under TPWD authorization and implement Water Quality BMPs. • When work is adjacent to the water, implement Water Quality BMPs as part of the SWPPP for a construction general permit or any conditions of the Section 401 water quality certification for the project will be implemented. In addition to BMPs required for a TCEQ SW3P and/or 401 water quality permit, the following Water Quality BMPs will be implemented: • 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.
Texas Pigtoe (Fusconaia askewi)		
Timber/Canebrake Rattlesnake (*Crotalus horridus*) and Texas Garter Snake (Thamnophis sirtalis annectens)	State Threatened	Terrestrial Reptile BMPs: • Apply hydromulching and/or hydroseeding in areas for soil stabilization and/or revegetation of disturbed areas where feasible. If hydromulching and/or hydroseeding are not feasible due to site conditions, utilize erosion control blankets or mats that contain no netting or contain loosely woven, natural fiber netting is preferred. Plastic netting should be avoided to the extent practicable. • 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. • Inform contractors that if reptiles are found on project site allow species to safely leave the project area. • Avoid or minimize disturbing or removing downed trees, rotting stumps, and leaf litter where feasible. • Contractors will be advised of potential occurrence in the project area, and to avoid harming the species if encountered.
	SGCN	

Name	Status	BMP
Western Burrowing Owl (*Athene cunicularia hypugaea*)	SGCN	In addition to complying with the MBTA perform the following Bird BMPs: • 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. • Do not disturb, destroy, or remove active nests, including ground nesting birds, during the nesting season. • Avoid the removal of unoccupied, inactive nests, as practicable. • 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.
Plains Spotted Skunk (Spilogale putorius interrupta)	SGCN	Contractors will be advised of potential occurrence in the project area, and to avoid harming the species if encountered, and to avoid unnecessary impacts to dens.

Source: Best Management Practices – Programmatic Agreement between Texas Department of Transportation and Texas Parks and Wildlife Department under the 2013 MOU, 2017 Revision.

The project contains suitable habitat for state-listed threatened species and SGCN; therefore, these species could potentially be impacted by the project. The BMPs listed above would be implemented to mitigate potential impacts and will be included in the EPIC sheet. These BMPs eliminate the need for coordination for all species. However, coordination with TPWD was triggered as a result of the project requiring a NWP with a PCN to the USACE and for exceeding MOU thresholds for vegetation impacts. Coordination with TPWD was initiated on August 24, 2017 and was completed on November 6, 2017. The proposed project would have no effect on federally-listed species; therefore, coordination with the USFWS is not required.

5.11.3.2 *Impacts of the No Build Alternative*

The No Build alternative would not require any construction activities and would have no effect on any federal or state-listed threatened or endangered species or SGCN.

5.11.3.3 *Encroachment Alteration Effects*

Impacts to potential wildlife habitat would be limited to the area of direct impacts, and no encroachment alteration effects are expected.

5.12 Air Quality

5.12.1 Existing Conditions

The proposed project is located in Denton County, Texas which is included in the area that has been designated by the EPA as a moderate nonattainment area for the 2008 Eight Hour Ozone National Ambient Air Quality Standards (NAAQS); therefore, transportation conformity rules apply. NCTCOG's financially constrained 2040 MTP and the 2017-2020 TIP, were initially found to conform to the TCEQ SIP by the FHWA and FTA on September 7, 2016 and December 19, 2016, respectively.

However, the proposed project is not consistent with this conformity determination, because the project needs to be revised in the STIP and MTP. TxDOT will not take final action on this environmental document until the proposed project is consistent with a currently conforming MTP and TIP. The *Air Quality Technical Report*, dated November 2017, is on file with TxDOT.

5.12.2 Environmental Consequences

As shown in Table 3-2, traffic data for the ETC year 2023 and future year 2040 traffic is 49,800 vehicles per day (VPD) and 74,300 VPD, respectively. A prior TxDOT modeling study and previous analyses of similar projects demonstrated that it is unlikely that the carbon monoxide (CO) standard would ever be exceeded as a result of any project with an average annual daily traffic (AADT) below 140,000.

The amount of mobile source air toxics (MSATs) emitted would be proportional to the vehicle miles traveled (VMT), assuming that other variables such as fleet mix are the same for Build and No Build alternatives. The VMT estimated for the Build Alternative is expected to be slightly higher than the No Build Alternative, because the additional roadway capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the Build alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOVES2014 model, emissions of all of the priority MSAT decrease as speed increases. Environmental Protection Agency (EPA) regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES2014 model forecasts a combined reduction of over 90 percent in the total annual emissions rate for the priority MSAT from 2010 to 2050 while vehicle miles of travel are projected to increase by over 45 percent (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, October 12, 2016 - http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm). Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, this will reduce the background level of MSAT emissions as well as the possibility of even minor MSAT emissions for this project.

The proposed additional travel lanes would have the effect of moving some traffic closer to nearby homes, and businesses; therefore, under the Build Alternative, there may be localized areas where ambient concentrations of MSAT could be higher under the Build Alternative than the No Build Alternative. The localized increases in MSAT concentrations would likely be pronounced in areas where ROW would be acquired near intersections between Teel Parkway and US 377. However, the magnitude and the duration of these potential increases compared to the No Build Alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project specific MSAT health impacts. In sum, when a highway is widened, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSAT will be lower in other locations where traffic could be shifted in an opposite direction. On a regional basis, EPA's vehicle and fuel regulations, coupled with fleet

turnover, will over time cause substantial MSAT reductions that, in almost all cases, will cause region wide MSAT levels to be significantly lower than today.

In FHWA's view, information is incomplete or unavailable to credibly predict the project specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed project. A full qualitative MSAT analysis is included in the Air Quality Technical Report (November 2017).

As discussed in the *Air Quality Technical Report* (November 2017), the congestion management process (CMP) helps to manage congestion by providing information on transportation system performance and by developing strategies for alleviating congestion. The proposed US 380 project was developed as a committed congestion reduction strategy and is described by NCTCOG's operational CMP found at http://www.nctcog.org/trans/cmp/. The proposed project described by the CMP includes the reconstruction and widening of existing US 380 from a four-lane undivided rural roadway to a six-lane divided urban roadway with 12-foot wide inside travel lanes and 14-foot outside shared-use lanes (for bicycle accommodation). Other congestion mitigation strategies incorporated into US 380 improvements as part of the CMP include intersection improvements such as, grade separations, construction of ramps, and left and right turn lanes at designated locations.

In July 2013, the Regional Transportation Council (RTC) adopted a policy that requires the review and application of congestion mitigation strategies to correct corridor deficiencies identified in the CMP when performing corridor and environmental studies and report findings back to NCTCOG. As a result, the NCTCOG developed a project-level CMP analysis. The analysis requires completion of the Project Implementation Form, and, if warranted, the Roadway Corridor Deficiency Form and Corridor Analysis Fact Sheet. The results of these analyses are provided in Appendix E.

Based on the regional and project specific CMP analysis, the proposed project is justified. The CMP analysis, both regional and project specific, for added Single Occupancy Vehicle (SOV) capacity projects in the Transportation Management Area (TMA) is on file and available for review at NCTCOG.

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. As discussed in Section 5.17.1, considering the temporary and transient nature of construction-related emissions, the use of fugitive dust control measures, the encouragement of the use of Texas Emissions Reduction Plan (TERP), and compliance with applicable regulatory requirements; it is not anticipated that emissions from construction of this project would have any significant impact on air quality in the area.

5.12.3 Impacts of the No Build Alternative

Implementation of the No Build alternative is expected to continue the overall regional trend of improving air quality due to the implementation of EPA's vehicle and fuel regulations, coupled with fleet turnover.

5.12.4 Encroachment Alteration Effects

Encroachment alteration effects to air quality are generally evaluated when applicable by using a series of analyses including: regional conformity analysis; CO traffic air quality analysis (TAQA); hot spot analysis for criteria pollutants, and MSAT analysis for air toxics. This project did not rise to the level of needing a CO TAQA or hot-spot analysis; however, the project is required to be consistent with the regional conformity analysis which is documented in the conformity report form, and a qualitative MSAT analysis is included in the *Air Quality Technical Report* (November 2017).

Overall air quality is not expected to be adversely impacted by the proposed project.

5.13 Hazardous Materials

This section describes baseline conditions and potential environmental impacts or effects of hazardous materials on the Build and No Build Alternatives of the proposed project. The information presented herein has been summarized primarily from the *Hazardous Materials ISA and the Hazardous Materials Project Impact Evaluation* reports issued approved in September 2017. The term “hazardous materials” refers to a broad category of hazardous wastes, hazardous substances and toxic chemicals that can negatively impact human health or the environment. Examples of potential hazardous materials sites include, but are not limited to, sites such as gasoline service stations, landfills, salvage yards, industrial sites, and other sites impacted by soil and groundwater contamination. A review of selected environmental regulatory databases was conducted to determine the potential for hazardous material issues within and near the proposed project area. The review of the environmental regulatory databases was performed in general accordance with the American Society for Testing and Materials (ASTM) Standard E1527-13 and TxDOT guidelines, which defines the environmental record sources to be reviewed and their minimum search distances.

5.13.1 Existing Conditions

The Hazardous Materials ISA report provides information pertaining to regulated facilities in the project vicinity within the ASTM standard search radius of the proposed US 380 project. The *Hazardous Materials Project Impact Evaluation* identifies the potential hazardous materials concerns as they relate to project construction and/or ROW acquisition for those issues and concerns identified by the project *Hazardous Materials ISA*. This section summarizes the findings of the *Hazardous Materials ISA* and the results of the *Hazardous Materials Project Impact Evaluation*. The evaluation of the hazardous materials sites was based on the review of available information presented by the regulatory database report dated August 2, 2017, analysis of existing records maintained by the TCEQ and other agencies with jurisdiction or information, and observations made during field investigations conducted along the proposed project ROW. The location of the regulated sites was refined during the field investigations and only parcels located within and adjacent to the

proposed project were included in the evaluation. Using this methodology, a focused evaluation of the current land use and regulatory status of the recorded sites was conducted for the project limits. In addition, each of the sites located within and adjacent to the proposed project was evaluated so that an understanding of potential issues that could be encountered during construction activities was identified.

5.13.2 Environmental Consequences

Environmental impacts generated from hazardous materials in the project area would be associated with current or historical facilities that have impacted or have the potential to impact the environment. Facilities or regulated sites within the ROW would need to be acquired if a Build Alternative is selected. Additional investigation would be conducted at sites or facilities with known or potential hazardous materials impacts. The potential for encountering hazardous materials during construction would be identified during this assessment as well as any required sampling, analysis, remediation and soil/groundwater management.

After ROW acquisition, during construction of the proposed project, there is a possibility that hazardous materials impacts on or near existing hazardous materials sites may occur in areas adjoining mapped and identified contaminant migration areas. In particular, facilities or areas identified by the *Hazardous Materials ISA* have been assigned to a specific, color-coded category relative to potential unresolved concern to the proposed project. Sites classified as requiring additional information to resolve, or that may exhibit a high level of concern, have been assigned to colors yellow or red, in accordance with the following criteria.

Possible Project Impacts (Yellow): Not enough information is currently known about the project and/or the issue to determine potential impacts. Further investigation, and/or additional project design and ROW information, is required.

Anticipated Project Impacts (Red): The issue has a high potential to impact the proposed project and further investigations, co-ordination, or contingencies may be required.

There are three sites that contain issues that have a high potential to impact the proposed project and further investigation is needed to resolve (Map IDs 4, 6, and 25). There are four sites that present possible project impacts so that additional information and further investigation is needed (Map IDs 6, 11, 12, and 20). Table 5-9 presents a summary of unresolved hazardous materials sites associated with the proposed project and Appendix F, Figure 1 provides their location and classification on an aerial base map.

Table 5-9 Summary of Unresolved Hazardous Materials Sites

Map ID	Site Information	Location in Reference to Project	Regulatory Database Listing(s)	Environmental Concern Summary	Potential to Impact Project
4	Brother's Garden Center/Ice Box 4915 26748 US Hwy 380 Aubrey, TX 76227 (current facility is Ice Box (Exxon))	Adjacent S, Proposed ROW Acquisition	LPST PST	The former facility utilized three 4,000-gallon gasoline and diesel underground storage tanks (USTs), which were removed from the ground in 2006. A release was subsequently reported in 2007. Groundwater was impacted with no apparent threats or impacts to receptors. Final concurrence was issued in 2008 and the case was closed. A review of historic aerial photos showed the former facility was razed in approx. 2009-2010. The site was fully redeveloped in 2014 with the current facility, Ice Box (Exxon). The current facility utilizes one 20,000-gallon gasoline UST and one 20,000-gallon split gasoline/diesel UST that were installed in 2014. No releases have been reported for the current facility. ROW acquisition is proposed from the north side and northeast corner of this property. The facility's tank hold abuts the proposed ROW acquisition (Appendix B, Photo 13). Although no releases are reported from the current facility, with the prior release from the former facility and the location of the proposed ROW in relation to the current tank hold, this facility is considered a high environmental risk.	High
6	Express Shop/ CB Express 3430 E University Dr. Denton, TX 76201 (current facility is used car sales, Matt's Motors)	Adjacent S, Proposed ROW Acquisition	LPST PST	The facility formerly utilized nine USTs of various sizes, between 1972 to 2009, and have all been removed from the ground. In order of age of installation and removal, the USTs are as follows: two 1,000-gallon (contents not reported), installed 1972 and removed 1991; two 6,000-gallon gasoline, installed 1984 and removed 1992; one 4,000-gallon gasoline and one 4,000-gallon diesel, installed 1985 and removed 1995; one 12,000-gallon gasoline, installed 1992 and removed 1995; and one 12,000-gallon split gasoline/diesel and one 12,000-gallon gasoline, installed 1995 and removed 2009. The location of the former tank holds is not known. Two releases are reported for the facility. The first release was reported in February 1992. Groundwater was not impacted and there were no apparent threats or impacts to receptors. Final concurrence was issued in March 1992. The second release was reported in 1995. Groundwater was impacted and monitoring was performed through at least 2003. Final concurrence was issued in 2004 and the case received closure in 2005. A review of historic aerials showed the original facility at the site was razed after approx. 1995 and a new building (the current building) was developed on the same	Moderate

Map ID	Site Information	Location in Reference to Project	Regulatory Database Listing(s)	Environmental Concern Summary	Potential to Impact Project
				site by 1999 (HistoricAerials.com and NCTCOG DFW Maps). The facility is currently utilized as a used car sales lot known as Matt's Motors. Based on the prior releases from the former operations, the unknown locations of the former tank holds, and ROW acquisition proposed from this site, this site location is considered a moderate environmental risk.	
6	Service Station 3500 E University Dr. Denton, TX 76208 (currently Centerpoint Custom Upholstery)	Adjacent S, Proposed ROW Acquisition	PST	The facility formerly utilized two 2,000-gallon USTs that were installed in 1971 and permanently filled in place in 1985. No information indicates these tanks were removed at a later date. There are no reported releases for the facility. ROW acquisition is proposed from the north side of this property. Based on aerial photos, the tank hold is possibly located on the north side of the building approx. 12 ft from proposed ROW acquisition. Based on the filled in place tanks and the possible tank hold location in relation to proposed ROW, this facility is considered a high environmental risk (Appendix B, Photo 2).	High
11 & Unmapped	Earl's Beer & Wine/7-Eleven Store 35856/ Earl's Texaco 80100 26411 US Hwy 380 Aubrey, TX 76227 (currently 7-Eleven)	Adjacent N, Proposed ROW Acquisition	LPST PST	The facility was originally Earl's Texaco which formerly utilized one 8,000-gallon gasoline UST installed in 1978 and was removed from the ground in 1989. The facility had installed one 6,000-gallon diesel UST and three 10,000-gallon gasoline USTs in 1988. These USTs were removed from the ground in 2007. The original facility was razed and a new facility built in approx. 2007-2008. Two 15,000-gallon gasoline and diesel USTs were installed in late 2007 and are currently in use. A release was reported for the original facility in 1998. Groundwater was impacted and monitoring was performed through 2002. Final concurrence was issued in late 2002 and the case was closed. There have been no reported releases for the current facility and active tanks. ROW acquisition is proposed from the west side of this property. The tank hold is situated approx. 40 ft east of the proposed ROW. Based on the prior release and the location of the current tank hold in relation to the proposed ROW, this facility is considered a moderate environmental risk.	Moderate

Map ID	Site Information	Location in Reference to Project	Regulatory Database Listing(s)	Environmental Concern Summary	Potential to Impact Project
12	Smith Systems Transportation Inc./SST Denton 10-day Yard/Frank's Mean Gas 3601 E University Dr. Denton, TX 76208 (facility is currently abandoned gas station)	Adjacent N, Proposed ROW Acquisition	RCRA TSD PST HW	The former facility had utilized four 15,000-gallon (contents not reported) USTs installed in 1982. The tanks are currently listed as temporarily out of service since 2009. No releases have been reported for the facility. The site is also listed as Smith Systems Transportation Inc. (SST) Denton 10-day yard, a general freight trucking and transfer station business. Smith is reported as a TSD and HW site. Smith is classified as a hauler of hazardous materials; they are not identified as a generator of hazardous waste. A compliance inspection conducted in 2008 resulted in a minor violation for recordkeeping; resolved within 14 days of the NOV. Based on a TCEQ HW Notice of Registration research, this facility is currently inactive. Based on historic aerial review, TCEQ Central Registry information and online research for Smith and Frank's businesses, it is presumed that both businesses operated out of the same building facility (the current on-site building/gas station). The site has non-canopied fuel pumps indicative of semi-truck accessible fueling and a large lot on the north side of the building for parking semi-trucks. ROW acquisition is proposed from the south side of this property. The facility's tank hold appears to be approx. 50 ft north of the proposed ROW acquisition. Based on the tanks remaining in place and their age, the possible presence of HW being staged and transported on the property, and the location of the tank hold in relation to the ROW acquisition, this facility is considered a moderate environmental risk.	Moderate

Map ID	Site Information	Location in Reference to Project	Regulatory Database Listing(s)	Environmental Concern Summary	Potential to Impact Project
20	Backwoods Traps 26828 US Hwy 380 Aubrey, TX 76227 (currently Twin Lakes Pet Resort & Spa and The Mansions 3Eighty/The Estates 3Eighty)	Adjacent S, Proposed ROW Acquisition	ST IC VCP	The TCEQ Central Registry identified this facility as a rifle, pistol, skeet, trap and sporting clay range. The Voluntary Cleanup Program (VCP) application was submitted in 2006. The site size is 99.97 acres and has soils affected with COCs of metals/lead. Responsible action care reports and post responsible action care reports had been submitted between 2008 and 2016. Some soil consolidation appears to have occurred. The VCP is currently active. The site has state institutional controls which are that the site should be nonresidential and maintain a cap. The site however, appears to have been redeveloped with an apartment complex community in approx. 2016-2017. Based on historic aerial photos, the actual gun range was situated approx. 1,175 ft south of the existing and proposed ROW. The roadside building was presumably the office for the former gun range. A minor amount of ROW is proposed to be acquired at the driveway entrance to the current Mansions 3Eighty property and pet resort facility. Based on the size of the VCP site, the unknown boundaries of the VCP site, and the active status of the VCP, this site is considered a moderate environmental risk.	Moderate
25	Safety-Kleen Systems Denton Recycle Center 1722 Cooper Creek Rd Denton, TX 76208	Property approx. 320 ft north; Southernmost building approx. 650 ft north	RCRA COR RCRA TSD RCRA GEN ERNS LPST PST HW IHWCA	This facility was identified on the RCRA COR, RCRA TSD, RCRA GEN, ERNS, Leaking Petroleum Storage Tank (LPST)Petroleum Storage Tank (, PST), HW and IHWCA databases. The facility is a hazardous waste treatment, storage and disposal facility with a large quantity generator designation. The waste descriptions are extensive and can be found in the Aug. 2, 2017 regulatory report included with the Hazardous Materials ISA (dated Sept. 8, 2017). The facility received several violations of various types between 1993 and 2016. The site had a low priority unspecified corrective action in 1992. Data collection was performed and an investigation work plan produced. The need for further investigation was determined in 1995. A release to groundwater was determined in 1998 and more information was needed regarding human exposures. The investigation was completed in 1999. Further information is not provided. It is presumed this investigation and corrective action continued under IHWCA (see below). The site has a number of ERNS listings none of which were determined to have occurred near or within the project improvement area. The facility currently utilizes one 20,000-gallon diesel AST installed in 1975. USTs, currently in use or former out of use, are not reported for the facility. The facility also	High

Map ID	Site Information	Location in Reference to Project	Regulatory Database Listing(s)	Environmental Concern Summary	Potential to Impact Project
				utilizes numerous bulk storage tanks which were not identified on regulatory information. The facility reported a LPST in 1987. The case was transferred to IHWCA in 1996. Groundwater monitoring began in approx. 1998 and is currently ongoing. TxDOT Dallas District contacted the TCEQ IHWCA project manager for the Safety-Kleen facility to obtain current remediation and monitoring information. The project manager provided to TxDOT Dallas District a site map, monitor well locations map and contaminant plume maps for the site. The maps show a contaminant plume of Tetrachloroethene, Trichloroethene, cis-1,2-Dichloroethene, vinyl chloride, and chlorobenzene that extends south-southeast from the facility crossing US 380 and continues south-southeast an additional approx. 775 ft from US 380. Based on ongoing, intensive monitoring and remediation activities at this facility and the extent of the contaminant plume, the site is considered a high environmental risk. [1]	

*Leaking Petroleum Storage Tank (LPST), Petroleum Storage Tank (PST), Dallas-Fort Worth (DFW), Resource Conservation and Recovery Act (RCRA), Treatment, Storage and Disposal (TSD), Hazardous Waste (HW), Chemical of Concern (COC), State/Tribal Institutional Control (ST IC), Corrective Action (COR), Generator (GEN), Environmental Response Notification System (ERNS), Industrial Hazardous Waste Corrective Action (IHWCA)

Appendix F, Figure 1 provides the location of the facilities and areas of concern identified above.

Additional and more in-depth analysis of TCEQ data files, facility and property owner and operations records, interviews with current and past property owners and operators, and adjoining property owners, review of final design, ROW acquisition and construction details to determine exactly where soil disturbance will occur. This information will be obtained and evaluated after the final design phase, when there is an increased level of understanding of the depth and area of potential disturbance. Prior to final design, regulatory research will be conducted to understand the location, history, and hazardous materials that may be of concern so that a plan for soil or groundwater testing could be developed and implemented, as warranted. Based on the site investigation and sampling results, the level of past and estimated potential contamination at each of the sites with unresolved potential hazardous materials concerns could then be understood. The interviews with former and current property owners, facility operators, TCEQ regulators, and neighboring facilities are recommended to be conducted at the same time as more detailed records and property owner research is conducted to help formulate the need for site investigations. The goal would be to identify, more specifically, the possible hazardous materials concerns at each site and develop an understanding of the location of areas of past releases, the areas with planned construction involving soil removal and/or groundwater dewatering during construction.

The proposed project would include construction of at-grade and elevated (bridge) sections with retaining walls and bridge supports; relocation and installation of utilities; demolition of structures, including buildings; and related activities that would require excavation, mixing, stockpiling, testing, and management of natural soils and fill material including soils and sediments. Excavation may increase the potential of encountering hazardous material contamination during construction. Additional subsurface environmental investigations would be conducted to determine whether possible contamination might be encountered during construction. If hazardous constituents were confirmed, then appropriate soils and/or groundwater management plans for activities within these areas would be developed.

The proposed project would require the demolition of building structures and the demolition or renovation of existing bridge structures that may contain asbestos and/or lead-based paint. Building structure asbestos issues would be addressed during ROW acquisition while bridge asbestos issues would be address prior to construction. Applicable asbestos inspections, specification, notification, license, accreditation, abatement and disposal would be in compliance with federal, state, and local regulations. Prior to project letting, structures to be demolished would be analyzed for the presence or absence of lead-based paint. The presence or absence of lead-based paint on structures to be demolished would be determined through testing or process knowledge prior to project letting. If lead-based paint is discovered, contingencies would be developed to address worker safety, material recycling, and proper management and disposal of any paint-related wastes, as necessary. As a result, further investigation would be conducted prior to the acquisition of properties.

Storage and use of hazardous materials would be necessary during construction of the proposed project. For example, temporary aboveground storage tanks (ASTs) containing oil and diesel for on-site equipment and vehicles would be regulated and require control measures for spills and leaks. In addition, potential impacts from spills and leaks from fueling and maintenance of

equipment and vehicles could occur on-site. These impacts would be minimized and best management practices (BMPs) would be implemented to reduce these types of impacts during construction. In addition, activities associated with the use and storage of hazardous materials would be required to conform to TxDOT standards for spill containment and control strategies.

Operations of the proposed project would include roadway and landscape maintenance, accident and emergency response including debris and spill cleanup, guardrail, pavement and bridge painting, and other activities as needed. None of the anticipated activities associated with highway operation for any of the build alternatives would be expected to result in adverse impacts from use of hazardous materials, or be affected by the presence of existing hazardous materials.

Based on the final engineering design drawings and prior to construction occurring, targeted subsurface investigations may be needed to determine potential hazardous materials impacts to the proposed construction.

5.13.3 Impacts of the No Build Alternative

The No Build Alternative would not result in hazardous materials impacts associated with the construction or operation of the proposed project. The No Build Alternative would provide no immediate changes to the land surface elevation, no excavation or soil exposure would occur, the landscape would remain unaltered, support structures would not be installed, surface water quality would not be potentially subjected to discharge of dust or soils generated during construction, pipelines and utilities would not be relocated or abandoned and large-scale earthmoving would not occur. On-going or planned remedial action, corrective actions and site cleanups to be administered or under the jurisdiction of existing regulatory processes would occur.

5.13.4 Encroachment Alteration Effects

Encroachment alteration effects are those that affect the functions of the natural or human environment due to proposed project features. Hazardous materials are not considered to be a natural or human environment, or a function of the natural or human environment. Therefore, encroachment alteration effects relative to hazardous materials would not occur for the proposed project.

5.14 Traffic Noise

5.14.1 Environmental Consequences

The traffic noise analysis was accomplished in accordance with TxDOT's (Federal Highway Administration – approved) *Guidelines for Analysis and Abatement of Roadway Traffic Noise* (2011). Traffic Noise Model version 2.5 (TNM 2.5) was utilized in this assessment.

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

Sound occurs over a wide range of frequencies. However, not all frequencies are detectable by the human ear; therefore, an adjustment is made to the high and low frequencies to approximate the

way an average person hears traffic sounds. This adjustment is called A-weighting and is expressed as "dB(A)."

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

The traffic noise analysis typically includes the following elements:

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

The FHWA has established the following Noise Abatement Criteria (NAC) for various land use activity areas that are used as one of two means to determine when a traffic noise impact would occur, as shown in Table 5-10.

Table 5-10 Noise Abatement Criteria (NAC)

Activity Category	dB(A) Leq	Description of Land Use Activity Areas
A	57 (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	Residential.
C	67 (exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F.
F	--	Agricultural, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	Undeveloped lands that are not permitted.

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

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

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

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

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

Existing and predicted traffic noise levels were modelled at receiver locations (Table 5-11 and Appendix F, Figure 8) which represent the land use activity areas adjacent to the proposed project.

Table 5-11 Traffic Noise Levels dB(A) Leq

Representative Receiver	NAC Category	NAC Level	Existing 2020	Predicted 2040	Change (+/-)	Noise Impact
R1 Residence	B	67	64	65	+1	No
R2 Residence	B	67	68	69	+1	**Yes**
R3 Residence	B	67	63	64	+1	No
R4 Residence	B	67	68	70	+2	**Yes**
R5 Residence	B	67	69	71	+2	**Yes**
R6 Residence	B	67	70	72	+2	**Yes**
R7 Park	C	67	56	58	+2	No
R8 Residence	B	67	65	67	+2	**Yes**
R9 Residence	B	67	63	64	+1	No
R10 Medical	D	52	44	46	+2	No
R11 Residence	B	67	68	71	+3	**Yes**
R12 Residence	B	67	67	72	+5	**Yes**

Representative Receiver	NAC Category	NAC Level	Existing 2020	Predicted 2040	Change (+/-)	Noise Impact
R13 Residence	B	67	66	71	+5	**Yes**
R14 Residence	B	67	66	70	+4	**Yes**
R15 Dentist	D	52	43	47	+4	No
R16 Residence	B	67	71	74	+3	**Yes**
R17 Restaurant	E	72	69	73	+4	**Yes**
R18 Restaurant	E	72	64	66	+2	No
R19 Restaurant	E	72	69	72	+3	**Yes**
R20 Restaurant	E	72	66	69	+3	No
R21 Restaurant	E	72	69	71	+2	**Yes**
R22 Restaurant	E	72	66	69	+3	No
R23 Restaurant	E	72	66	68	+2	No
R24 Dentist	D	52	42	42	0	No
R25 Apartments	B	67	67	68	+1	**Yes**
R26 Apartment Pool	C	67	63	65	+2	No
R27 Apartments	B	67	64	66	+2	**Yes**
R28 Community Pool	C	67	58	61	+3	No
R29 Residence	B	67	60	63	+3	No
R30 Residence	B	67	60	62	+2	No
R31 Residence	B	67	59	62	+3	No
R32 Basketball Court	C	67	57	60	+3	No
R33 Residence	B	67	64	66	+2	**Yes**
R34 Residence	B	67	69	72	+3	**Yes**
R35 Residence	B	67	61	65	+4	No
R36 Residence	B	67	58	63	+5	No
R37 Residence	B	67	61	66	+5	**Yes**
R38 Residence	B	67	63	68	+5	**Yes**

Representative Receiver	NAC Category	NAC Level	Existing 2020	Predicted 2040	Change (+/-)	Noise Impact
R39 Playground	C	67	61	64	+3	No
R40 Restaurant	E	72	69	73	+4	**Yes**
R41 Residence	B	67	57	61	+4	No
R42 Residence	B	67	62	65	+3	No
R43 School	D	52	42	44	+2	No
R44 Sports	C	67	61	64	+3	No
R45 Pet Cemetery	C	67	65	68	+3	**Yes**
R46 Restaurant	E	72	67	70	+3	No
R47 Medical	D	52	42	45	+3	No
R48 Medical	D	52	44	47	+3	No
R49 Residence	B	67	66	69	+3	**Yes**
R50 Residence	B	67	62	65	+3	No
R51 Residence	B	67	62	65	+3	No
R52 Residence	B	67	63	65	+2	No
R53 Residence	B	67	62	65	+3	No
R54 Apartments	B	67	65	67	+2	**Yes**
R55 Apartments Pool	C	67	61	64	+3	No
R56 Community Pool	C	67	58	62	+4	No
R57 Residence	B	67	66	68	+2	**Yes**

As indicated in Table 5-11, the proposed project would result in traffic noise impacts for 24 of the 57 modelled receiver locations, and the following noise abatement measures were considered: traffic management, alteration of horizontal and/or vertical alignments, acquisition of undeveloped property to act as a buffer zone, and the construction of noise barriers. None of the noise abatement measures would be both feasible and reasonable; therefore, no abatement measures are proposed for incorporation into the project. Noise barriers were evaluated for each of the following impacted receiver locations:

Receivers R2, R5, R11, R16, R17, R33, R34, and R57 each represent an individual receiver that faces US 380 with a driveway that connects to the facility. A continuous noise barrier placed along

the ROW would restrict access to the residence. The results of the modelling showed that at 20-foot height, a non-continuous noise barrier, with a gap for the existing driveway to satisfy access requirements, would not be sufficient to achieve the minimum, feasible reduction of 5dB(A) or the noise reduction design goal of 7 dB(A).

Receivers R12 and R14 each represent an individual receiver that faces US 380 with a driveway that connects to the facility. The results of the modelling showed that at 20-foot height, a continuous noise barrier would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) or the noise reduction design goal of 7 dB(A).

Receiver R4 represents a group of nine residences that face US 380 with driveways that connect to the facility. A continuous noise barrier placed along the ROW would restrict access to the individual residences. The results of the modelling showed that at 20-foot height, a non-continuous noise barrier, with gaps for the existing driveways to satisfy access requirements, would meet the 7 dB(A) noise reduction design goal for at least one receiver, but would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for greater than 50 percent of impacted first row receivers.

Receivers R6, R13, R25, and R27 each represent groups of individual receivers that face US 380 with driveways that connect to the facility. A continuous noise barrier placed along the ROW would restrict access to the residences. The results of the modelling showed that at 20-foot height, a non-continuous noise barrier, with gaps for the existing driveways to satisfy access requirements, would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for greater than 50 percent of impacted first row receivers, and would not meet the noise reduction goal of 7 dB(A) for these receivers.

Receiver R8 represents an individual residence in the gated Oak Bluff neighborhood. The residence is located above grade of the roadway and a neighborhood street is located between the residence and US 380. The results of the modelling showed that at 20-foot height, a continuous noise barrier would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) or the noise reduction design goal of 7 dB(A).

Receivers R19, R 21, R40, R45, and R49 each represent individual receivers. The results of the modelling showed that at 20-foot height, a continuous noise barrier along the ROW line would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) or the noise reduction design goal of 7 dB(A).

Receivers R37 and R38 represent individual residences on Goldeneye Drive in the Paloma Creek subdivision with backyards that face the roadway. Of the 25 individual first row receivers in this subdivision, the 12 that are represented by R37 and R38 were impacted. The backyards are generally above the grade of US 380 and have an existing rock wall fence between the residences and they roadway. The results of the modelling showed that at 20-foot height, a continuous noise barrier placed along the ROW would be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for greater than 50 percent of impacted first row receivers, but would not meet the noise reduction design goal of 7 dB(A) for these receivers.

Receiver R54 represents apartment units associated with one multi-family structure at the Estates at 3Eighty Apartments. The results of the modelling showed that at 20-foot height, a continuous noise

barrier placed along the ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) or the noise reduction goal of 7 dB(A) for these receivers.

None of the above noise abatement measures would be both feasible and reasonable; therefore, no abatement measures are proposed for incorporation into the project.

5.14.1.1 *Encroachment Alteration Effects*

In the future, commercial and residential communities could be adversely impacted by future increased traffic noise. Induced development is expected to be minimal; therefore, indirect noise impacts would not be expected. To avoid noise impacts that may result from future development of properties adjacent to the project, local officials responsible for land use control programs must ensure, to the maximum extent possible, no new activities are planned or constructed along or within the following predicted (2040) noise impact contours (Table 5-12).

Table 5-12 Predicted Noise Impact Contours

Undeveloped Area	Land Use	Impact Contour	Distance from Right-of-Way
Between Geesling Road and Lakeview Boulevard in Denton	NAC Category B & C	66 dB(A)	250 Feet
	NAC Category E	71 dB(A)	100 Feet
Between FM 2931 and Providence Boulevard in Aubrey	NAC Category B & C	66 dB(A)	200 Feet
	NAC Category E	71 dB(A)	75 Feet
Between Doe Creek Road and FM 423 in Prosper	NAC Category B & C	66 dB(A)	225 Feet
	NAC Category E	71 dB(A)	75 Feet
Between Teel Parkway and Legacy Drive in Frisco	NAC Category B & C	66 dB(A)	250 Feet
	NAC Category E	71 dB(A)	100 Feet

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable.

None of the receivers are 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. On the date of approval of this document (Date of Public Knowledge), FHWA and TxDOT are no longer responsible for providing noise abatement for new development adjacent to the project.

5.14.2 Impacts of the No Build Alternative

If the No Build Alternative were implemented, noise levels would be expected to increase with an associated increase in future traffic volumes.

5.15 Induced Growth

The Council on Environmental Quality (CEQ) defines indirect effects as those "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect impacts may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR Section 1508.8).

An Indirect and Cumulative Impacts Technical Report (October 2017) was developed to analyze potential induced growth impacts for the proposed project. In order to determine the likelihood of the proposed project to induce growth, TxDOT's July 2016 Guidance on Indirect Impacts Analysis (TxDOT 2016a) and the Risk Assessment Tool (TxDOT 2014) were used as the first step in evaluating whether the proposed project could induce growth as a result of the proposed project.

A planning and collaborate judgement combination approach to assessing induced growth was used. These approaches were supported by planning assumptions and land use projections and plans from NCTCOG, the City of Denton, City of Frisco, Town of Little Elm, and Town of Prosper. These resources were used to identify areas of potential growth, development trends, and the probability of the proposed project to influence development decisions within the Area of Influence (AOI). Local planners were contacted and provided input for the analysis of induced growth.

The indirect impacts analysis indicated that approximately 225 acres of land would have the potential to undergo induced development as a result of the proposed project. Within the 225 acres, the land use currently is composed of 65 percent vacant, 34 percent ranch/farmland, and less than one percent of land use is classified as residential, utilities, and commercial. Impacts to existing land use would not be considered substantial. Growth trends within the AOI indicate development would continue independent of the proposed improvements.

The potential induced growth associated with the proposed project would not conflict with study area goals, would not substantially worsen the conditions of a sensitive or vulnerable resource, would not delay or interfere with planned improvement of a resource, and would not be inconsistent with any applicable laws.

5.15.1 Impacts of the No Build Alternative

Induced growth impacts are not expected as a result of the No Build Alternative.

5.16 Cumulative Impacts

An *Indirect and Cumulative Impacts Technical Report* (October 2017) was developed to analyze potential cumulative impacts for the proposed project. In order to determine the cumulative impacts, TxDOT's July 2016 Cumulative Impacts Analysis Guidelines (TxDOT 2016b) and the Risk Assessment

Tool for Cumulative Impacts (TxDOT 2014a) were used as the first step in evaluating whether the proposed project would have cumulative impacts.

To determine which resources would need to be assessed in detail in the cumulative impacts analysis, a screening table was prepared to summarize the direct and indirect impacts of the proposed project. The screening table can be viewed in the *Indirect and Cumulative Impacts Technical Report* (October 2017). The screening table includes direct and indirect impacts for each resource category for the Build Alternative and whether the resource is in poor or declining health or at risk. Resources substantially impacted by the proposed project or those that are currently in poor or declining health or at risk, even if proposed project impacts (either direct or indirect) are relatively small; only those resources meeting these criteria are brought forward for further analysis of cumulative effects.

The proposed project would not result in substantial direct, indirect or induced impacts to any resource; therefore, no resources or subject matters were examined in further detail. Implementing best management practices for water quality and wildlife species would help ensure that the proposed project would not substantially impact natural, human, and physical resources in the project area.

5.16.1 Impacts of the No Build Alternative

Substantial cumulative impacts are not expected as a result of the No Build Alternative.

5.17 Construction Phase Impacts

5.17.1 Environmental Consequences

Potential short-term economic, employment, and tax revenue impacts, or those occurring during the construction period, would be both positive and negative. Positive impacts may result from the sizeable engineering and construction expenditures and short-term construction employment including potential employment of some area residents. It is anticipated that a portion of the construction wages would be spent on goods and services provided by local businesses. Short-term negative impacts may result from the removal of undeveloped properties from the tax rolls. The impact on the tax base could be offset and augmented with new construction values over the long term if growth and development occur in the local tax jurisdictions.

Traffic control during project construction would be in accordance with Part VI (Traffic Controls for Street and Highway Construction and Maintenance Operations) of the 2011 Texas Manual on Uniform Traffic Control Devices. During construction, travel lanes in each direction would be maintained. However, short-term lane closures may occur during off-peak hours. Access to adjacent property would be maintained during construction. Street intersections would be constructed in phases to maintain through traffic.

During the construction phase of this project, temporary increases in 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 emissions would be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. 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 at: http://www.tceq.state.tx.us/implementation/air/terp/.

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 construction of this project would have any significant impact on air quality in the area.

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable.

None of the receivers are 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.

6.0 Agency Coordination

TxDOT has or will initiate coordination with TPWD, USFWS, NRCS, NCTCOG, TCEQ, and USACE during the development of the proposed project. Coordination is described in the Table 6-1. Agency coordination documentation is included in Appendices E and G.

Table 6-1 Coordinating Agencies

Agency	Type of Coordination	Date of Coordination
TPWD	TxDOT-TPWD MOU	Initiated in August 2017 and Completed on November 6, 2017
USFWS	Threatened and Endangered Species List	December 2017
NRCS	Soil Web Survey	June 2017
NCTCOG	CMP and RTP	July 2017
TCEQ	Notice of Intent, Stormwater Permit	TBD
TCEQ	TxDOT-TCEQ MOU	January 2018
USACE	Water Quality and potential hydrology Impacts to the reservoir	February 2016
USACE	NWP/Section 408 Permit	TBD

7.0 Public Involvement

Public outreach activities, including several stakeholder, a public meeting and planned public hearing are public involvement initialed TxDOT for the proposed project. TxDOT plans to publish a notice affording an opportunity for a public hearing for this project.

7.1 Stakeholder Outreach

As discussed in section 4.1.1, TxDOT held numerous stakeholder meetings with local cities, towns, school districts, and the county to discuss the proposed project. Several design changes were implemented to accommodate desires of the local communities and accommodate future land development. Some of the stakeholders involved in the stakeholder meetings included NCTCOG, City and Towns of Cross Roads, Denton, Frisco, Little Elm and Prosper; Denton County; and local school districts. Based on input from the stakeholders, TxDOT removed a proposed grade separations and added grade separation at three additional locations; an additional shared-use path for a portion of the proposed project was added; and at the request of the town of Little Elm and the local school district, a grade separation was at added at Navo Road to improve safety for students traveling to and from the new high school. Due to local government and other stakeholder involvement the build alternative was modified to accommodate to these design changes.

7.2 Public Meeting and Public Hearing

On May 12, 2016, TxDOT held a public meeting at the Navo Middle School, 1701 Navo Road, Aubrey, Texas 76227, from 5:30 p.m. to 7:30 p.m. The public meeting was held in an open house format that included a handout and opportunities for the public to ask questions and submit comments. Comments were also accepted until May 23, 2016. Thirty-eight people provided comments. After approval for circulation of the Draft EA document, a public hearing will be held in Spring 2018.

7.3 LEP Accommodations

During the project development process, TxDOT made accommodations for individuals speaking Spanish (the dominant language of LEP individuals in the project area), to ensure that opportunities for community input in the NEPA process have been and would continue to be provided. For the public meetings, English and Spanish language public notices were published in local newspapers. Meeting notices were provided in English and Spanish and mailed to adjacent landowners, community organizations, elected officials, government officials, civic groups, and published on the project website. The project team had staff available to provide translations during public meeting as needed, and many of the meeting materials were translated into Spanish, as well. Materials were posted on the project website prior to the public meeting, and all materials remain on the website. The mailed notices and newspaper announcements provided information on how citizens could request language interpreters. No advance requests for interpreters were received.

8.0 Environmental Permits, Issues and Commitments

8.1 Farmlands

BMPs would be implemented during construction to minimize erosion and sedimentation, with particular attention paid to water crossings or any areas with steep embankments.

8.2 Utilities

After approval for circulation of the Draft EA, utilities such as water lines, sewer lines, gas lines, telephone cables, electrical lines, and other subterranean and aerial utilities would require adjustment. The extent of utility adjustments is not known at this time and would be determined during final design. Coordination of any utility adjustments would take place during the design phase or before construction begins. All utility adjustments would be in accordance with TxDOT policies.

De-watering would occur as needed during construction. Shallow groundwater would likely occur within 20 to 30 feet of the ground surface in some areas and may be shallower in the vicinity of the river based on the area geology. Geotechnical studies would be performed during final design to evaluate the need for de-watering based on the depth shallow groundwater and soil properties.

8.3 Cultural Resources

In the event of an inadvertent archaeological discovery during construction, work at that location and within the immediate area that would affect the site would cease, and TxDOT archaeological staff would be immediately contacted to initiate post-review discovery procedures. TxDOT, in consultation with THC, will evaluate the need, if any, for further investigations. Construction in the location of the discovery may proceed only after the completion of the investigation in accordance with any applicable permit terms.

8.4 Water Resources

8.4.1 CWA Section 404

Construction activities are anticipated to involve discharges of dredged or fill material into identified wetlands and below the OHWM of streams, thereby requiring permit authorization from the USACE. A CWA Section 404 permit application submitted to the USACE would include proposed compensatory mitigation, as needed, to compensate for impacts to the identified jurisdictional waters. Compensation for stream impacts would likely be accomplished through the purchase of stream credits from an approved mitigation bank, and compensation for wetland impacts would likely be accomplished through the purchase of wetlands credits from an approved mitigation bank. If the Build Alternative is implemented, a Nationwide Permit (NWP) 14, Linear Transportation Projects with Pre-Construction Notification (PCN), would likely be used to permit the anticipated impacts to both Wetland 1 and WOUS 10 (Cantrell Slough).

Jurisdictional wetland impacts exceeding 0.1 acre and impacts to other waters of the U.S. that exceed 0.1 acre or 300 linear feet at any single and complete crossing would require compensatory

mitigation, anticipated to occur through the purchase of credits from existing wetland mitigation banks.

The proposed project would result in modifications to and/or fill within several named and unnamed water bodies and associated wetlands. However, the proposed project would be authorized under a Section 404 NWP; therefore, no coordination under the Fish and Wildlife Coordination Act would be required.

8.4.2 CWA Section 401

The TCEQ has provided Section 401 water quality certification for permits issued under the USACE's nationwide permit program; therefore, the use of NWP 14 would not require additional coordination relative to water quality certification. Should a USACE standard permit be required, it is anticipated that the proposed Build Alternative would meet the TCEQ's Section 401 Water Quality Certification Tier I (Small Projects), because it would impact less than 3 acres of waters of the United States, including wetlands, and less than 1,500 linear feet of streams. The project would implement all BMPs required by the TCEQ for Tier I projects and in accordance with the Tier I Checklist.

Water quality BMPs should 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.

8.4.3 Rivers and Harbors Act

Section 14 of the Rivers and Harbors Act, as codified in 33 USC 408 (Section 408) allows the USACE to grant other entities permission for temporary or permanent alteration or use of a USACE Civil Works project. Lake Lewisville is a Civil Works project owned and operated by the USACE. TxDOT will coordinate with the USACE relative to the project improvements proposed to occur within USACE-controlled areas of Lake Lewisville.

8.4.4 CWA Section 303(d)

TxDOT will coordinate with the TCEQ relative to the impaired water bodies occurring within the proposed project area that could potentially be impacted by construction and operation of the project. Five surface water segments occur within five miles of the proposed project. None of these water segments are identified as impaired waters. Only two of the five water segments transect the proposed project corridor. These are Lake Lewisville (Segment 0823) and Doe Branch (Segment 0823D), neither of which are impaired waters.

8.4.5 CWA Section 402

The proposed project would involve more than five acres of earth disturbance. TxDOT would comply with TCEQ's TPDES CGP. A SW3P would be prepared and implemented, and a construction site notice would be posted at the construction site. A NOI would be required. Pollution from storm water would be minimized through adherence to measures in the project's SW3P.

During construction, BMPs, including temporary erosion, sedimentation, and water pollution controls, would be implemented. All temporary erosion controls would be in compliance with TxDOT's Standard Specifications and would be in place, according to the construction plans, prior to commencement of construction-related activities. The contractor would take appropriate measures to prevent, minimize, and control the spill of fuels, lubricants, and hazardous materials in the construction staging area. The project would comply with the applicable MS4 requirements.

8.4.6 Floodplains

Hydraulic design information would be coordinated with the local floodplain administrators for Denton County and the local cities and towns within the project limits of the proposed project prior to construction so that the proposed project would not have an adverse effect on floodplains/floodways in the project area. The proposed project would be designed so that natural drainage and/or ponding would not be affected and change the BFEs greater than one foot above the 100-year flood at any point in the adjacent communities. The proposed project would not increase the BFEs to a level that would violate applicable floodplain regulations and ordinances. The proposed bridge structures traversing the various water bodies within the project corridor would be designed so that the floodplain would not be adversely affected, nor cause flooding to property owners upstream and downstream of the proposed project.

Prior to the issuance of construction permits involving activities in a regulated floodway, a letter of no objection must be obtained and supported by technical data stating that construction of the proposed project would not impact the base flood elevation, floodway elevations, or floodway data widths that are present prior to construction.

8.5 Biological Resources

The proposed project would have some impacts on wildlife within the area due to the removal of riparian and other vegetation types. Native vegetation would be used, where applicable, and mowing schedules that allow for reseeding of native species would be considered. Disturbed areas would be restored and stabilized as soon as the construction schedule permits. Soil disturbance would be minimized in the ROW in order to minimize invasive species establishment. In accordance with the EO 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping, seeding and replanting with TxDOT approved seeding specifications would be performed.

In accordance with the MBTA, the contractor would remove all old migratory bird nests from any structure where work would be done from October 1 to February 15. In addition, the contractor would be prepared to prevent migratory birds from building nest(s) between February 15 and October 1. In the event that migratory birds are encountered on-site during project construction, efforts to avoid adverse impacts to protected birds, active nests, eggs and/or young would be implemented, per the EPIC plans.

The project area contains potential habitat for several state-listed species and SGCNs. In accordance with the TxDOT-TPWD MOU, BMPs would be implemented for the Texas heelsplitter, Texas pigtoe, timber rattlesnake, Texas garter snake, western burrowing owl, and plains spotted skunk. These species-specific BMPs are summarized in Table 5-8 of this EA. BMPs that would be implemented and included in the EPIC sheet eliminate the need for coordination for all species. However, TPWD

coordination was triggered as a result of the project requiring a NWP with a PCN to the USACE and for exceeding MOU thresholds for vegetation impacts that exceed the Threshold Programmatic Agreement between TxDOT and TPWD for Tallgrass Prairie, Grassland; and Riparian MOU vegetation types. TPWD coordination was initiated on August 24, 2017 and completed on November 6, 2017. The proposed project would have no effect on federally-listed species and coordination with the USFWS would not be required.

8.6 Hazardous Materials

After ROW acquisition, during construction of the proposed project, there is a possibility that hazardous materials impacts on or near existing hazardous materials sites may occur in areas adjoining mapped and identified contaminant migration areas. In particular, the following facilities or areas are located in the vicinity of proposed ROW acquisition and additional information may be required to evaluate the potential presence of hazardous materials released to the environment:

- Brother's Garden Center/Exxon Ice Box #4915 at 26748 US 380, Aubrey, TX (currently, Exxon Ice Box)
- Express Shop/CB Express at 3430 E. University Drive, Denton, TX (currently, Matt's Motors)
- Gasoline Service Station at 3500 E. University Drive, Denton, TX (currently, Centerpoint Custom Upholstery)
- Earl's Beer & Wine/Earl's Texaco at 26411 US 380, Aubrey, TX (currently 7-Eleven Store #35856)
- Smith Systems Transportation Inc./SST Denton 10-Day Yard/Frank's Mean Gas at 3601 E. University Drive, Denton, TX (currently inactive gasoline station)
- Backwoods Traps at 26828 US 380, Aubrey, TX (currently Twin Lakes Pet Resort & Spa and The Mansions at 3Eighty/The Estates at 3Eighty)
- Safety-Kleen Systems Denton Recycle Center at 1722 Cooper Creek Road, Denton, TX

The proposed project would include construction of at-grade and elevated (bridge) sections with retaining walls and bridge supports; relocation and installation of utilities; and related activities that would require excavation, mixing, stockpiling, testing, and management of natural soils and fill material including soils and sediments. Excavation may increase the potential of encountering hazardous material contamination during construction. Additional subsurface environmental investigations would be conducted to determine whether possible contamination might be encountered during construction. If hazardous constituents were confirmed, then appropriate soils and/or groundwater management plans for activities within these areas would be developed.

The proposed project would require the demolition or renovation of existing bridge structures that may contain asbestos and/or lead-based paint. Building structure asbestos issues would be addressed during ROW acquisition while bridge asbestos issues would be address prior to construction. Applicable asbestos inspections, specification, notification, license, accreditation, abatement and disposal would be in compliance with federal, state, and local regulations. Prior to project letting, structures to be demolished would be analyzed for the presence or absence of

lead-based paint. The presence or absence of lead-based paint on structures to be demolished would be determined through testing or process knowledge prior to project letting. If lead-based paint is discovered, contingencies would be developed to address worker safety, material recycling, and proper management and disposal of any paint-related wastes, as necessary. As a result, further investigation would be conducted prior to the acquisition of properties.

Storage and use of hazardous materials would be necessary during construction of the proposed project. For example, temporary aboveground storage tanks (ASTs) containing oil and diesel for on-site equipment and vehicles would be regulated and require control measures for spills and leaks. In addition, potential impacts from spills and leaks from fueling and maintenance of equipment and vehicles could occur on-site. These impacts would be minimized and best management practices (BMPs) would be implemented to reduce these types of impacts during construction. In addition, activities associated with the use and storage of hazardous materials would be required to conform to TxDOT standards for spill containment and control strategies. In a few areas, existing equipment may need to be relocated and hazardous materials issues, if encountered, would be managed through implementation of TxDOT standard requirements for control of surface water and spills.

Operations of the proposed project would include roadway and landscape maintenance, accident and emergency response including debris and spill cleanup, guardrail, pavement and bridge painting, and other activities as needed. None of the anticipated activities associated with highway operation for any of the build alternatives would be expected to result in adverse impacts from use of hazardous materials, or be affected by the presence of existing hazardous materials.

Based on the final engineering design drawings and prior to construction occurring, targeted subsurface investigations may be needed to determine potential hazardous materials impacts to the proposed construction.

Any unanticipated hazardous materials and/or petroleum contamination encountered during construction would be handled according to applicable federal, state and local regulations per TxDOT Standard Specifications. The contractor would take appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction staging area. The use of construction equipment within sensitive areas would be minimized or eliminated entirely. All construction materials used for this project would be removed as soon as work schedules permit.

The Contractor will take measures to prevent, minimize, & cleanup spills in the construction area. All unused materials and equipment will be removed from the site as soon as work permits. Removal and disposal of hazardous materials (HMs) will be in compliance with all appropriate environmental laws, regulations, rules, policies and procedures so that no environmental degradation to the land, surface or drinking water will occur. Asbestos assessment/inspections will be performed, as required/needed, and Department of Safety and Health notified. The Contractor is responsible for providing date(s) of abatement activities and/or demolition with careful coordination between Engineer and asbestos consultant to minimize construction delays and subsequent claims. As needed, the Contractor will be provided any lead-based paint sampling performed by the Engineer and design plans, specifications, and bid documents will outline Contractors responsibility (and notification requirements) for management of lead-based paint containing materials during

demolition and for disposal. Rubbish found near bridges on TxDOT ROW should be removed and disposed of properly to minimize the risk of pollution. The Contractor will comply with the Hazard Communication Act (HCA) for personnel who will be working with hazardous materials. Safety meetings will be conducted prior to beginning construction and making workers aware of potential hazards in the workplace. Contractor will make sure that all workers are provided with personal protection equipment appropriate for any hazardous materials used. Contractor will obtain and keep on-site Material Safety Data Sheets (MSDSs) for all hazardous products used during construction on the project, which will include but not limited to: paints, acids, solvents, asphalt products, chemical additives, fuels, concrete curing compounds or additives. Contractor will provide protected storage, off bare ground and covered.

9.0 Conclusion

The social, economic, and environmental investigations conducted thus far indicate the Build Alternative best meets the need and purpose of the proposed project and would not substantially impact the human and natural environments. The No Build alternative would not meet the need and purpose of the proposed project. Implementation of the Build alternative would not substantially affect the quality of the human and natural environment. Thus, the determination of a FONSI for the proposed project is requested.

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Appendices

Appendix A – Project Location Map

Appendix B – Project Photos

Appendix C – Schematics

Appendix D – Typical Sections

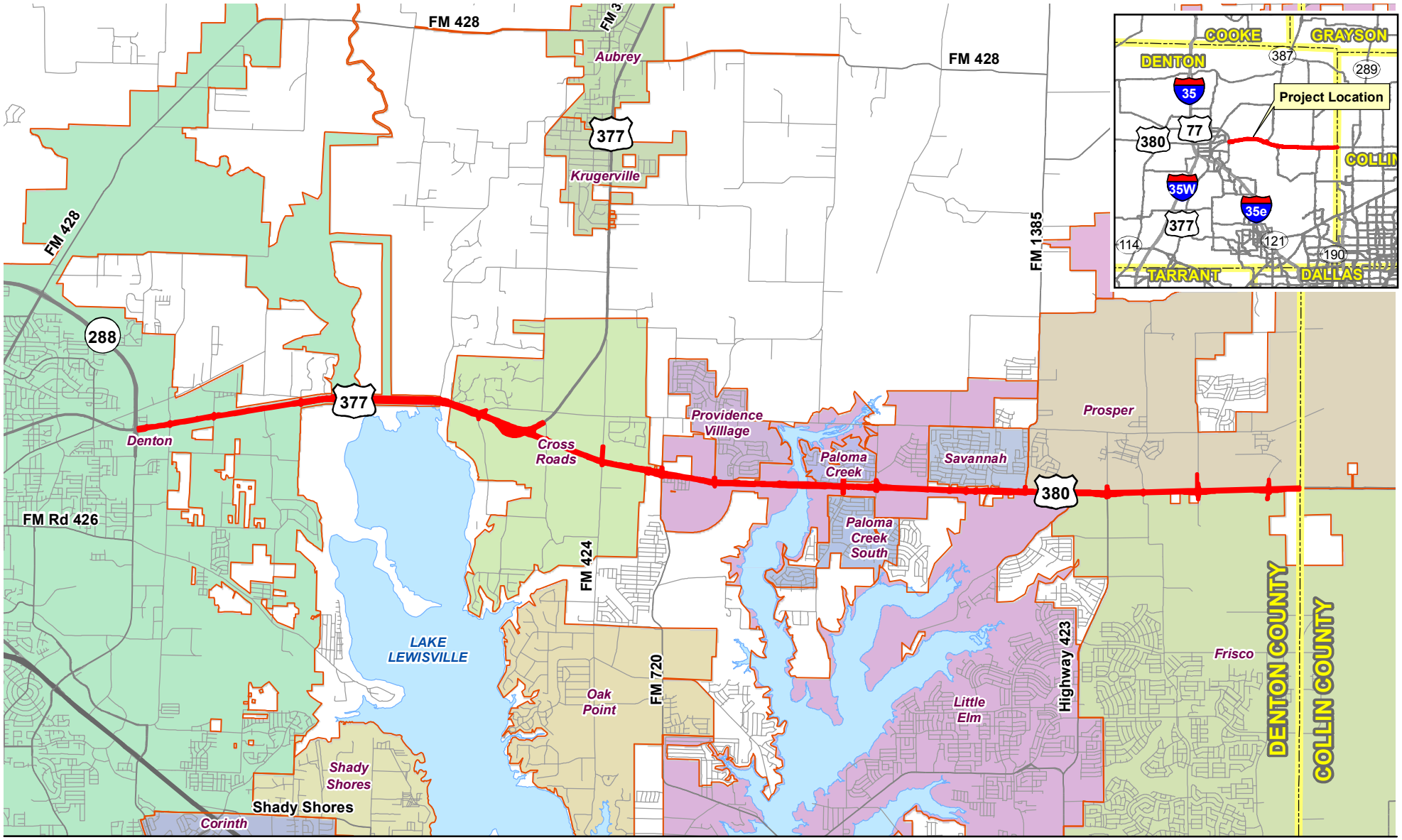
Appendix E – Plans and Program Excerpts

Appendix F – Resource-specific Maps

Appendix G – Resource Agency Coordination

Appendices

Appendix A - Project Location Map



US Highway 380, Denton County Texas

PROJECT LOCATION MAP

Texas Department of Transportation

N

0 4,500 9,000 Feet

Legend

- Proposed Project Corridor
- County Line
- City, Town and CDP Limits

Appendix A - Sheet 1

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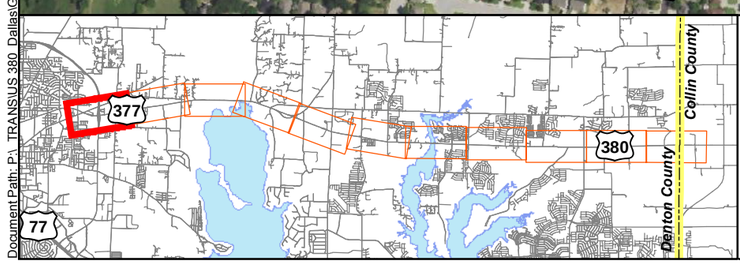

Source: Aerials USDA 2014 Denton Texas

0 250 500 Feet

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement

Project Site Map

US Highway 380, Denton County Texas

Date: November 2017

Figure 2 - Sheet 1 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 2 - Project Site Map.mxd

Source: Aerials USDA 2014 Denton Texas

0 250 500 Feet

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement

Project Site Map

US Highway 380, Denton County Texas

Date: November 2017

Figure 2 - Sheet 2 of 11

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Source: Aerials USDA 2014 Denton Texas

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Feet

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement

Project Site Map

US Highway 380, Denton County Texas

Date: November 2017

Figure 2 - Sheet 3 of 11

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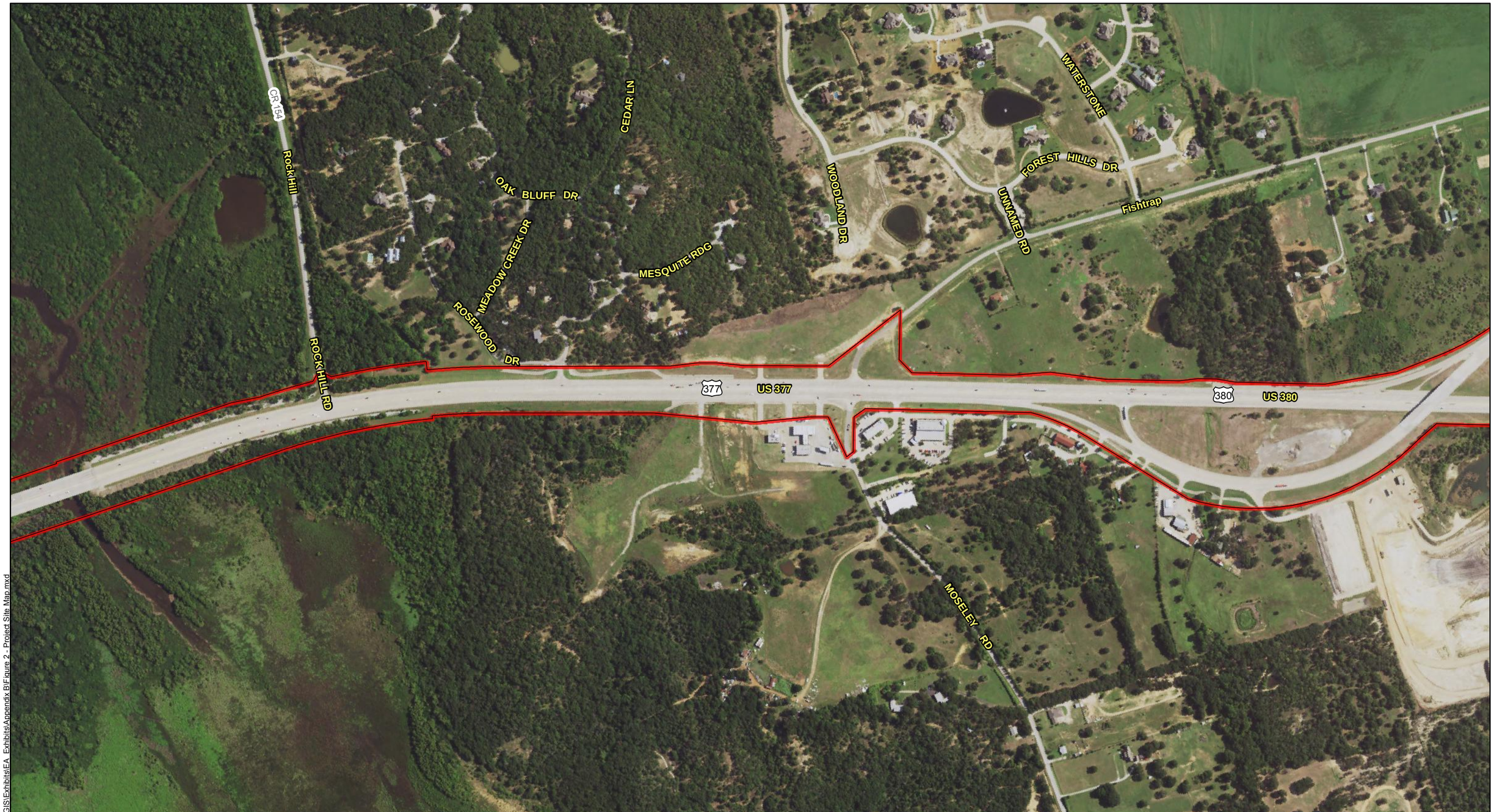

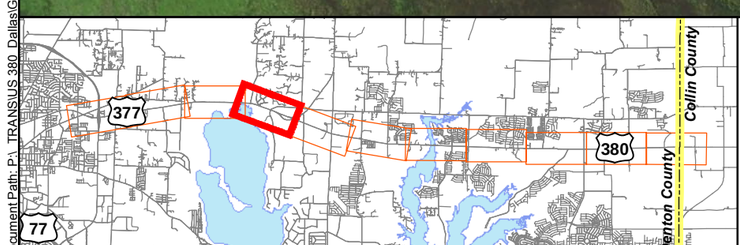

Source: Aerials USDA 2014 Denton Texas

0 250 500 Feet

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement

Project Site Map

US Highway 380, Denton County Texas

Date: November 2017

Figure 2 - Sheet 4 of 11

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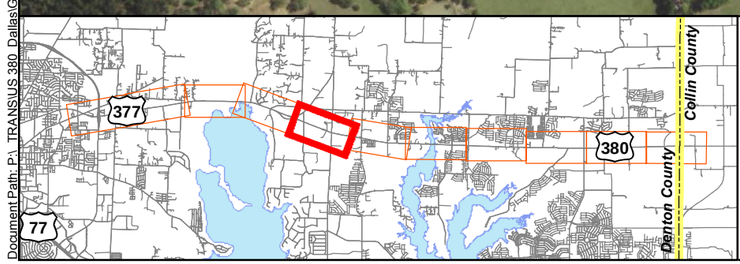

Source: Aerials USDA 2014 Denton Texas

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Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement

Project Site Map

US Highway 380, Denton County Texas

Date: November 2017

Figure 2 - Sheet 5 of 11

Document Path: P:_TRANS\US 380 Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 2 - Project Site Map.mxd

Source: Aerials USDA 2014 Denton Texas

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement

0 250 500 Feet

Project Site Map

US Highway 380, Denton County Texas

Date: November 2017

Figure 2 - Sheet 6 of 11

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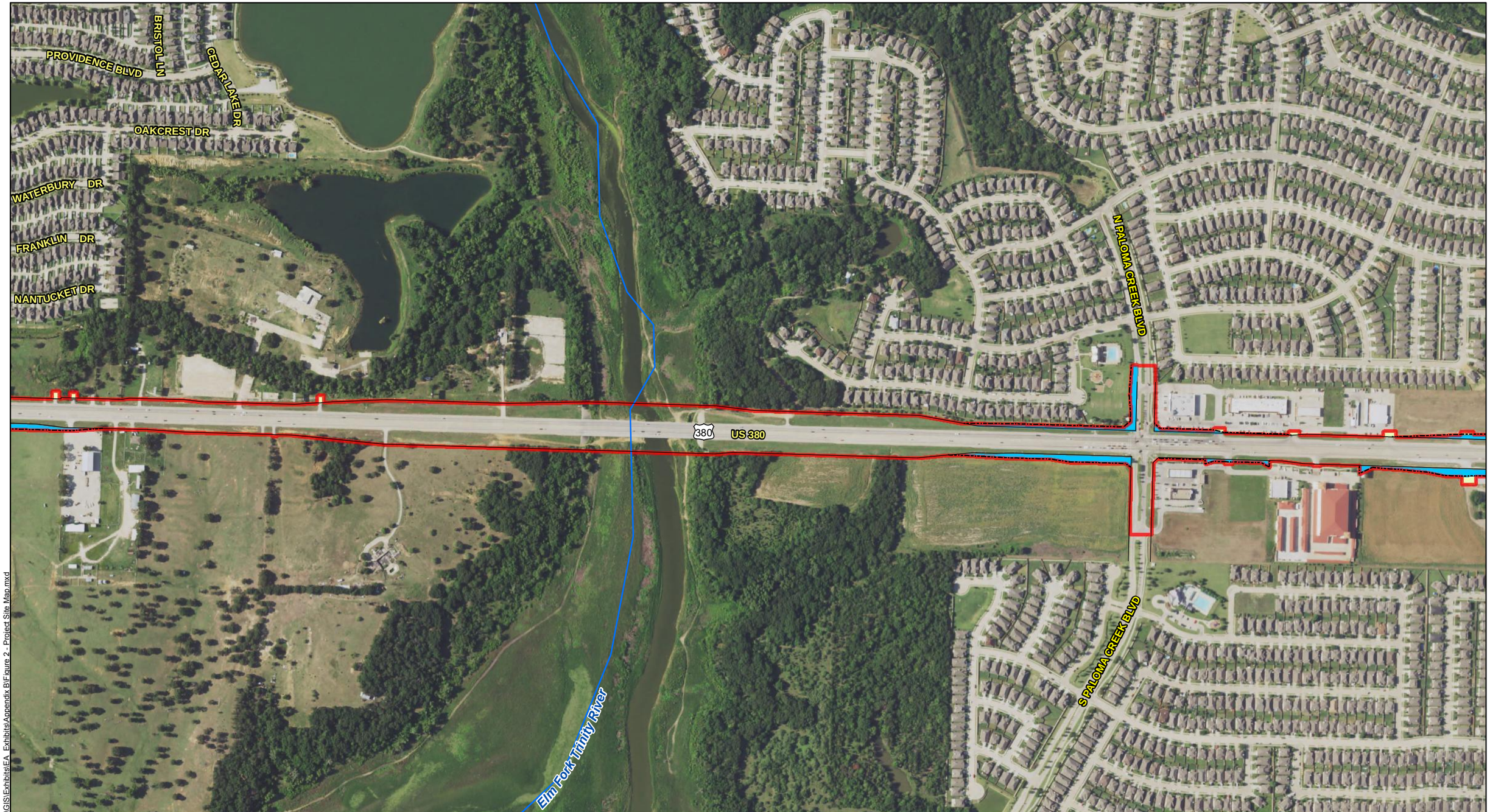

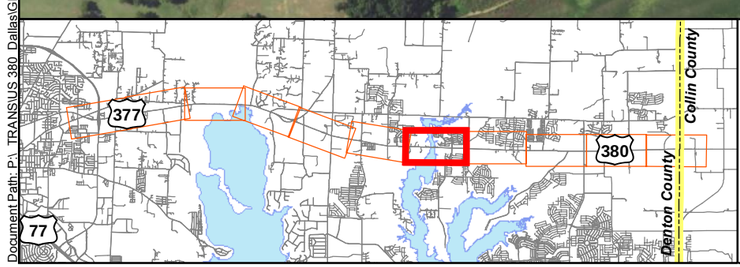

Source: Aerials USDA 2014 Denton Texas

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Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement

Project Site Map

US Highway 380, Denton County Texas

Date: November 2017

Figure 2 - Sheet 7 of 11

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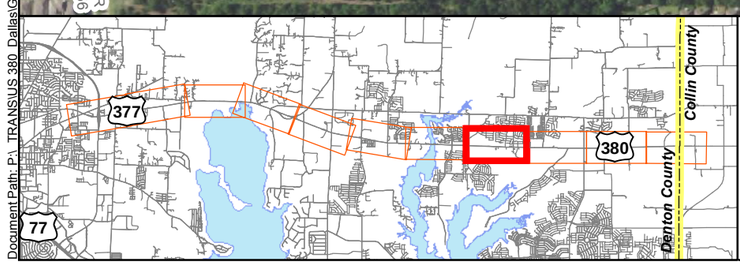

Source: Aerials USDA 2014 Denton Texas

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Feet

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement

Project Site Map

US Highway 380, Denton County Texas

Date: November 2017

Figure 2 - Sheet 8 of 11

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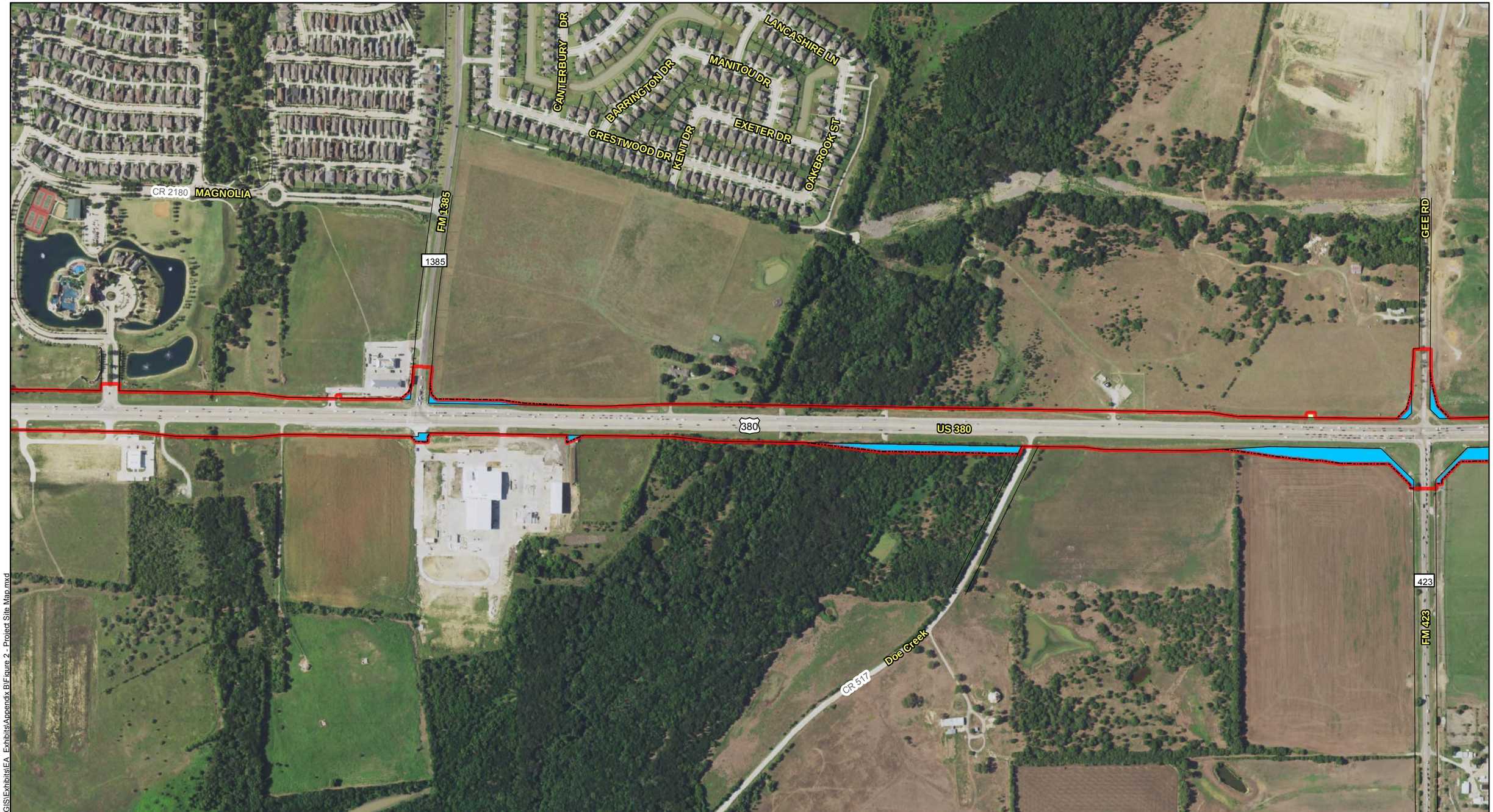
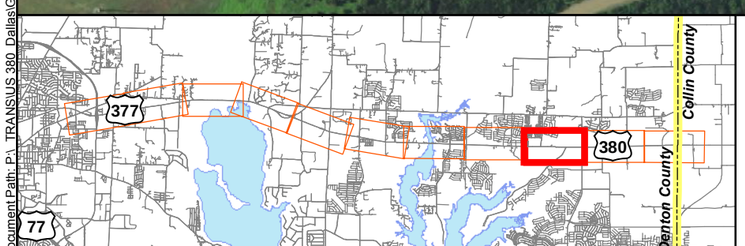




Source: Aerials USDA 2014 Denton Texas

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement

N W E S

0 250 500 Feet

Project Site Map

US Highway 380, Denton County Texas

Date: November 2017

Figure 2 - Sheet 9 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 2 - Project Site Map.mxd

GOOD HOPE RD

TEEL PKWY

380 US 380

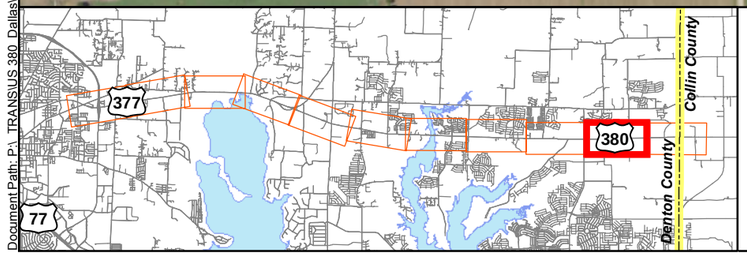
CR 313

Hawkins

CR 298

Fields

VIRGINIA PKWY



Source: Aerials USDA 2014 Denton Texas

0 250 500 Feet

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement

Project Site Map

US Highway 380, Denton County Texas

Date: November 2017

Figure 2 - Sheet 10 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 2 - Project Site Map.mxd

LEGACY DRIVE

Denton County

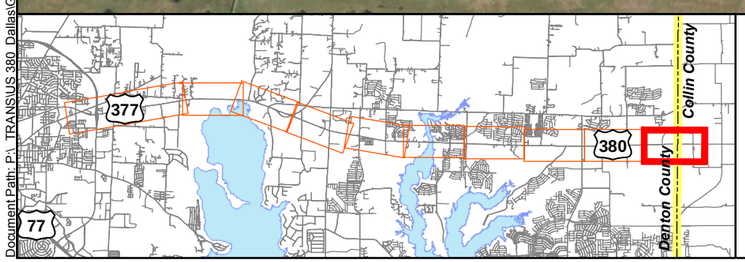
Collin County

End Project

380 US 380

CR26

VIRGINIA PKWY



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Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement

Source: Aerials USDA 2014 Denton Texas

Project Site Map

US Highway 380, Denton County Texas

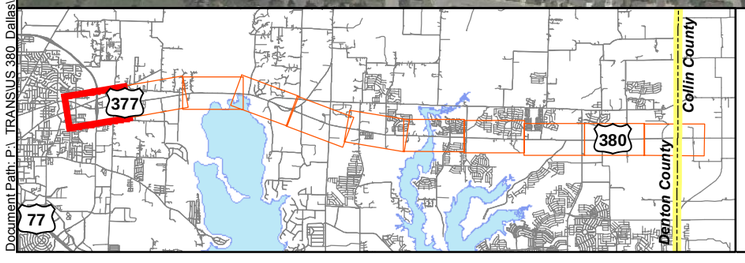
Date: November 2017

Figure 2 - Sheet 11 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 2 - Project Site Map.mxd

Appendix B - Project Photos

TxGoogleImagery - WMS, Texas 2017



Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Photo Location

0 250 500 Feet

Site Photograph Locations

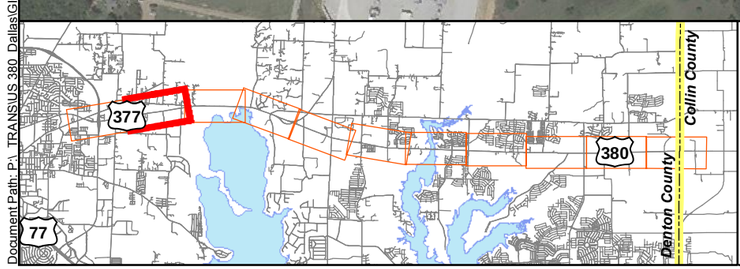
US Highway 380, Denton County Texas

Date: November 2017

Appendix B - Figure 1, Sheet 1 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 1 - Site Map with Photo Locations.mxd

Mingo
GREENLEAF CIR
Collins
Country Side
FISHTRAP RD
2727 GEESLING RD
GEESLING RD
Trinity
4250 E UNIVERSITY DR
4108 E UNIVERSITY DR
LAKEVIEW
N TRINITY RD
Geesling
APPALOOSA



0 250 500 Feet

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Photo Location

TxGoogleImagery - WMS, Texas 2017

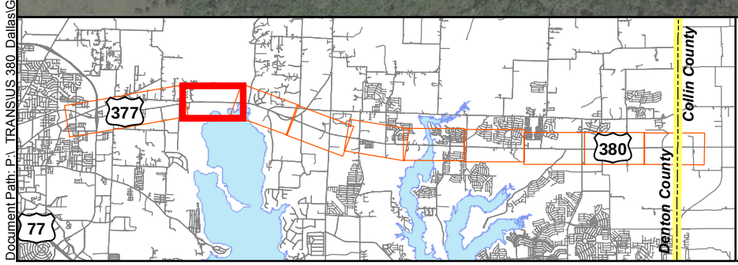
Site Photograph Locations

US Highway 380, Denton County Texas

Date: November 2017

Appendix B - Figure 1, Sheet 2 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 1 - Site Map with Photo Locations.mxd



0 250 500 Feet

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Photo Location

TxGoogleImagery - WMS, Texas 2017

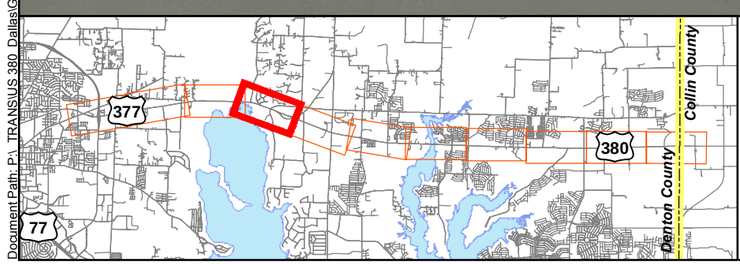
Site Photograph Locations

US Highway 380, Denton County Texas

Date: November 2017

Appendix B - Figure 1, Sheet 3 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 1 - Site Map with Photo Locations.mxd



0 250 500 Feet

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Photo Location

TxGoogleImagery - WMS, Texas 2017

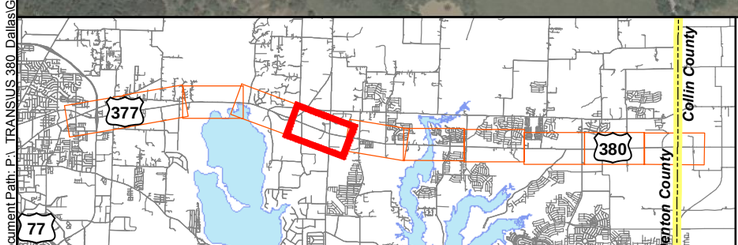
Site Photograph Locations

US Highway 380, Denton County Texas

Date: November 2017

Appendix B - Figure 1, Sheet 4 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 1 - Site Map with Photo Locations.mxd



0 250 500 Feet

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Photo Location

TxGoogleImagery - WMS, Texas 2017

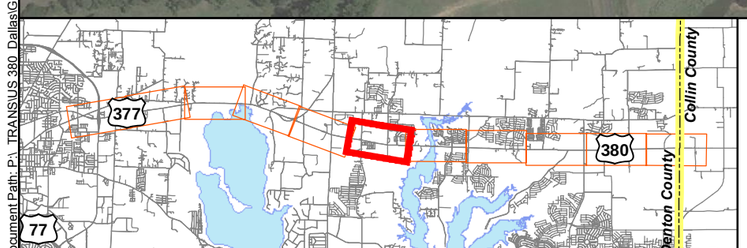
Site Photograph Locations

US Highway 380, Denton County Texas

Date: November 2017

Appendix B - Figure 1, Sheet 5 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 1 - Site Map with Photo Locations.mxd



TxGoogleImagery - WMS, Texas 2017

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Photo Location

0 250 500 Feet

Site Photograph Locations

US Highway 380, Denton County Texas

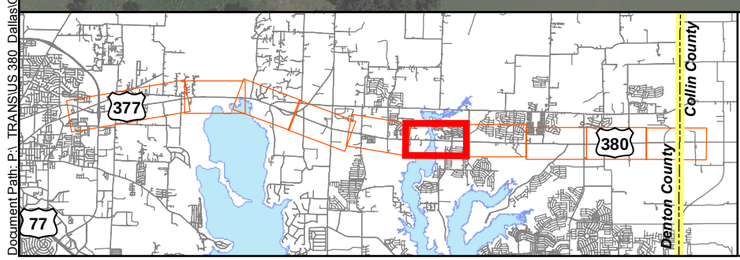
Date: November 2017

Appendix B - Figure 1, Sheet 6 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 1 - Site Map with Photo Locations.mxd

PROVIDENCE BLVD
BRISTOL LN
CEDAR LAKE DR
OAKCREST DR
WATERBURY DR
FRANKLIN DR
NANTUCKET DR
N PALOMA CREEK BLVD
S PALOMA CREEK BLVD
US 380
11
12

TxGoogleImagery - WMS, Texas 2017



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Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Photo Location

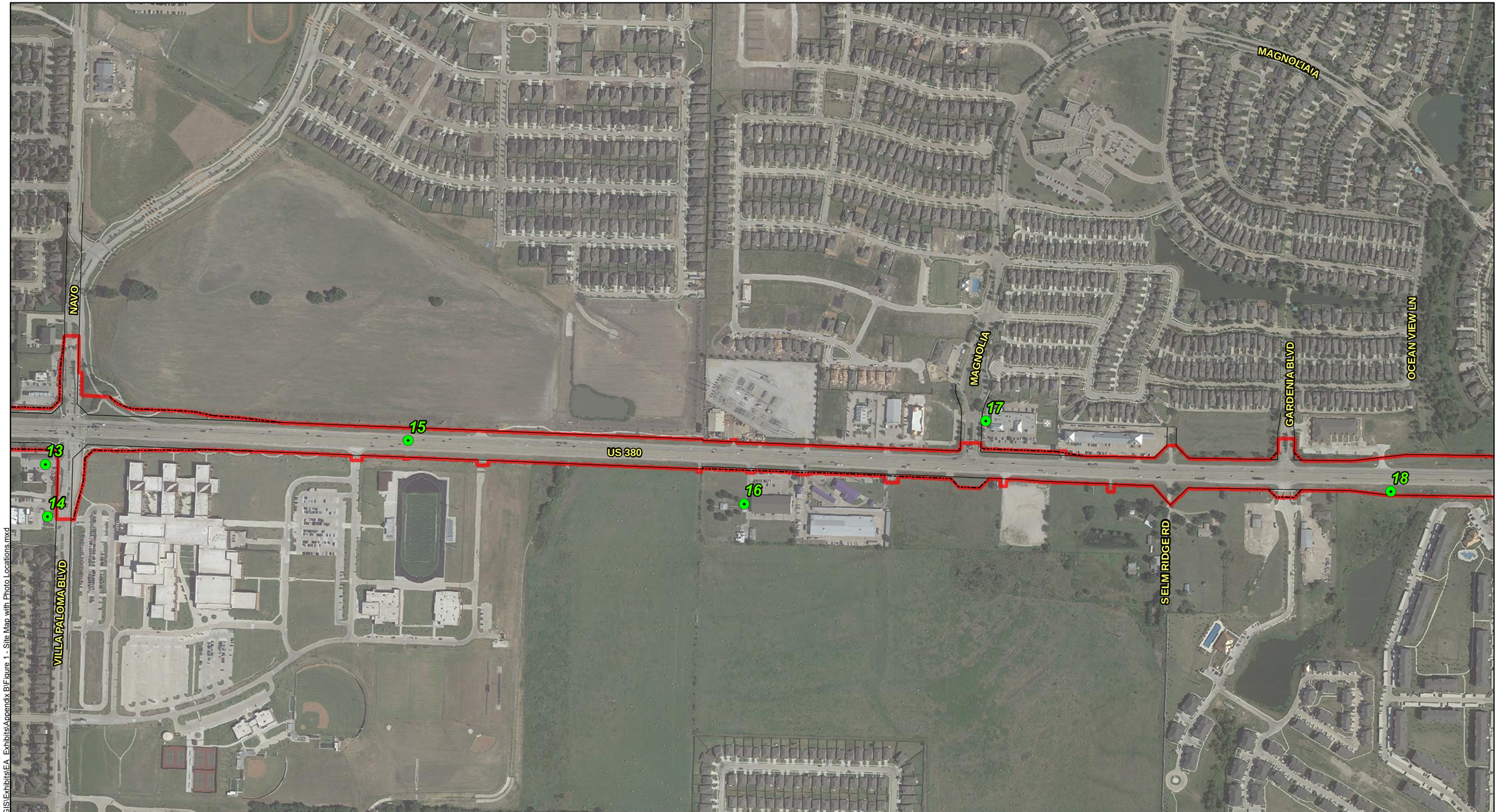
Site Photograph Locations

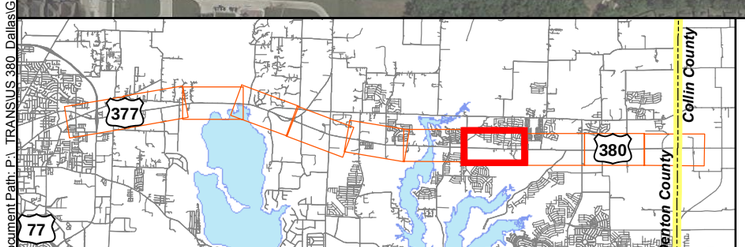
US Highway 380, Denton County Texas

Date: November 2017

Appendix B - Figure 1, Sheet 7 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 1 - Site Map with Photo Locations.mxd





0 250 500 Feet

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Photo Location

TxGoogleImagery - WMS, Texas 2017

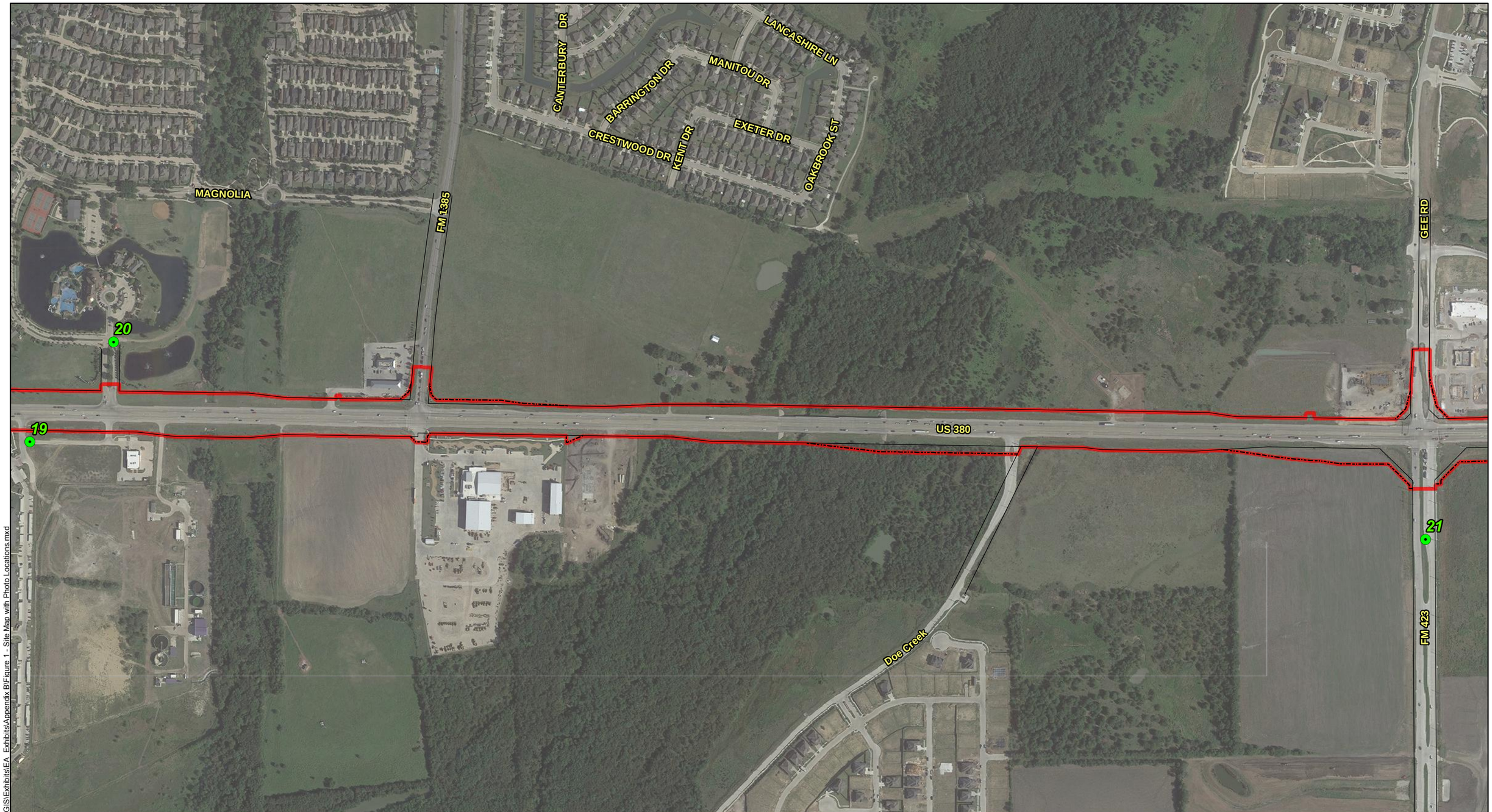
Site Photograph Locations

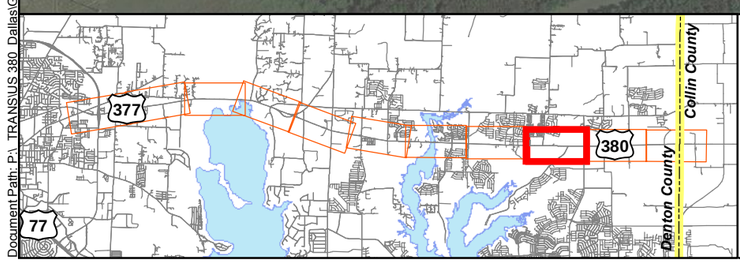
US Highway 380, Denton County Texas

Date: November 2017

Appendix B - Figure 1, Sheet 8 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 1 - Site Map with Photo Locations.mxd





TxGoogleImagery - WMS, Texas 2017

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Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Photo Location

Site Photograph Locations

US Highway 380, Denton County Texas

Date: November 2017

Appendix B - Figure 1, Sheet 9 of 11

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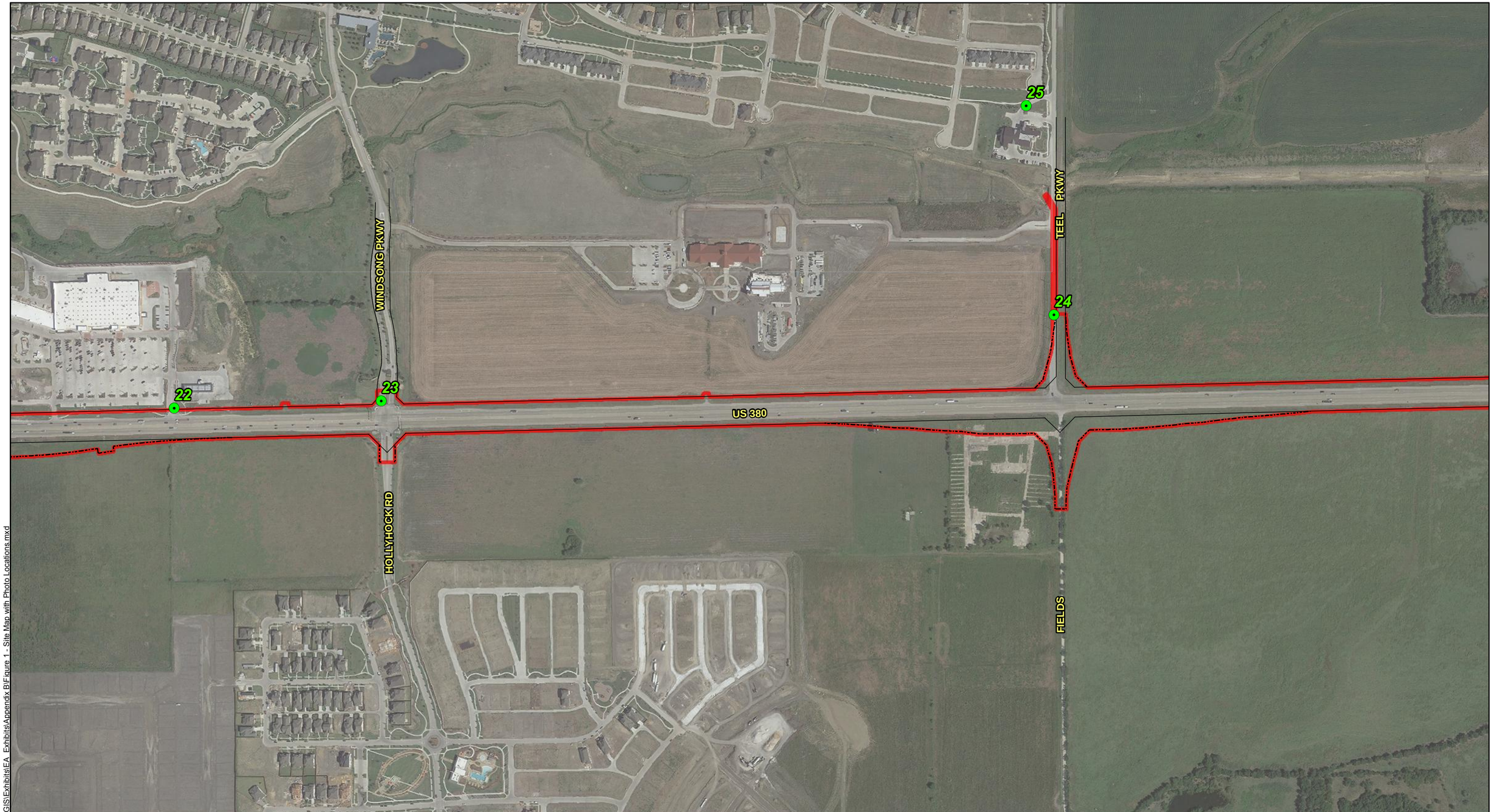
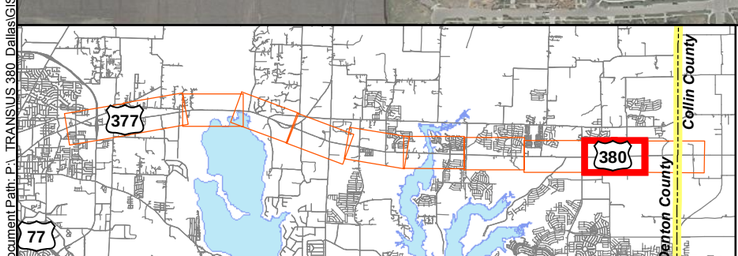




N
W E
S

0 250 500
Feet

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Photo Location

TxGoogleImagery - WMS, Texas 2017

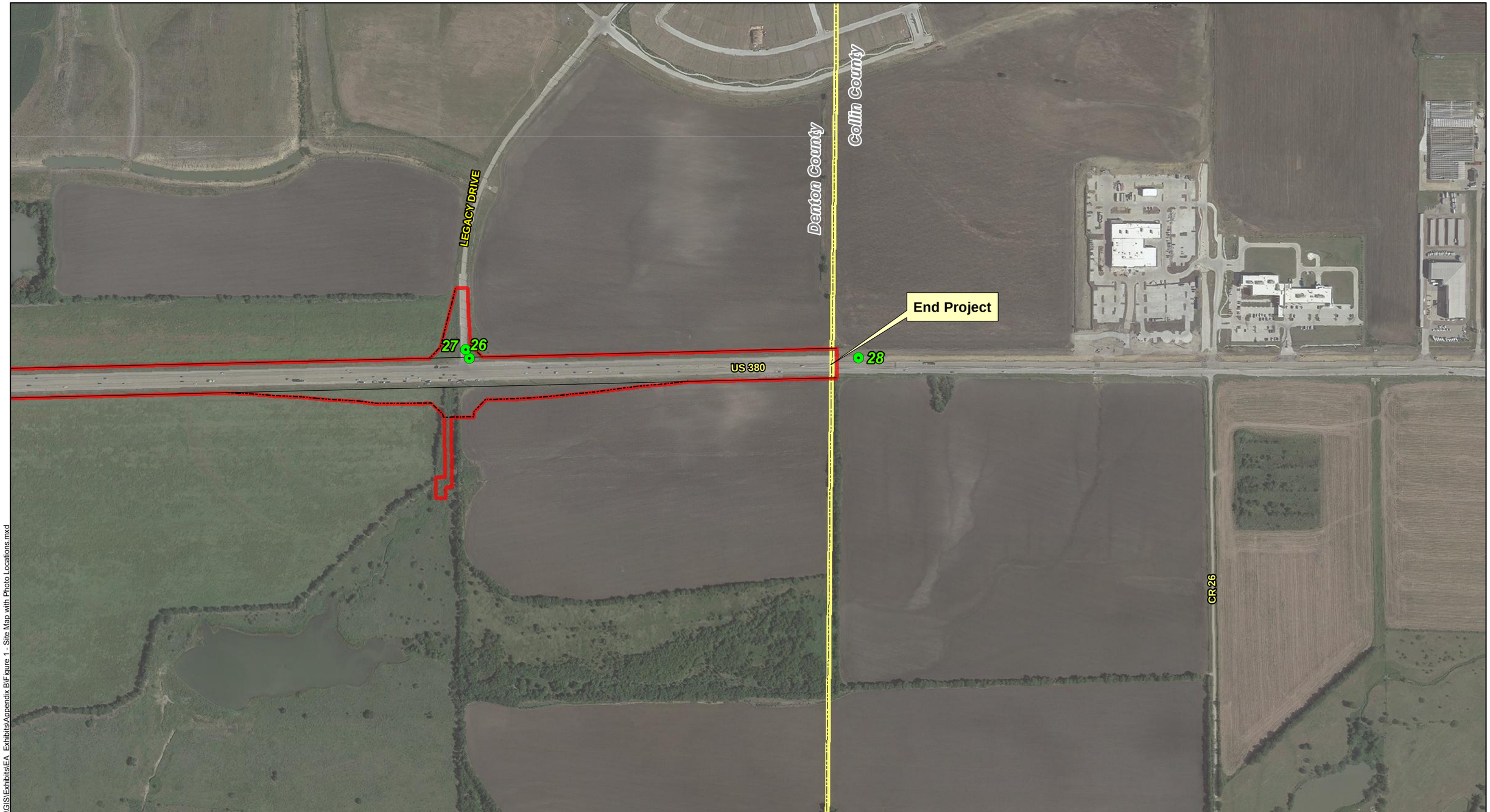
Site Photograph Locations

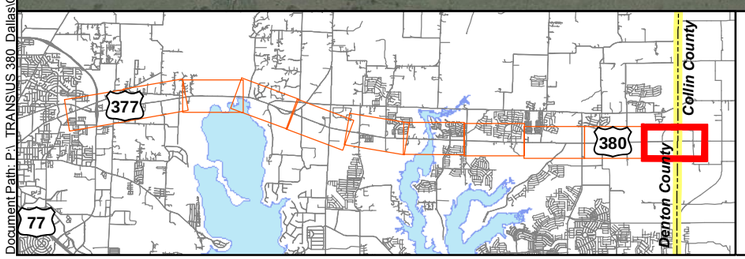
US Highway 380, Denton County Texas

Date: November 2017

Appendix B - Figure 1, Sheet 10 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 1 - Site Map with Photo Locations.mxd





0 250 500 Feet

Legend

- Project Study Area
- Proposed Right-of-Way
- Existing Right-of-Way
- Photo Location

TxGoogleImagery - WMS, Texas 2017

Site Photograph Locations

US Highway 380, Denton County Texas

Date: November 2017

Appendix B - Figure 1, Sheet 11 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix B\Figure 1 - Site Map with Photo Locations.mxd

PHOTOGRAPHIC LOG

Client Name:	Site Location:	CSJs:
TxDOT	US Highway 380, Denton County Texas	0135-01-050 0135-01-057

Photo No.	Date:
1	5/13/2016

Direction Photo Taken:

East

Description:

View looking east along US 380 from the western project limits at the intersection of State Loop 288 and US 380.

Photo No.	Date:
2	6/06/2017

Direction Photo Taken:

South

Description:

Former gas station at 3500 E. University Drive, a listed petroleum storage tank facility. There are no reported releases from this facility. However, ROW acquisition is proposed and is approximately 12 ft from former tank hold. The site is a high environmental risk for the project.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	CSJs:
TxDOT	US Highway 380, Denton County Texas	0135-01-050 0135-01-057

Photo No.	Date:
3	6/06/2017

Direction Photo Taken:

Northwest

Description:
Former Chevron gas station (Smith Systems Transportation Inc./Frank's Mean Gas), 3601 E. University Drive, at the northeast corner of US 380 and Cooper Creek Rd. The site has four USTs that are in place and listed as temporarily out of service. The facility was observed to be closed and abandoned. ROW acquisition is proposed from this site. This site is a moderate environmental risk for the project.

Photo No.	Date:
4	5/13/2016

Direction Photo Taken:

North

Description:

View of an adjacent north rural land use property located along US 380 near Riverside Dr. The property appears to be used as a horse pasture.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	CSJs:
TxDOT	US Highway 380, Denton County Texas	0135-01-050 0135-01-057

Photo No.	Date:
5	5/13/2016

Direction Photo Taken:

North

Description:

Texas Parks and Wildlife Department's Greenbelt Corridor at Ray Roberts/Lewisville Lake is adjacent north to US 380 east of Riverside Dr.

Photo No.	Date:
6	6/06/2017

Direction Photo Taken:

West

Description:

Typical view of the existing US 380 looking west toward Lewisville Lake reservoir from near Fishtrap Rd intersection.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	CSJs:
TxDOT	US Highway 380, Denton County Texas	0135-01-050 0135-01-057

Photo No.	Date:
7	5/13/2016

Direction Photo Taken:

Northwest

Description:

Walmart Supercenter fueling station and a retail strip shopping center east of the US 380 and FM 424 intersection. The fueling station is a low environmental risk for the project.

Photo No.	Date:
8	2017 GoogleEarth

Direction Photo Taken:

Northwest

Description:

7-Eleven Store #35856, formerly Earl's Beer Wine & Gas, located at 26411 US 380 (northeast corner of US 380 & Oak Grove Lane). An LPST site with impacted groundwater. ROW acquisition is required from the property and is approx. 40 ft west of the tank hold.
In addition, the proposed ROW will displace vent pipes and a propane AST (photo inset).

PHOTOGRAPHIC LOG

Client Name:	Site Location:	CSJs:
TxDOT	US Highway 380, Denton County Texas	0135-01-050 0135-01-057

Photo No.	Date:
9	6/06/2017

Direction Photo Taken:

Northwest

Description:

Newly constructed apartment complex directly adjacent north of US 380 east of Oak Grove Lane.

Photo No.	Date:
10	6/06/2017

Direction Photo Taken:

East

Description:

Oak Grove Cemetery, associated with the Oak Grove Methodist Church, located south of US 380 on FM 720 on the east side.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	CSJs:
TxDOT	US Highway 380, Denton County Texas	0135-01-050 0135-01-057

Photo No.	Date:
11	5/13/2016

Direction Photo Taken:

South

Description:

View of adjacent south farming operation located along US 380 approx. 2,800 ft. east of FM 2931.

Photo No.	Date:
12	6/06/2017

Direction Photo Taken:

East

Description:

Paloma Creek neighborhood park (US 380 and N Paloma Creek Blvd). Note playground area and open area with soccer goals. The swimming pool at the park is not shown in this photograph.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	CSJs:
TxDOT	US Highway 380, Denton County Texas	0135-01-050 0135-01-057

Photo No.	Date:
13	6/06/2017

Direction Photo Taken:

South

Description:
Brother's Garden Center/Ice Box (Exxon) gas station located at 26748 US 380 at the southwest corner of US 380 and Villa Paloma Blvd (Navo Rd). An LPST site where groundwater was impacted. TCEQ issued final concurrence in 2008. ROW acquisition is proposed on the north side. The facility is considered a high environmental risk.

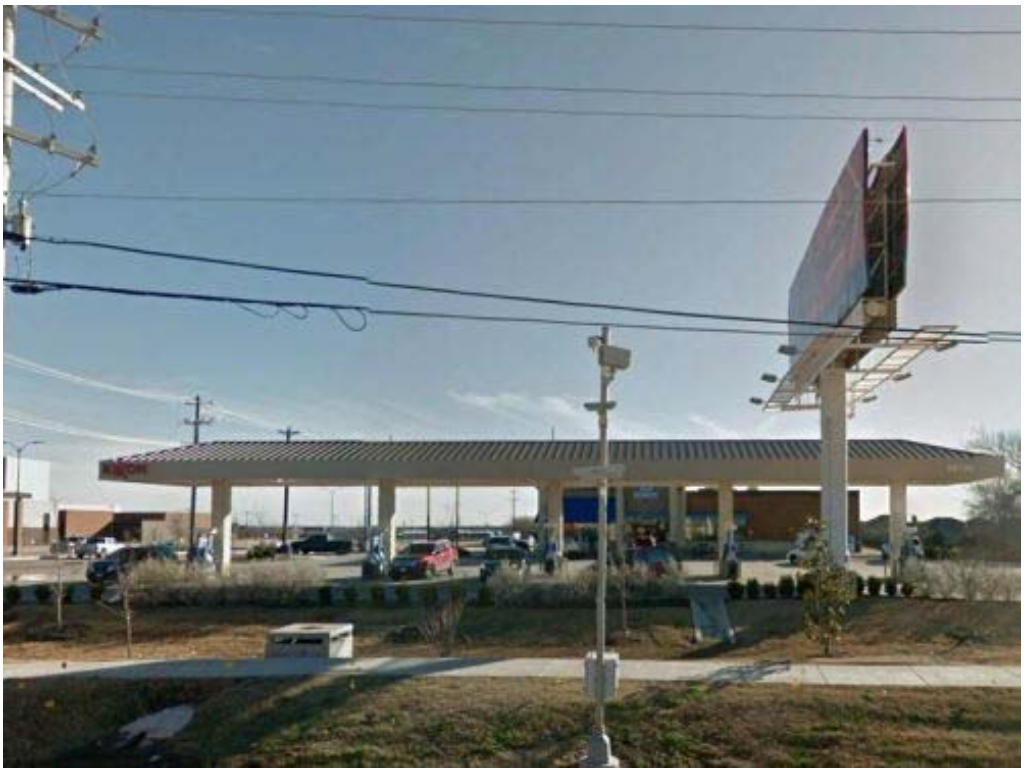


Photo No.	Date:
14	6/06/2017

Direction Photo Taken:

East

Description:

View of the Ray Braswell High School adjacent south of US 380, at the southeast corner of US 380 and Villa Paloma Blvd (Navo Rd).

PHOTOGRAPHIC LOG

Client Name:	Site Location:	CSJs:
TxDOT	US Highway 380, Denton County Texas	0135-01-050 0135-01-057

Photo No.	Date:
15	6/06/2017

Direction Photo Taken:

Southwest

Description:

View of athletic field, which are adjacent south of US 380, at the Ray Braswell High School. The athlectic field is approx. 1,530 ft. east of the intersection with Villa Paloma Blvd (Navo Rd).

Photo No.	Date:
16	6/06/2017

Direction Photo Taken:

West

Description:

View of the Pet Haven cemetery adjacent south of US 380, located at 26770 US 380 East, Aubrey, TX 76227.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	CSJs:
TxDOT	US Highway 380, Denton County Texas	0135-01-050 0135-01-057

Photo No.	Date:
17	5/13/2016

Direction Photo Taken:

Southeast

Description:

Emergency entrance of the Baylor Emergency Medical Clinic located at 26791 US 380, Aubrey, TX 76227 (northeast corner of US 380 and Magnolia Blvd.

Photo No.	Date:
18	5/13/2016

Direction Photo Taken:

South

Description:

Photograph of natural gas pipeline equipment observed adjacent south of the existing ROW, approximately 1,175 ft east of the intersection of US 380 and Elm Ridge Road. No evidence of environmental concern was noted in the area based on the site inspection and review of database records report.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	CSJs:
TxDOT	US Highway 380, Denton County Texas	0135-01-050 0135-01-057

Photo No.	Date:
19	5/13/2016

Direction Photo Taken:

South

Description:

View of recently constructed apartment complex (The Estates 3Eighty) located south of US 380 approx. 2,000 ft. west of FM 1385 in Little Elm, TX .

Photo No.	Date:
20	5/13/2016

Direction Photo Taken:

Northwest

Description:

View of Savannah residential development water park and the recreational area at US 380 and Savannah Blvd, approx. 1,600 ft east of FM 1385.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	CSJs:
TxDOT	US Highway 380, Denton County Texas	0135-01-050 0135-01-057

Photo No.	Date:
21	6/06/2017

Direction Photo Taken:

Southwest

Description:

View looking south along FM 423 showing roadway improvement construction. FM 423 intersects US 380 near the eastern end of the proposed project.

Photo No.	Date:
22	6/06/2017

Direction Photo Taken:

North

Description:

View of recently constructed Kroger shopping center at the northeast corner area of Gee Rd and US 380. Photo is from the driveway entrance approx. 1,100 ft. east of Gee Rd.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	CSJs:
TxDOT	US Highway 380, Denton County Texas	0135-01-050 0135-01-057

Photo No.	Date:
23	6/06/2017

Direction Photo Taken:

South

Description:

View looking south toward Hollyhock residential development entrance at the intersection of US 380 and Hollyhock Rd.

Photo No.	Date:
24	6/06/2017

Direction Photo Taken:

West

Description:

View of farming area along US 380 at Teel Pkwy. The property is near the eastern end of the proposed project improvements.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	CSJs:
TxDOT	US Highway 380, Denton County Texas	0135-01-050 0135-01-057

Photo No.	Date:
25	6/06/2017

Direction Photo Taken:

South

Description:

View of newly constructed Town of Prosper Fire Station 2 located at 1140 S. Teel Pkwy, approx. 1,250 ft. north of US 380.

Photo No.	Date:
26	6/06/2017

Direction Photo Taken:

East

Description:

View looking east along US 380 of proposed ROW near Legacy Drive.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	CSJs:
TxDOT	US Highway 380, Denton County Texas	0135-01-050 0135-01-057

Photo No.	Date:
27	5/13/2016

Direction Photo Taken:

West

Description:

View looking west from Legacy Dr toward agricultural land use adjacent north of US 380; currently used for hay production.

Photo No.	Date:
28	5/13/2016

Direction Photo Taken:

West-northwest

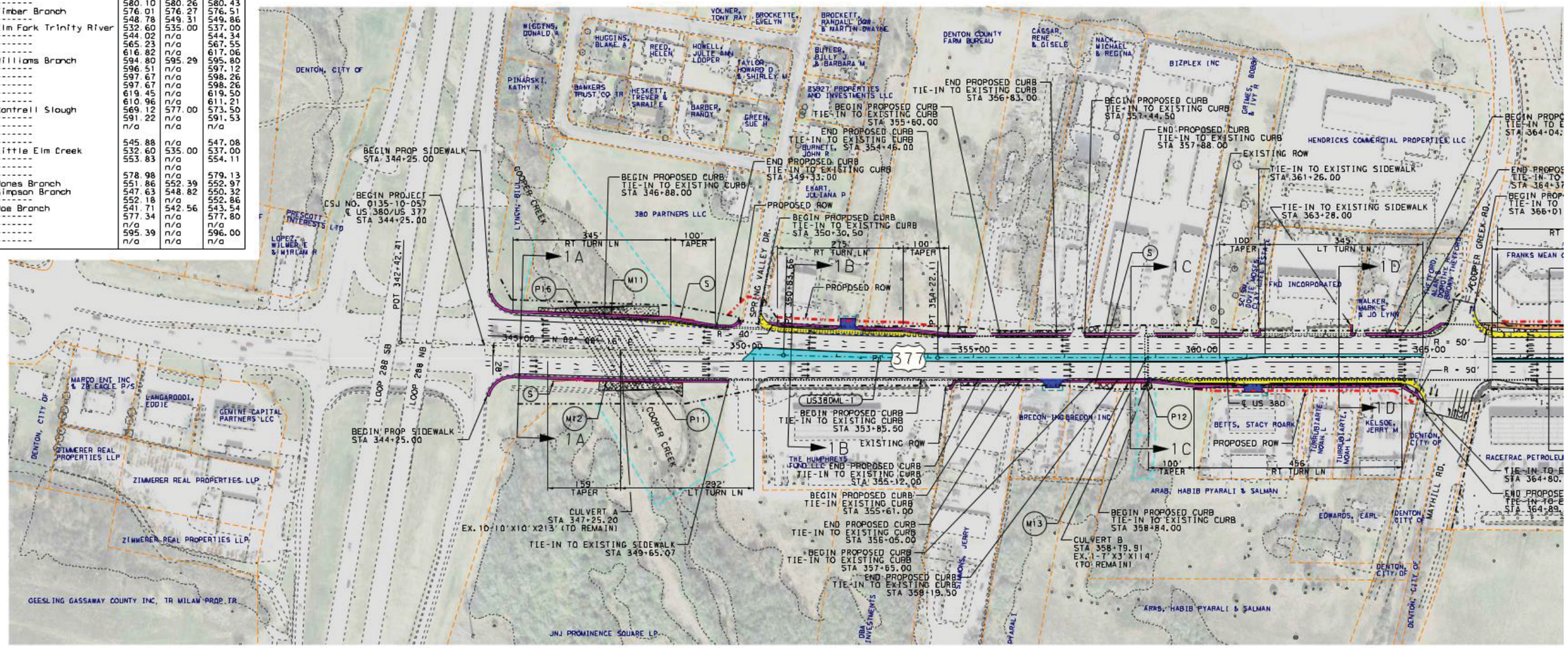
Description:

View looking west along US 380 from Denton County line at eastern project limit.

Appendix C - Schematics

US380 Schematic - Proposed Water Surface Elevations

ID	Sta	Str. Type	Stream Name	25YR (ft)	50YR (ft)	100YR (ft)
A	347+25.20	culvert	Cooper Creek	581.73	582.03	583.02
B	358+79.91	culvert	-------	n/a	n/a	n/a
C	380+00.00	culvert	-------	580.10	580.26	580.43
D	417+80.31	culvert	Timber Branch	576.01	576.27	576.51
E	456+02.06	culvert	-------	548.78	549.31	549.86
F		bridge	Elm Fork Trinity River	532.60	535.00	537.00
G	Rock Hill RD	culvert	-------	544.02	n/a	544.34
H	558+00.28	culvert	-------	565.23	n/a	567.55
I	581+51.44	culvert	-------	616.82	n/a	617.06
J	592+62.68	culvert	Williams Branch	594.80	595.29	595.80
K	624+73.96	culvert	-------	596.51	n/a	597.12
L	634+38.29	culvert	-------	597.67	n/a	598.26
L-1	634+93.89	culvert	-------	597.67	n/a	598.26
M	653+13.68	culvert	-------	619.45	n/a	619.50
N	668+55.52	culvert	-------	610.96	n/a	611.21
O	690+25.25	culvert	Cantrell Slough	569.12	577.00	573.50
P	FM 720	culvert	-------	591.22	n/a	591.53
Q	736+02.75	culvert	-------	n/a	n/a	n/a
R	abandon	none	-------			
S	777+45.37	culvert	-------	545.88	n/a	547.08
T		bridge	Little Elm Creek	532.60	535.00	537.00
U	806+45.56	culvert	-------	553.83	n/a	554.11
V	868+59.37	culvert	-------		n/a	
W	894+64.15	culvert	-------	578.98	n/a	579.13
X	915+36.30	culvert	Jones Branch	551.86	552.39	552.97
Y	928+79.73	culvert	Simpson Branch	547.63	548.82	550.32
Z	953+20.29	culvert	-------	552.18	n/a	552.86
AA		bridge	Doe Branch	541.71	542.56	543.54
BB	1002+52.58	culvert	-------	577.34	n/a	577.80
CC	1054+92.12	culvert	-------	n/a	n/a	n/a
DD	1073+83.12	culvert	-------	595.39	n/a	596.00
EE	1100+54.00	culvert	-------	n/a	n/a	n/a



PROPOSED MAINLANES
PROPOSED BRIDGES
PROPOSED BRIDGE WIDENING
PROPOSED ACCESS ROADS/RAMPS
PROPOSED CROSS STREETS
PROPOSED MEDIAN
PROPOSED SIDEWALK
FUTURE 10' SUP (BY OTHERS)
PROPOSED DRIVEWAY
PROPOSED ASPHALT PVMT. TRANSITION

PROPOSED CENTERLINE
PROPOSED RETAINING WALL
PROPOSED RIGHT-OF-WAY
EXISTING RIGHT-OF-WAY
EXISTING ROAD
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EXISTING EASEMENT
PROPOSED CONSTRUCTION EASEMENT

PROPOSED DRAINAGE EASEMENT
SINGLE SLOPE CONCRETE RAIL (SLOTTED)
EX. 72" WATER LINE
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PROPOSED CONSTRUCTION
EXISTING SIDEWALK
DRIVEWAY REMOVAL
CONCRETE RIPRAP

(M) METAL BEAM GUARD FENCE
(P) PEDESTRIAN RAIL
(S) SINGLE GUARD RAIL TERMINAL
(T1) TAPER
→ PROPOSED LANE DIRECTIONAL INDICATOR

200 0 200

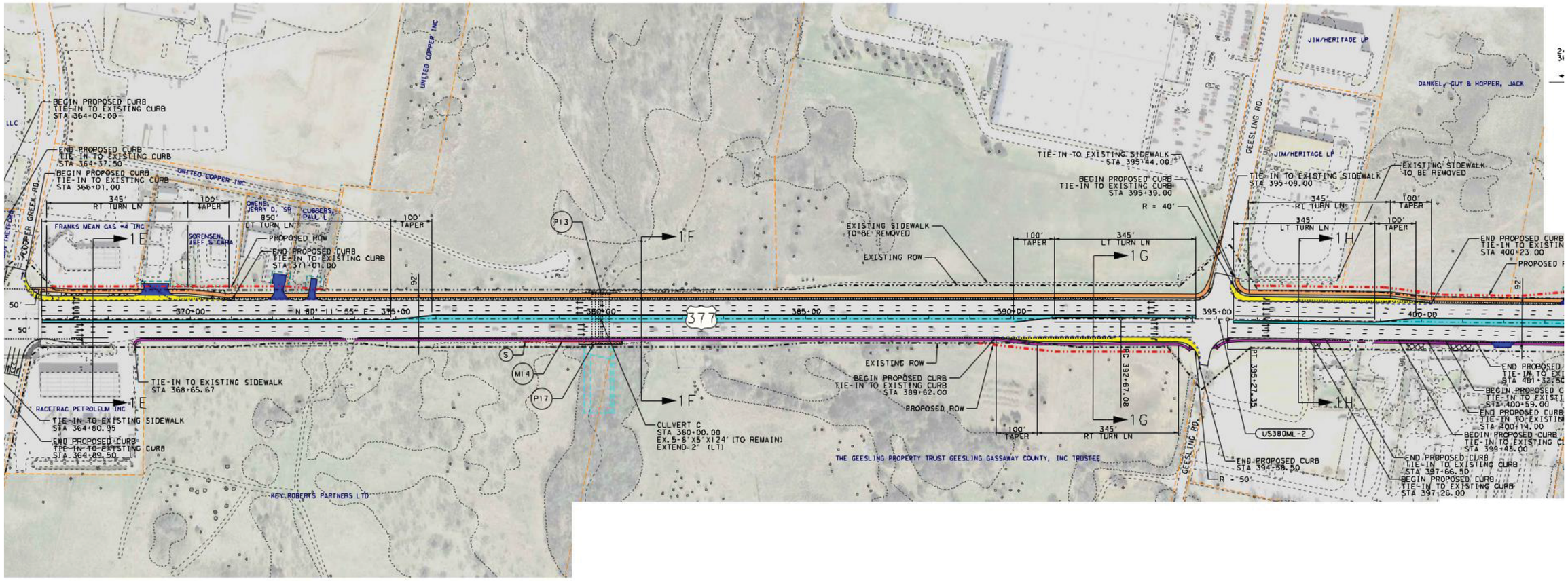
US 380

Project Layout

CSJ: 0135-10-057, 0135-10-050

PEDESTRIAN RAIL	BEGIN		END		LENGTH
	STA	OFFSET (FT)	STA	OFFSET (FT)	
P11	347+19.50	90' RT	348+43.00	82' RT	124 FT
P12	358+74.50	61' RT	358+85.00	61' RT	11 FT
P13	379+60.00	63' LT	380+40.00	63' LT	80 FT
P14	417+40.00	64' RT	418+17.00	64' RT	78 FT
P15	417+21.00	64' LT	418+43.00	65' LT	122 FT
P16	346+04.00	88' LT	347+27.00	95' LT	123 FT
P17	379+66.50	62' RT	380+33.50	62' RT	67 FT

MBGF	BEGIN		END		SGT	TOTAL MBGF LENGTH OF NEED
	STA	OFFSET (FT)	STA	OFFSET (FT)		
M11	345+44.50	78' LT	348+32.00	76' LT	YES	325 FT
M12	346+31.50	71' RT	348+69.00	68' RT	YES	275 FT
M13	358+17.50	55' RT	359+05.00	56' RT	YES	125 FT
M14	378+66.50	55' RT	380+54.00	56' RT	YES	225 FT
M16	416+40.00	55' RT	418+52.50	55' RT	YES	250 FT
M17	417+49.00	63' LT	419+11.50	63' LT	YES	200 FT



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PROPOSED CROSS STREETS
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FUTURE 10' SUP (BY OTHERS)
PROPOSED DRIVEWAY
PROPOSED ASPHALT PVMT. TRANSITION

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(TI) TAPER
→ PROPOSED LANE DIRECTIONAL INDICATOR

200 0 200

US 380

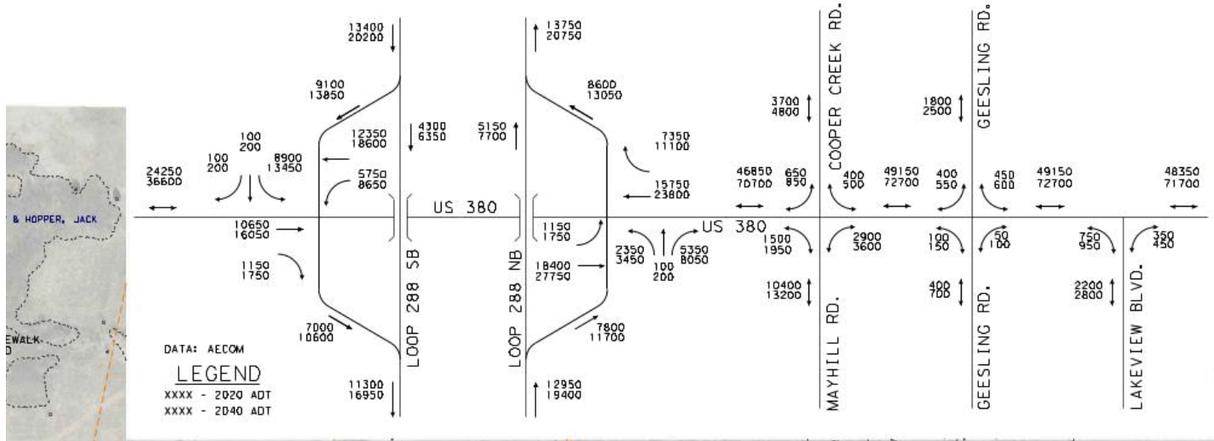
Project Layout

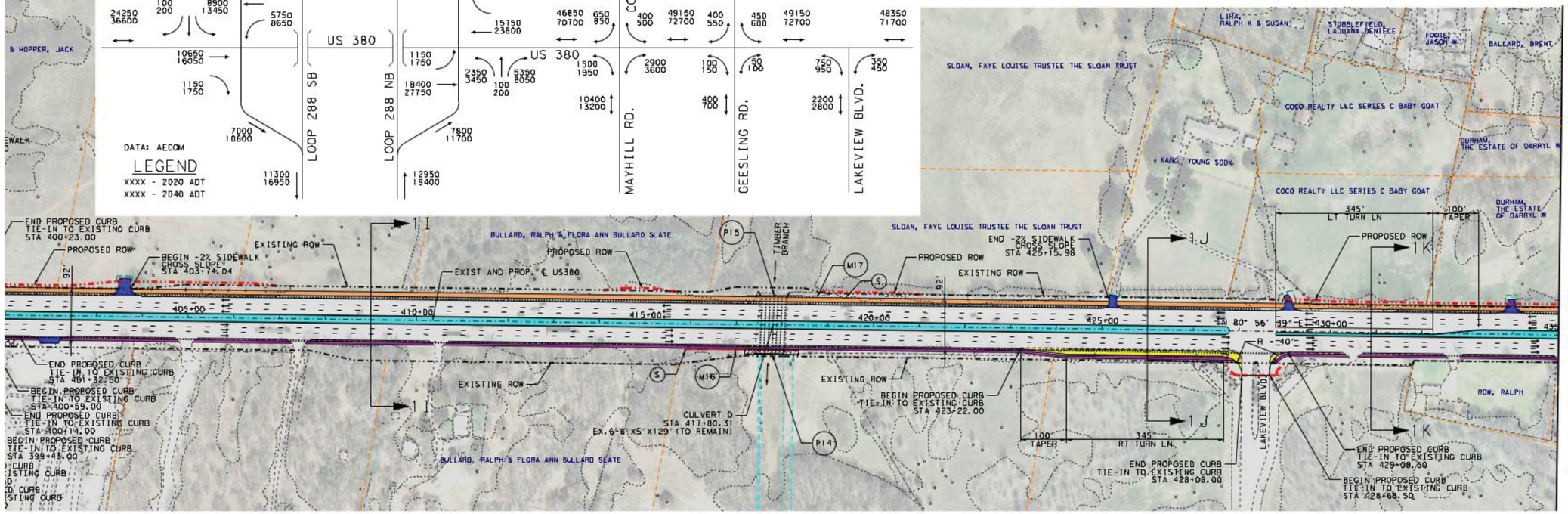
CSJ: 0135-10-057, 0135-10-050

Sheet 2 of 24

NOTE:

1. FINAL LOCATION AND NUMBER OF MEDIAN OPENINGS WILL BE DETERMINED DURING THE FINAL DESIGN PHASE OF THIS PROJECT.
2. ALL UTILITIES WILL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION BEGINS.
3. ALL TXDOT CURBS ARE 8" FROM FACE OF CURB TO BACK OF CURB.





MATCH LINE STA 435+00
CSJ NO. 0135-10-057

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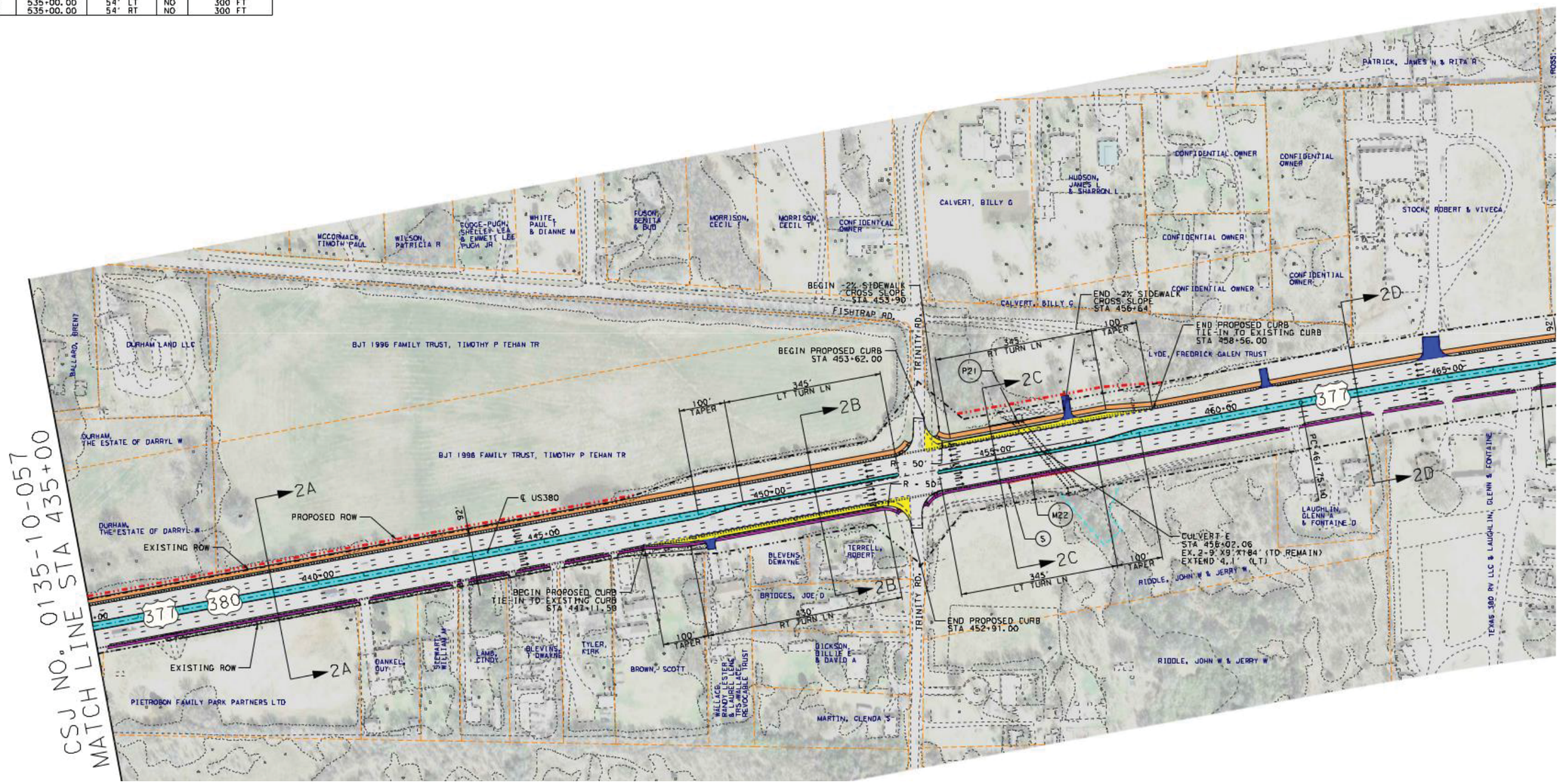
US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 3 of 24

MBGF	BEGIN		END		SGT	TOTAL MBGF LENGTH OF NEED
	STA	OFFSET (FT)	STA	OFFSET (FT)		
M22	455+68.50	55' RT	456+81.00	55' RT	YES	150 FT
M23	473+28.50	54' RT	477+66.00	105' RT	YES	475 FT
M25	477+82.00	100' RT	482+47.00	54' RT	NO	475 FT
M26	485+60.00	54' RT	504+44.50	54' RT	NO	1900 FT
M28	491+91.50	97' LT	504+44.00	54' LT	NO	1275 FT
M29	508+99.50	54' LT	523+44.00	54' LT	NO	1450 FT
M210	509+00.00	54' RT	523+44.00	54' RT	NO	1450 FT
M211	532+01.00	54' LT	535+00.00	54' LT	NO	300 FT
M212	532+01.00	54' RT	535+00.00	54' RT	NO	300 FT

TAPER		BEGIN		END		RADIUS
		STA	OFFSET (FT)	STA	OFFSET (FT)	
T1	POT	471+32.63	46.50' RT	472+78.32	45.00' RT	
T2	POT					
T3	POT	481+62.25	3.00' LT	482+65.25	5.00' LT	
T4	POT					
T5	POT	485+42.07	5.00' LT	486+42.07	7.00' LT	
T6	POT					

PEDESTRIAN RAIL	BEGIN		END		LENGTH
	STA	OFFSET (FT)	STA	OFFSET (FT)	
P21	454+99.00	70' LT	456+24.00	70' LT	125 FT
P22	477+21.00	54' LT	482+65.00	55' LT	544 FT
P23	485+42.00	55' LT	491+38.00	74' LT	596 FT
P24	472+60.00	64' LT	477+21.00	53' LT	464 FT



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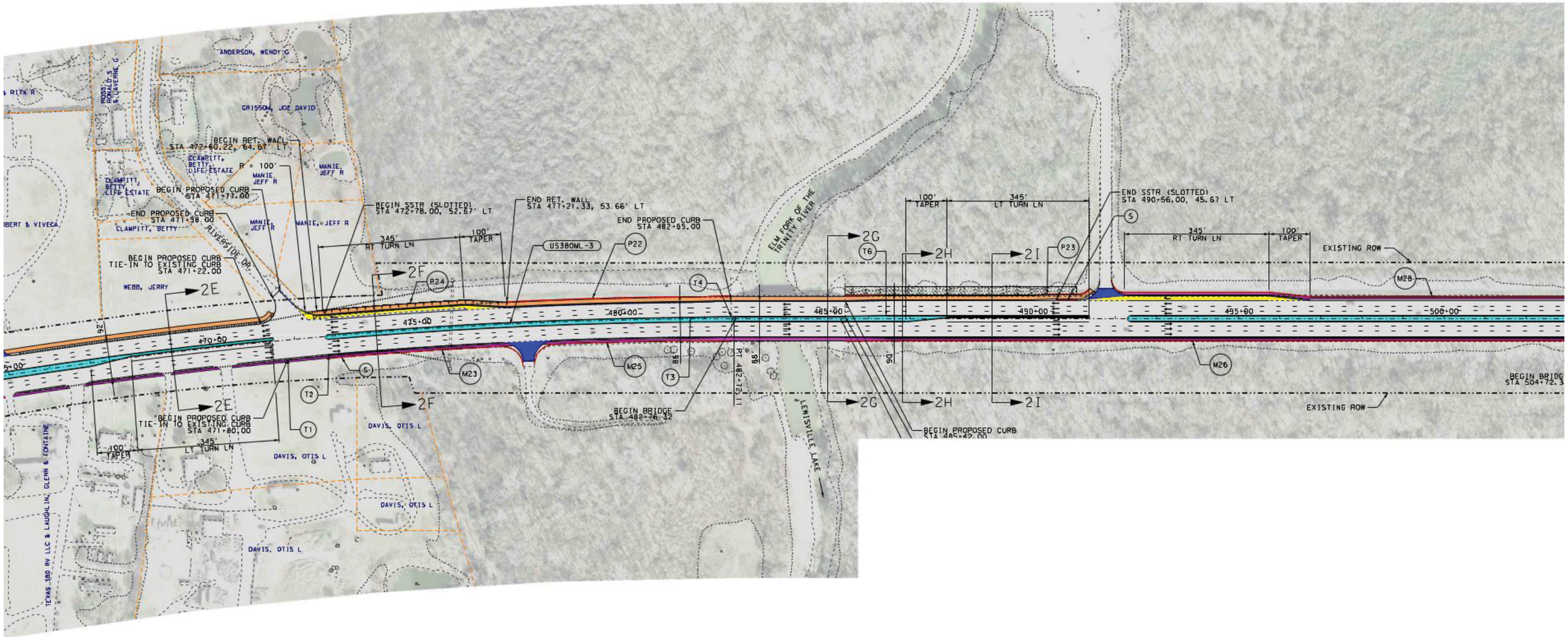
US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 4 of 24



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PROPOSED CONSTRUCTION
EXISTING SIDEWALK
DRIVEWAY REMOVAL
CONCRETE RIPRAP

(M) METAL BEAM GUARD FENCE
(P) PEDESTRIAN RAIL
(S) SINGLE GUARD RAIL TERMINAL
(T) TAPER
→ PROPOSED LANE DIRECTIONAL INDICATOR

200 0 200

US 380

Project Layout

CSJ: 0135-10-057, 0135-10-050

Sheet 5 of 24

NOTE:

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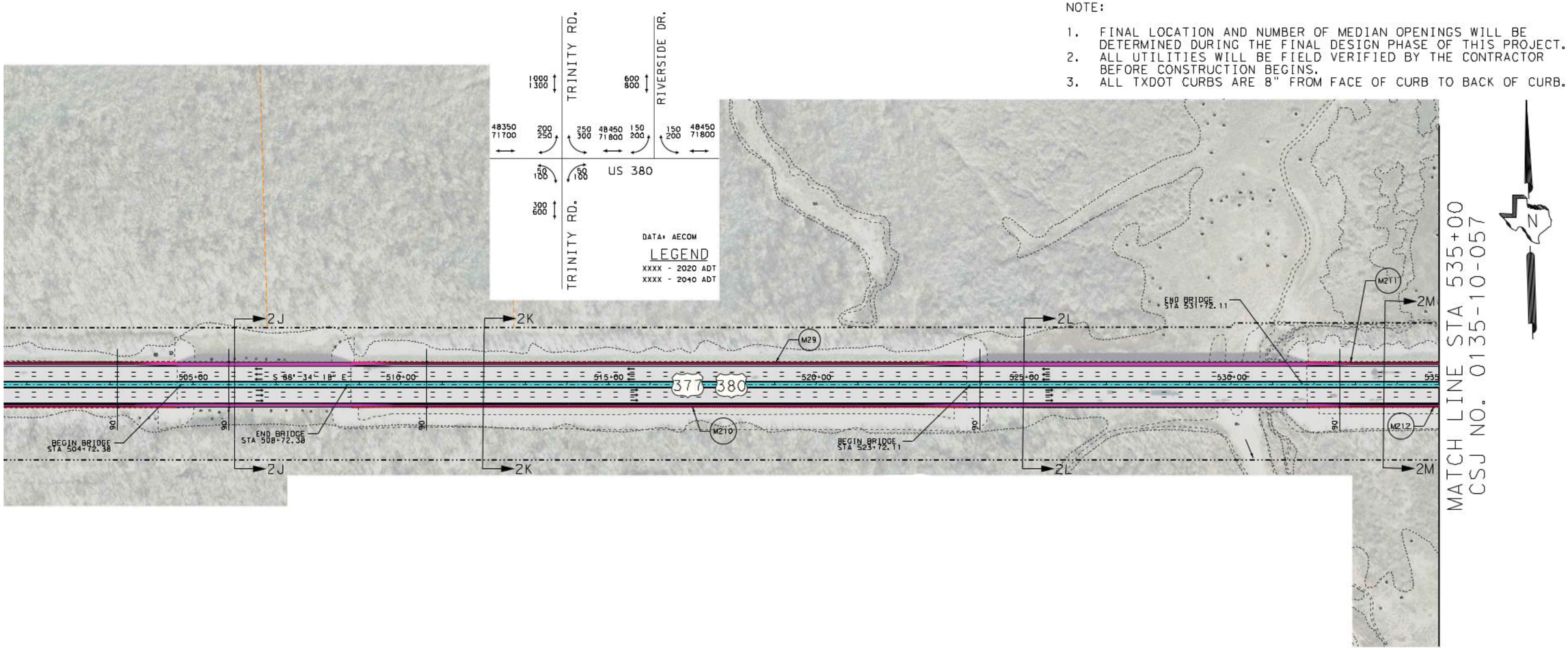

PROPOSED MAINLANES
PROPOSED BRIDGES
PROPOSED BRIDGE WIDENING
PROPOSED ACCESS ROADS/RAMPS
PROPOSED CROSS STREETS
PROPOSED MEDIAN
PROPOSED SIDEWALK
FUTURE 10' SUP (BY OTHERS)
PROPOSED DRIVEWAY
PROPOSED ASPHALT PVMT. TRANSITION

PROPOSED CENTERLINE
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EXISTING RIGHT-OF-WAY
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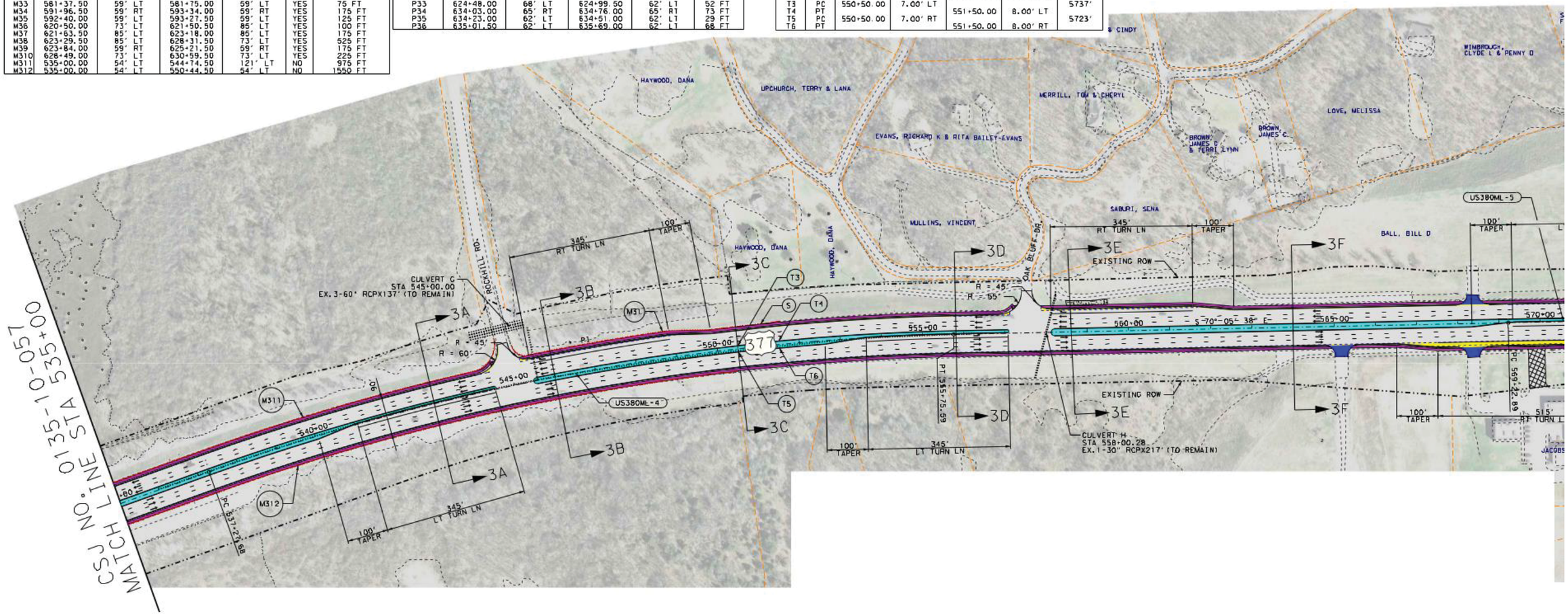
Sheet 6 of 24

MBGF	BEGIN		END		SGT	TOTAL MBGF LENGTH OF NEED
	STA	OFFSET (FT)	STA	OFFSET (FT)		
M31	545+17.50	93' LT	551+05.00	54' LT	YES	675 FT
M32	581+28.50	72' RT	581+66.00	73' RT	YES	75 FT
M33	581+37.50	59' LT	581+75.00	59' LT	YES	75 FT
M34	591+96.50	59' RT	593+34.00	59' RT	YES	175 FT
M35	592+40.00	59' LT	593+27.50	59' LT	YES	125 FT
M36	620+50.00	73' LT	621+50.50	85' LT	YES	100 FT
M37	621+63.50	85' LT	623+18.00	85' LT	YES	175 FT
M38	623+29.50	85' LT	628+31.50	73' LT	YES	525 FT
M39	623+84.00	59' RT	625+21.50	59' RT	YES	175 FT
M310	628+49.00	73' LT	630+59.50	73' LT	YES	225 FT
M311	535+00.00	54' LT	544+74.50	121' LT	NO	975 FT
M312	535+00.00	54' LT	550+44.50	54' LT	NO	1550 FT

PEDESTRIAN RAIL	BEGIN		END		LENGTH
	STA	OFFSET (FT)	STA	OFFSET (FT)	
P31	592+46.50	79' RT	592+76.50	79' RT	30 FT
P32	624+34.00	63' RT	625+14.00	63' RT	80 FT
P33	624+48.00	68' LT	624+99.50	62' LT	52 FT
P34	634+03.00	65' RT	634+76.00	65' RT	73 FT
P35	634+23.00	62' LT	634+51.00	62' LT	29 FT
P36	635+01.50	62' LT	635+69.00	62' LT	68 FT

TAPER		BEGIN		END		RADIUS
		STA	OFFSET (FT)	STA	OFFSET (FT)	
T1	POT	595+08.82	50.00' LT	597+08.82	62.00' LT	
T2	POT					
T3	PC	550+50.00	7.00' LT			5737'
T4	PT			551+50.00	8.00' LT	
T5	PC	550+50.00	7.00' RT			5723'
T6	PT			551+50.00	8.00' RT	



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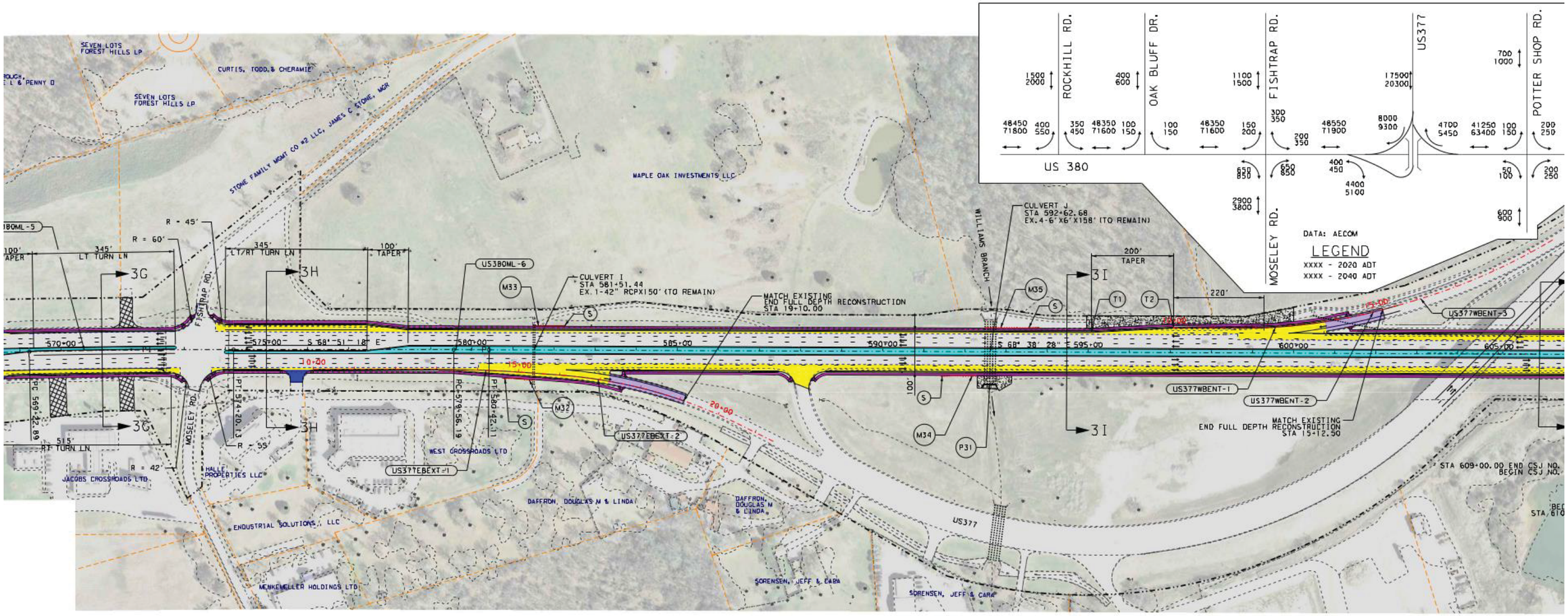

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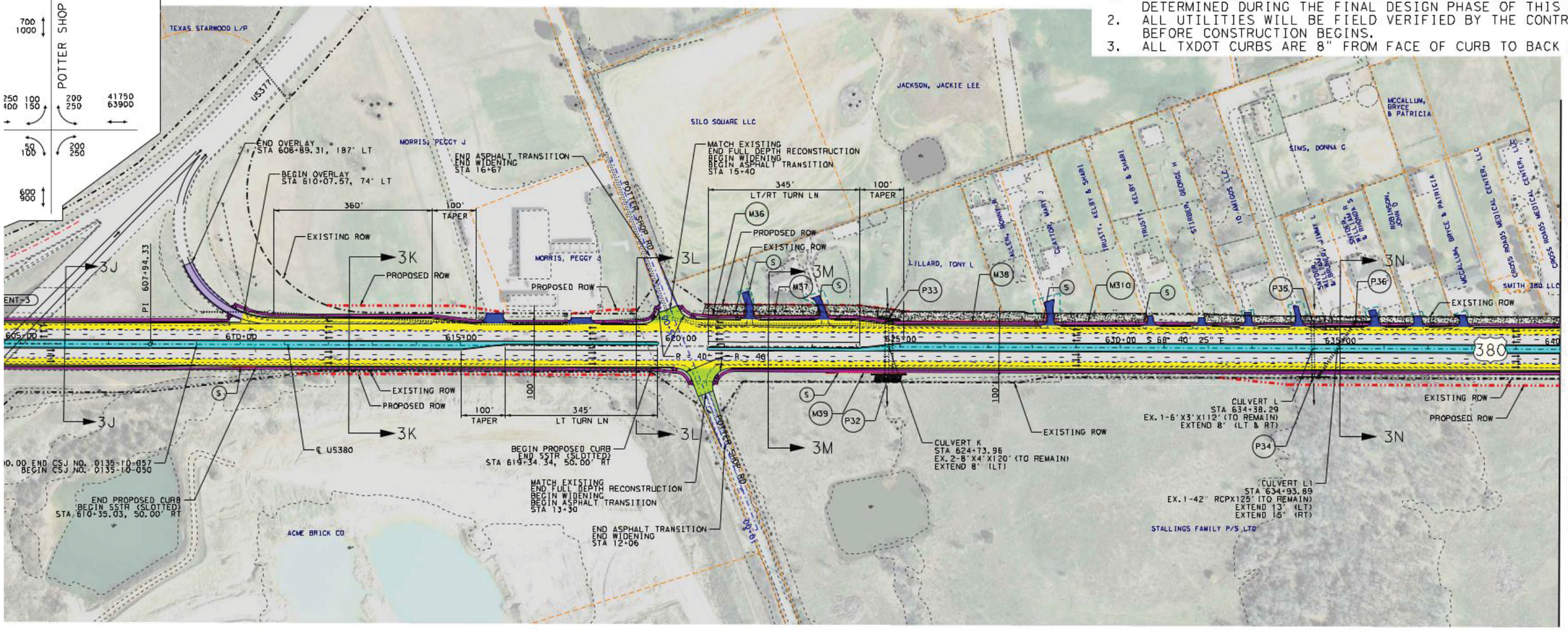

MATCH LINE STA 640+00
CSJ NO. 0135-10-050

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US 380
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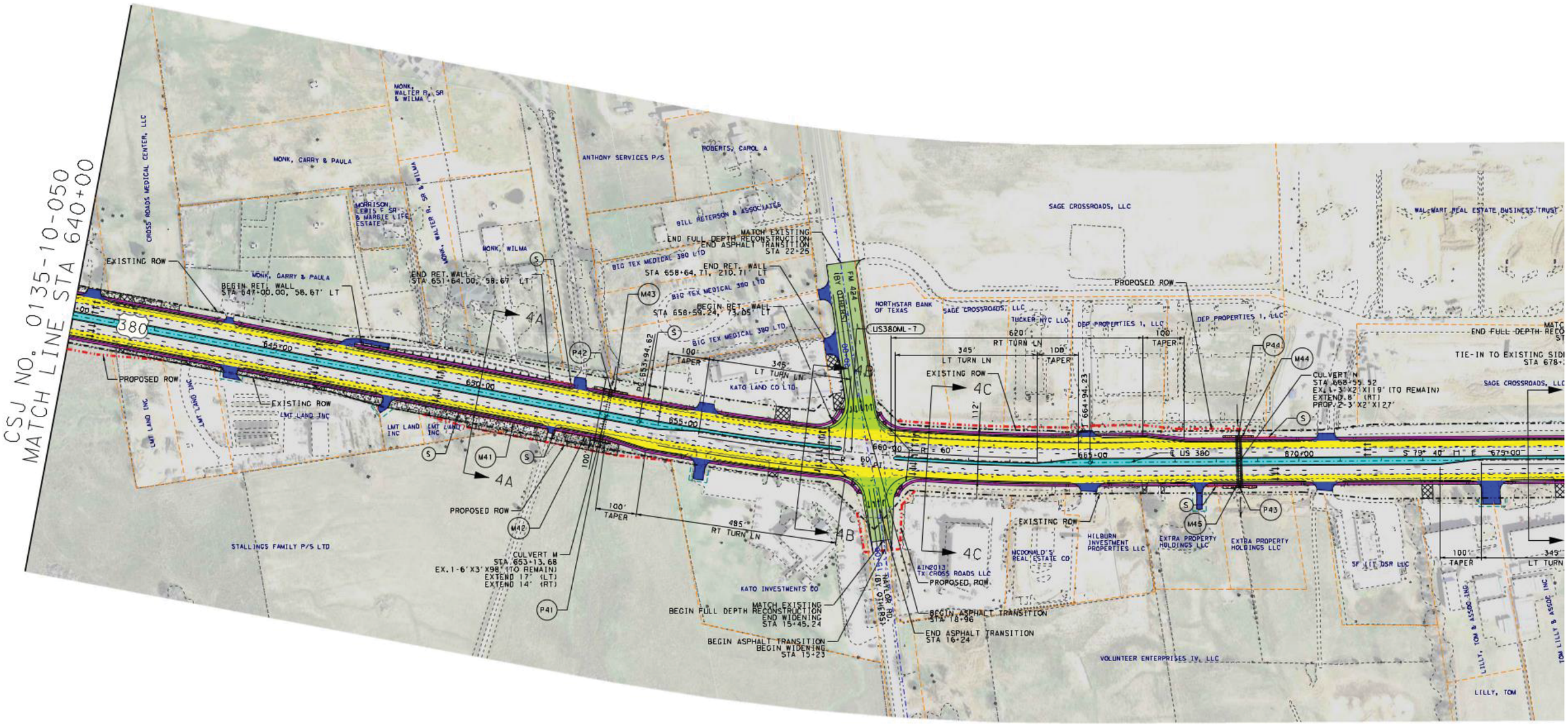
Sheet 9 of 24

MBGF	BEGIN		END		SGT	TO LENG
	STA	OFFSET (FT)	STA	OFFSET (FT)		
M41	649+93.50	59' RT	651+81.00	73' RT	YES	
M42	651+95.00	73' RT	653+57.50	63' RT	YES	
M43	652+68.50	59' LT	653+56.00	59' LT	YES	
M44	668+03.50	59' LT	668+91.00	59' LT	YES	
M45	668+29.00	59' RT	669+16.50	59' RT	YES	



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US 380

Project Layout

CSJ: 0135-10-057, 0135-10-050

Sheet 10 of 24

OFFSET (FT)	SGT	TOTAL MBGF LENGTH OF NEED
73' RT	YES	225 FT
63' RT	YES	175 FT
59' LT	YES	125 FT
59' LT	YES	125 FT
59' RT	YES	125 FT

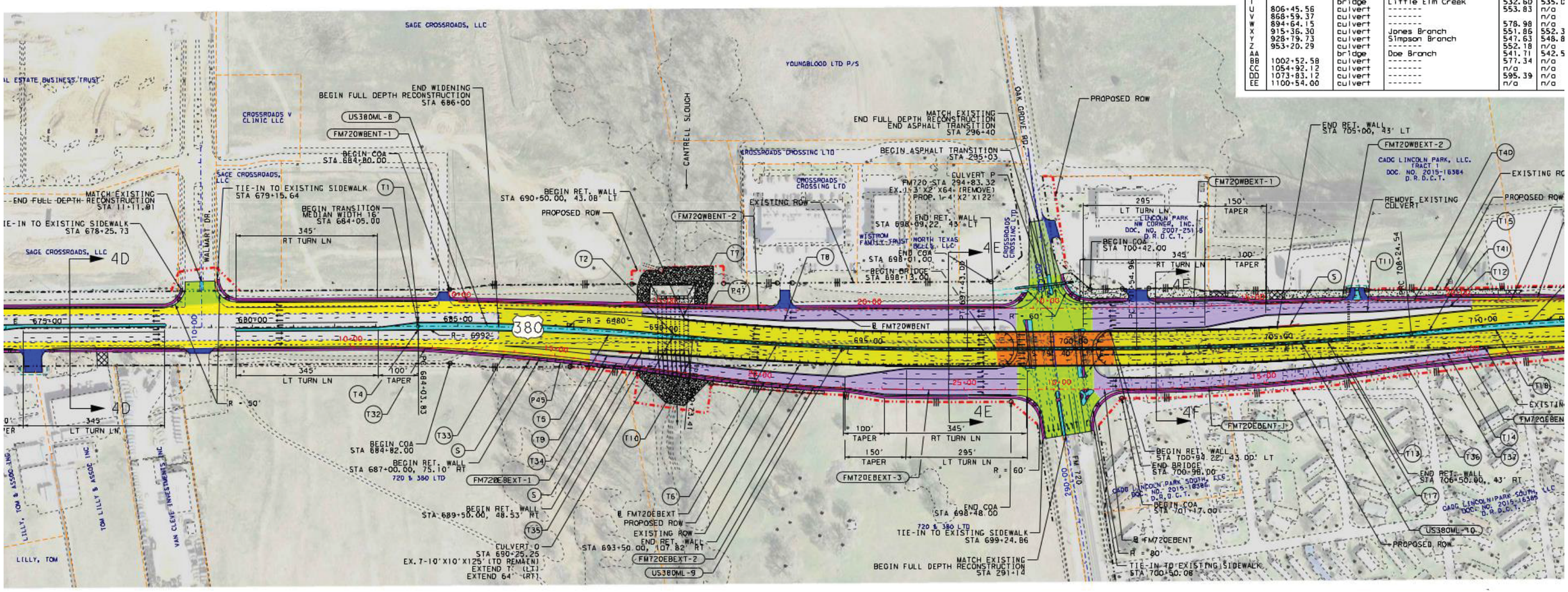
PEDESTRIAN RAIL	BEGIN		END		LENGTH
	STA	OFFSET (FT)	STA	OFFSET (FT)	
P41	652+87.50	65' RT	653+38.00	66' RT	51 FT
P42	652+93.00	64' LT	653+36.00	63' LT	43 FT
P43	668+36.50	64' RT	668+77.50	64' RT	41 FT
P44	668+37.00	63' LT	668+71.00	63' LT	34 FT
P45	687+00.00	75' RT	693+99.50	109' RT	701 FT
P46	735+87.00	94' LT	736+29.50	82' LT	44 FT
P47	689+00.00	73' LT	692+50.00	93' LT	350 FT

TAPER		BEGIN		END		RADIUS
		STA	OFFSET (FT)	STA	OFFSET (FT)	
T1	PC	684+05.02	7.90' LT			6480
T2	PRC			690+29.29	2.28' LT	6998
T3	PT					
T4	PC	684+05.02	8.00' RT			6992
T5	PT	688+68.47	8.00' RT			
T6	PC			692+78.36	2.00' RT	7002
T7	POT	690+46.65	52.74' LT			
T8	POT			692+93.25	56.68' LT	
T9	POT	688+68.08	58.69' RT			
T10	POT			690+70.32	59.54' RT	
T11	POT	707+22.72	61.08' LT			
T12	POT			709+22.88	55.48' LT	
T13	POT	706+62.27	56.75' RT			
T14	POT			709+06.80	55.67' RT	
T15	PRC			708+68.67	2.28' LT	6480
T16	PT			715+28.87	8.00' LT	
T17	PT	706+19.59	2.00' RT			
T18	PC	710+29.49	8.00' RT			6992
T19	PT			714+97.12	8.00' RT	
T20	PC	724+82.75	8.00' LT			4720
T21	PRC	726+37.23	10.53' LT			6480
T22	PT			728+49.31	14.00' LT	

TAPER		BEGIN		END		RADIUS
		STA	OFFSET (FT)	STA	OFFSET (FT)	
T23	PC	724+82.75	8.00' RT			4720
T24	PRC	726+37.23	10.53' RT			6480
T25	PT			728+49.31	14.00' RT	
T26	PC	741+50.00	14.00' LT			6480
T27	PRC	743+62.11	11.53' LT			4719
T28	PC	742+93.00	2.23' RT			6469
T29	PRC	744+04.58	0.46' LT			4733
T30	PT			741+93.06	13.85' LT	
T31	PC	742+93.24	13.41' LT			6481
T32	POT	684+20.92	53.57' RT			
T33	POT			686+15.60	65.97' RT	
T34	POT	688+66.58	80.64' RT			
T35	POT			689+52.59	82.58' RT	
T36	POT	708+05.99	78.13' RT			
T37	POT			708+91.55	78.31' RT	
T38	POT	714+89.60	66.00' RT			
T39	POT			716+53.32	62.00' RT	
T40	POT	708+40.58	80.84' LT			
T41	POT			709+24.65	77.41' LT	
T42	POT	711+36.60	63.21' LT			
T43	POT			712+21.08	55.37' LT	

US380 Schematic - Proposed Water Surface Elevations

ID	Sta	Str. Type	Stream Name	25YR (ft)	50YR (ft)
A	347+25.20	culvert	Cooper Creek	581.73	582.0
B	358+79.91	culvert	-------	n/a	n/a
C	380+00.00	culvert	-------	580.10	580.2
D	417+80.31	culvert	Timber Branch	576.01	576.2
E	456+02.06	culvert	-------	548.78	549.3
F		bridge	Elm Fork Trinity River	532.60	535.0
G	Rock Hill RD	culvert	-------	544.02	n/a
H	558+00.28	culvert	-------	565.23	n/a
I	581+51.44	culvert	-------	616.82	n/a
J	592+62.68	culvert	Williams Branch	594.80	595.2
K	624+73.96	culvert	-------	596.51	n/a
L	634+38.29	culvert	-------	597.67	n/a
L-1	634+93.89	culvert	-------	597.67	n/a
M	653+13.68	culvert	-------	619.45	n/a
N	668+55.52	culvert	-------	610.96	n/a
O	690+25.25	culvert	Cantrell Slough	569.12	577.0
P	FM 720	culvert	-------	591.22	n/a
Q	736+02.75	culvert	-------	n/a	n/a
R	abandon	none	-------		
S	777+45.37	culvert	-------	545.88	n/a
T		bridge	Little Elm Creek	532.60	535.0
U	806+45.56	culvert	-------	553.83	n/a
V	868+59.37	culvert	-------		n/a
W	894+64.15	culvert	-------	578.98	n/a
X	915+36.30	culvert	Jones Branch	551.86	552.3
Y	928+79.73	culvert	Simpson Branch	547.63	548.8
Z	953+20.29	culvert	-------	552.18	n/a
AA		bridge	Doe Branch	541.71	542.5
BB	1002+52.58	culvert	-------	577.34	n/a
CC	1054+92.12	culvert	-------	n/a	n/a
DD	1073+83.12	culvert	-------	595.39	n/a
EE	1100+54.00	culvert	-------	n/a	n/a



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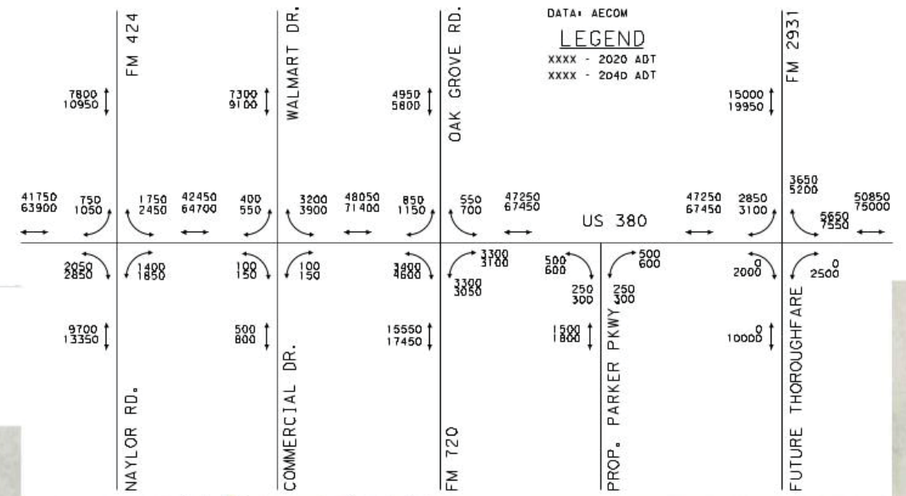
Sheet 11 of 24

Surface Elevations

	25YR (ft)	50YR (ft)	100YR (ft)
	581.73	582.03	583.02
	n/a	n/a	n/a
	580.10	580.26	580.43
	576.01	576.27	576.51
	548.78	549.31	549.86
y River	532.60	535.00	537.00
	544.02	n/a	544.34
	565.23	n/a	567.55
	616.82	n/a	617.06
	594.80	595.29	595.80
	596.51	n/a	597.12
	597.67	n/a	598.26
	597.67	n/a	598.26
	619.45	n/a	619.50
	610.96	n/a	611.21
	569.12	577.00	573.50
	591.22	n/a	591.53
	n/a	n/a	n/a
	545.88	n/a	547.08
k	532.60	535.00	537.00
	553.83	n/a	554.11
		n/a	
	578.98	n/a	579.13
	551.86	552.39	552.97
	547.63	548.82	550.32
	552.18	n/a	552.86
	541.71	542.56	543.54
	577.34	n/a	577.80
	n/a	n/a	n/a
	595.39	n/a	596.00
	n/a	n/a	n/a



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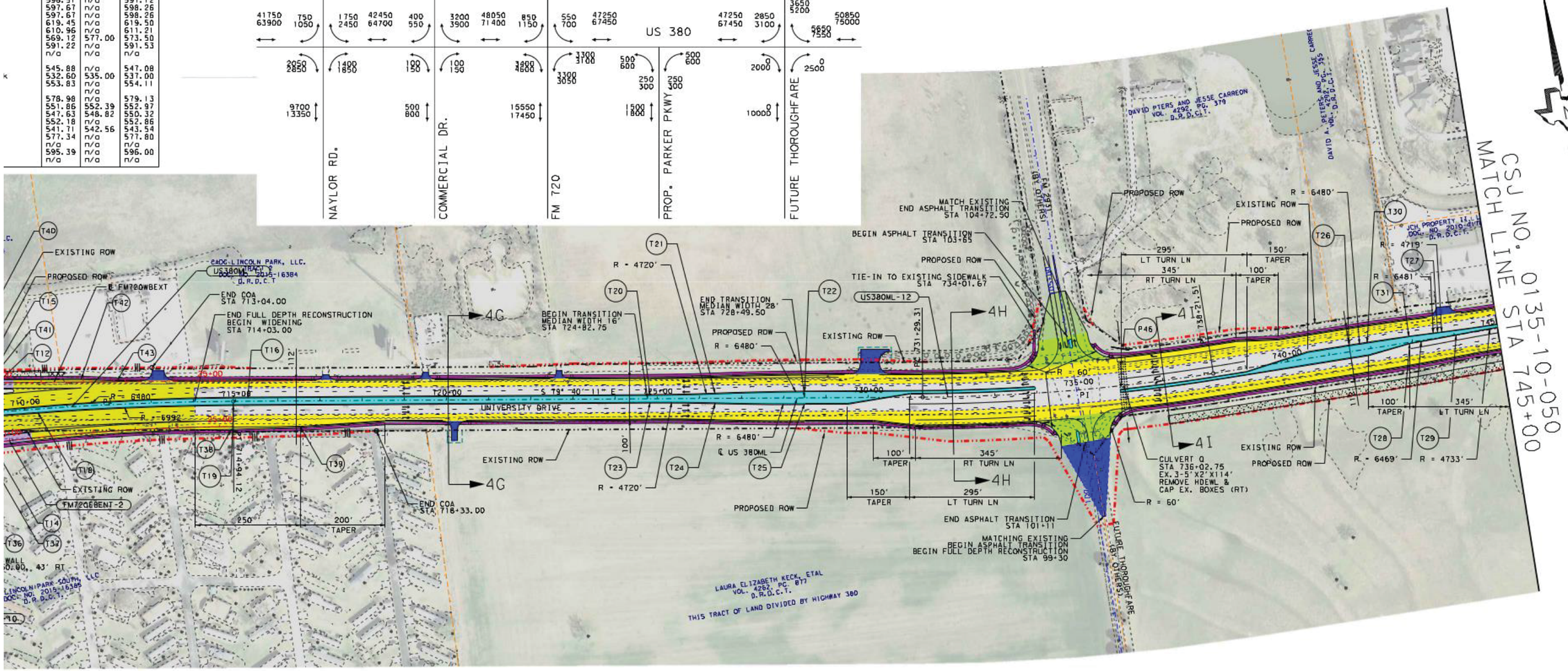

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US 380

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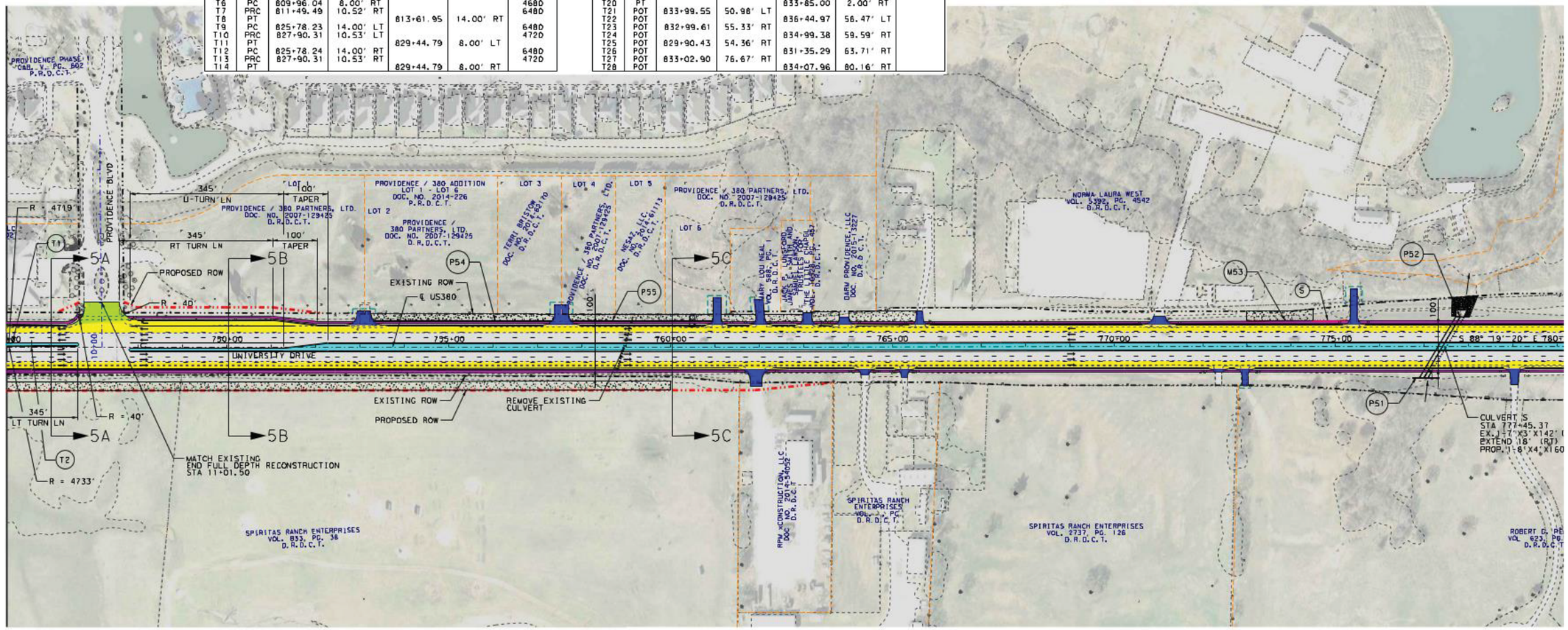
Sheet 12 of 24

TAPER		BEGIN STA	BEGIN OFFSET (FT)	END STA	END OFFSET (FT)	RADIUS
T1	PT			745+16.56	9.00' LT	
T2	PT			745+59.47	3.00' LT	
T3	PC	809+96.04	8.00' LT			4680
T4	PRC	811+49.49	10.52' LT			6480
T5	PT			813+61.95	14.00' LT	
T6	PC	809+96.04	8.00' RT			4680
T7	PRC	811+49.49	10.52' RT			6480
T8	PT			813+61.95	14.00' RT	
T9	PC	825+78.23	14.00' LT			6480
T10	PRC	827+90.31	10.53' LT			4720
T11	PT			829+44.79	8.00' LT	
T12	PC	825+78.24	14.00' RT			6480
T13	PRC	827+90.31	10.53' RT			4720
T14	PT			829+44.79	8.00' RT	

TAPER		BEGIN STA	BEGIN OFFSET (FT)	END STA	END OFFSET (FT)	RADIUS
T15	PC	829+88.86	8.00' LT			6480
T16	PRC	831+85.11	5.03' LT			6600
T17	PT			833+85.00	2.00' LT	
T18	PC	829+88.86	8.00' RT			6480
T19	PRC	831+85.11	5.03' RT			6600
T20	PT			833+85.00	2.00' RT	
T21	POT	833+99.55	50.98' LT			
T22	POT			836+44.97	56.47' LT	
T23	POT	832+99.61	55.33' RT			
T24	POT			834+99.38	59.59' RT	
T25	POT	829+90.43	54.36' RT			
T26	POT			831+35.29	63.71' RT	
T27	POT	833+02.90	76.67' RT			
T28	POT			834+07.96	80.16' RT	

PEDESTRIAN RAIL	BEGIN STA	BEGIN OFFSET (FT)	END STA	END OFFSET (FT)	LENGTH
P51	776+73.50	71' RT	777+33.50	71' RT	60 FT
P52	777+70.00	68' LT	777+90.00	67' LT	20 FT
P53	806+43.00	67' RT	806+50.50	67' RT	8 FT
P54	753+32.00	59' LT	757+33.00	59' LT	401 FT
P55	757+76.00	59' LT	760+95.00	59' LT	319 FT

CSJ NO. 0135-10-050
MATCH LINE STA 745+00



PROPOSED MAINLANES
PROPOSED BRIDGES
PROPOSED BRIDGE WIDENING
PROPOSED ACCESS ROADS/RAMPS
PROPOSED CROSS STREETS
PROPOSED MEDIAN
PROPOSED SIDEWALK
FUTURE 10' SUP (BY OTHERS)
PROPOSED DRIVEWAY
PROPOSED ASPHALT PVMT. TRANSITION

PROPOSED CENTERLINE
PROPOSED RETAINING WALL
PROPOSED RIGHT-OF-WAY
EXISTING RIGHT-OF-WAY
EXISTING ROAD
PROPOSED CONTROL OF ACCESS
EXISTING CONTROL OF ACCESS
CITY/COUNTY LINE
PROPERTY LINE
EXISTING EASEMENT
PROPOSED CONSTRUCTION EASEMENT

PROPOSED DRAINAGE EASEMENT
SINGLE SLOPE CONCRETE RAIL (SLOTTED)
EX. 72" WATER LINE
PROPOSED MBGF
PROPOSED CONSTRUCTION
EXISTING SIDEWALK
DRIVEWAY REMOVAL
CONCRETE RIPRAP

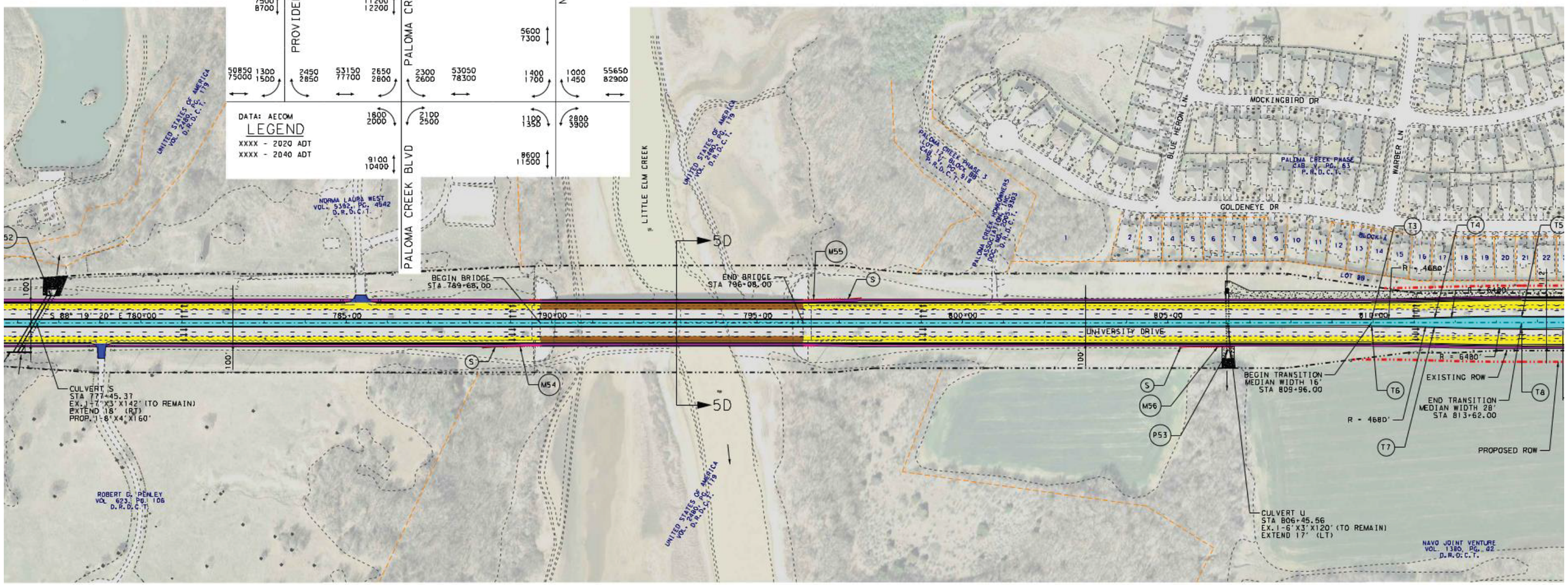
(M) METAL BEAM GUARD FENCE
(P) PEDESTRIAN RAIL
(S) SINGLE GUARD RAIL TERMINAL
(T) TAPER
→ PROPOSED LANE DIRECTIONAL INDICATOR

200 0 200

US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 13 of 24

(FT)	LENGTH
RT	60 FT
LT	20 FT
RT	8 FT
LT	401 FT
LT	319 FT

MBGF	BEGIN		END		SGT	TOTAL MBGF LENGTH OF NEED
	STA	OFFSET (FT)	STA	OFFSET (FT)		
M53	772+84.50	59' LT	774+72.00	59' LT	YES	225 FT
M54	788+83.00	58' RT	789+70.50	56' RT	YES	125 FT
M55	796+13.50	56' LT	797+01.00	58' LT	YES	125 FT
M56	805+81.00	59' RT	806+68.50	59' RT	YES	125 FT



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(S) SINGLE GUARD RAIL TERMINAL
(TI) TAPER
→ PROPOSED LANE DIRECTIONAL INDICATOR

200 0 200

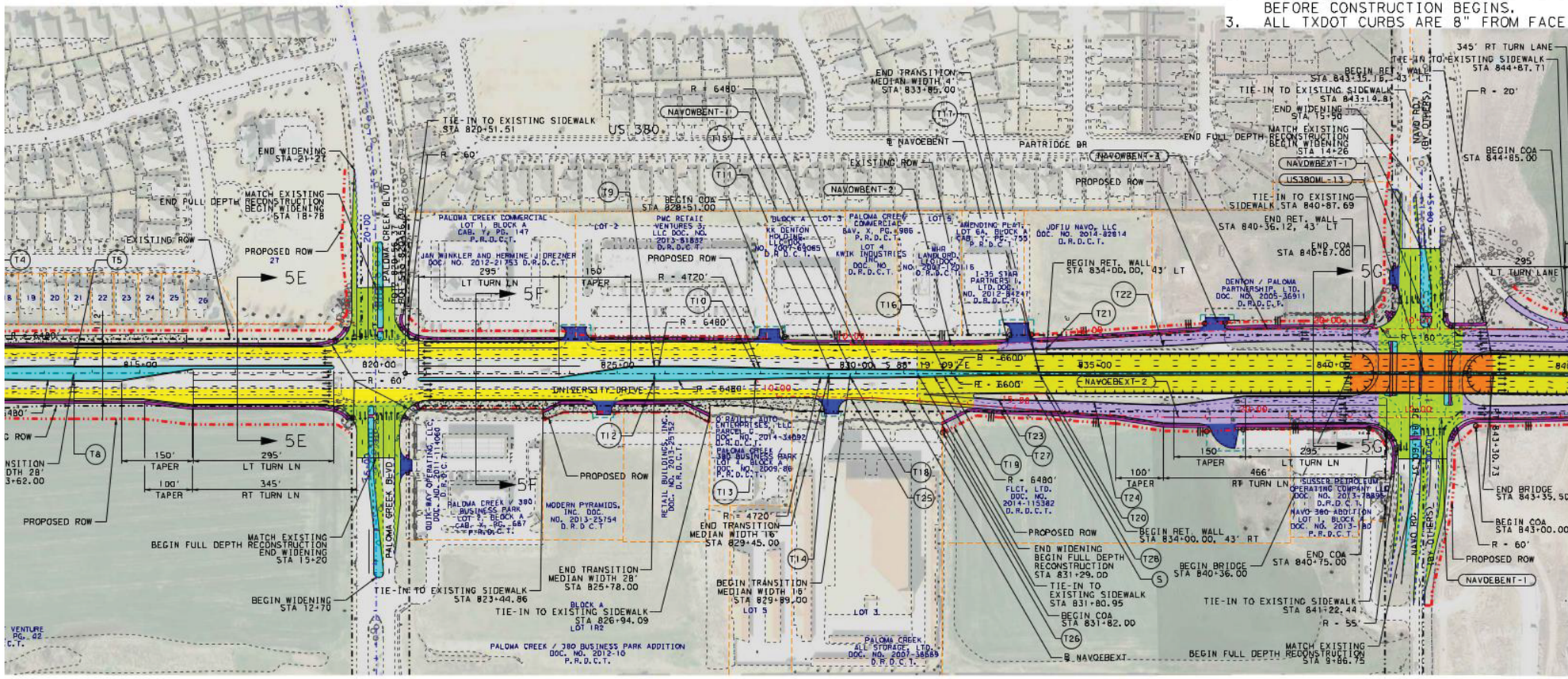
US 380

Project Layout

CSJ: 0135-10-057, 0135-10-050

NOTE:

1. FINAL LOCATION AND NUMBER OF MEDIAN OPENINGS WILL BE DETERMINED DURING THE FINAL DESIGN PHASE OF THIS PROJECT.
2. ALL UTILITIES WILL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION BEGINS.
3. ALL TXDOT CURBS ARE 8" FROM FACE OF CURB TO BACK OF CURB.



CSJ NO. 0135-10-050
MATCH LINE STA 845+00

- PROPOSED MAINLANES
- PROPOSED BRIDGES
- PROPOSED BRIDGE WIDENING
- PROPOSED ACCESS ROADS/RAMPS
- PROPOSED CROSS STREETS
- PROPOSED MEDIAN
- PROPOSED SIDEWALK
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- PROPOSED DRIVEWAY
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200 0 200

US 380

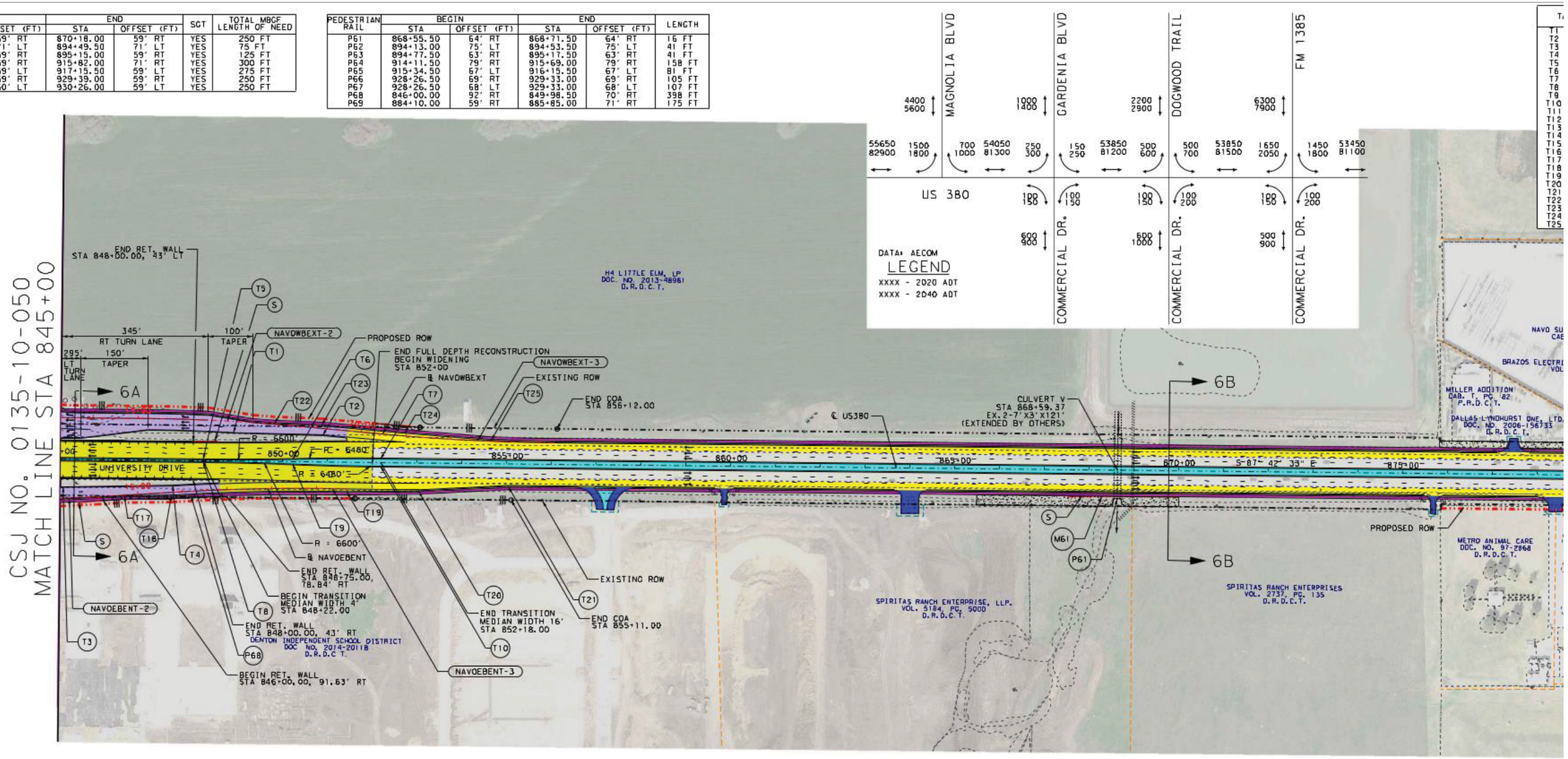
Project Layout

CSJ: 0135-10-057, 0135-10-050

Sheet 15 of 24

MBGF	BEGIN		END		SGT	TOTAL MBGF LENGTH OF NEED
	STA	OFFSET (FT)	STA	OFFSET (FT)		
M61	868+05.50	59' RT	870+18.00	59' RT	YES	250 FT
M62	894+12.00	71' LT	894+49.50	71' LT	YES	75 FT
M63	894+27.50	59' RT	895+15.00	59' RT	YES	125 FT
M64	913+19.50	59' RT	915+82.00	71' RT	YES	300 FT
M65	914+78.00	59' LT	917+15.50	59' LT	YES	275 FT
M66	927+26.50	59' RT	929+39.00	59' RT	YES	250 FT
M67	928+13.50	60' LT	930+26.00	59' LT	YES	250 FT

PEDESTRIAN RAIL	BEGIN		END		LENGTH
	STA	OFFSET (FT)	STA	OFFSET (FT)	
P61	868+55.50	64' RT	868+71.50	64' RT	16 FT
P62	894+13.00	75' LT	894+53.50	75' LT	41 FT
P63	894+77.50	63' RT	895+17.50	63' RT	41 FT
P64	914+11.50	79' RT	915+69.00	79' RT	158 FT
P65	915+34.50	67' LT	916+15.50	67' LT	81 FT
P66	928+26.50	69' RT	929+33.00	69' RT	105 FT
P67	928+26.50	68' LT	929+33.00	68' LT	107 FT
P68	846+00.00	92' RT	849+98.50	70' RT	398 FT
P69	884+10.00	59' RT	885+85.00	71' RT	175 FT



PROPOSED MAINLANES
PROPOSED BRIDGES
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SINGLE SLOPE CONCRETE RAIL (SLOTTED)
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CONCRETE RIPRAP

(M) METAL BEAM GUARD FENCE
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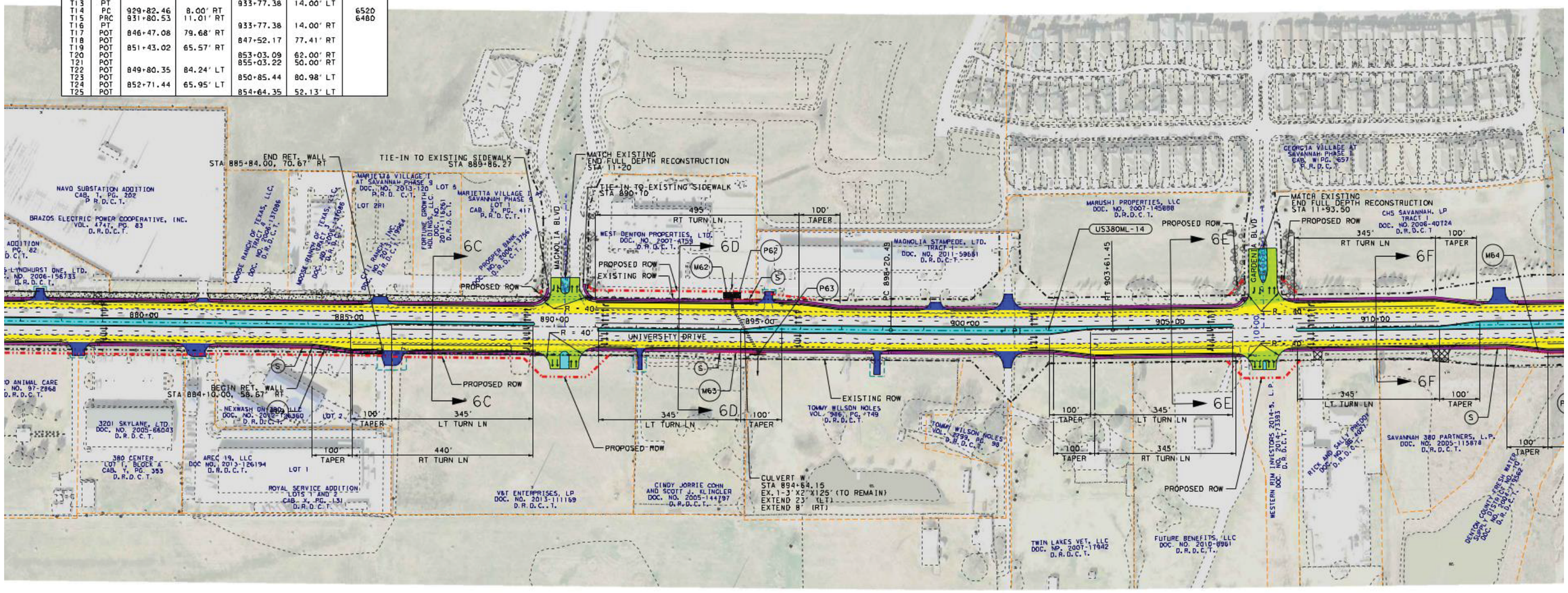
(T) TAPER
→ PROPOSED LANE DIRECTIONAL INDICATOR

200 0 200

US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 16 of 24

TAPER		BEGIN		END		RADIUS
		STA	OFFSET (FT)	STA	OFFSET (FT)	
T1	POT	848+89.21	62.47' LT			
T2	POT			850+88.63	58.64' LT	
T3	POT	845+09.95	61.50' RT			
T4	POT			847+54.64	55.20' RT	
T5	PC	848+21.98	2.00' LT			6600
T6	PRC	850+21.86	5.03' LT			6480
T7	PT			852+18.12	8.00' LT	
T8	PC	848+22.02	2.00' RT			6600
T9	PRC	850+21.91	5.03' RT			6480
T10	PT			852+18.16	8.00' RT	
T11	PC	929+82.46	8.00' LT			6520
T12	PRC	931+80.53	11.01' LT			6480
T13	PT			933+77.38	14.00' LT	
T14	PC	929+82.46	8.00' RT			6520
T15	PRC	931+80.53	11.01' RT			6480
T16	PT			933+77.38	14.00' RT	
T17	POT	846+47.08	79.68' RT			
T18	POT			847+52.17	77.41' RT	
T19	POT	851+43.02	65.57' RT			
T20	POT			853+03.09	62.00' RT	
T21	POT			855+03.22	50.00' RT	
T22	POT	849+80.35	84.24' LT			
T23	POT			850+85.44	80.98' LT	
T24	POT	852+71.44	65.95' LT			
T25	POT			854+64.35	52.13' LT	



PROPOSED MAINLANES
PROPOSED BRIDGES
PROPOSED BRIDGE WIDENING
PROPOSED ACCESS ROADS/RAMPS
PROPOSED CROSS STREETS
PROPOSED MEDIAN
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FUTURE 10' SUP (BY OTHERS)
PROPOSED DRIVEWAY
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PROPOSED CONSTRUCTION EASEMENT

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PROPOSED CONSTRUCTION
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DRIVEWAY REMOVAL
CONCRETE RIPRAP

(M) METAL BEAM GUARD FENCE
(P) PEDESTRIAN RAIL
(S) SINGLE GUARD RAIL TERMINAL
(T1) TAPER
→ PROPOSED LANE DIRECTIONAL INDICATOR

200 0 200

US 380

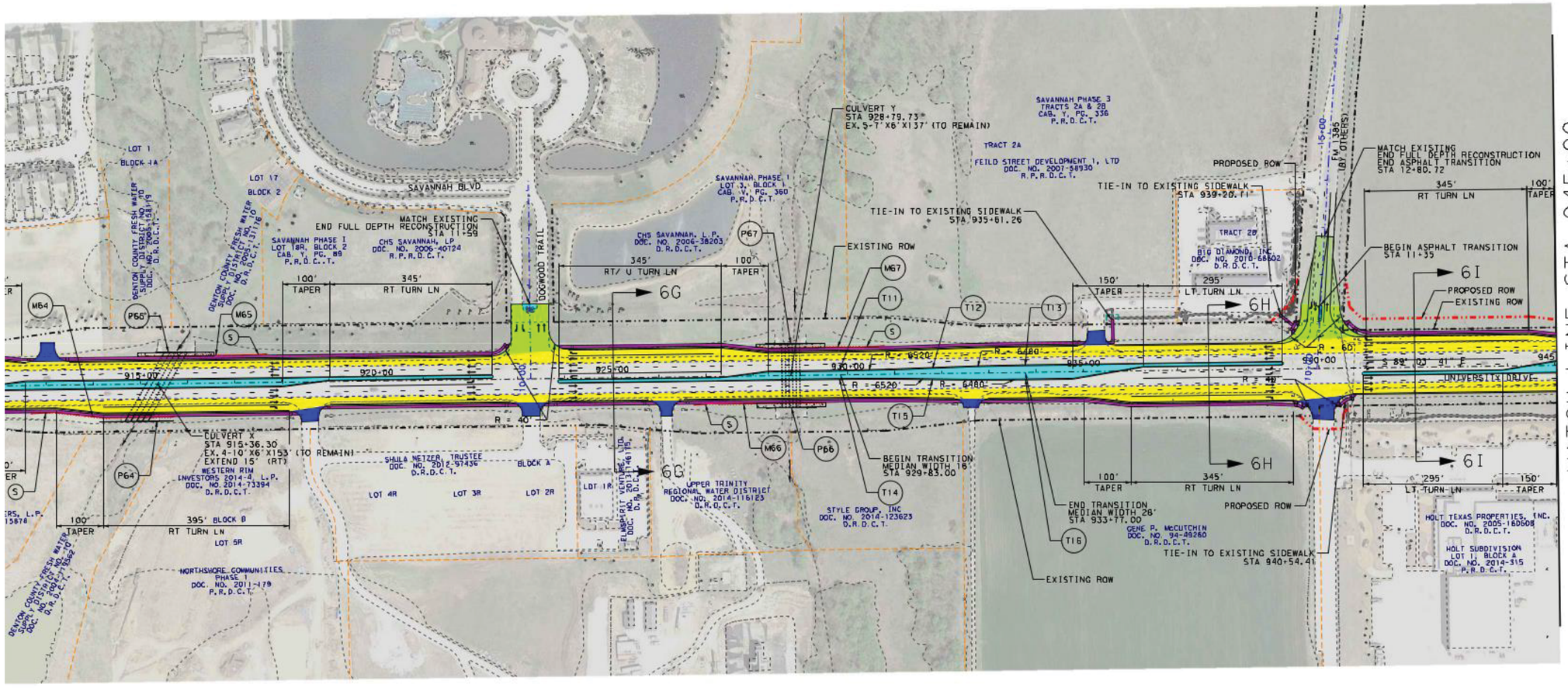
Project Layout

CSJ: 0135-10-057, 0135-10-050

Sheet 17 of 24

NOTE:

1. FINAL LOCATION AND NUMBER OF MEDIAN OPENINGS WILL BE DETERMINED DURING THE FINAL DESIGN PHASE OF THIS PROJECT.
2. ALL UTILITIES WILL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION BEGINS.
3. ALL TXDOT CURBS ARE 8" FROM FACE OF CURB TO BACK OF CURB.



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SINGLE SLOPE CONCRETE RAIL (SLOTTED)
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(M) METAL BEAM GUARD FENCE
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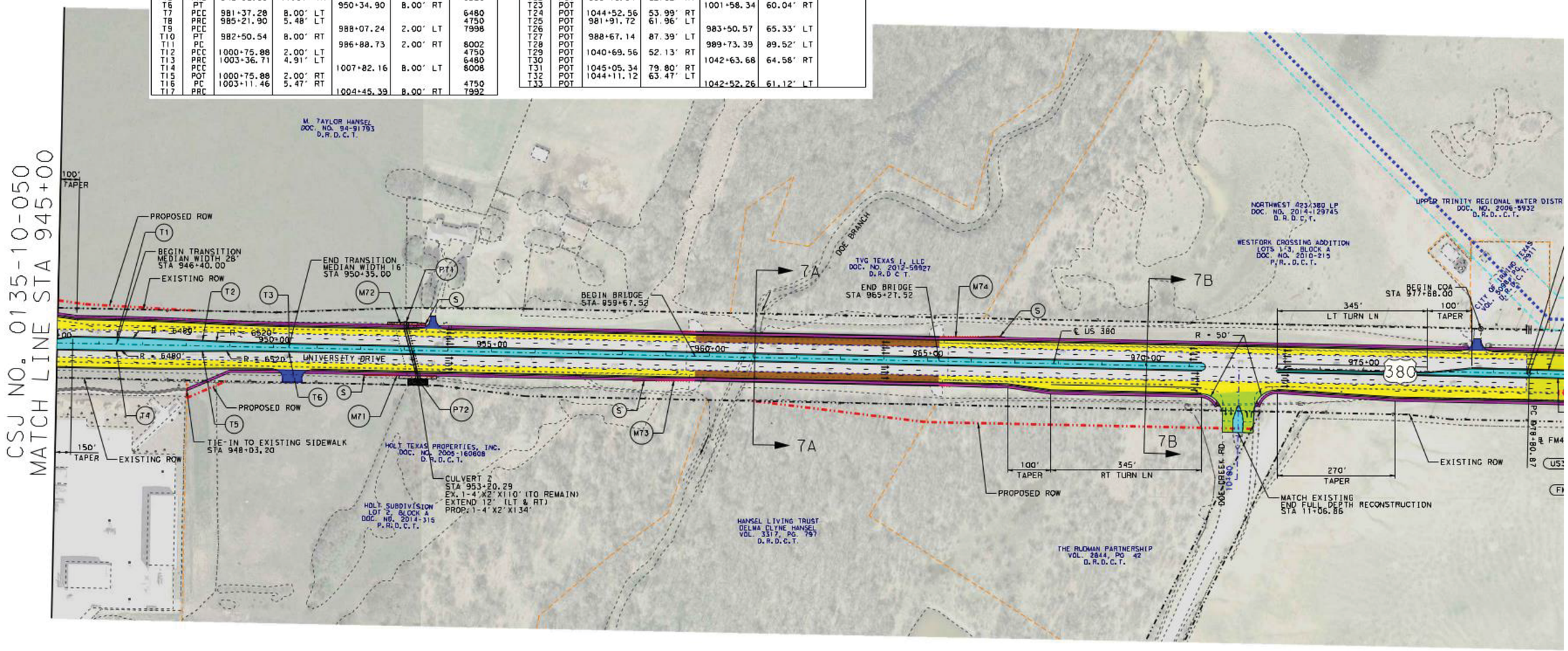
(TI) TAPER
→ PROPOSED LANE DIRECTIONAL INDICATOR

200 0 200

US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 18 of 24

TAPER		BEGIN STA	BEGIN OFFSET (FT)	END STA	END OFFSET (FT)	RADIUS
T1	PC	946+39.98	14.00' LT			6480
T2	PRC	948+36.83	11.01' LT			6520
T3	PT			950+34.90	8.00' LT	
T4	PC	946+39.98	14.00' RT			6480
T5	PRC	948+36.83	11.01' RT			6520
T6	PT			950+34.90	8.00' RT	
T7	PCC	981+37.28	8.00' LT			6480
T8	PRC	985+21.90	5.48' LT			4750
T9	PCC			988+07.24	2.00' LT	7998
T10	PT	982+50.54	8.00' RT			
T11	PC			986+88.73	2.00' RT	8002
T12	PCC	1000+75.88	2.00' LT			4750
T13	PRC	1003+36.71	4.91' LT			6480
T14	PCC			1007+82.16	8.00' LT	8008
T15	POT	1000+75.88	2.00' RT			
T16	PC	1003+11.46	5.47' RT			4750
T17	PRC			1004+45.39	8.00' RT	7992

TAPER		BEGIN STA	BEGIN OFFSET (FT)	END STA	END OFFSET (FT)	RADIUS
T18	PC	1040+88.84	8.00' LT			6480
T19	PC	1043+12.67	57.83' RT			4750
T20	POT	987+27.40	56.64' LT			
T21	POT			989+74.92	62.56' LT	
T22	POT	999+16.34	62.62' RT			
T23	POT			1001+58.34	60.04' RT	
T24	POT	1044+52.56	53.99' RT			
T25	POT	981+91.72	61.96' LT			
T26	POT			983+50.57	65.33' LT	
T27	POT	988+67.14	87.39' LT			
T28	POT			989+73.39	89.52' LT	
T29	POT	1040+69.56	52.13' RT			
T30	POT			1042+63.68	64.58' RT	
T31	POT	1045+05.34	79.80' RT			
T32	POT	1044+11.12	63.47' LT			
T33	POT			1042+52.26	61.12' LT	



PROPOSED MAINLANES
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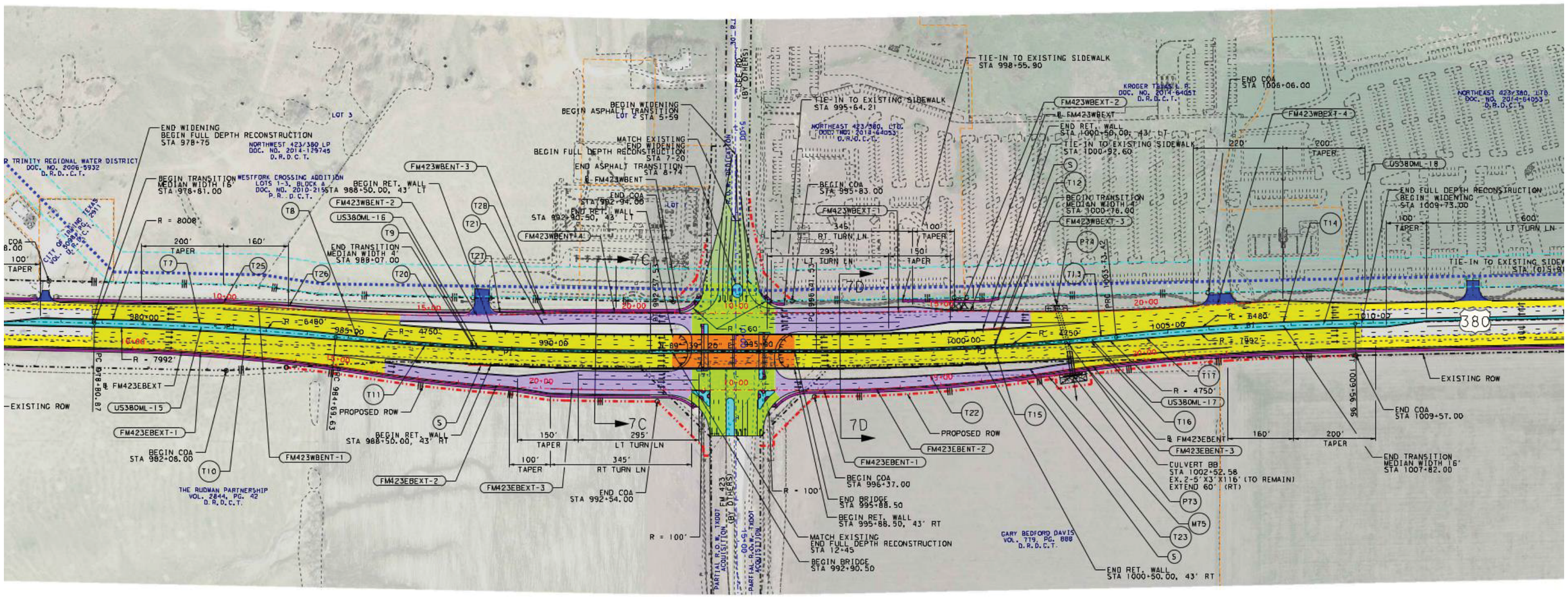
US 380

Project Layout

CSJ: 0135-10-057, 0135-10-050



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US 380

Project Layout

CSJ: 0135-10-057, 0135-10-050

Sheet 20 of 24

NOTE:

1. FINAL LOCATION AND NUMBER OF MEDIAN OPENINGS WILL BE DETERMINED DURING THE FINAL DESIGN PHASE OF THIS PROJECT.
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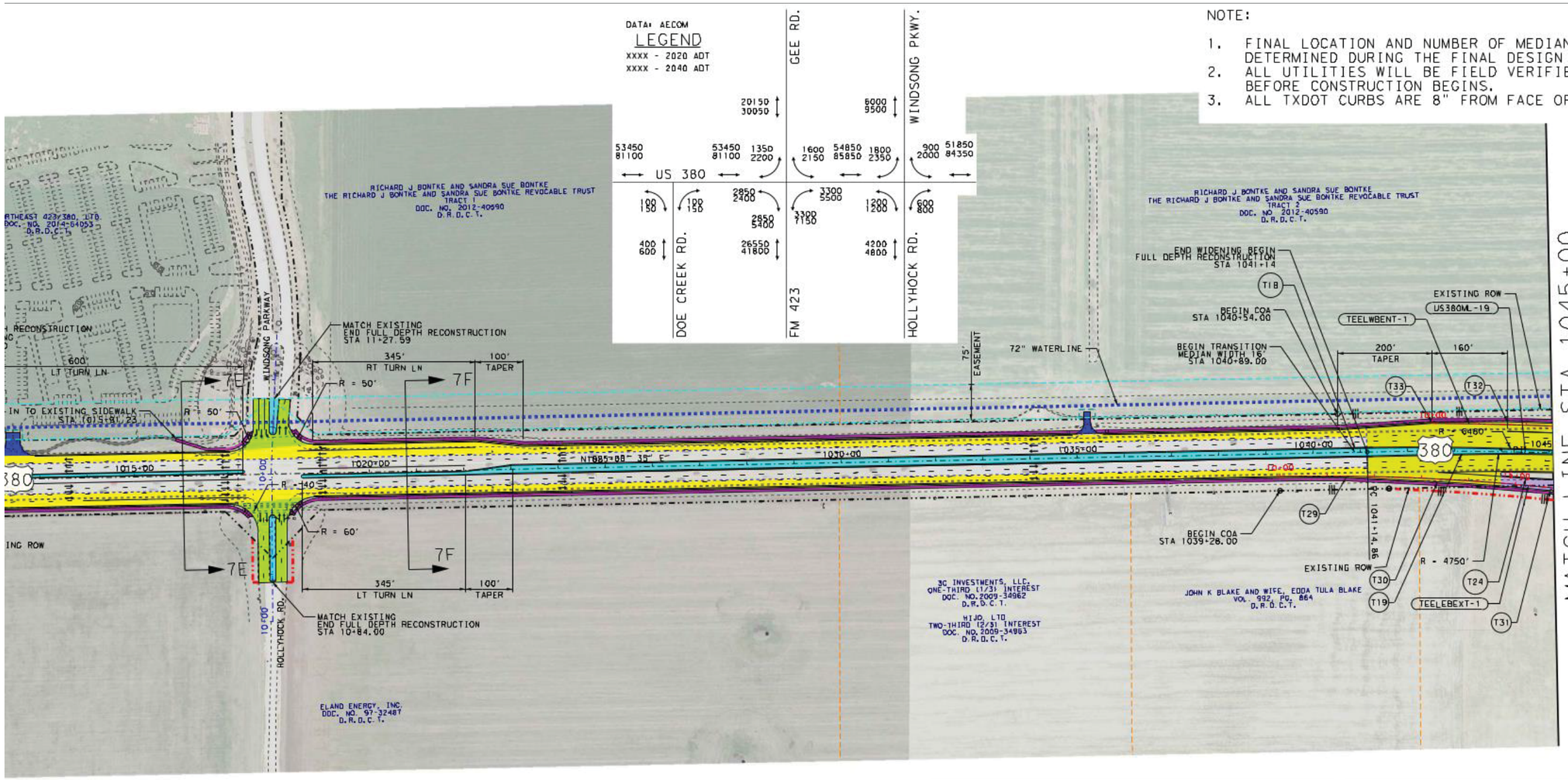
3. ALL TXDOT CURBS ARE 8" FROM FACE OF CURB TO BACK OF CURB.



PEDESTRIAN RAIL	BEGIN		END		LENGTH
	STA	OFFSET (FT)	STA	OFFSET (FT)	
P71	952+80.00	64' LT	953+26.00	64' LT	46 FT
P72	953+09.50	66' RT	953+55.50	66' RT	46 FT
P73	1002+39.00	84' RT	1002+83.00	82' RT	45 FT
P74	1002+27.50	89' LT	1002+40.50	88' LT	13 FT

MBGF	BEGIN		END		SGT	TOTAL MBGF LENGTH OF NEED
	STA	OFFSET (FT)	STA	OFFSET (FT)		
M71	952+60.00	59' RT	953+72.50	59' RT	YES	150 FT
M72	952+83.00	59' LT	952+95.50	59' LT	YES	50 FT
M73	958+78.50	58' RT	959+66.00	56' RT	YES	125 FT
M74	965+29.00	56' LT	966+16.50	58' LT	YES	125 FT
M75	1001+79.00	84' RT	1002+91.50	77' RT	YES	150 FT

- PROPOSED MAINLANES
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- → PROPOSED LANE DIRECTIONAL INDICATOR

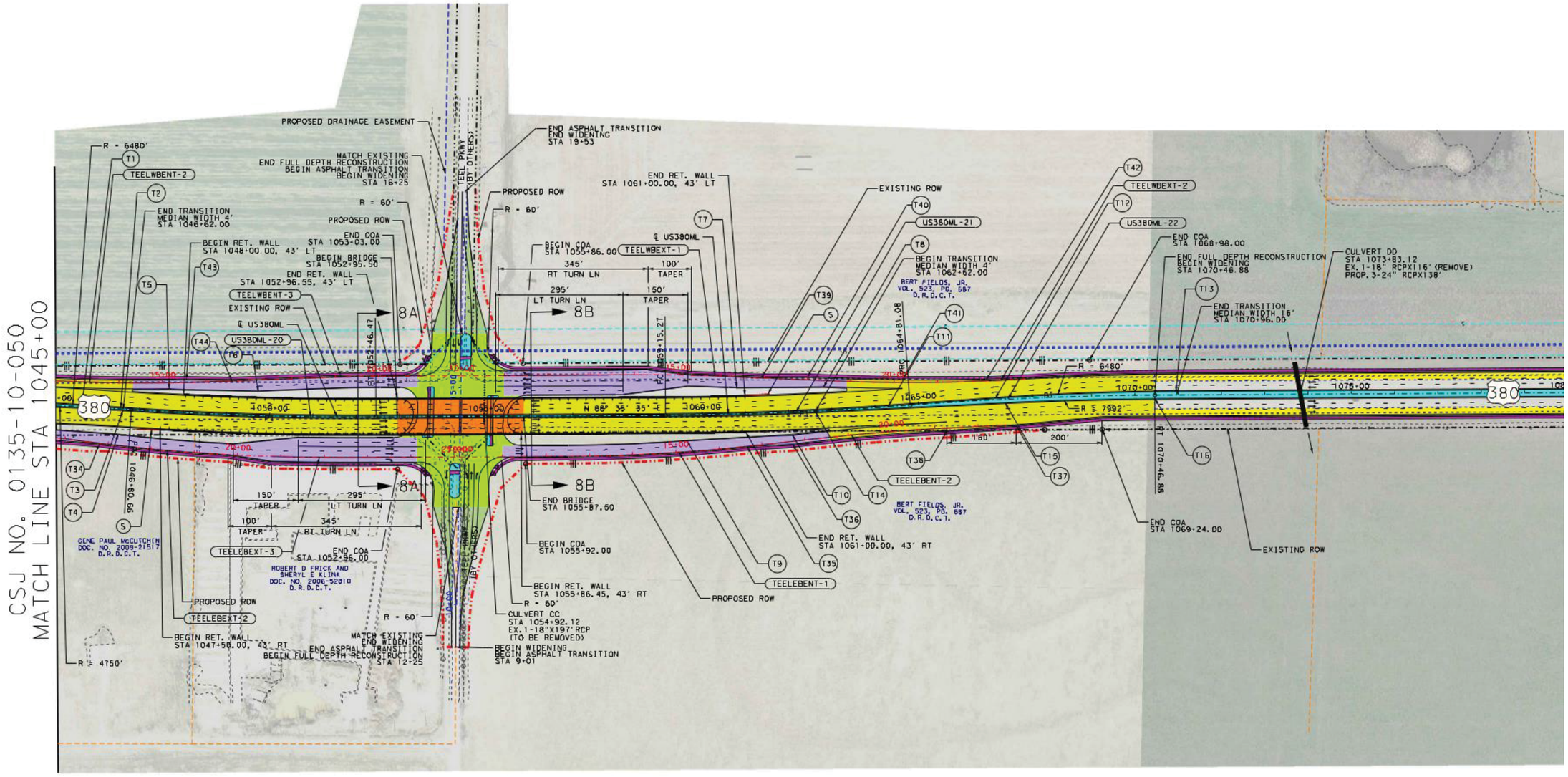
200 0 200

US 380

Project Layout

CSJ: 0135-10-057, 0135-10-050

Sheet 21 of 24



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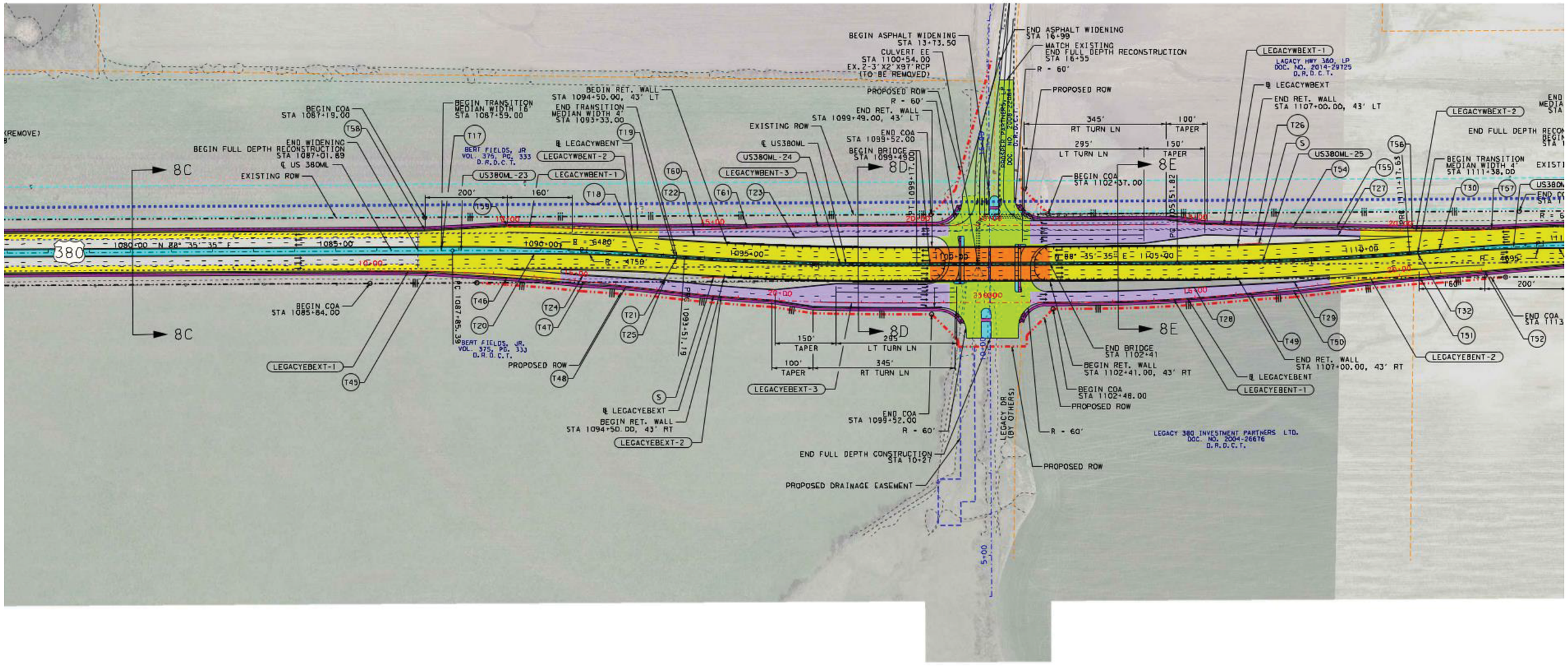
(TI) TAPER
→ PROPOSED LANE DIRECTIONAL INDICATOR

200 0 200

US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 22 of 24



PROPOSED MAINLANES
PROPOSED BRIDGES
PROPOSED BRIDGE WIDENING
PROPOSED ACCESS ROADS/RAMPS
PROPOSED CROSS STREETS
PROPOSED MEDIAN
PROPOSED SIDEWALK
FUTURE 10' SUP (BY OTHERS)
PROPOSED DRIVEWAY
PROPOSED ASPHALT PVMT. TRANSITION

PROPOSED CENTERLINE
PROPOSED RETAINING WALL
PROPOSED RIGHT-OF-WAY
EXISTING RIGHT-OF-WAY
EXISTING ROAD
PROPOSED CONTROL OF ACCESS
EXISTING CONTROL OF ACCESS
CITY/COUNTY LINE
PROPERTY LINE
EXISTING EASEMENT
PROPOSED CONSTRUCTION EASEMENT

PROPOSED DRAINAGE EASEMENT
SINGLE SLOPE CONCRETE RAIL (SLOTTED)
EX. 72" WATER LINE
PROPOSED MBGF
PROPOSED CONSTRUCTION
EXISTING SIDEWALK
DRIVEWAY REMOVAL
CONCRETE RIPRAP

(M) METAL BEAM GUARD FENCE
(P) PEDESTRIAN RAIL
(S) SINGLE GUARD RAIL TERMINAL
(TI) TAPER
→ PROPOSED LANE DIRECTIONAL INDICATOR

200 0 200

US 380

Project Layout

CSJ: 0135-10-057, 0135-10-050

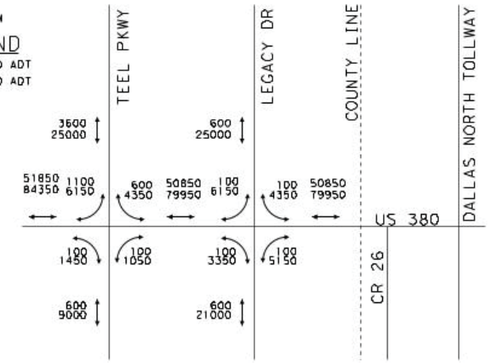
Sheet 23 of 24

DATA: AECOM

LEGEND

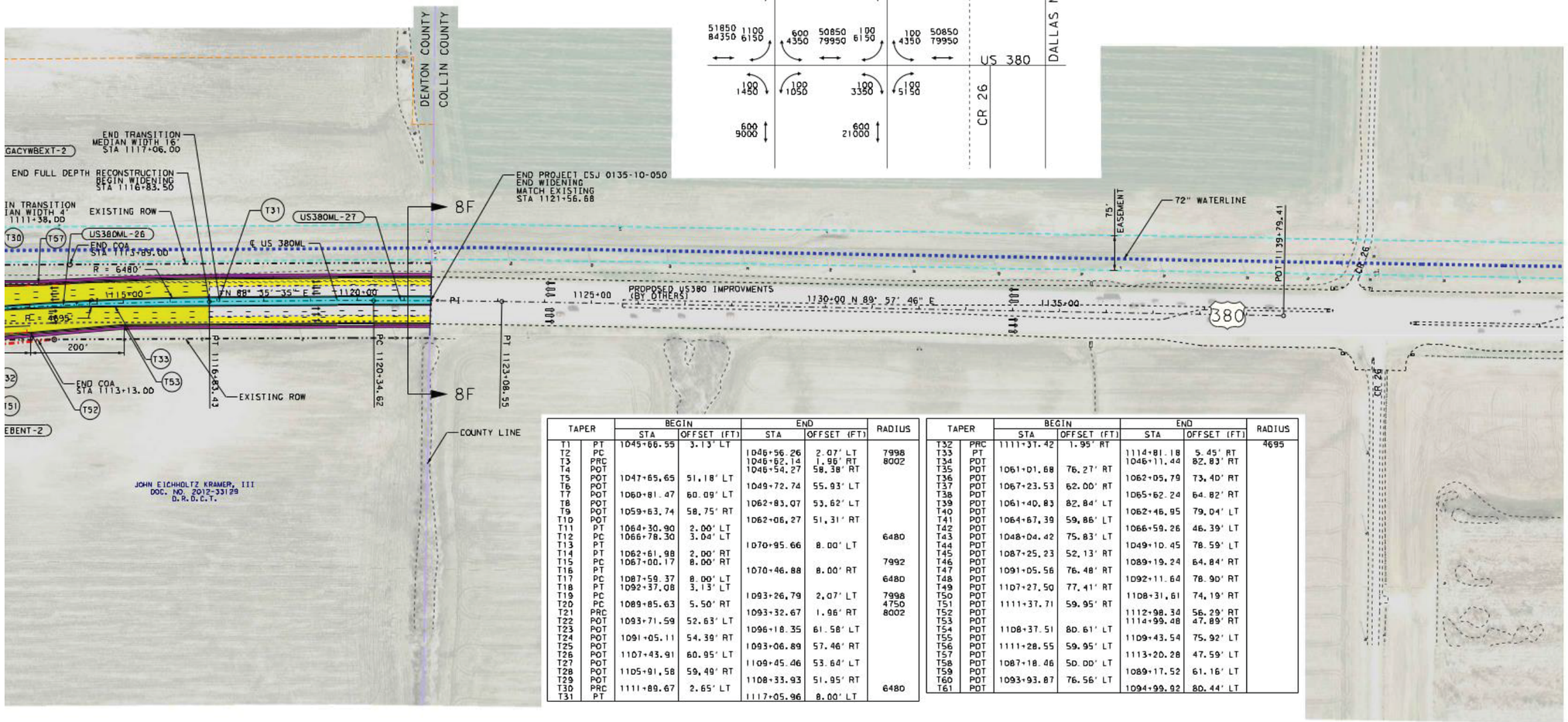
XXXX - 2020 ADT

XXXX - 2040 ADT



NOTE:

1. FINAL LOCATION AND NUMBER OF MEDIAN OPENINGS WILL BE DETERMINED DURING THE FINAL DESIGN PHASE OF THIS PROJECT.
2. ALL UTILITIES WILL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION BEGINS.
3. ALL TXDOT CURBS ARE 8" FROM FACE OF CURB TO BACK OF CURB.



TAPER		BEGIN STA	BEGIN OFFSET (FT)	END STA	END OFFSET (FT)	RADIUS
T1	PT	1045+66.55	3.13' LT			
T2	PC			1046+56.26	2.07' LT	7998
T3	PRC			1046+62.14	1.96' RT	8002
T4	POT			1046+54.27	58.38' RT	
T5	POT	1047+65.65	51.18' LT			
T6	POT			1049+72.74	55.93' LT	
T7	POT	1060+81.47	60.09' LT			
T8	POT			1062+83.07	53.62' LT	
T9	POT	1059+63.74	58.75' RT			
T10	POT			1062+06.27	51.31' RT	
T11	PT	1064+30.90	2.00' LT			
T12	PC	1066+78.30	3.04' LT			6480
T13	PT			1070+95.66	8.00' LT	
T14	PT	1062+61.98	2.00' RT			
T15	PC	1067+00.17	8.00' RT			7992
T16	PT			1070+46.88	8.00' RT	
T17	PC	1087+59.37	8.00' LT			6480
T18	PT	1092+37.08	3.13' LT			
T19	PC			1093+26.79	2.07' LT	7998
T20	PC	1089+85.63	5.50' RT			4750
T21	PRC			1093+32.67	1.96' RT	8002
T22	POT	1093+71.59	52.63' LT			
T23	POT			1096+18.35	61.58' LT	
T24	POT	1091+05.11	54.39' RT			
T25	POT			1093+06.89	57.46' RT	
T26	POT	1107+43.91	60.95' LT			
T27	POT			1109+45.46	53.64' LT	
T28	POT	1105+91.58	59.49' RT			
T29	POT			1108+33.93	51.95' RT	
T30	PRC	1111+89.67	2.65' LT			6480
T31	PT			1117+05.96	8.00' LT	

TAPER		BEGIN STA	BEGIN OFFSET (FT)	END STA	END OFFSET (FT)	RADIUS
T32	PRC	1111+37.42	1.95' RT			4695
T33	PT			1114+81.18	5.45' RT	
T34	POT			1046+11.44	82.83' RT	
T35	POT	1061+01.68	76.27' RT			
T36	POT			1062+05.79	73.40' RT	
T37	POT	1067+23.53	62.00' RT			
T38	POT			1065+62.24	64.82' RT	
T39	POT	1061+40.83	82.84' LT			
T40	POT			1062+46.95	79.04' LT	
T41	POT	1064+67.39	59.86' LT			
T42	POT			1066+59.26	46.39' LT	
T43	POT	1048+04.42	75.83' LT			
T44	POT			1049+10.45	78.59' LT	
T45	POT	1087+25.23	52.13' RT			
T46	POT			1089+19.24	64.84' RT	
T47	POT	1091+05.56	76.48' RT			
T48	POT			1092+11.64	78.90' RT	
T49	POT	1107+27.50	77.41' RT			
T50	POT			1108+31.61	74.19' RT	
T51	POT	1111+37.71	59.95' RT			
T52	POT			1112+98.34	56.29' RT	
T53	POT			1114+99.48	47.89' RT	
T54	POT	1108+37.51	80.61' LT			
T55	POT			1109+43.54	75.92' LT	
T56	POT	1111+28.55	59.95' LT			
T57	POT			1113+20.28	47.59' LT	
T58	POT	1087+18.46	50.00' LT			
T59	POT			1089+17.52	61.16' LT	
T60	POT	1093+93.87	76.56' LT			
T61	POT			1094+99.92	80.44' LT	

PROPOSED MAINLANES
PROPOSED BRIDGES
PROPOSED BRIDGE WIDENING
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(P) PEDESTRIAN RAIL
(S) SINGLE GUARD RAIL TERMINAL
(T1) TAPER
→ PROPOSED LANE DIRECTIONAL INDICATOR

200 0 200

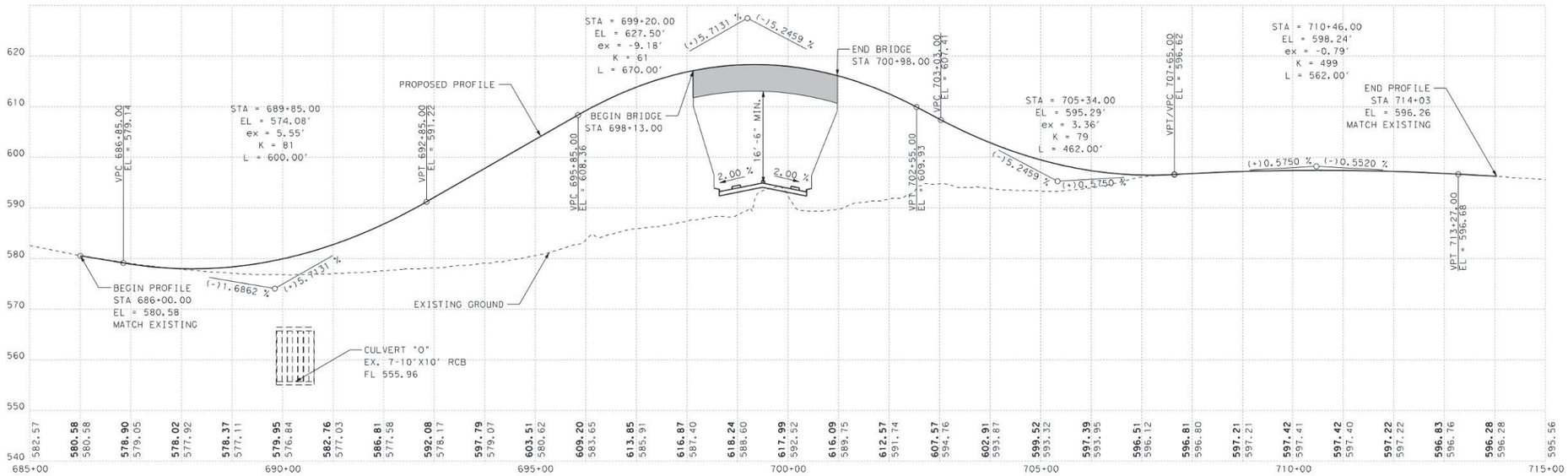
US 380

Project Layout

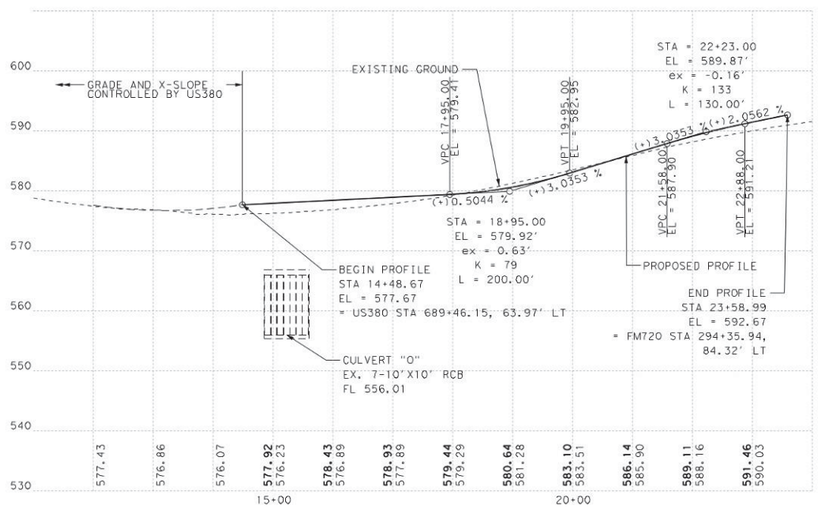
CSJ: 0135-10-057, 0135-10-050

Appendix D - Typical Sections

US380 PROFILE @ FM720 INTERSECTION



US380 WB ENTRANCE RAMP PROFILE @ FM720 INTERSECTION



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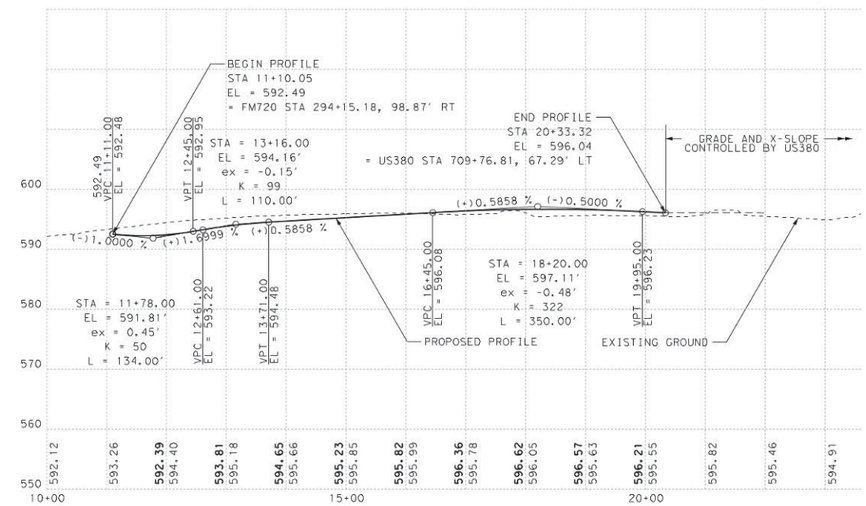


HORZ SCALE: 1"=100'

200 0 200

VERT SCALE: 1"=10'

20 0 20

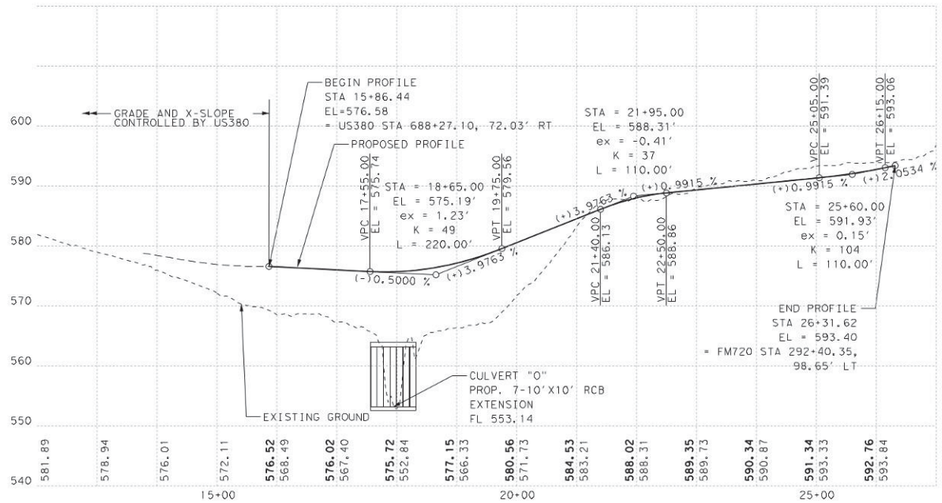
US 380

Profile

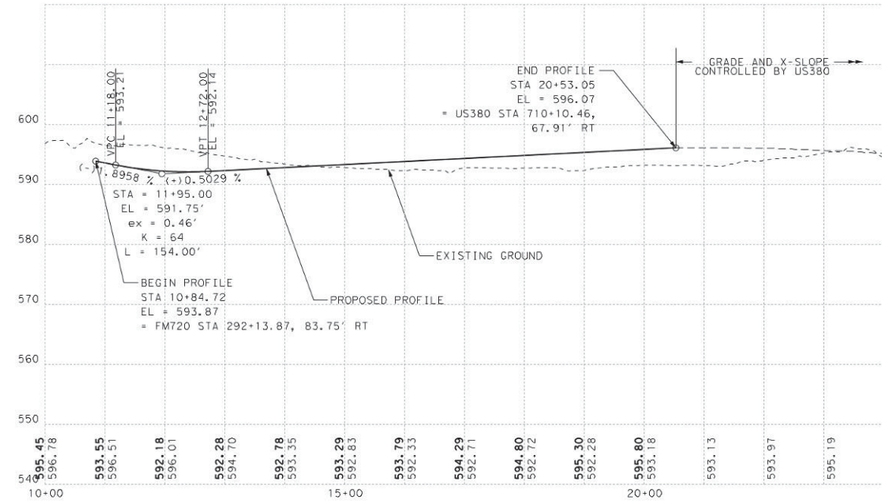
CSJ: 0135-10-057, 0135-10-050

Sheet 1 of 13

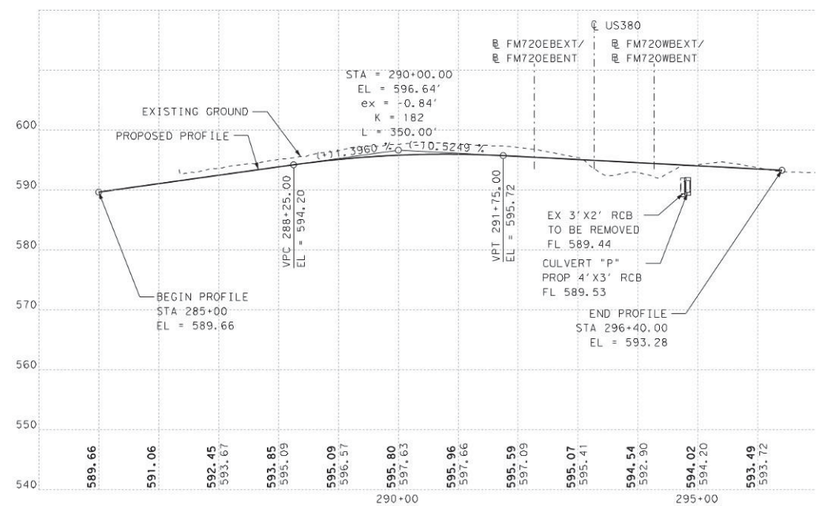
US380 EB EXIT RAMP PROFILE @ FM720 INTERSECTION



US380 EB ENTRANCE RAMP PROFILE @ FM720 INTERSECTION



FM720 INTERSECTION (40mph)



HORZ SCALE: 1"=100'

200 0 200

VERT SCALE: 1"=10'

20 0 20

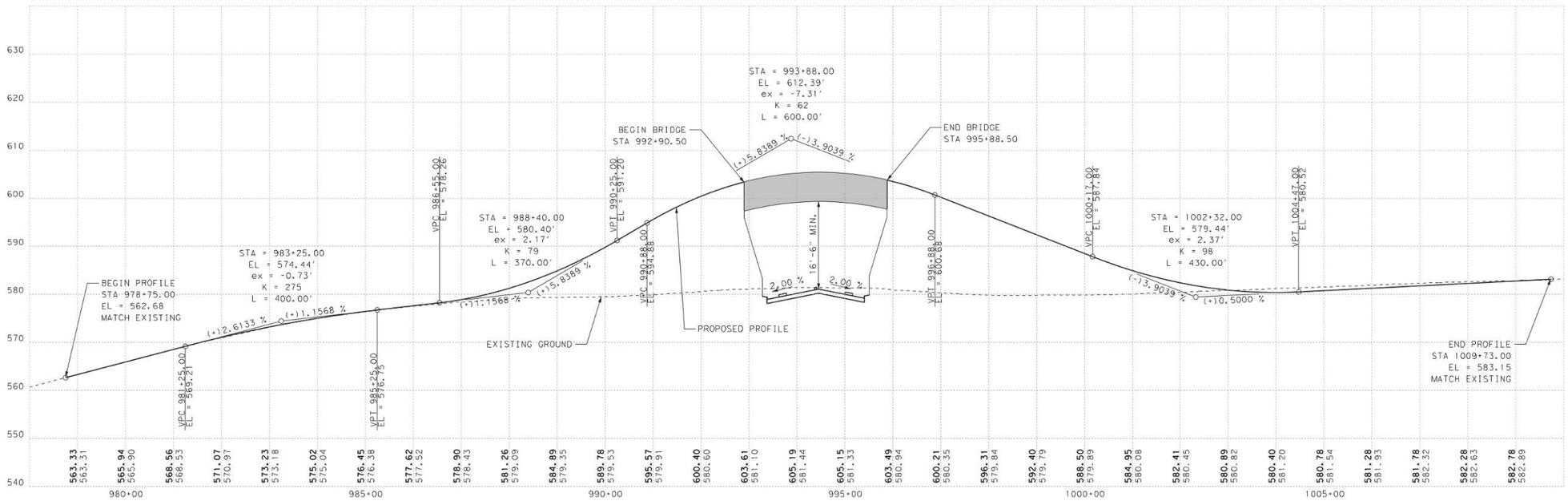
US 380

Profile

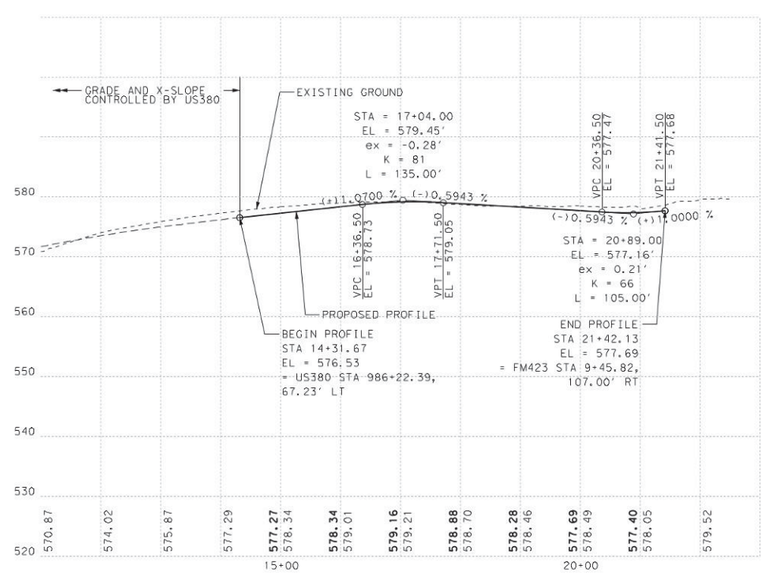
CSJ: 0135-10-057, 0135-10-050

Sheet 2 of 13

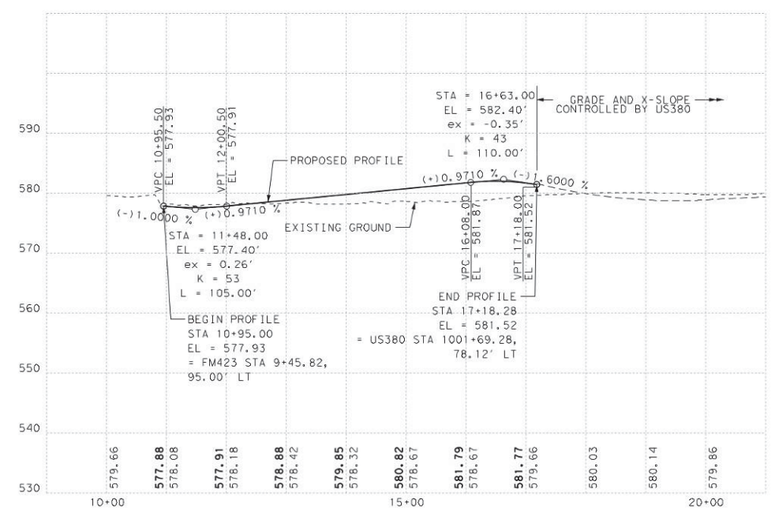
US380 PROFILE @ FM423 INTERSECTION



US380 WB ENTRANCE RAMP PROFILE @ FM423 INTERSECTION



US380 WB EXIT RAMP PROFILE @ FM423 INTERSECTION



HORZ SCALE: 1"=100'

200 0 200

VERT SCALE: 1"=10'

20 0 20

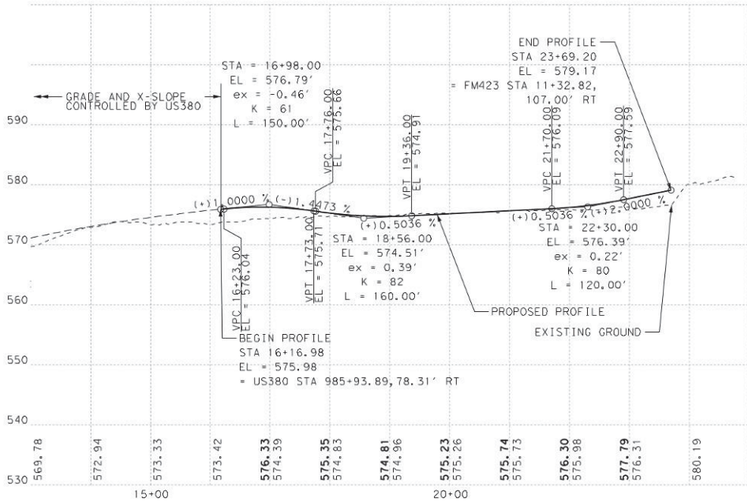
US 380

Profile

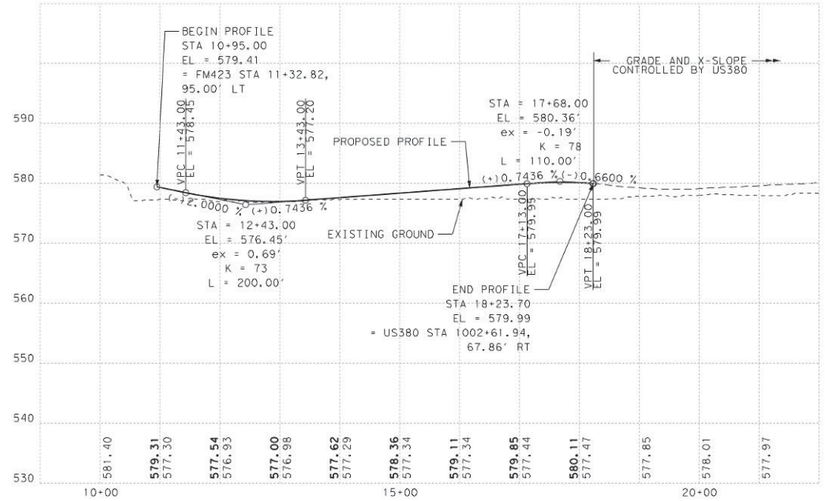
CSJ: 0135-10-057, 0135-10-050

Sheet 3 of 13

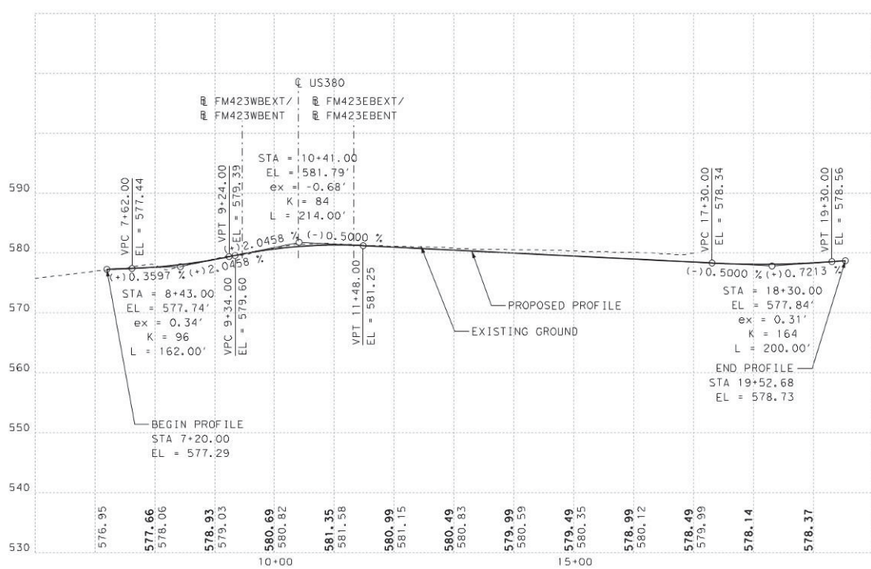
US380 EB EXIT RAMP PROFILE @ FM423 INTERSECTION



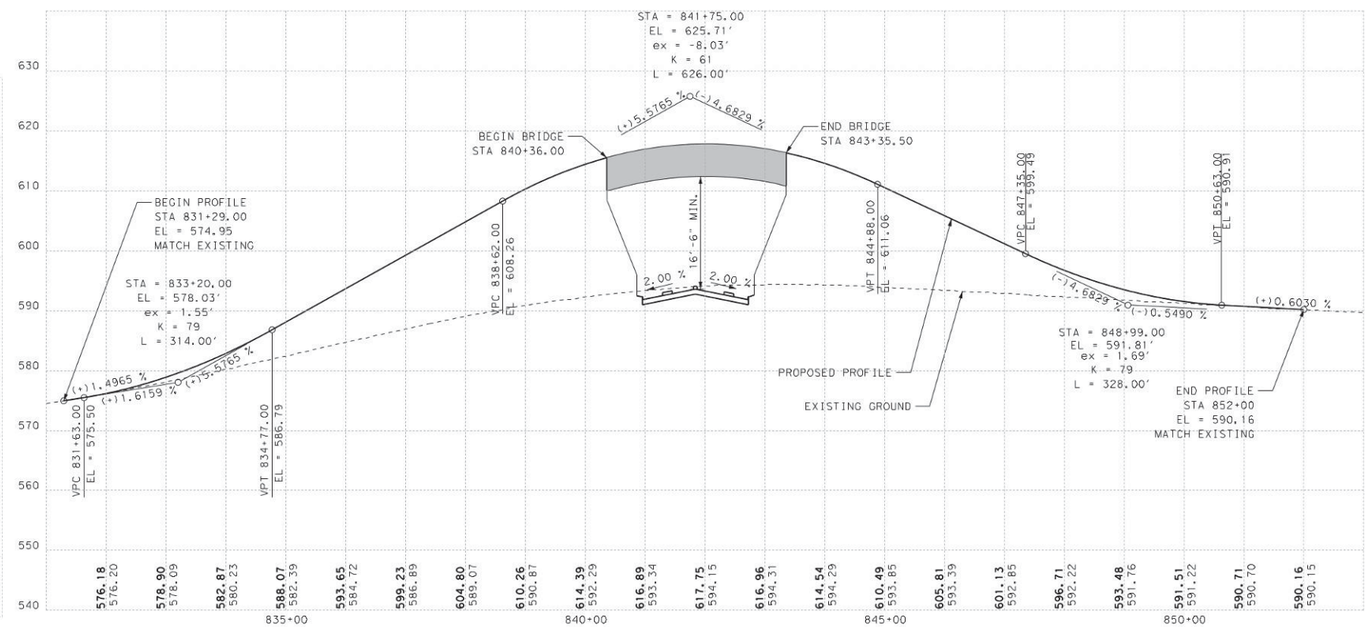
US380 EB ENTRANCE RAMP PROFILE @ FM423 INTERSECTION



FM423 INTERSECTION (40mph)



US380 PROFILE @ NAVO RD INTERSECTION



HORZ SCALE: 1"=100'

200 0 200

VERT SCALE: 1"=10'

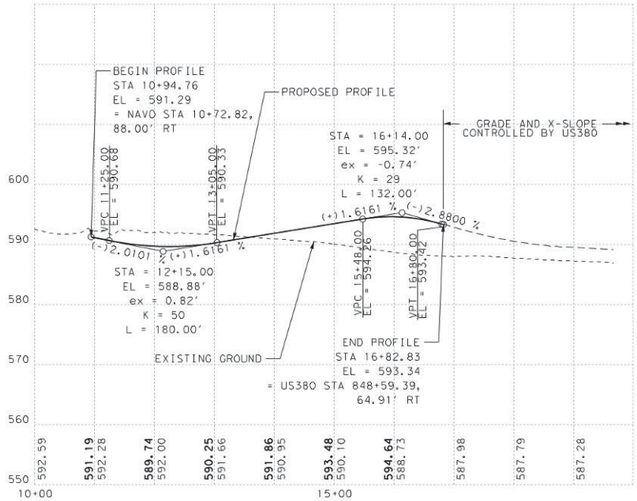
20 0 20

US 380

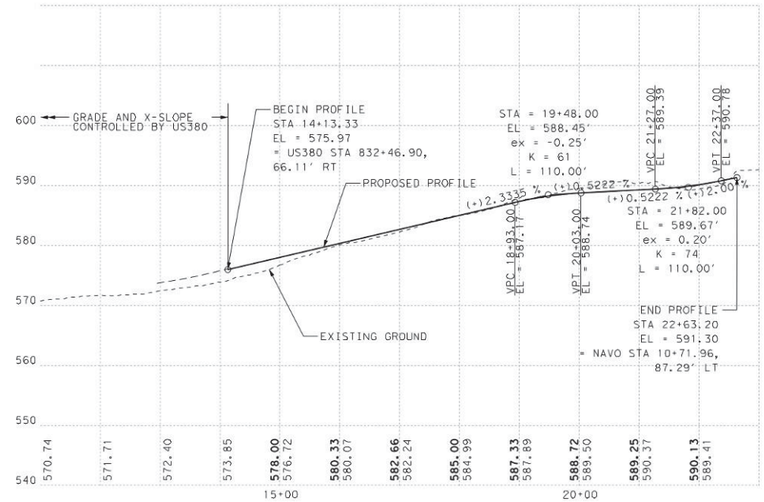
Profile

CSJ: 0135-10-057, 0135-10-050

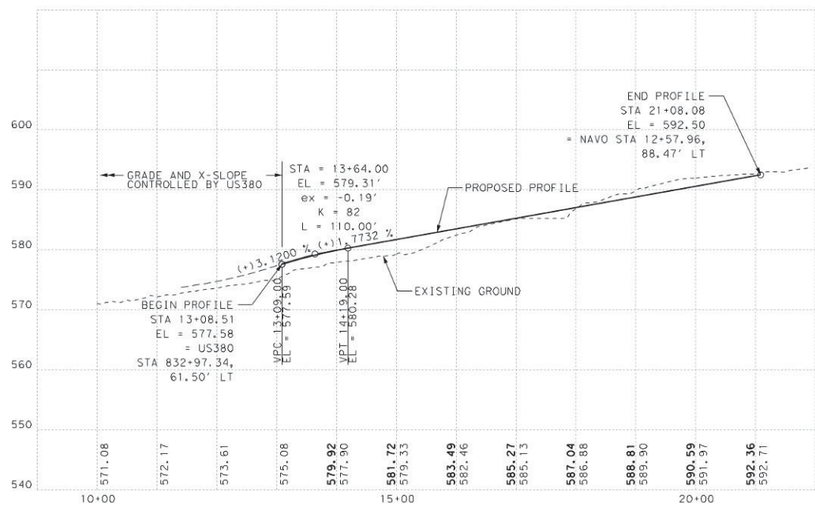
US380 EB ENTRANCE RAMP PROFILE @ NAVO RD INTERSECTION



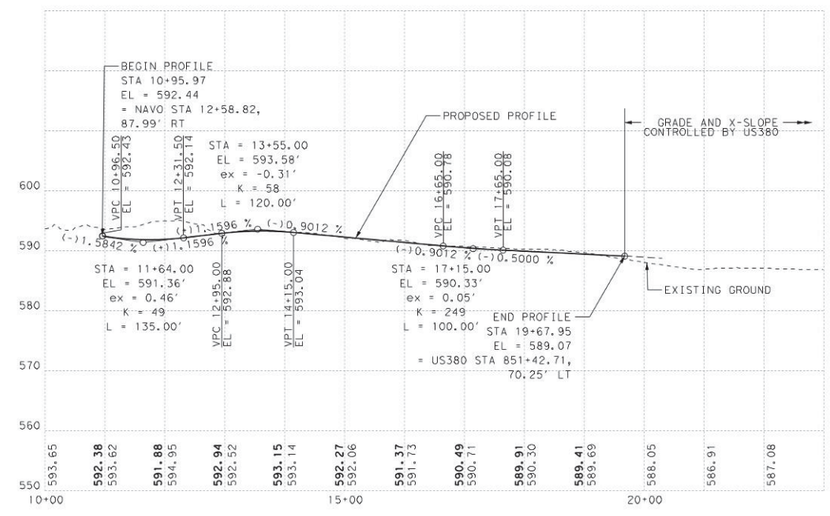
US380 EB EXIT RAMP PROFILE @ NAVO RD INTERSECTION



US380 WB ENTRANCE RAMP PROFILE @ NAVO RD INTERSECTION



US380 WB EXIT RAMP PROFILE @ NAVO RD INTERSECTION



HORZ SCALE: 1"=100'

200 0 200

VERT SCALE: 1"=10'

20 0 20

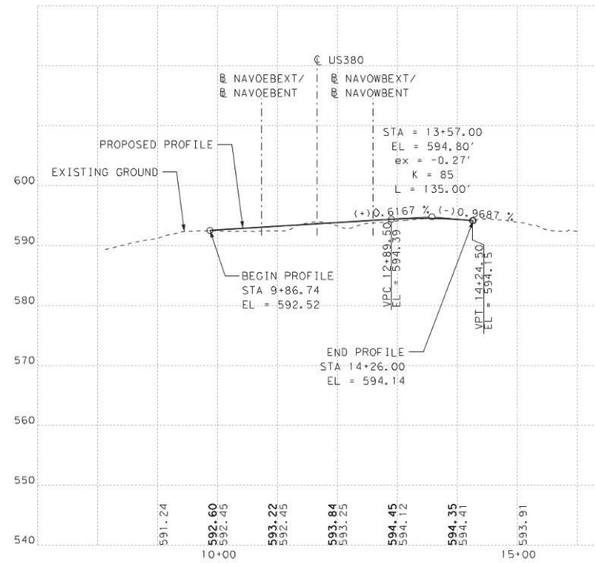
US 380

Profile

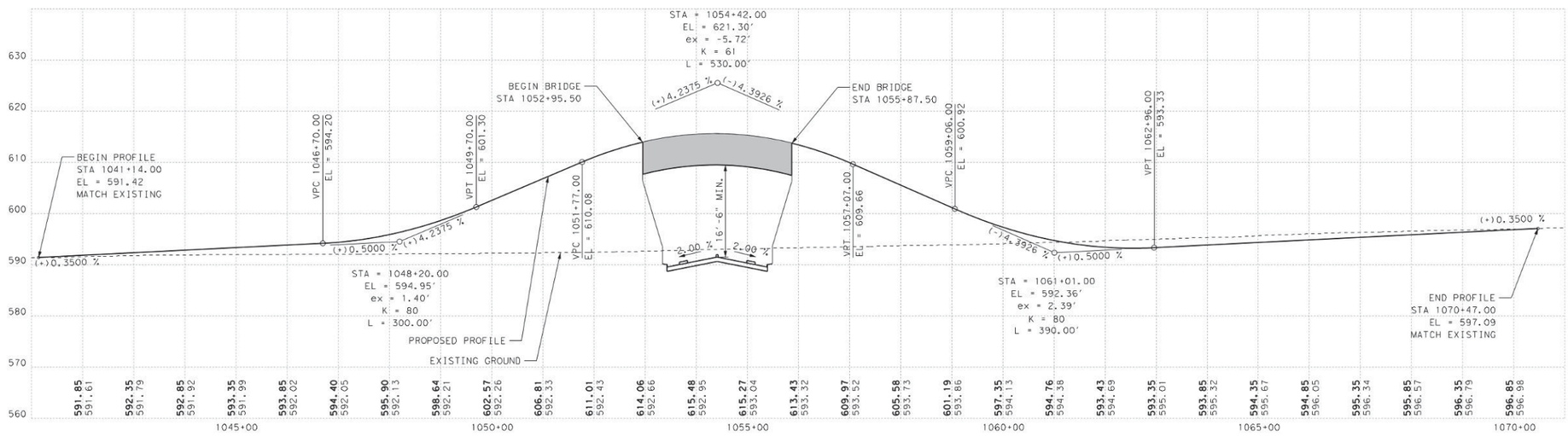
CSJ: 0135-10-057, 0135-10-050

Sheet 5 of 13

NAVO RD INTERSECTION (40mph)



US380 PROFILE @ TEEL PKWY INTERSECTION



HORZ SCALE: 1"=100'

200 0 200

VERT SCALE: 1"=10'

20 0 20

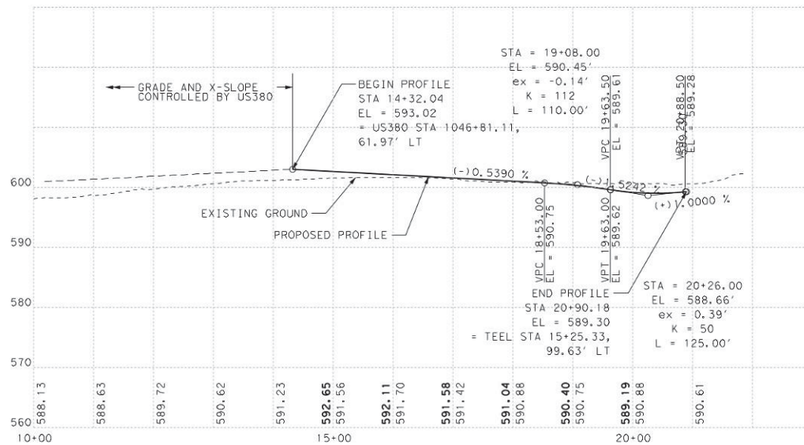
US 380

Profile

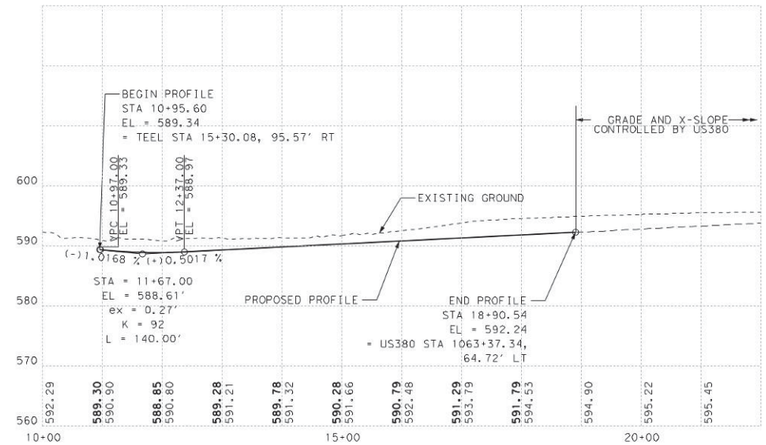
CSJ: 0135-10-057, 0135-10-050

Sheet 6 of 13

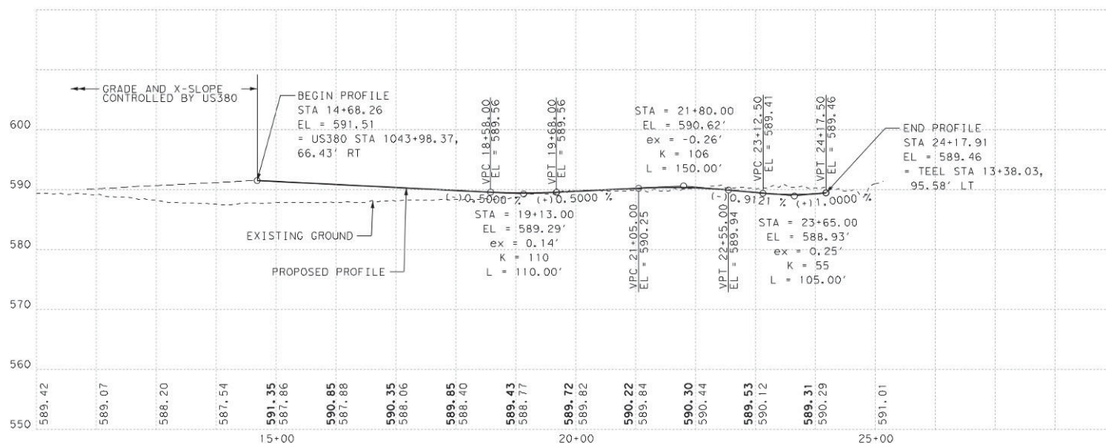
US380 WB ENTRANCE RAMP PROFILE @ TEEL PKWY INTERSECTION



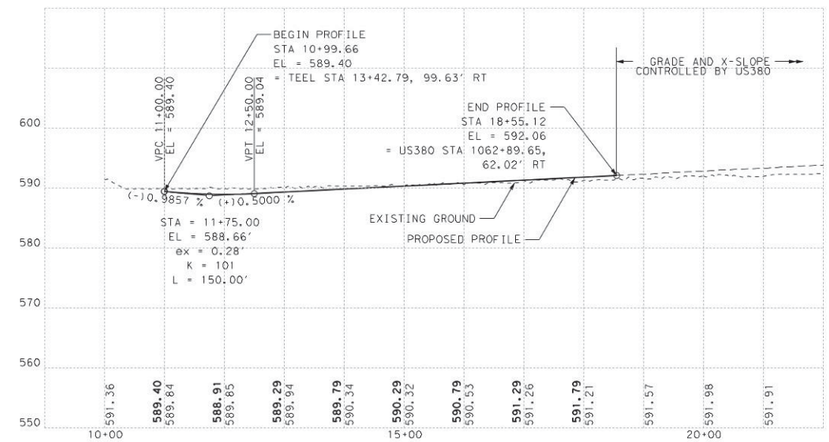
US380 WB EXIT RAMP PROFILE @ TEEL PKWY INTERSECTION



US380 EB EXIT RAMP PROFILE @ TEEL PKWY INTERSECTION



US380 EB ENTRANCE RAMP PROFILE @ TEEL PKWY INTERSECTION



HORZ SCALE: 1"=100'

200 0 200

VERT SCALE: 1"=10'

20 0 20

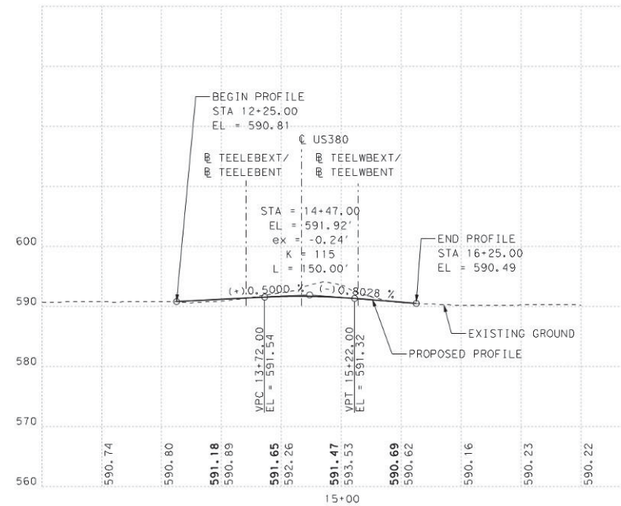
US 380

Profile

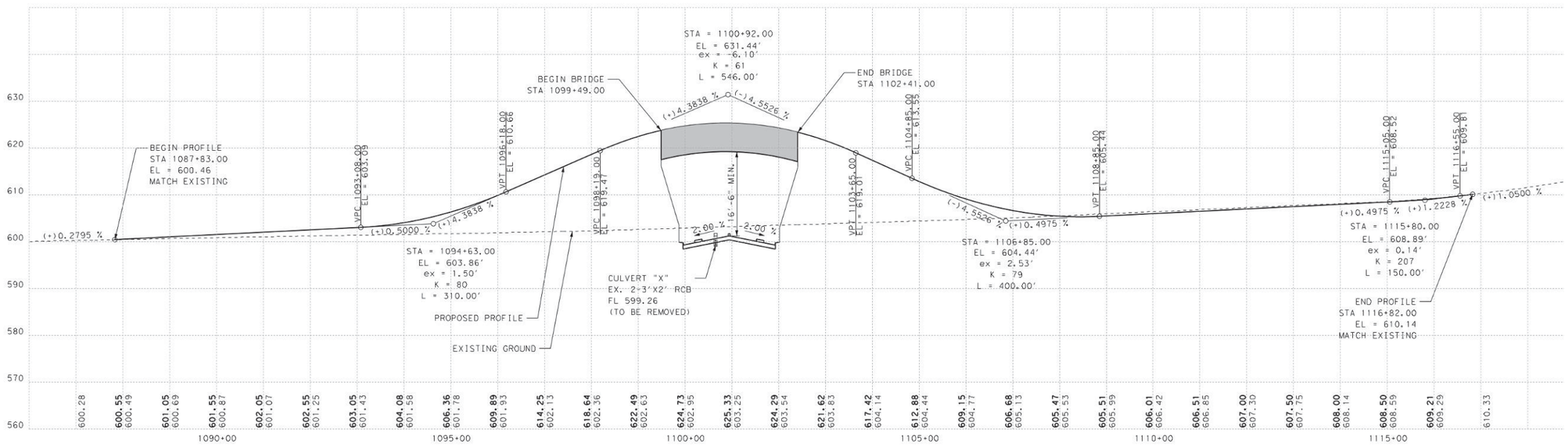
CSJ: 0135-10-057, 0135-10-050

Sheet 7 of 13

TEEL PKWY INTERSECTION (40mph)



US380 PROFILE @ LEGACY DR INTERSECTION



HORZ SCALE: 1"=100'

200 0 200

VERT SCALE: 1"=10'

20 0 20

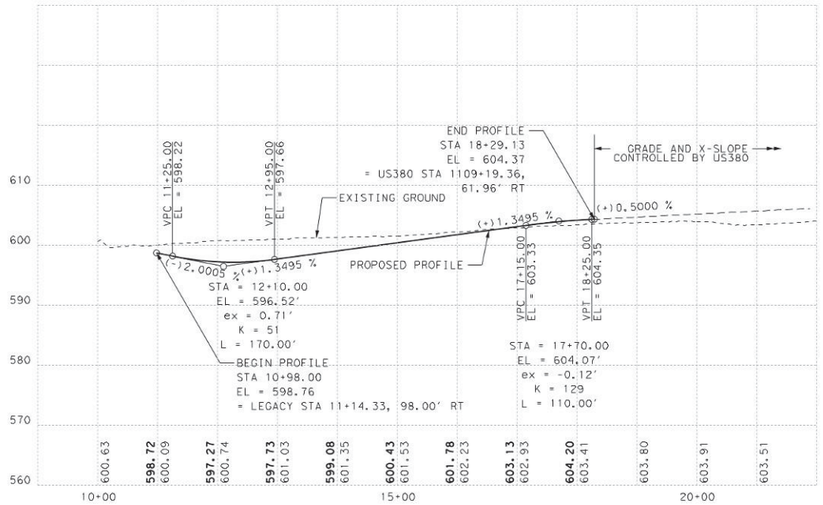
US 380

Profile

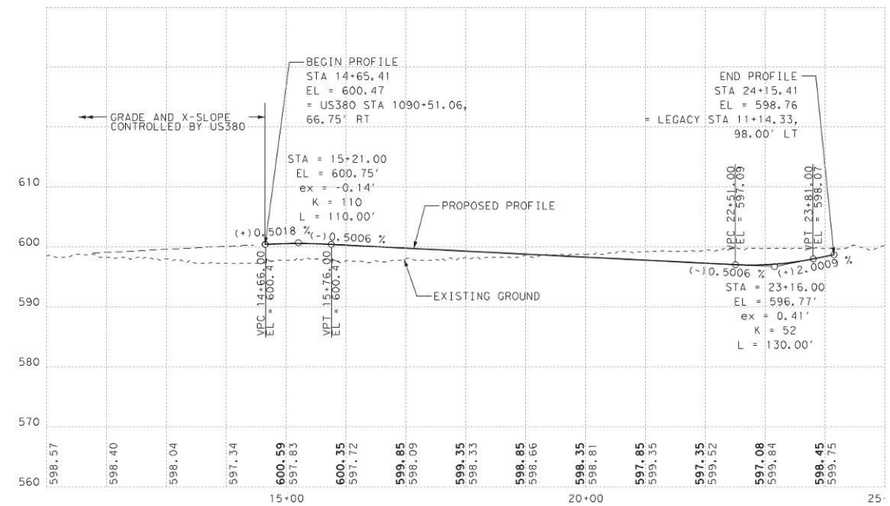
CSJ: 0135-10-057, 0135-10-050

Sheet 8 of 13

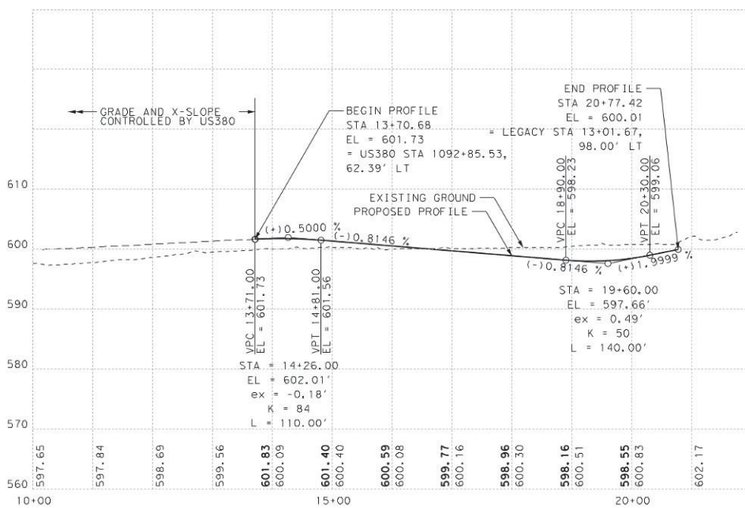
US380 EB ENTRANCE RAMP PROFILE @ LEGACY DR INTERSECTION



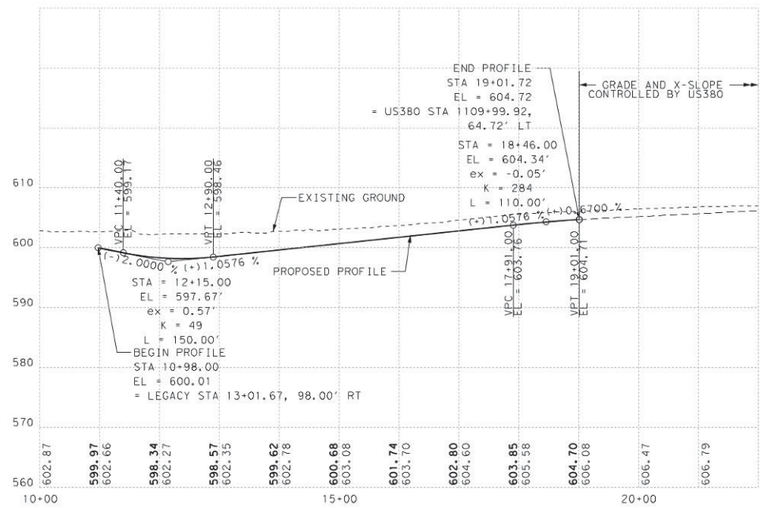
US380 EB EXIT RAMP PROFILE @ LEGACY DR INTERSECTION



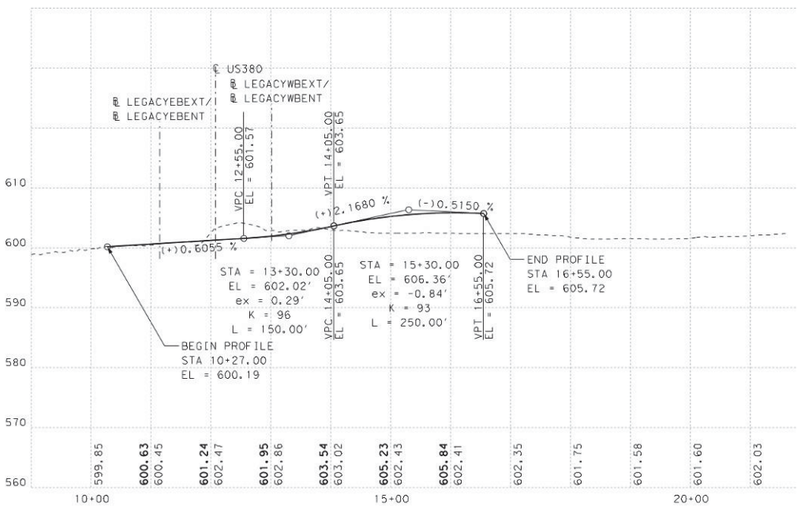
US380 WB ENTRANCE RAMP PROFILE @ LEGACY DR INTERSECTION



US380 WB EXIT RAMP PROFILE @ LEGACY DR INTERSECTION



LEGACY DR INTERSECTION (40mph)



HORZ SCALE: 1"=100'

200 0 200

VERT SCALE: 1"=10'

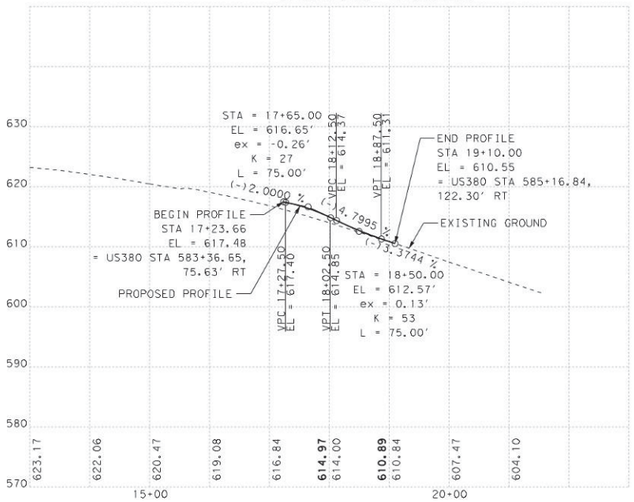
20 0 20

US 380

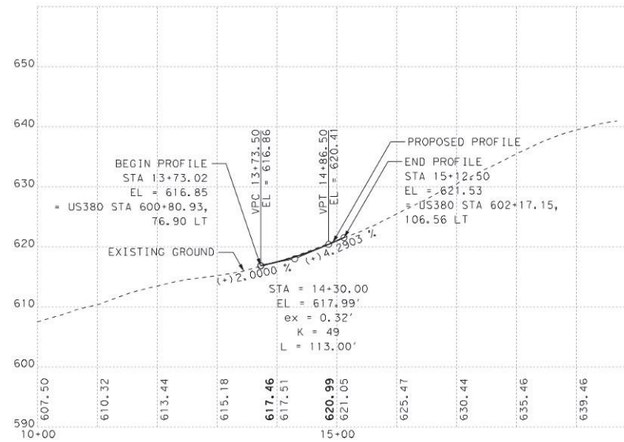
Profile

CSJ: 0135-10-057, 0135-10-050

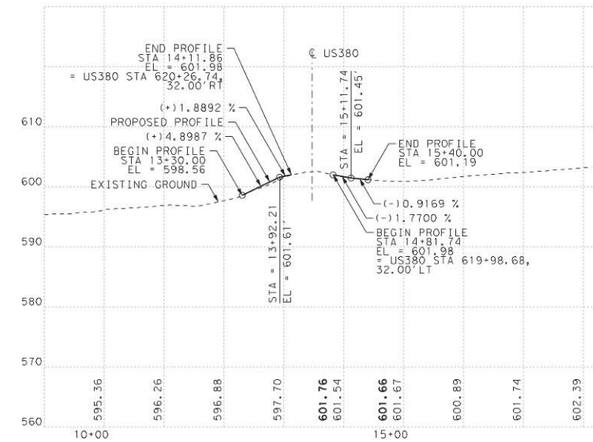
US377 EBEXT (25mph)
(ROLLING TERRAIN)



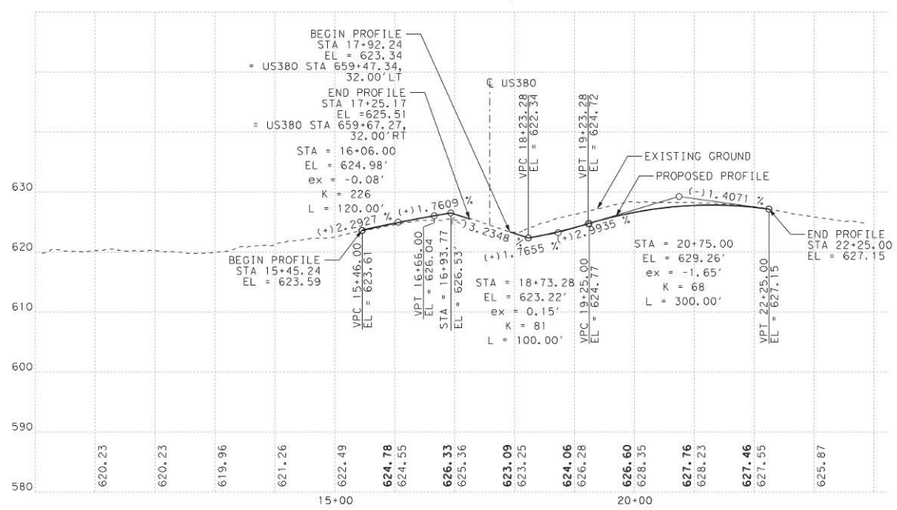
US377 WBENT (25mph)
(ROLLING TERRAIN)



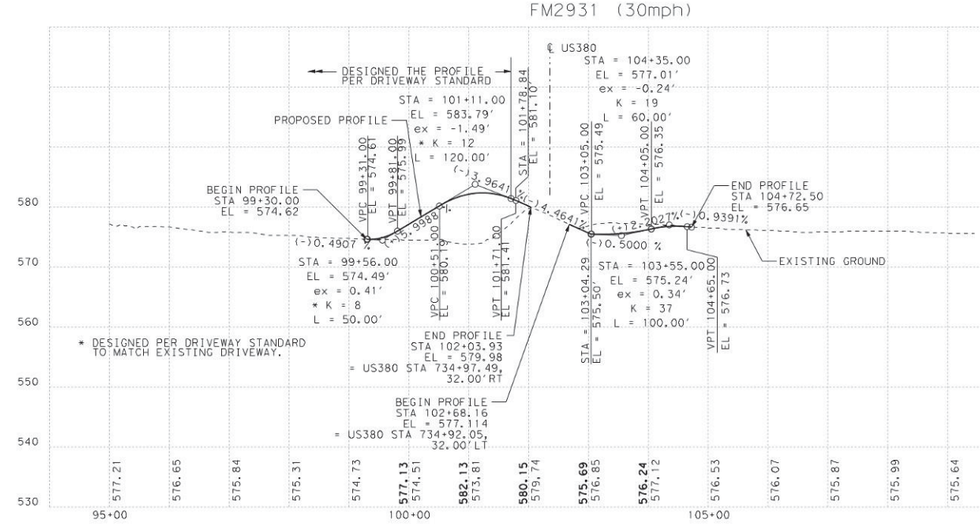
POTTER SHOP RD (30mph)



FM424 (30mph)



FM2931 (30mph)



HORZ SCALE: 1"=100'

200 0 200

VERT SCALE: 1"=10'

20 0 20

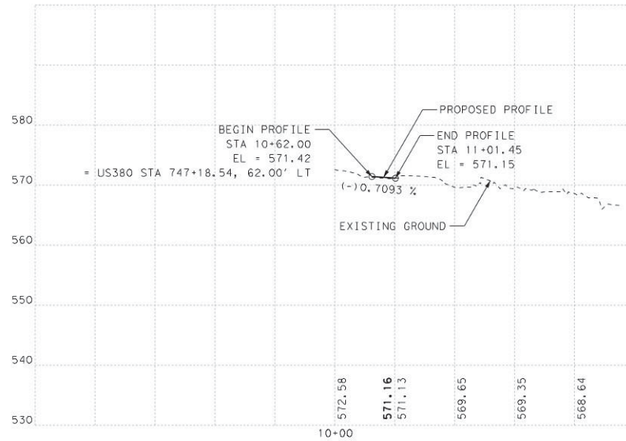
US 380

Profile

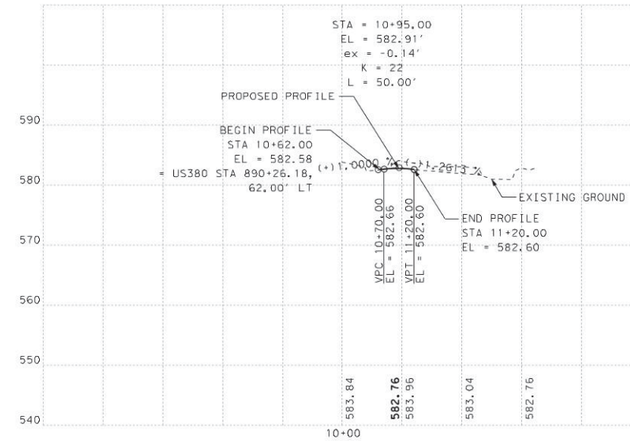
CSJ: 0135-10-057, 0135-10-050

Sheet 10 of 13

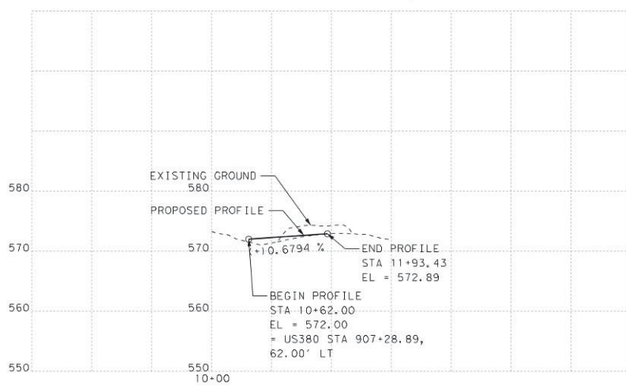
PROVIDENCE BLVD (30mph)



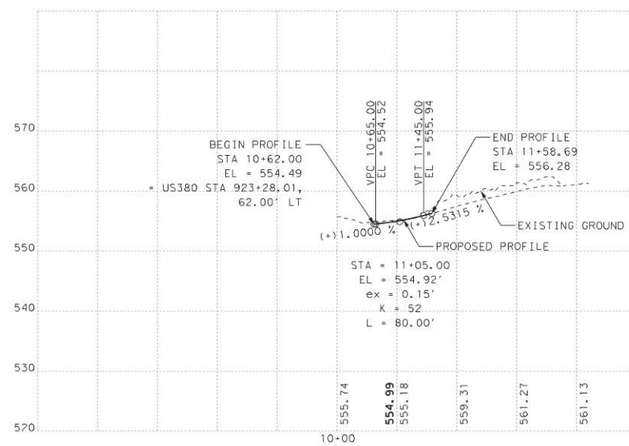
MAGNOLIA BLVD (30mph)



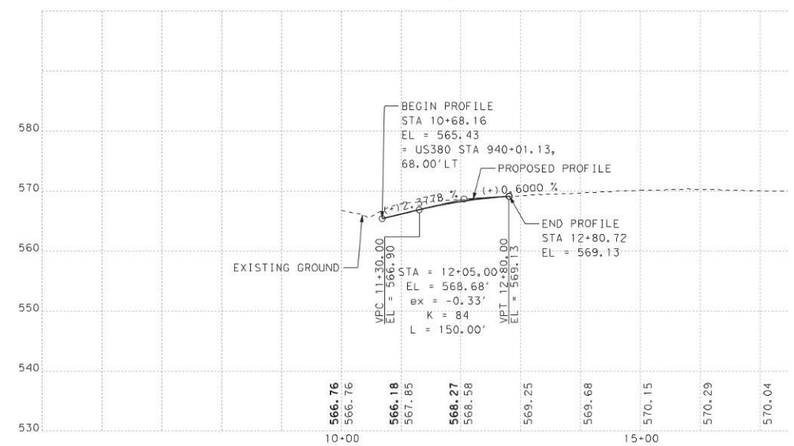
GARDENIA BLVD (30mph)



DOGWOOD TRAIL (30mph)



FM1385 (40mph)



HORZ SCALE: 1"=100'

200 0 200

VERT SCALE: 1"=10'

20 0 20

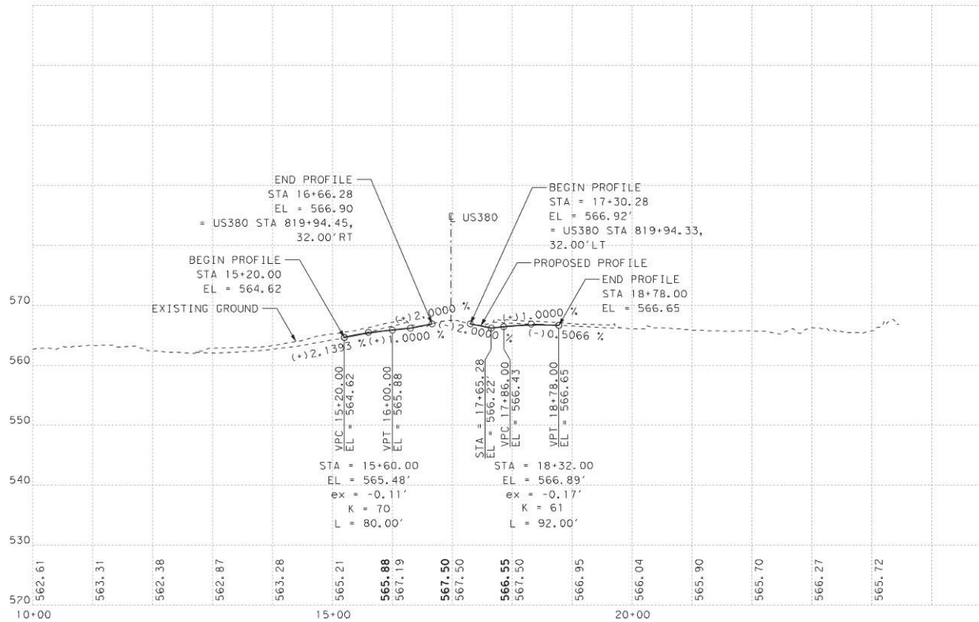
US 380

Profile

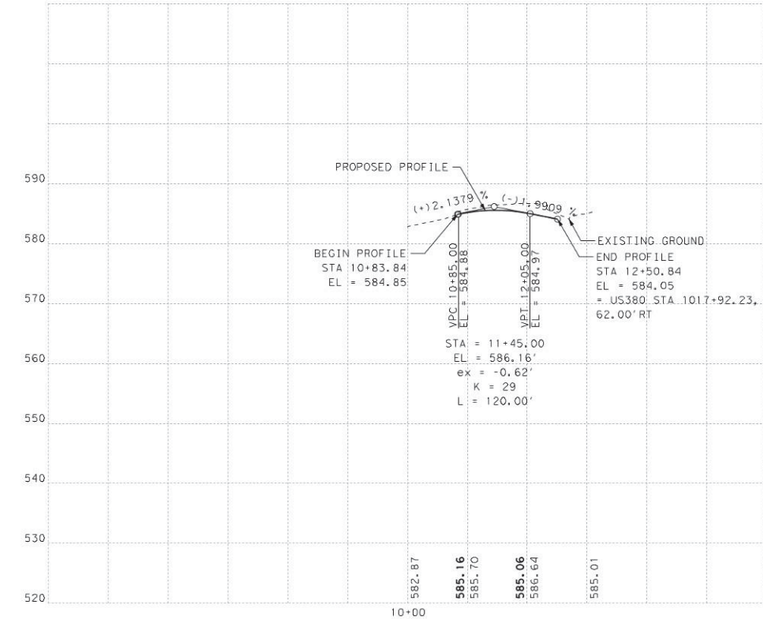
CSJ: 0135-10-057, 0135-10-050

Sheet 11 of 13

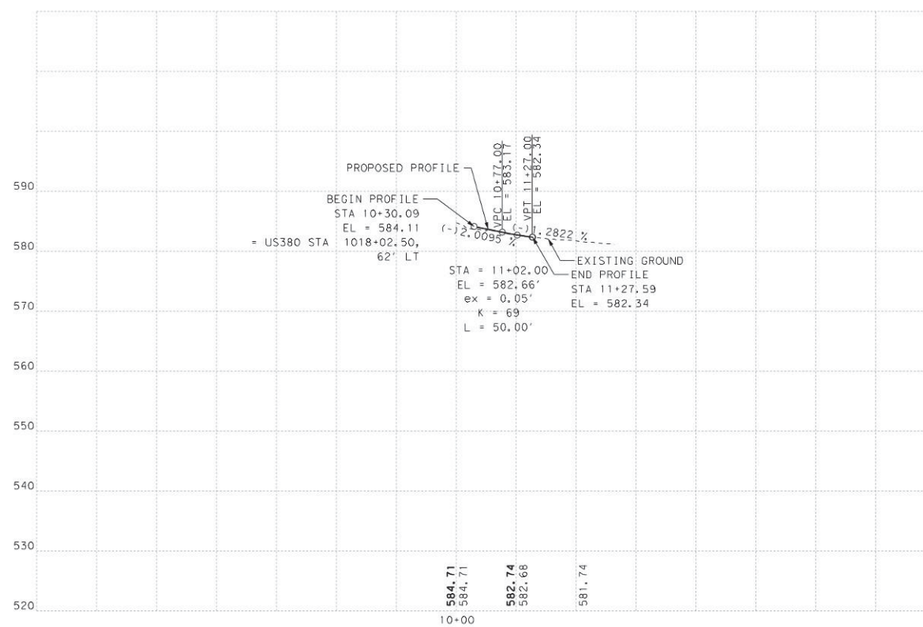
PALOMA CREEK BLVD (40mph)



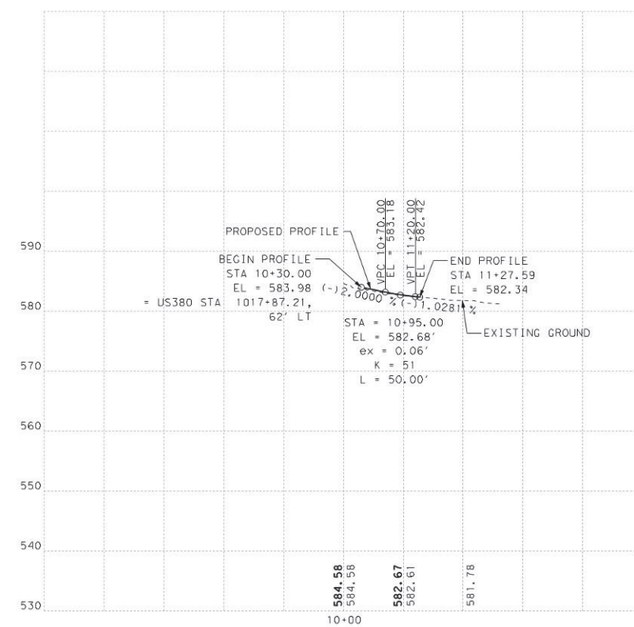
HOLLYHOCK RD (35mph)



WINDSONG PKWY NB (35 mph)



WINDSONG PKWY SB (35mph)



HORZ SCALE: 1"=100'

200 0 200

VERT SCALE: 1"=10'

20 0 20

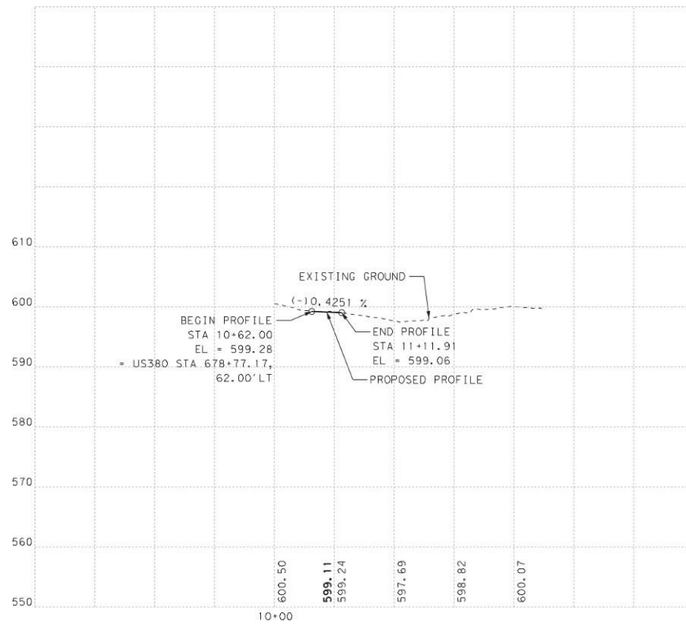
US 380

Profile

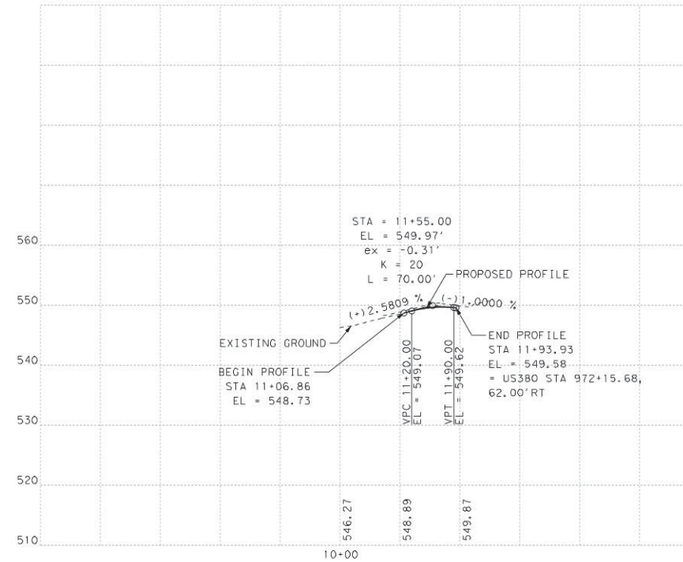
CSJ: 0135-10-057, 0135-10-050

Sheet 12 of 13

WALMART DR (30mph)



DOE CREEK RD (30mph)



HORZ SCALE: 1"=100'

200 0 200

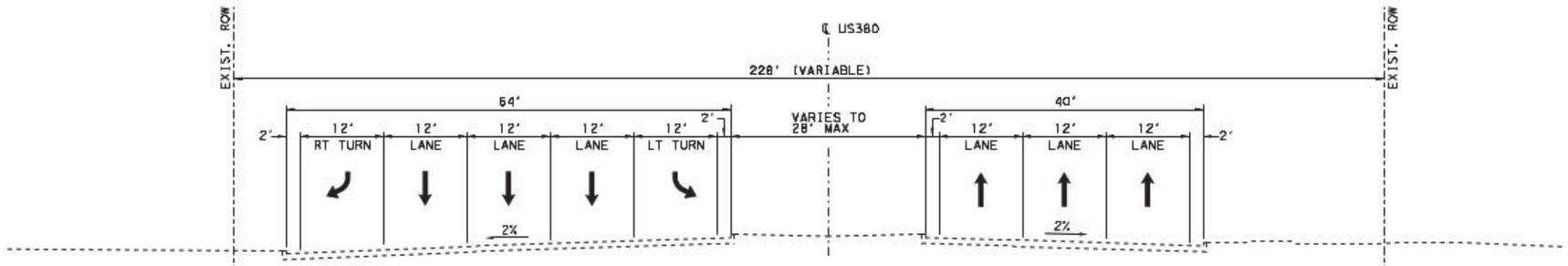
VERT SCALE: 1"=10'

20 0 20

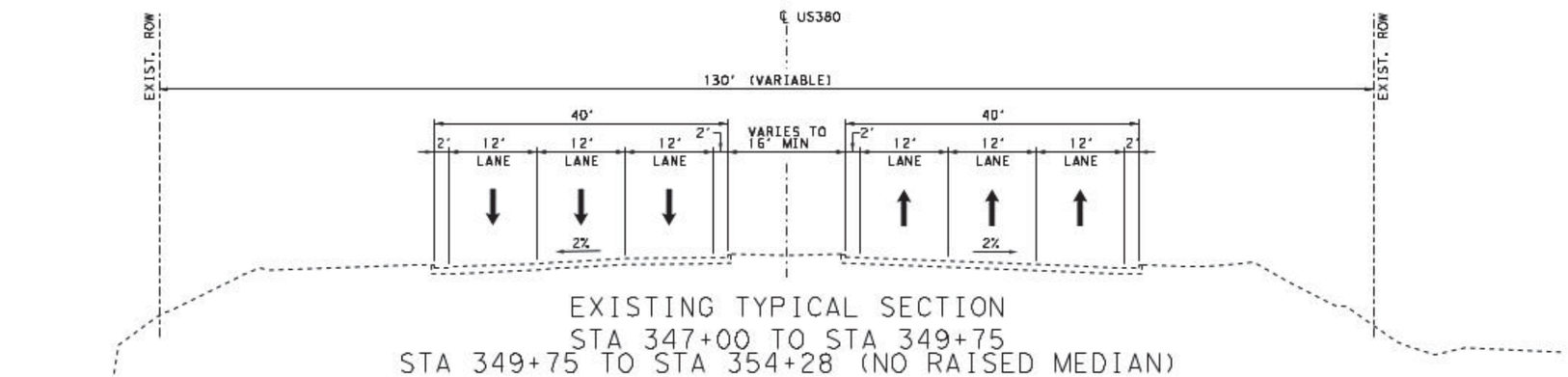
US 380

Profile

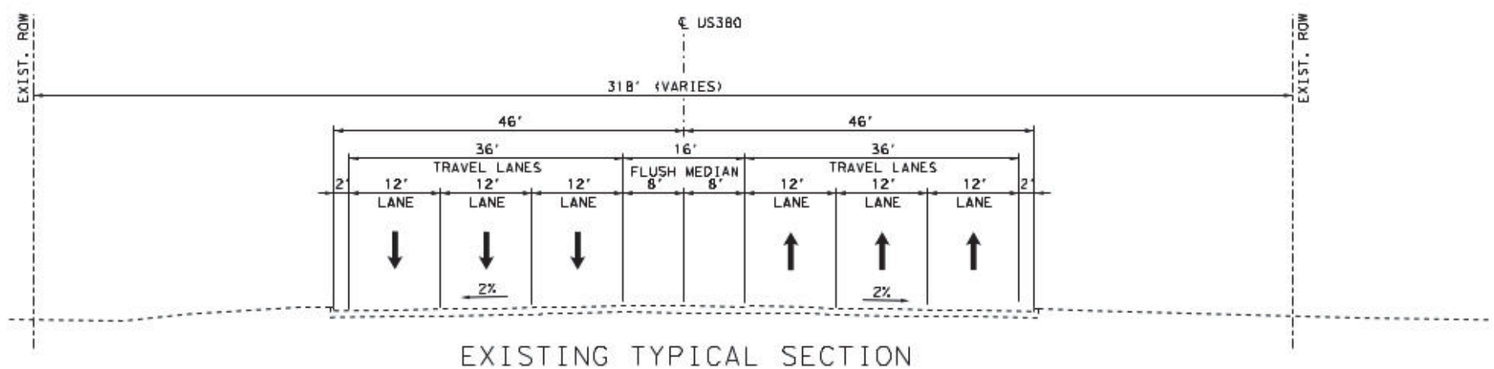
CSJ: 0135-10-057, 0135-10-050



EXISTING TYPICAL SECTION
STA 344+25 TO STA 347+00



EXISTING TYPICAL SECTION
STA 347+00 TO STA 349+75
STA 349+75 TO STA 354+28 (NO RAISED MEDIAN)



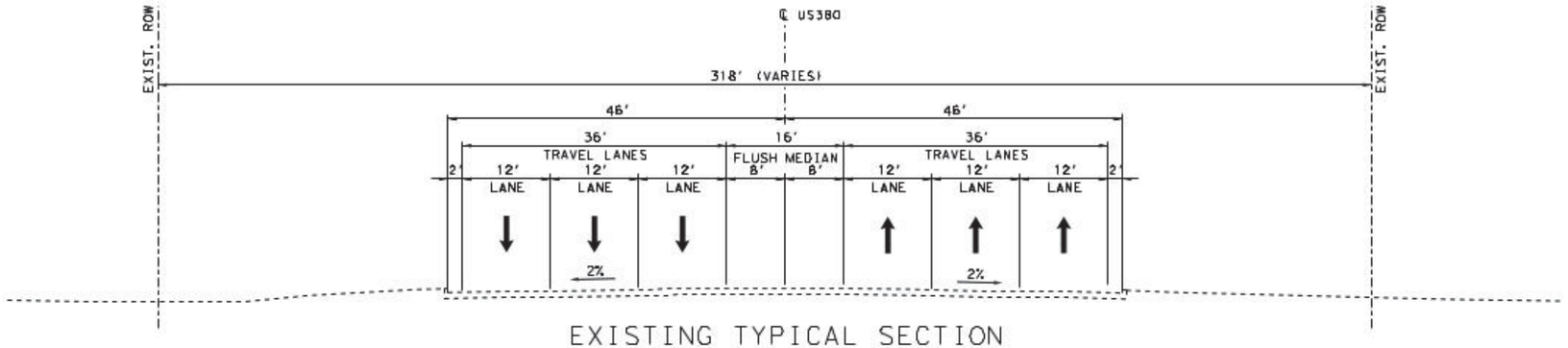
EXISTING TYPICAL SECTION
STA 354+28 TO STA 435+00

US 380

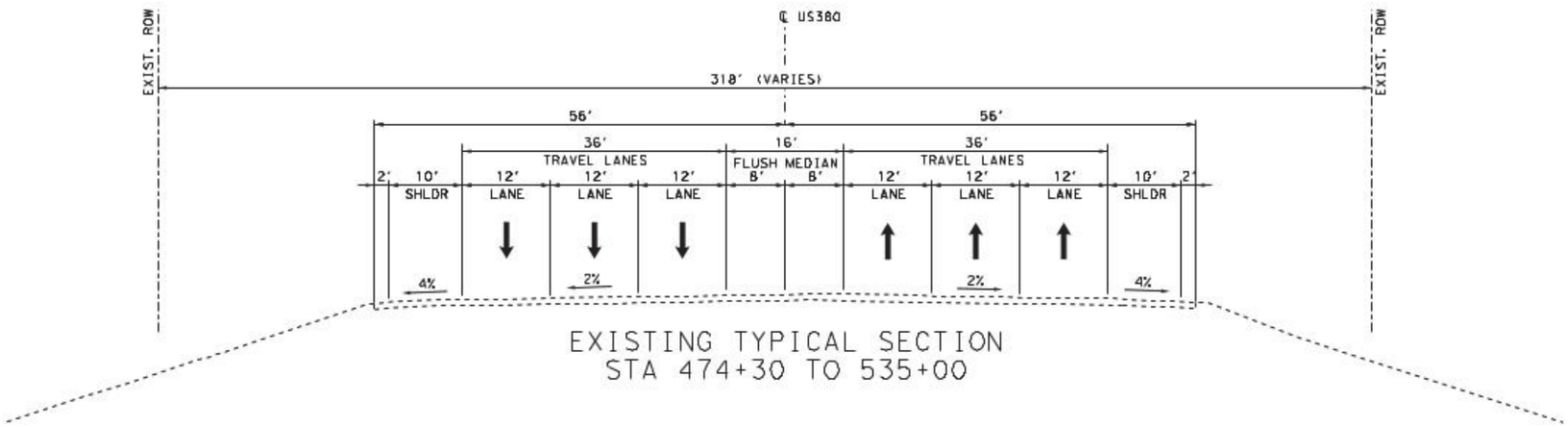
Existing Typical Sections

CSJ: 0135-10-057, 0135-10-050

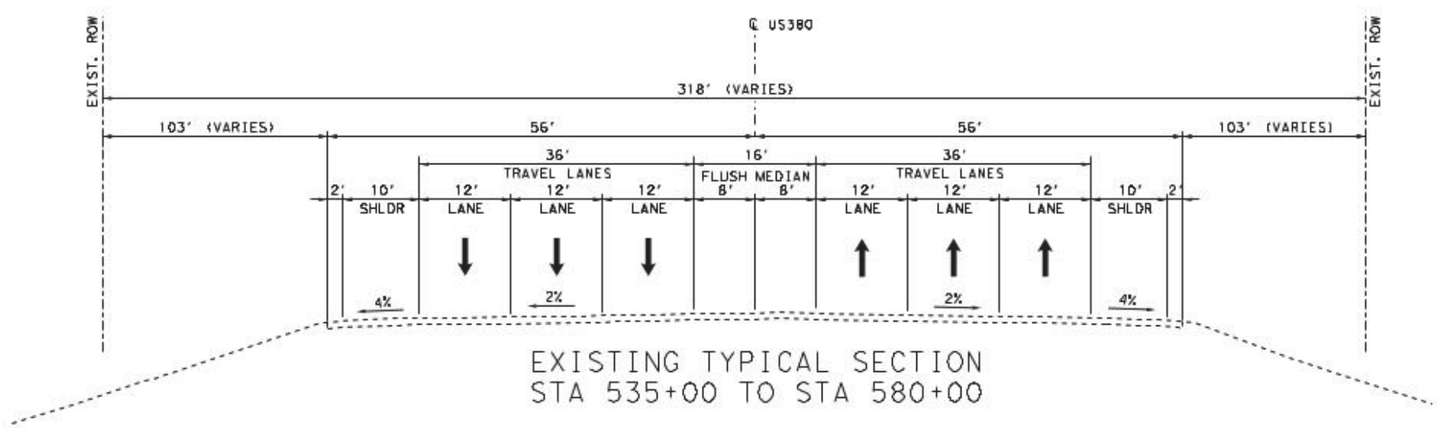
Sheet 1 of 4



EXISTING TYPICAL SECTION
STA 435+00 TO STA 474+30



EXISTING TYPICAL SECTION
STA 474+30 TO 535+00



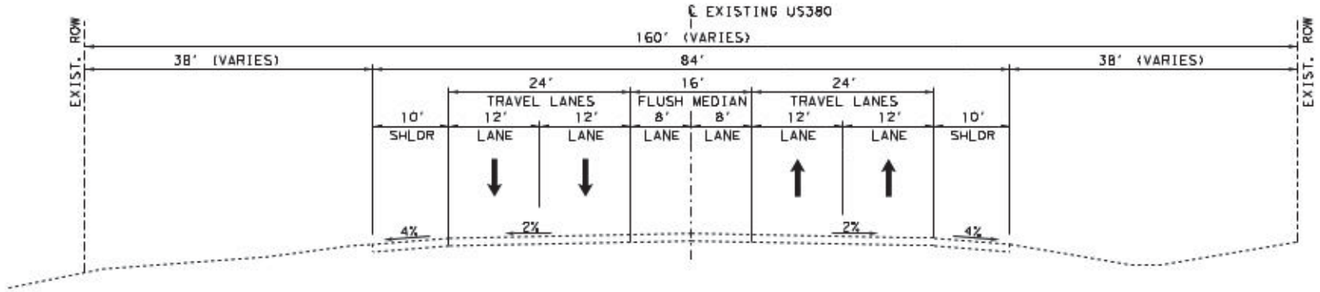
EXISTING TYPICAL SECTION
STA 535+00 TO STA 580+00

US 380

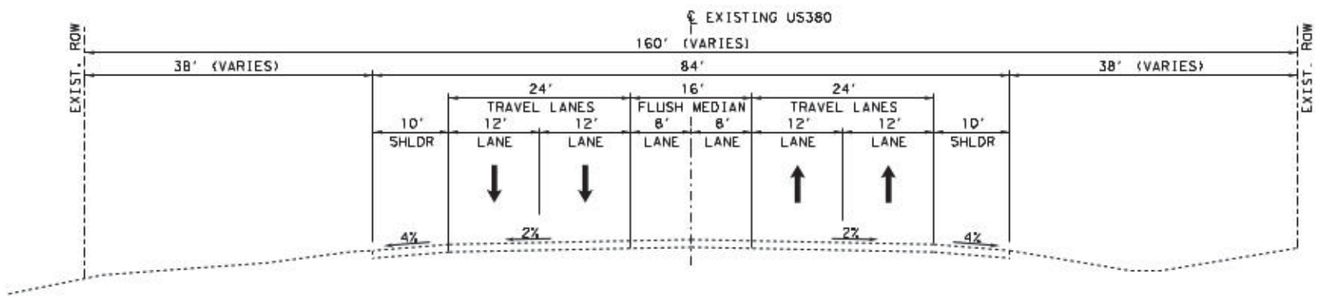
Existing Typical Sections

CSJ: 0135-10-057, 0135-10-050

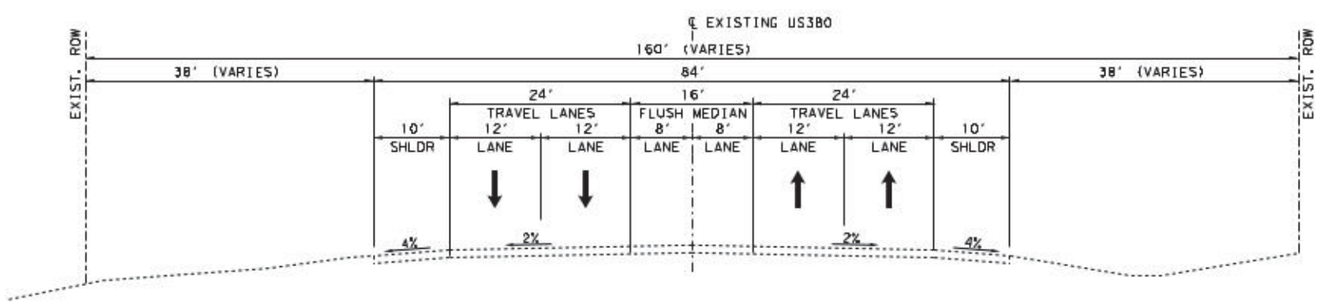
Sheet 2 of 4



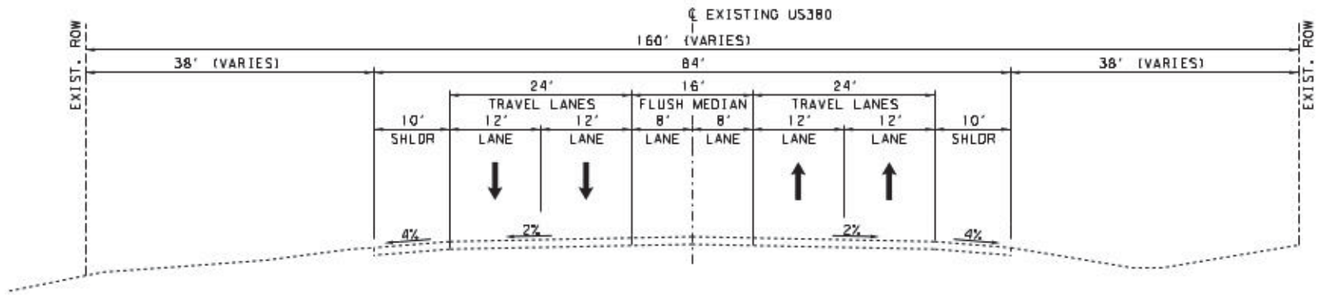
EXISTING TYPICAL SECTION
STA 580+00 TO STA 640+00



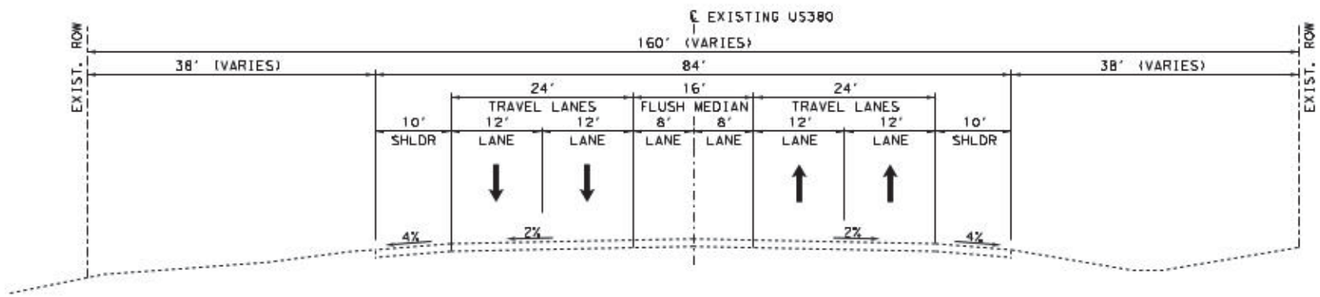
EXISTING TYPICAL SECTION
STA 640+00 TO STA 745+00



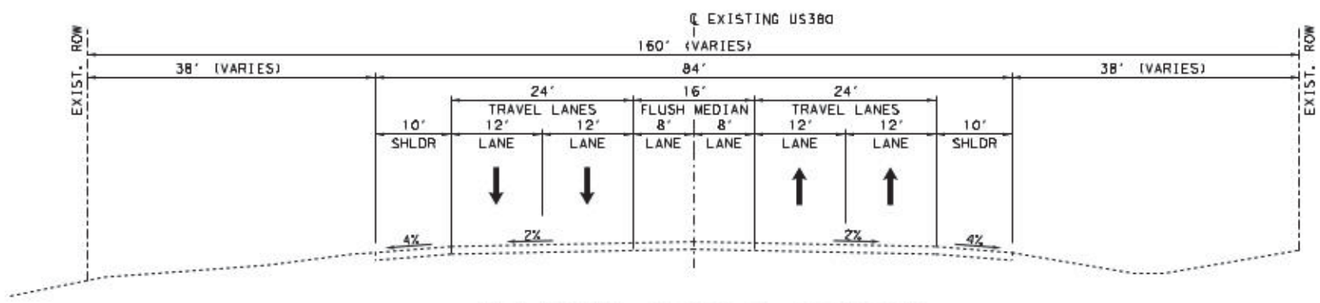
EXISTING TYPICAL SECTION
STA 745+00 TO STA 845+00



EXISTING TYPICAL SECTION
STA 845+00 TO STA 945+00



EXISTING TYPICAL SECTION
STA 945+00 TO STA 1045+00



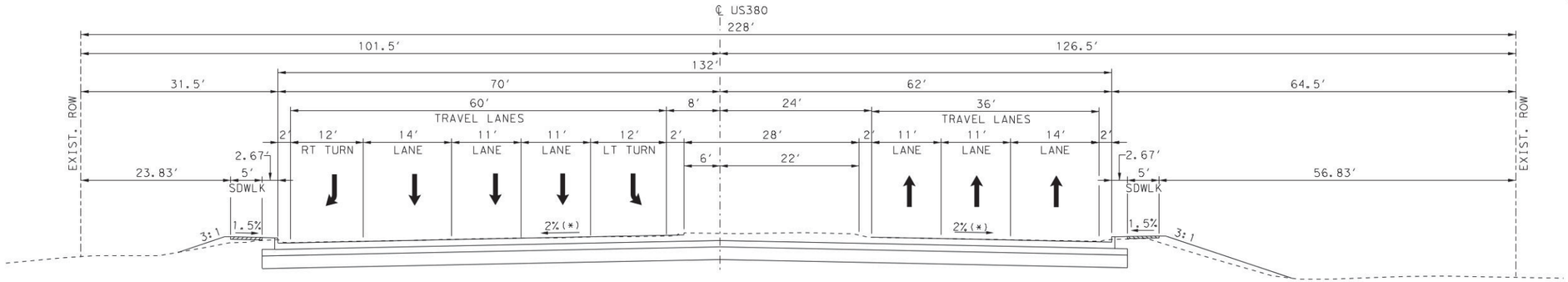
EXISTING TYPICAL SECTION
STA 1045+00 TO END OF PROJECT

US 380

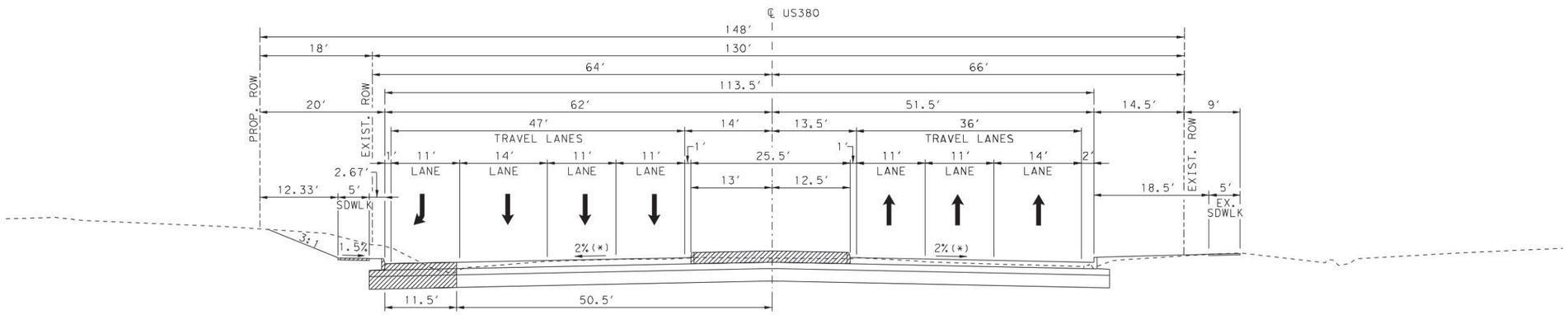
Existing Typical Sections

CSJ: 0135-10-057, 0135-10-050

Sheet 4 of 4



SECTION 1A

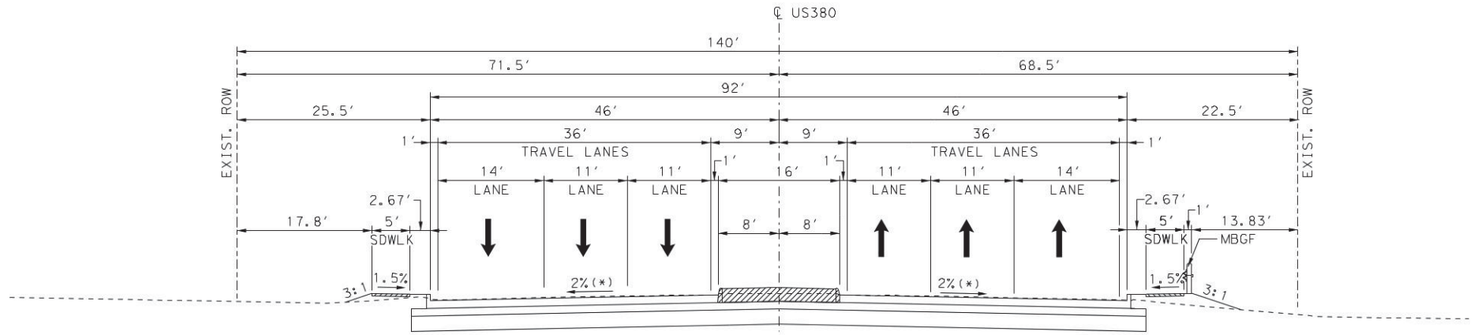


SECTION 1B

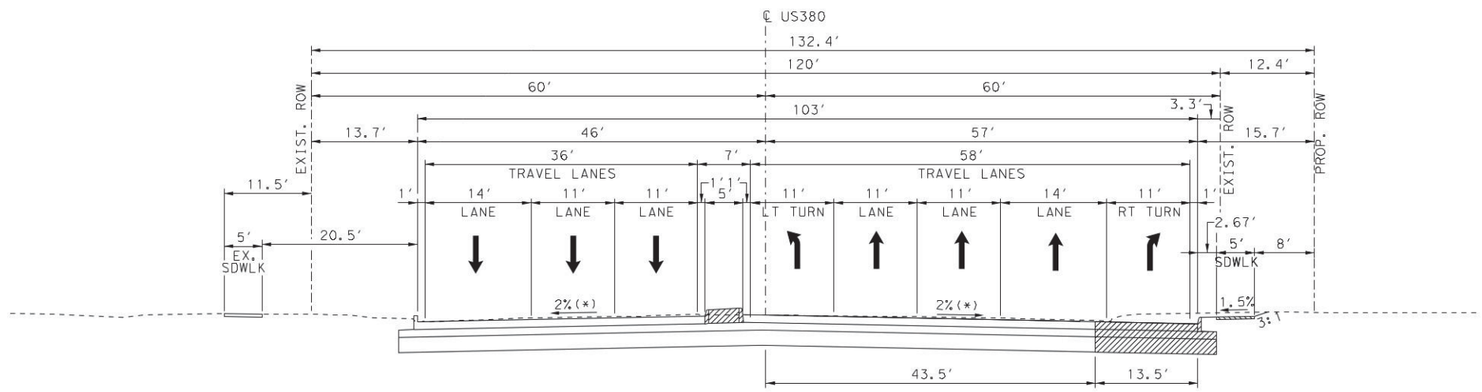
US 380

Proposed Typical Sections

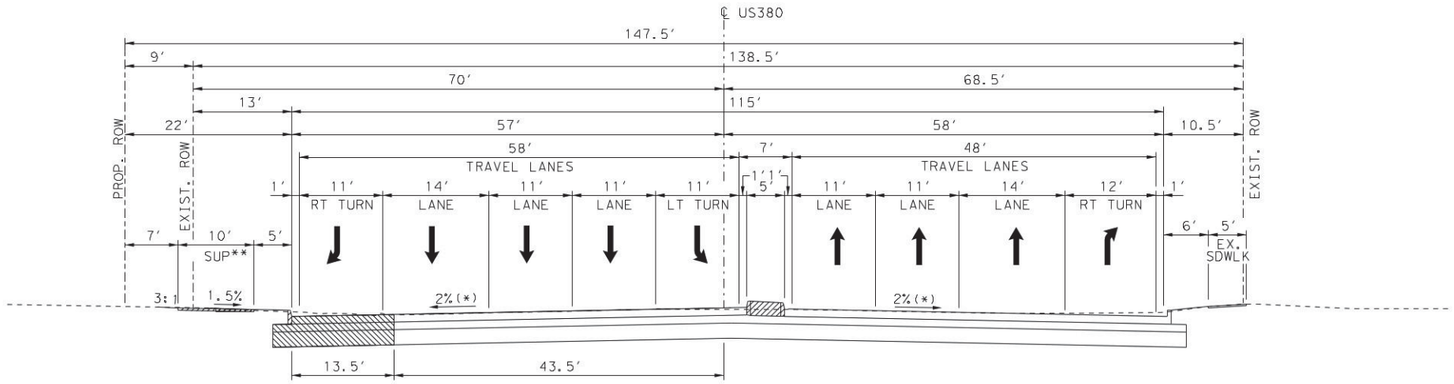
CSJ: 0135-10-057, 0135-10-050



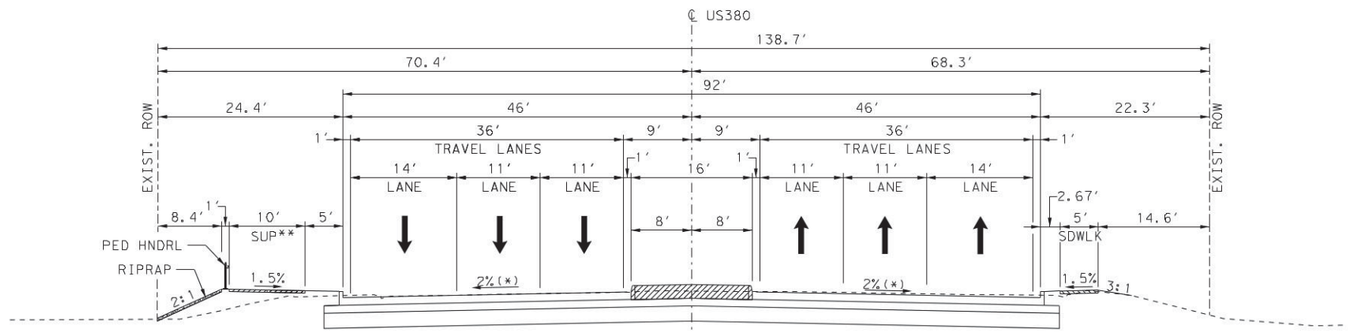
SECTION 1C



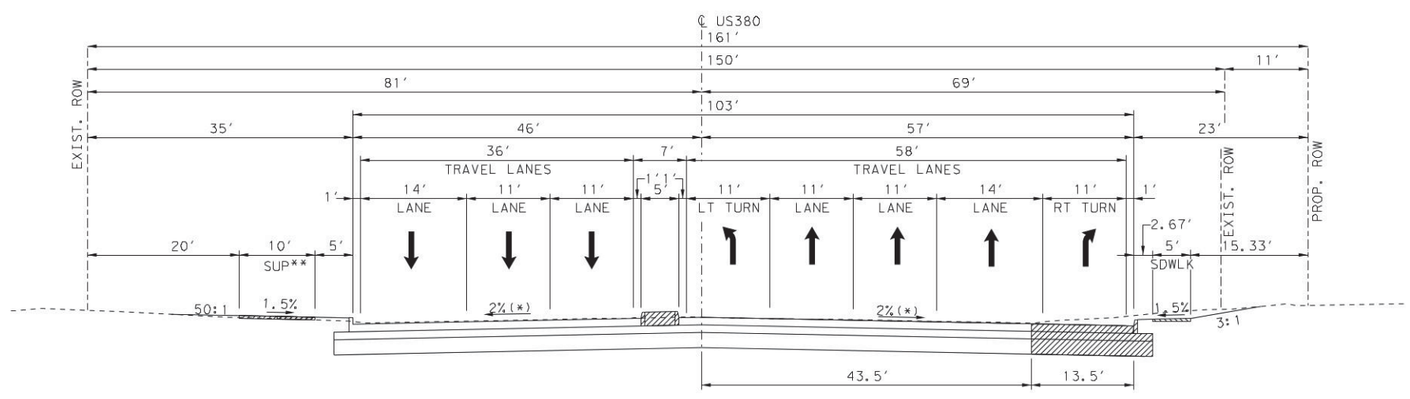
SECTION 1D



SECTION 1E



SECTION 1F



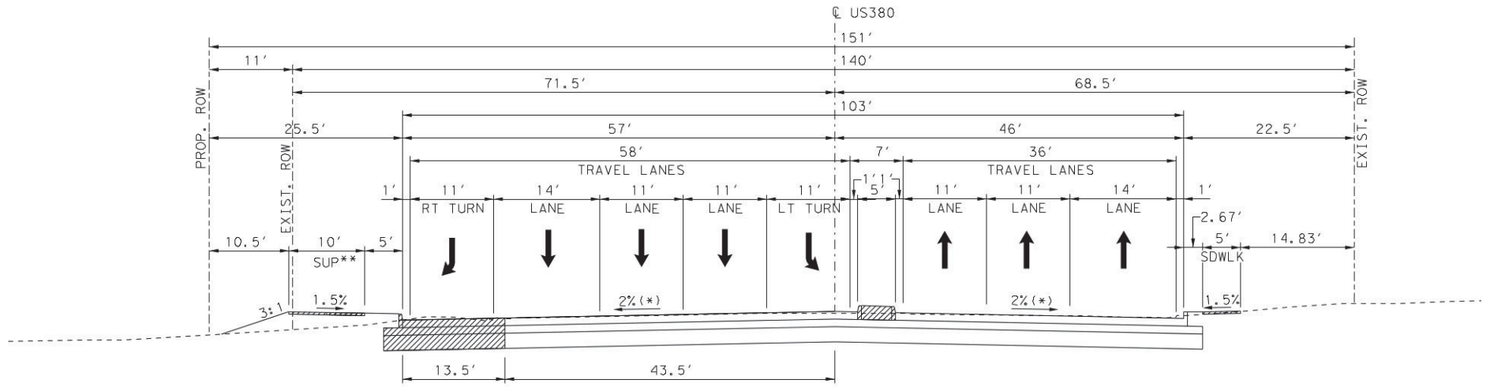
SECTION 1G

US 380

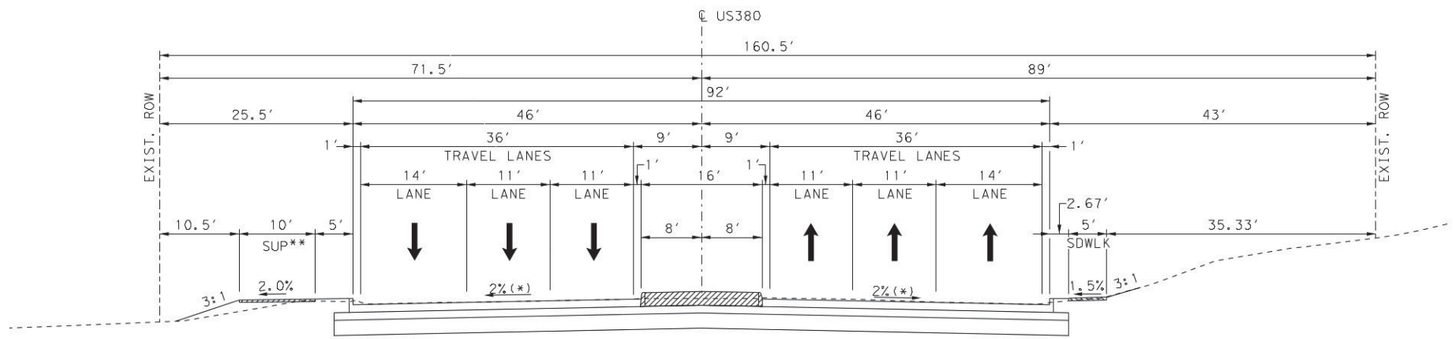
Proposed Typical Sections

CSJ: 0135-10-057, 0135-10-050

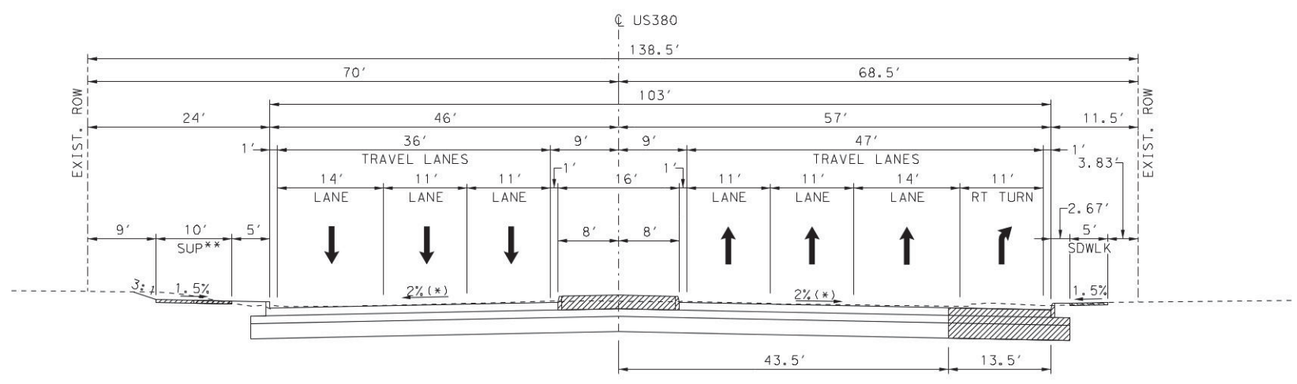
Sheet 3 of 37



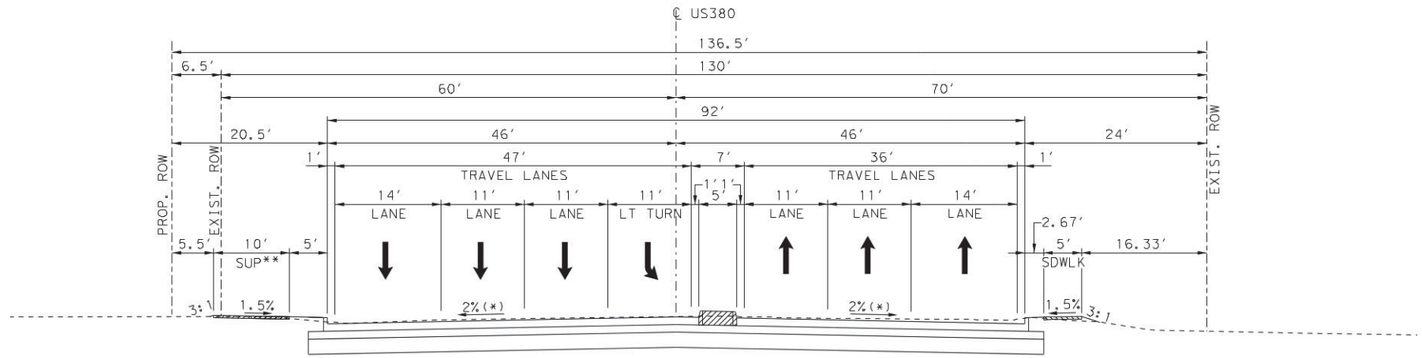
SECTION 1H



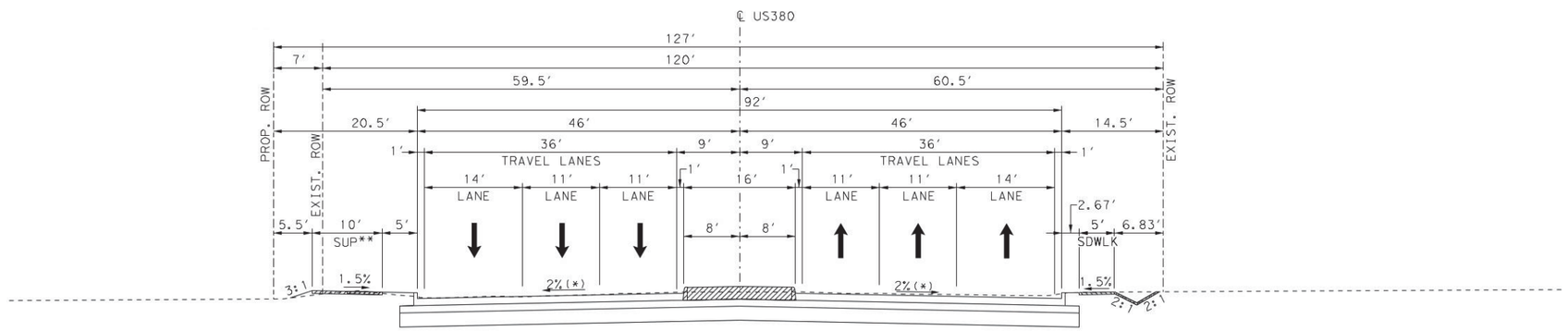
SECTION 1I



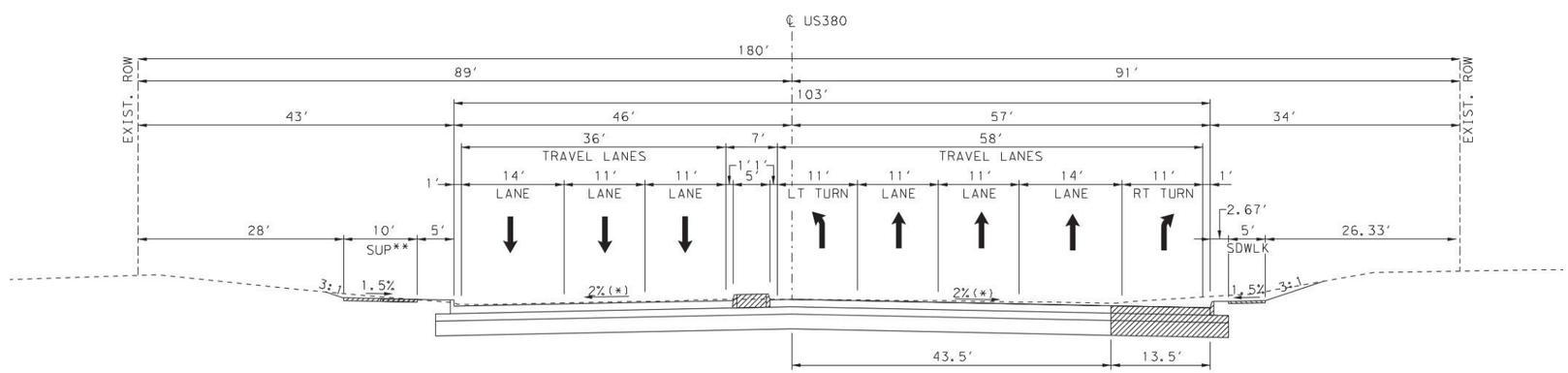
SECTION 1J



SECTION 1K



SECTION 2A



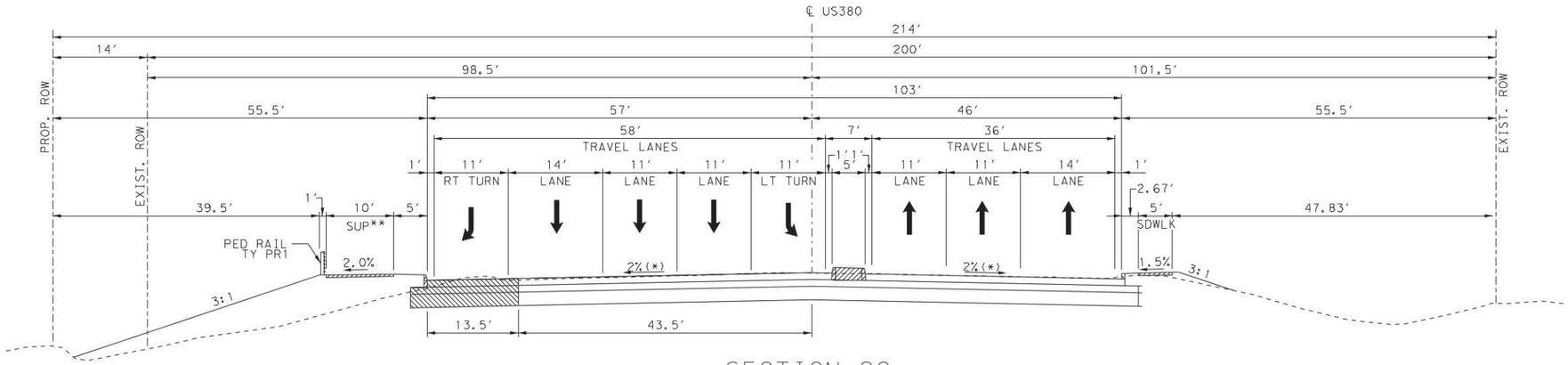
SECTION 2B

US 380

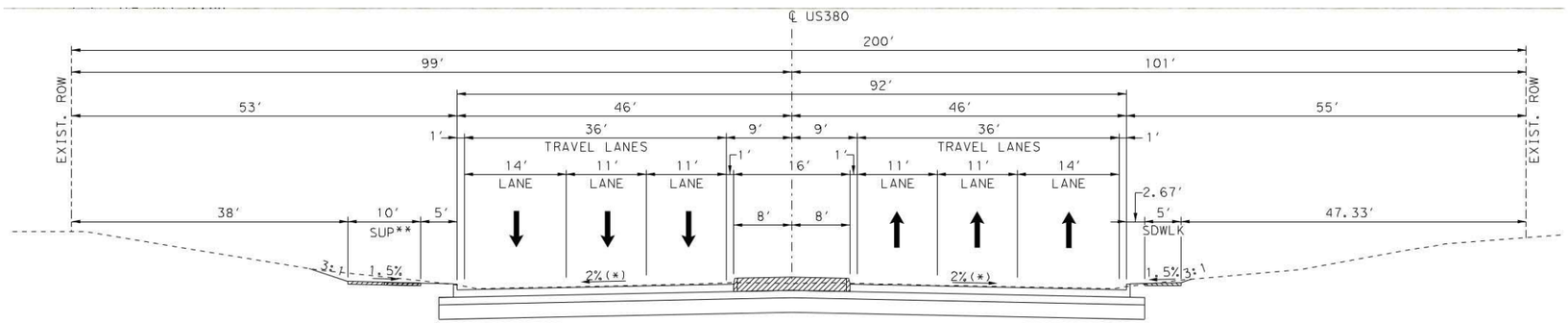
Proposed Typical Sections

CSJ: 0135-10-057, 0135-10-050

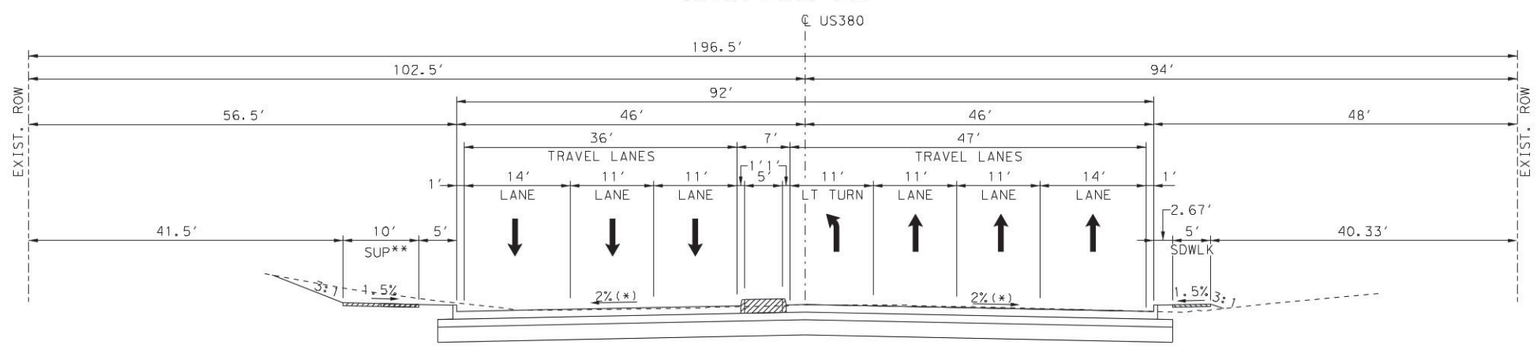
Sheet 5 of 37



SECTION 2C



SECTION 2D



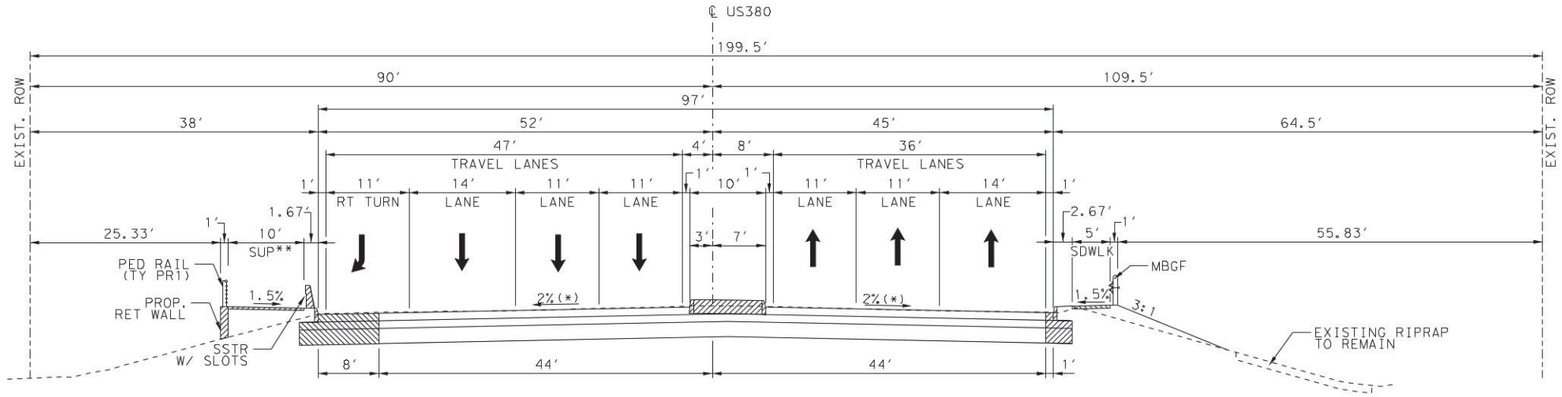
SECTION 2E

US 380

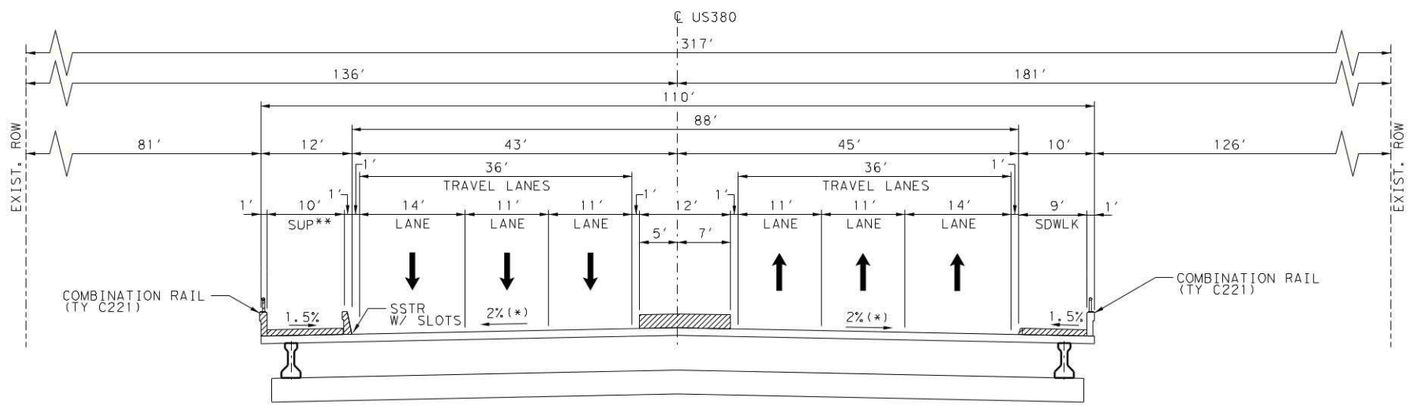
Proposed Typical Sections

CSJ: 0135-10-057, 0135-10-050

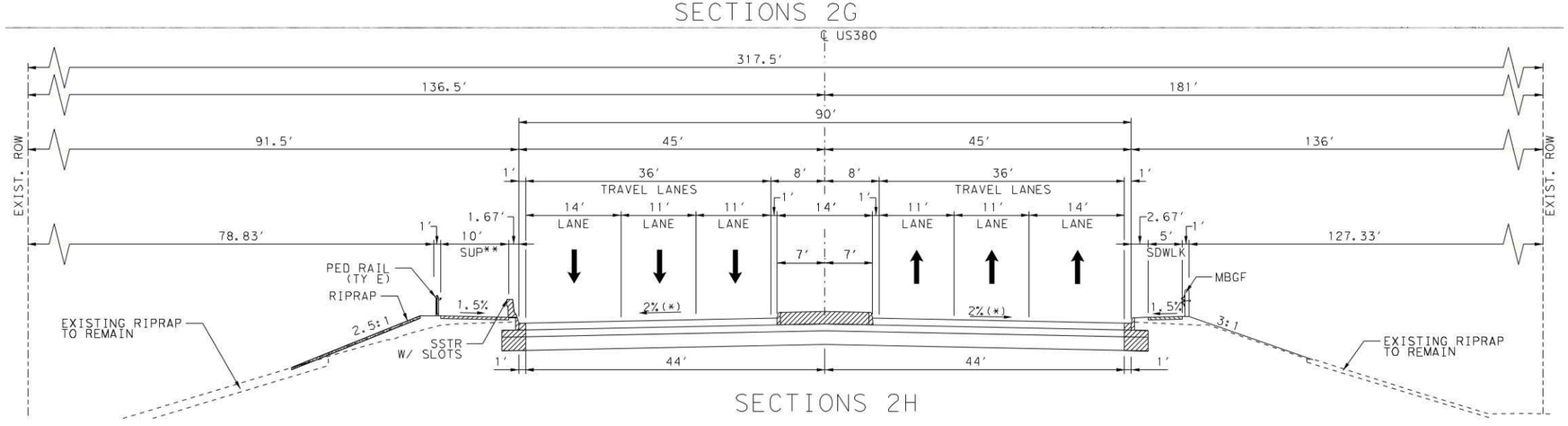
Sheet 6 of 37



SECTION 2F



SECTIONS 2G



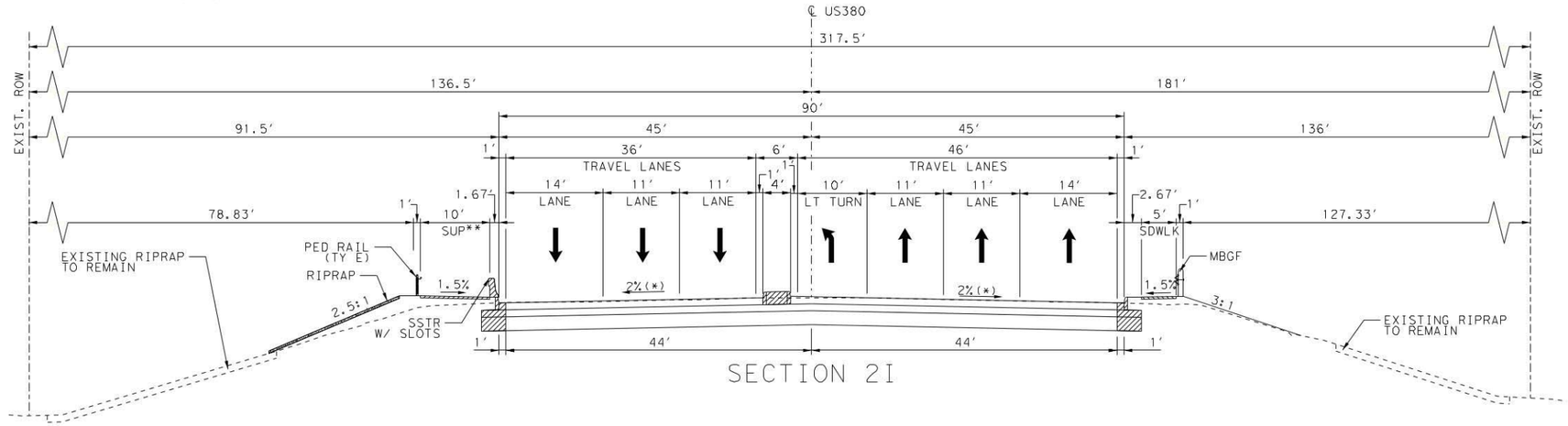
SECTIONS 2H

US 380

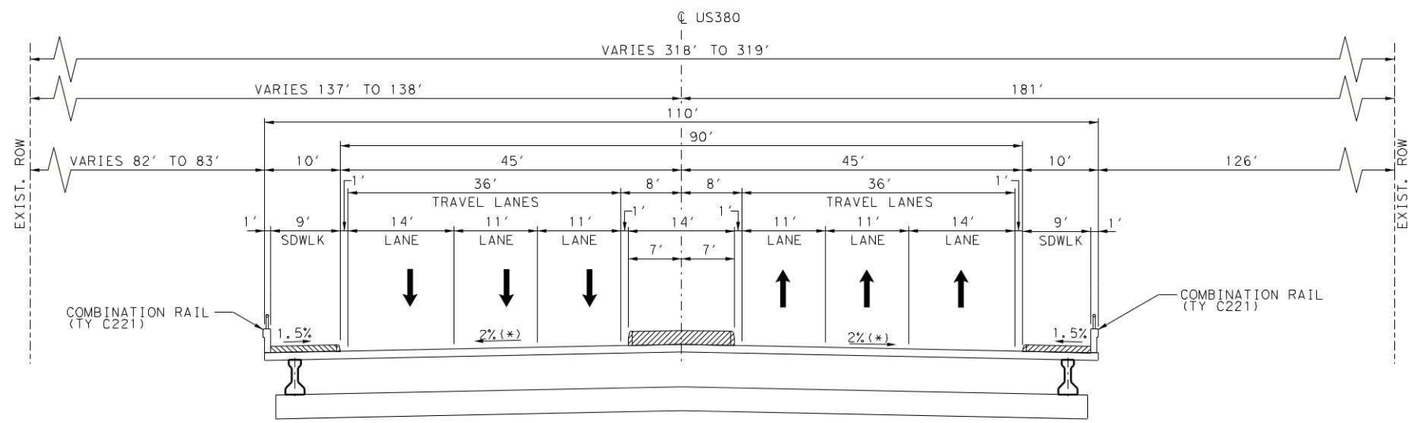
Proposed Typical Sections

CSJ: 0135-10-057, 0135-10-050

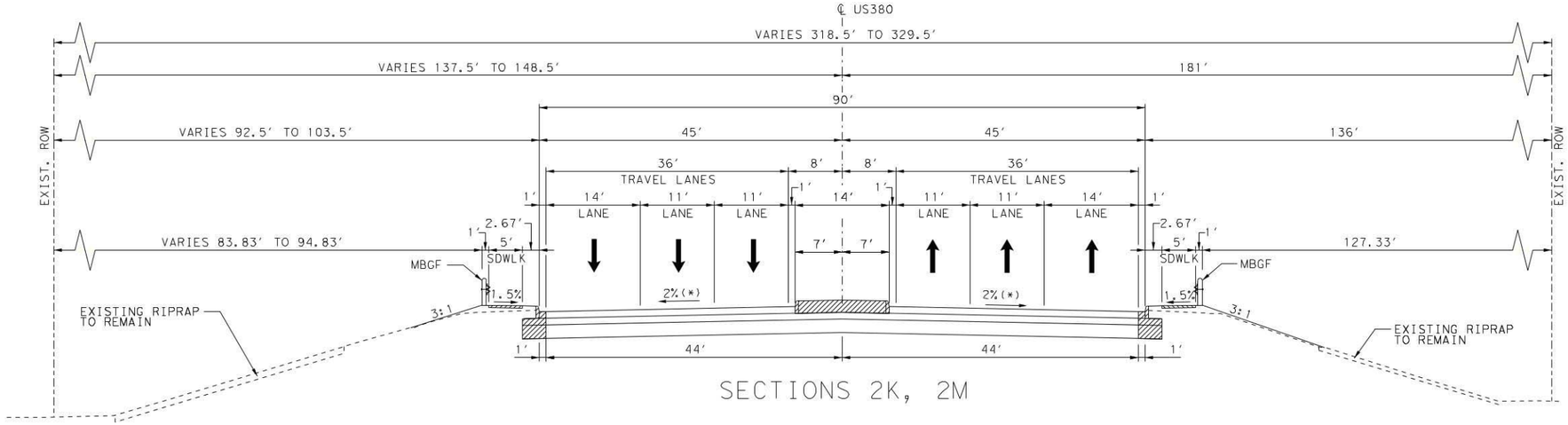
Sheet 7 of 37



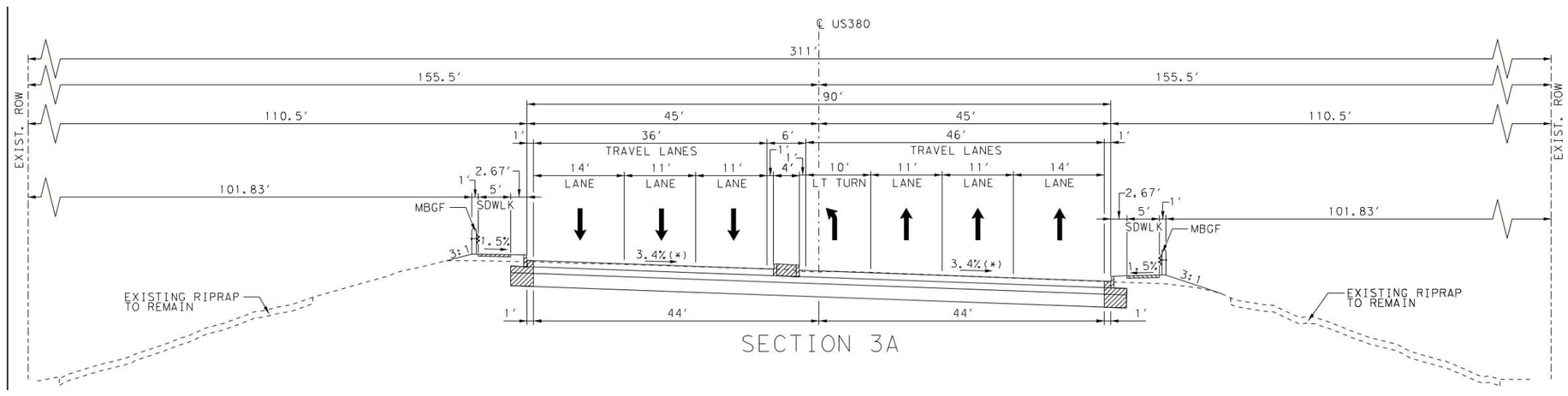
SECTION 2I



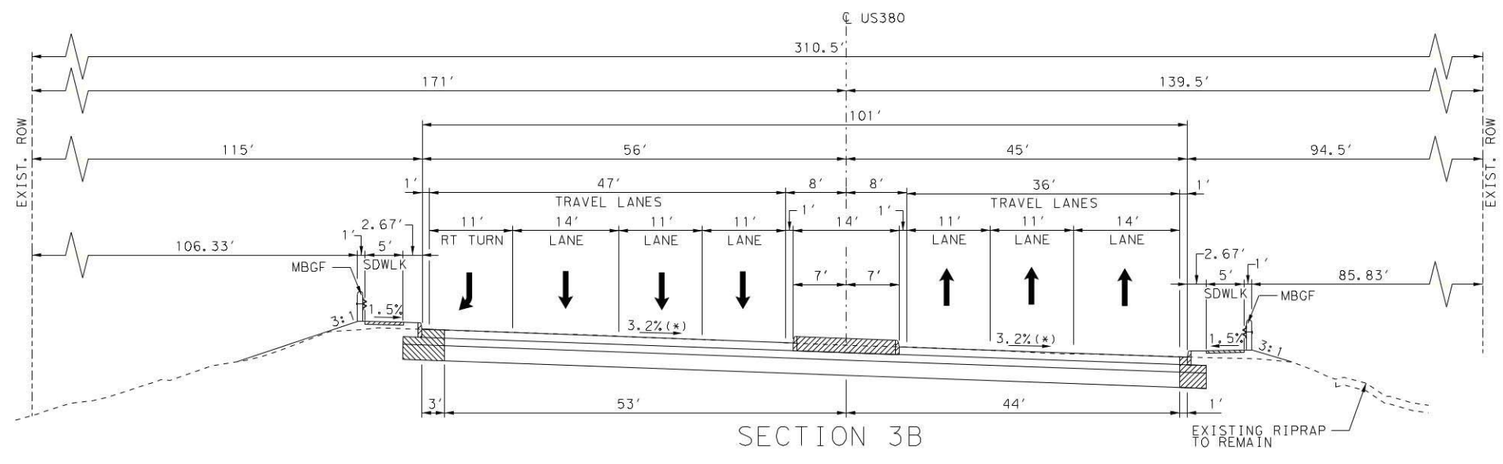
SECTIONS 2J, 2L



SECTIONS 2K, 2M



SECTION 3A



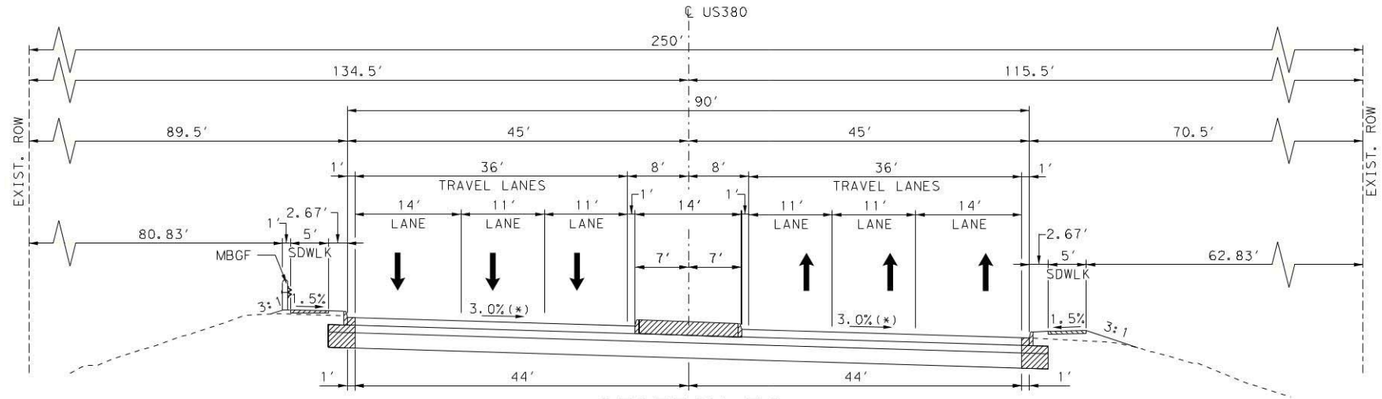
SECTION 3B

US 380

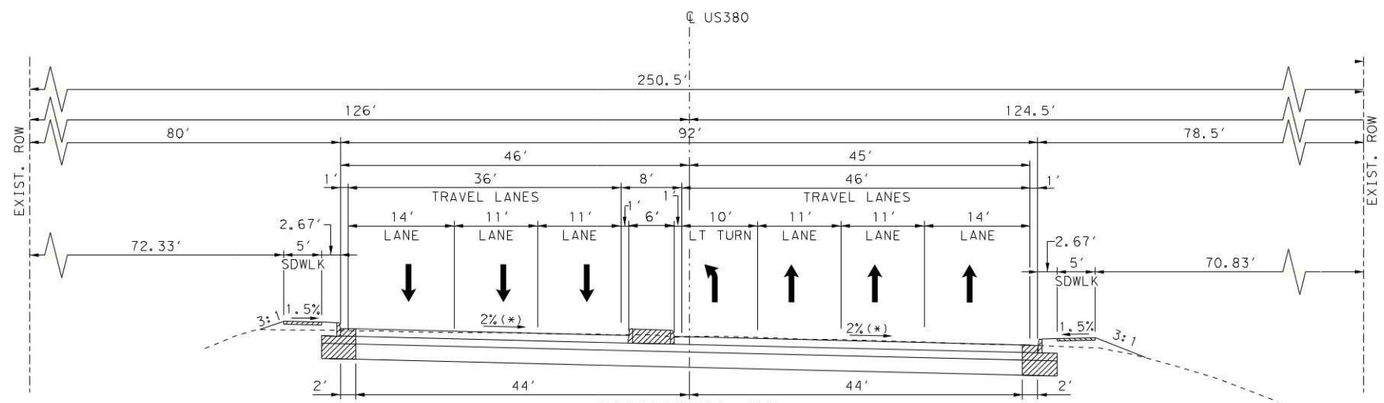
Proposed Typical Sections

CSJ: 0135-10-057, 0135-10-050

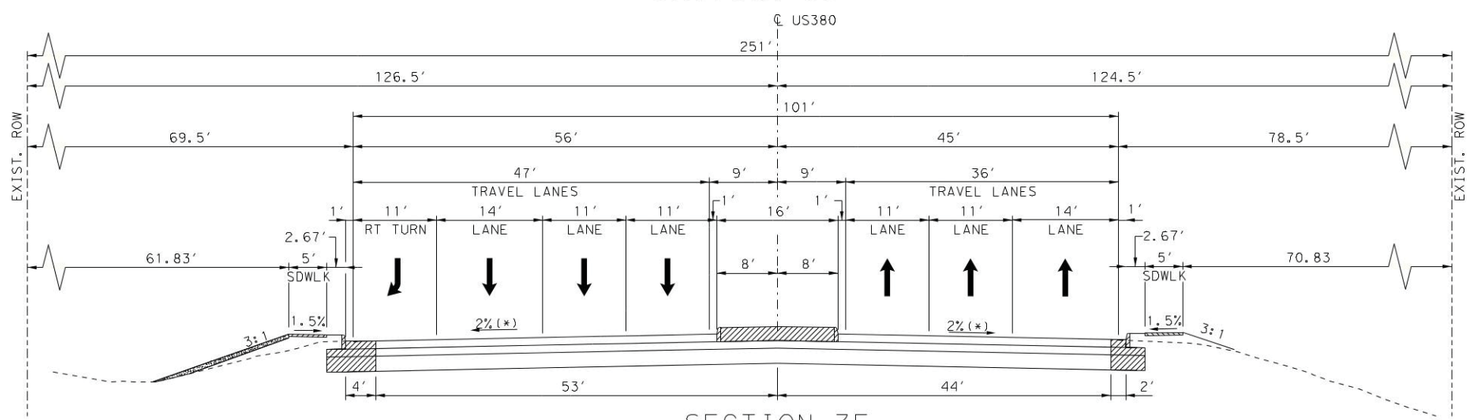
Sheet 9 of 37



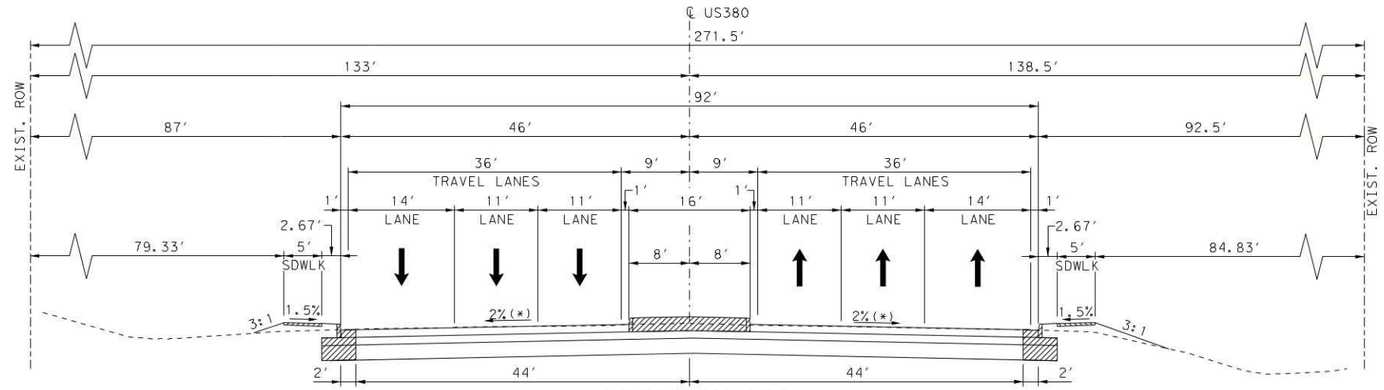
SECTION 3C



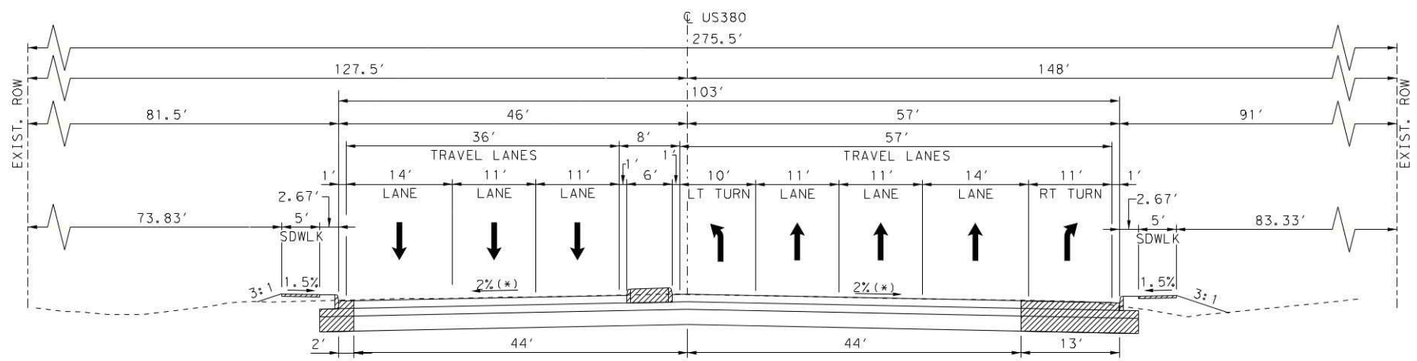
SECTION 3D



SECTION 3E



SECTION 3F



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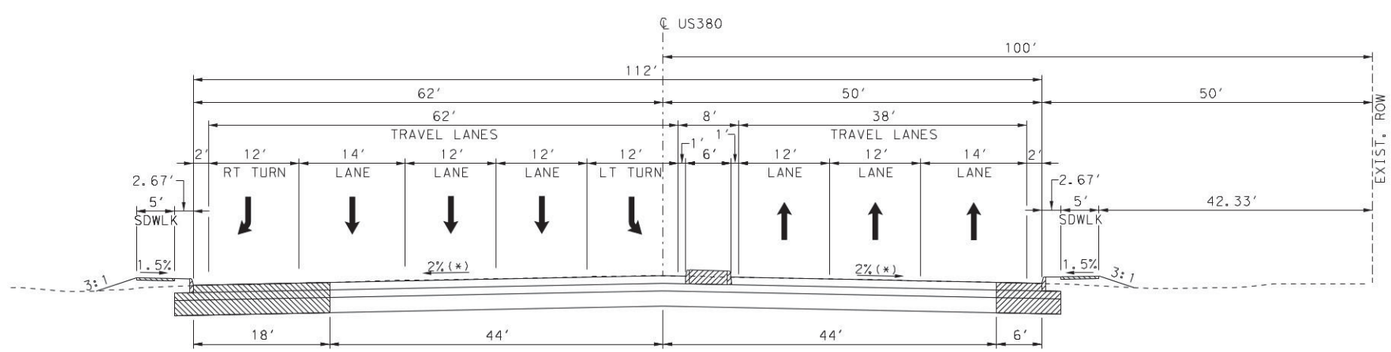


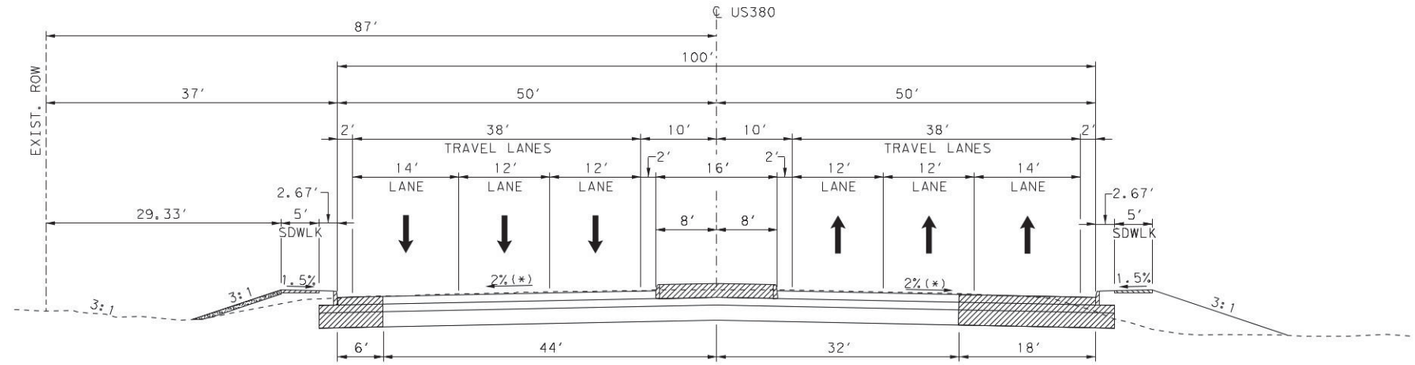
SECTION 3H

US 380

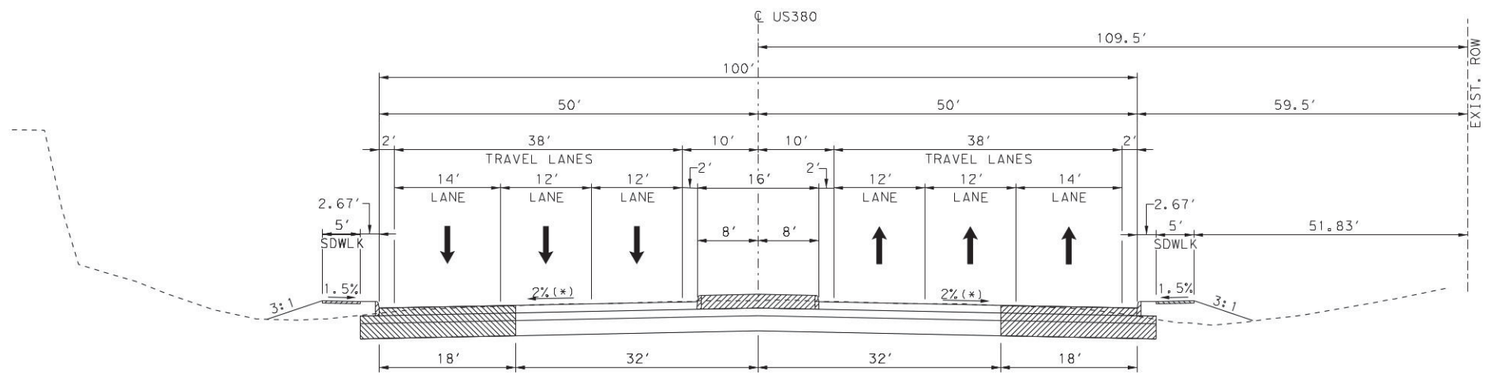
Proposed Typical Sections

CSJ: 0135-10-057, 0135-10-050

Sheet 11 of 37



SECTION 3I



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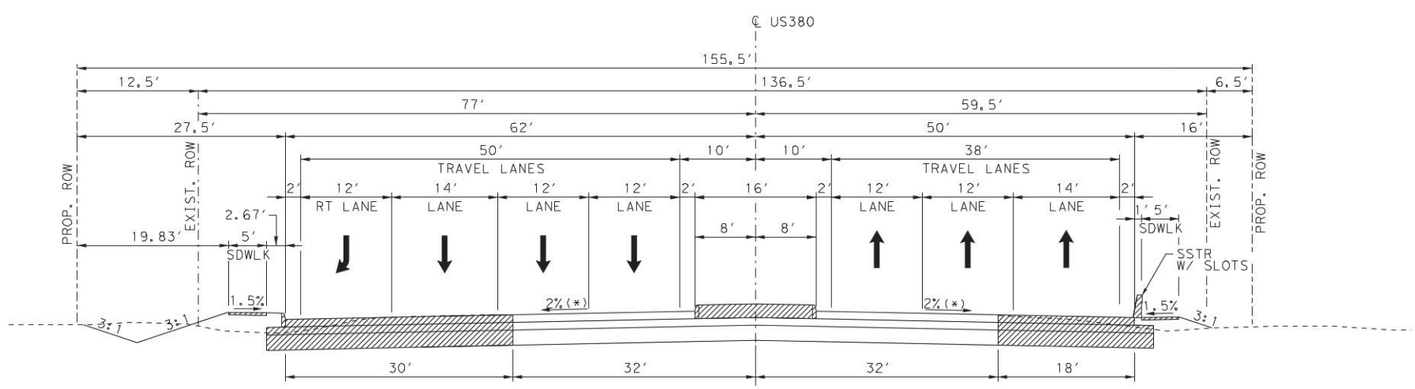
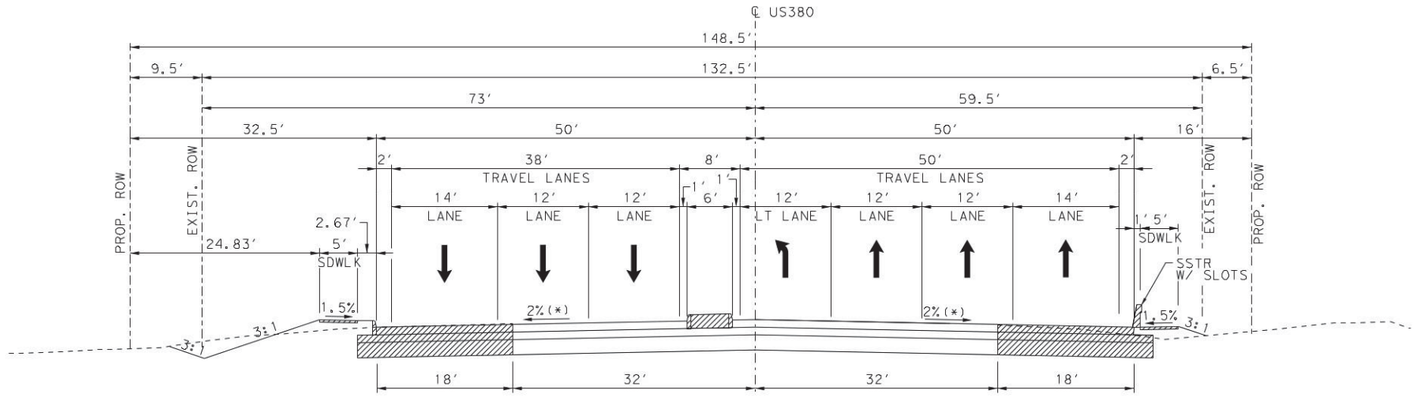


SECTION 3K

US 380

Proposed Typical Sections

CSJ: 0135-10-057, 0135-10-050



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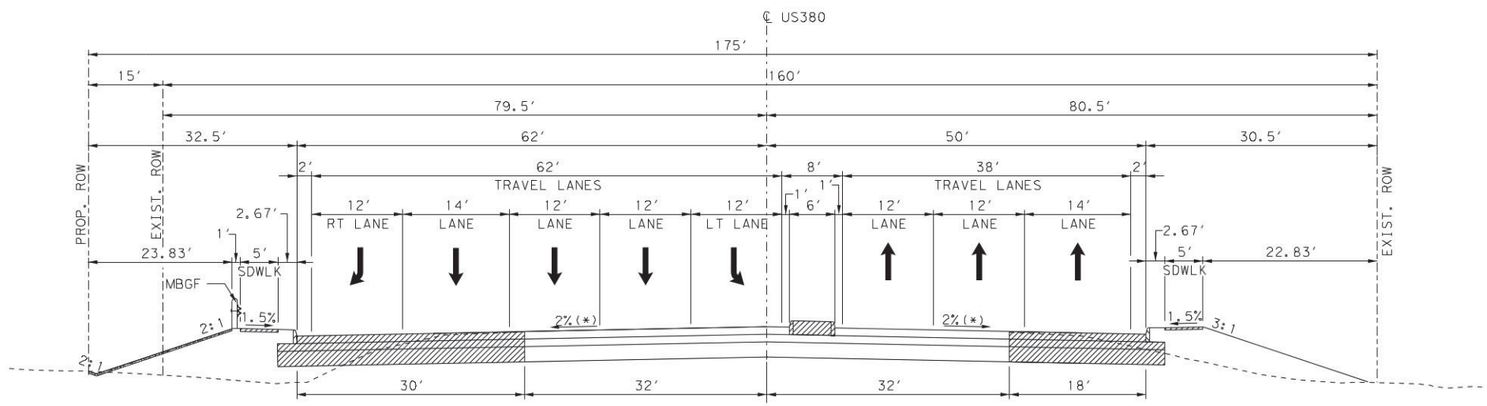

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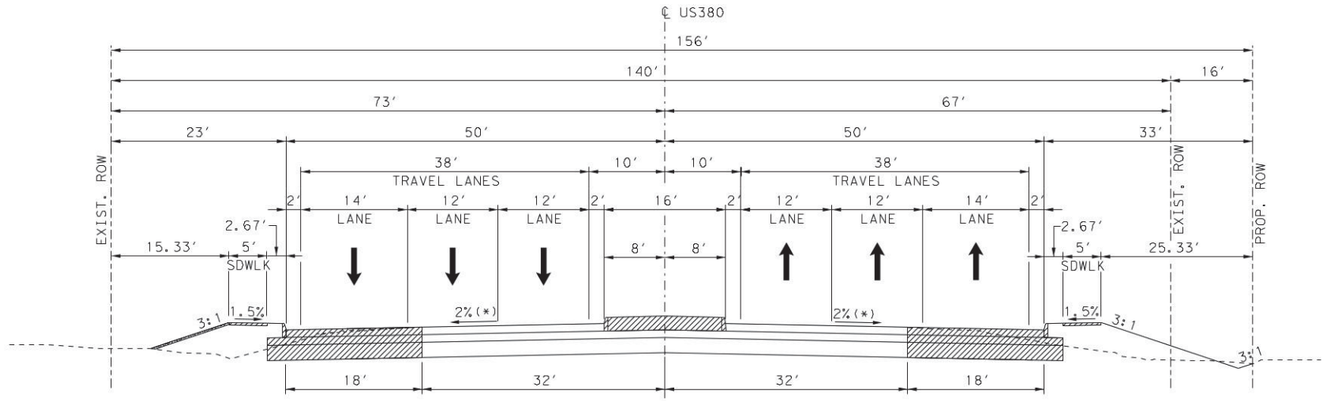

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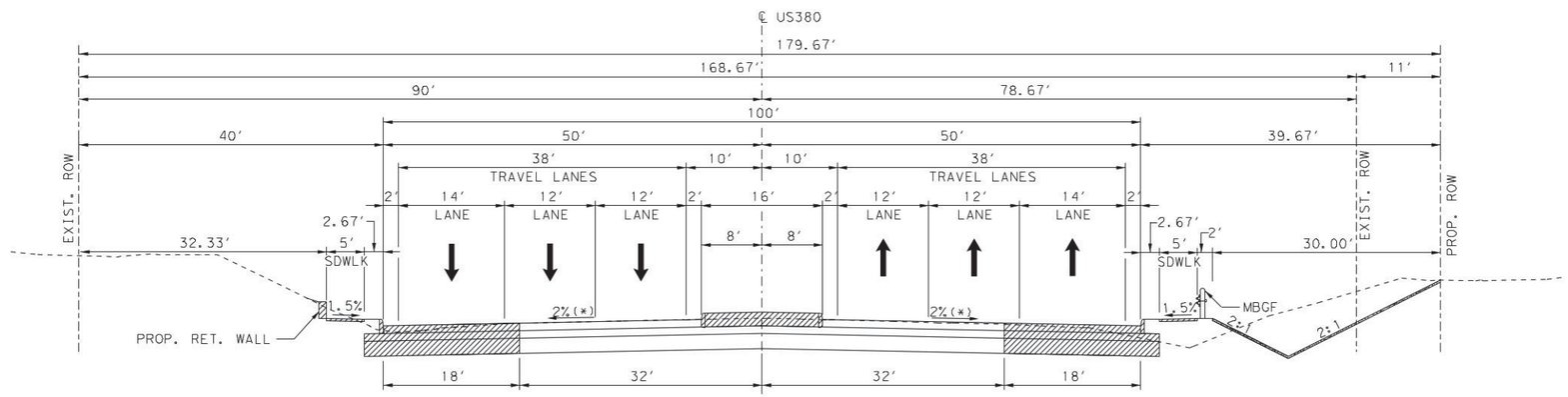

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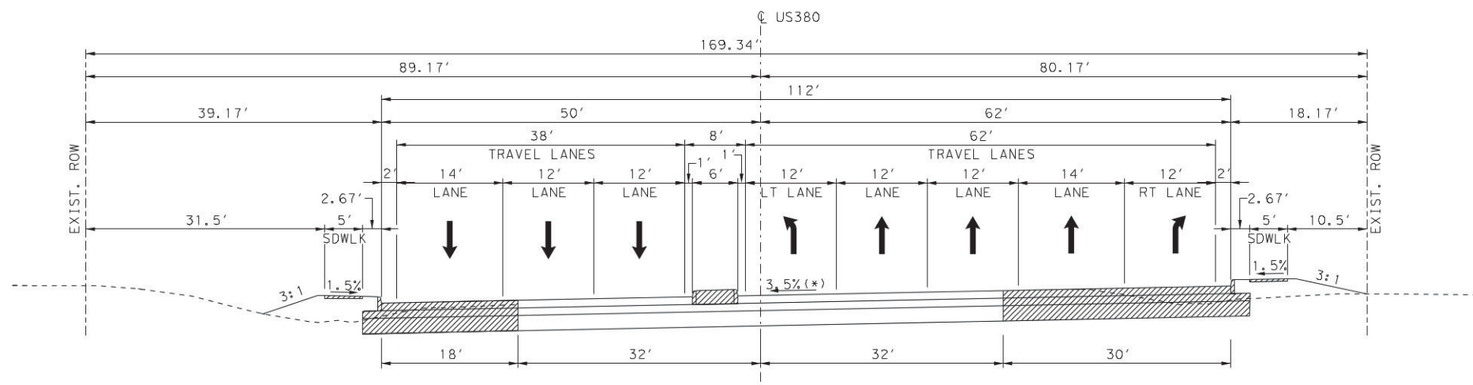

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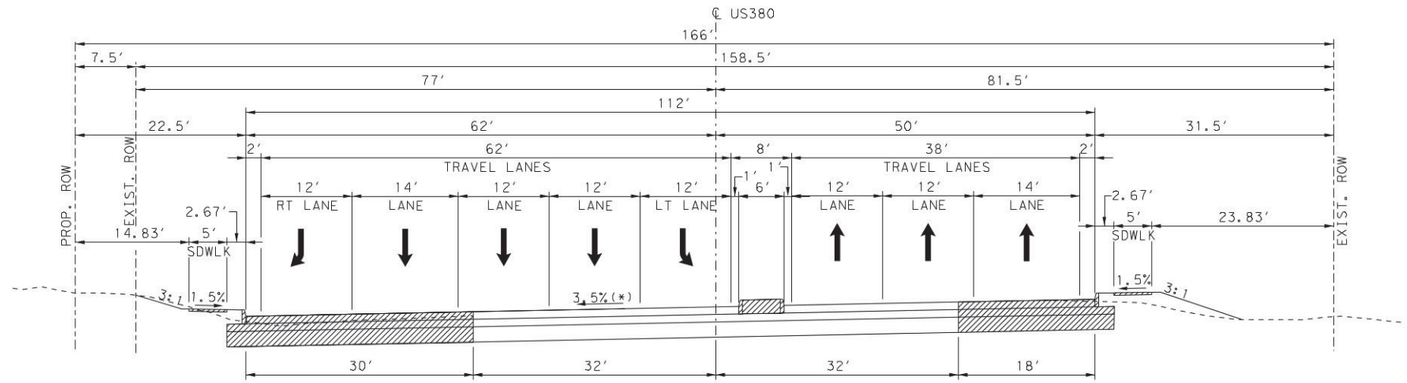

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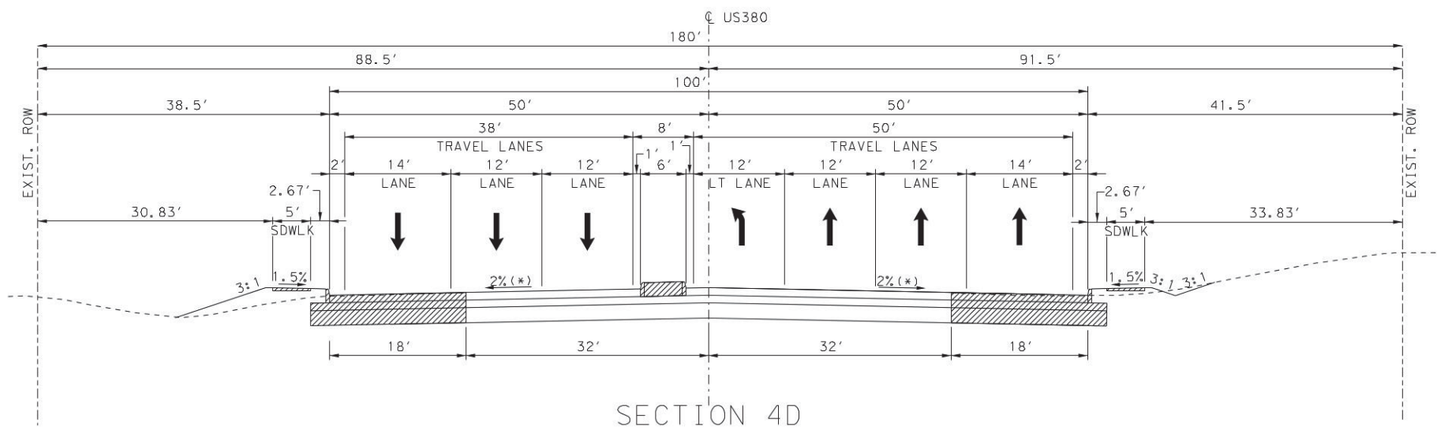

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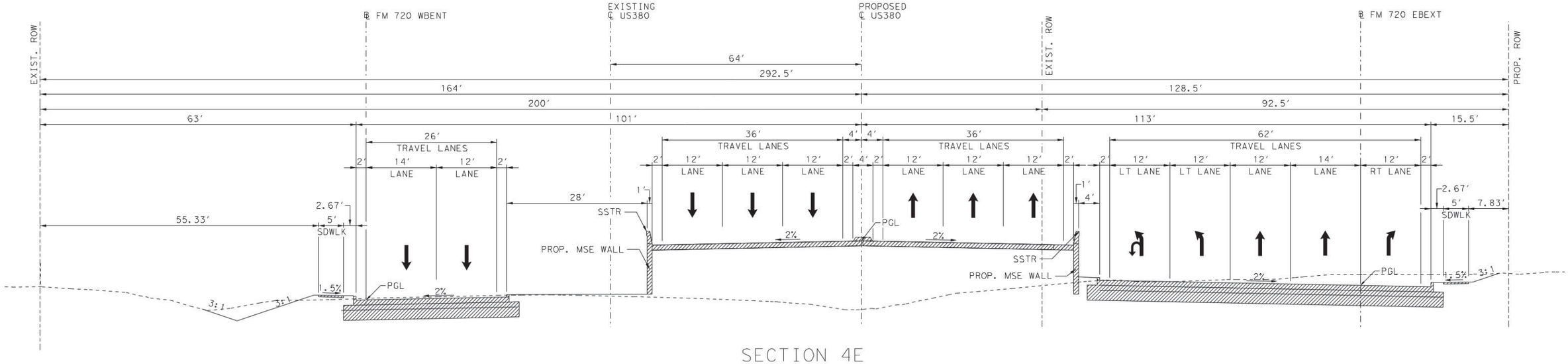

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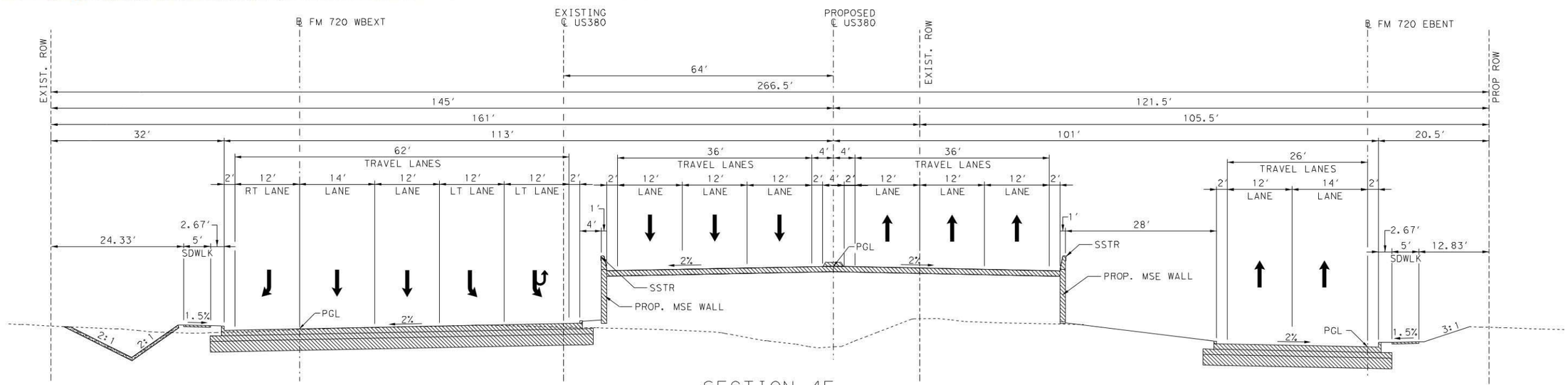

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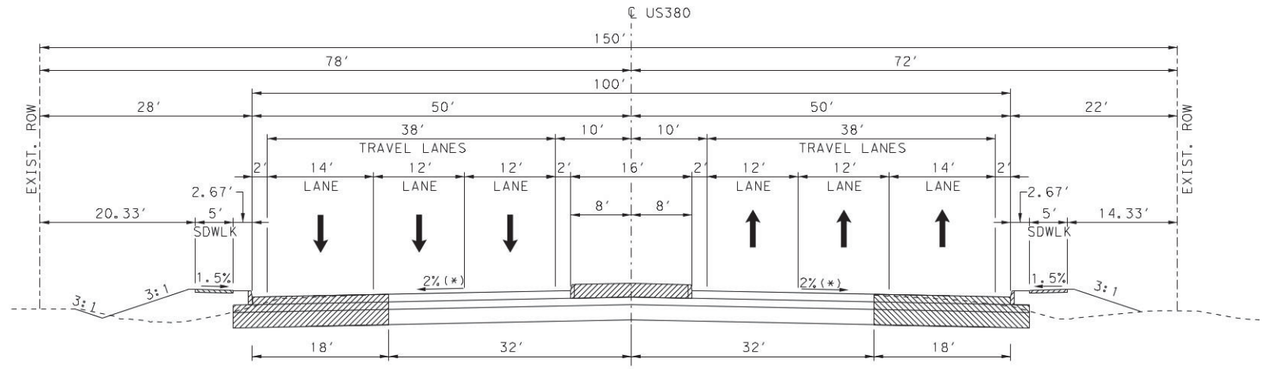

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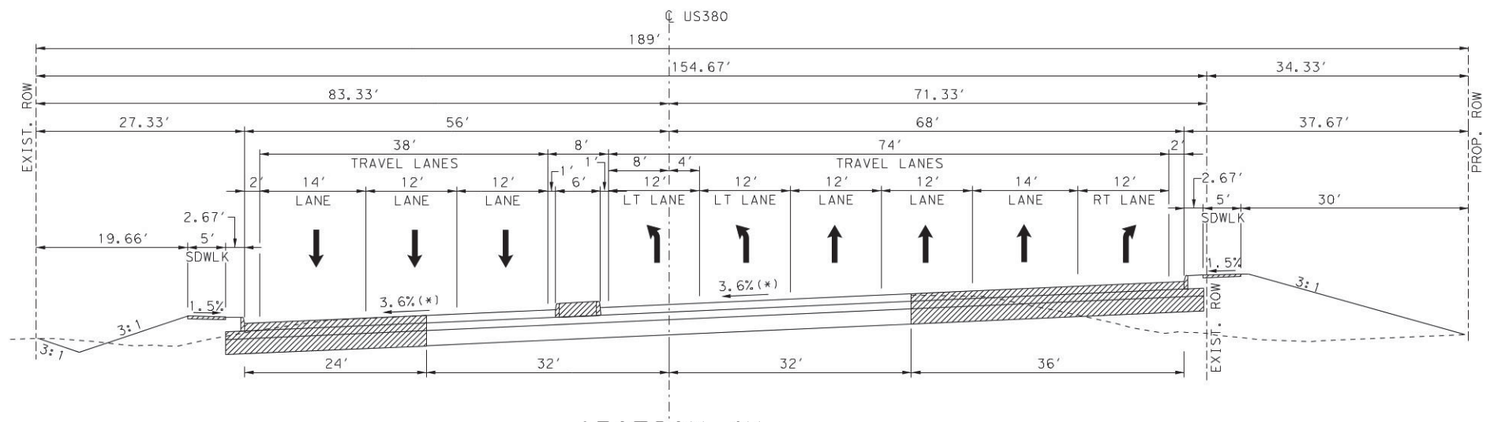

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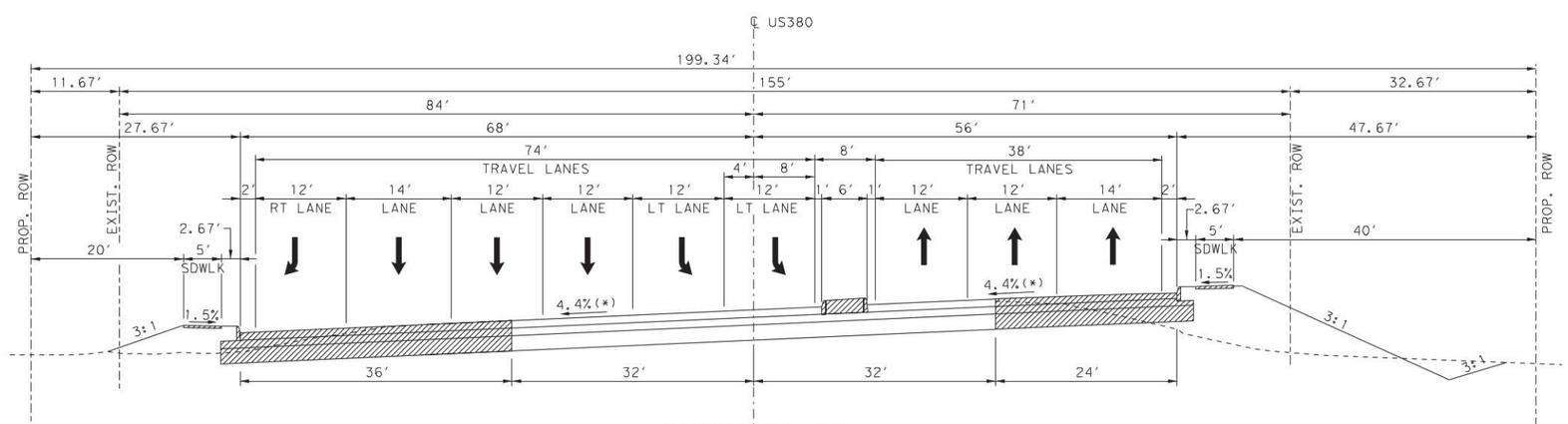


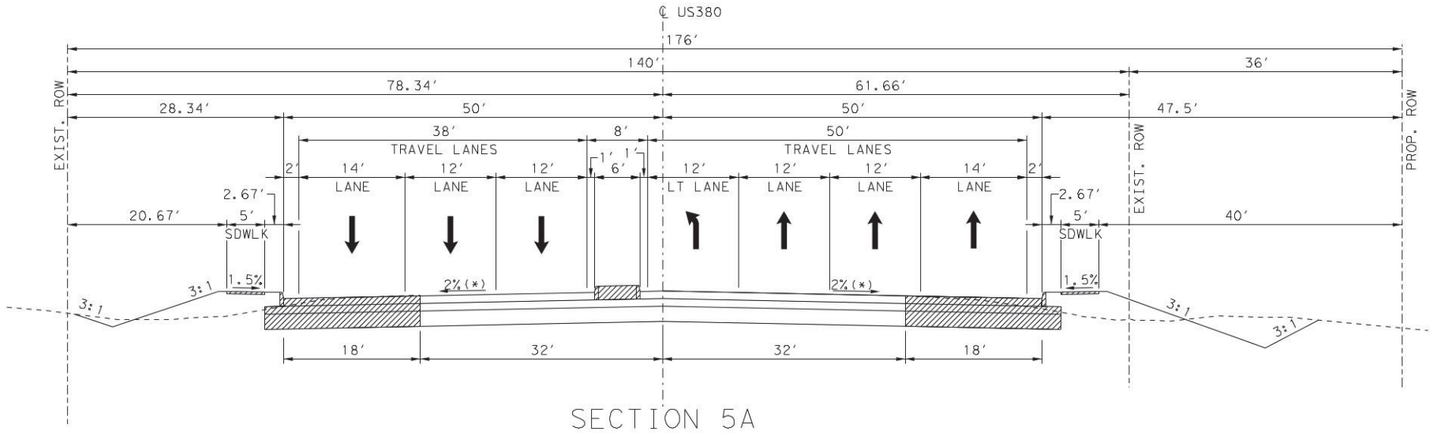
SECTION 4I

US 380

Proposed Typical Sections

CSJ: 0135-10-057, 0135-10-050

Sheet 17 of 37



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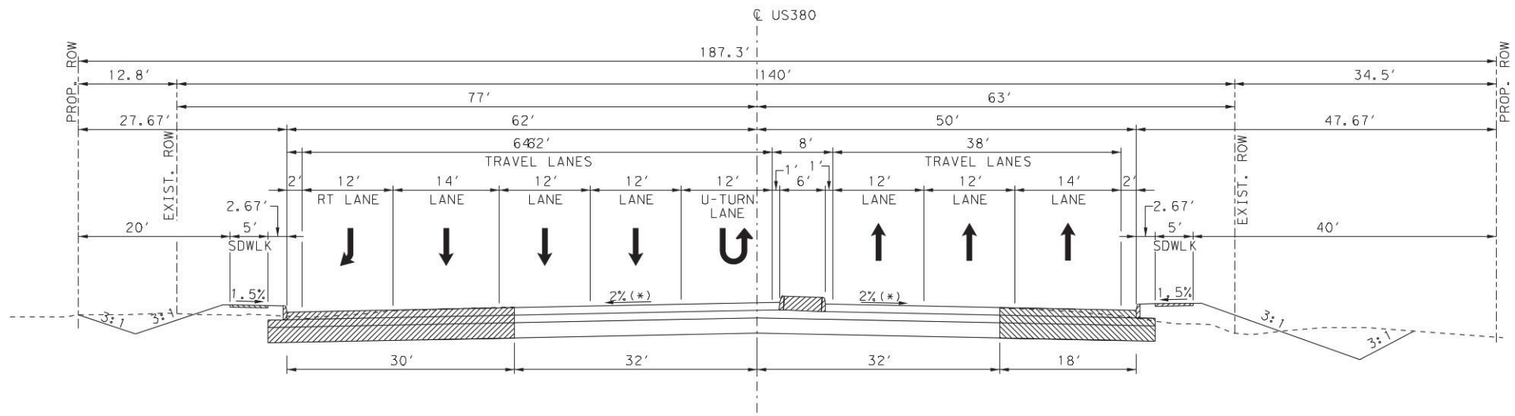

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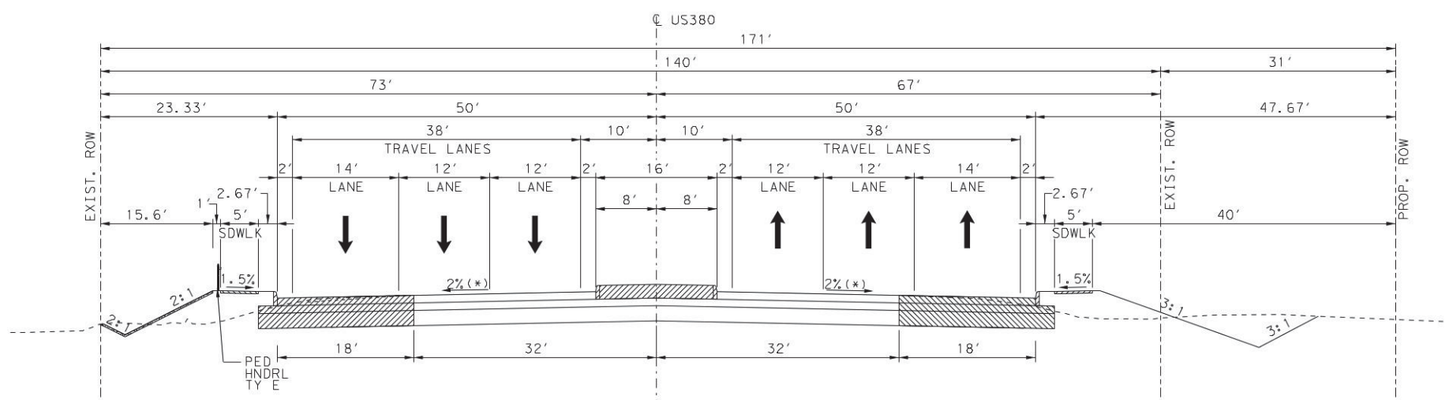


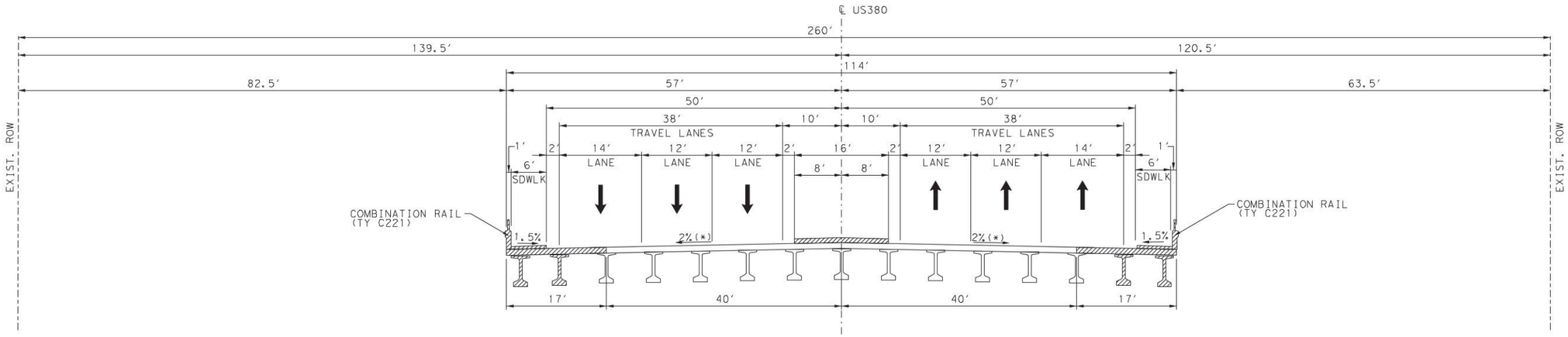
SECTION 5C

US 380

Proposed Typical Sections

CSJ: 0135-10-057, 0135-10-050

Sheet 18 of 37



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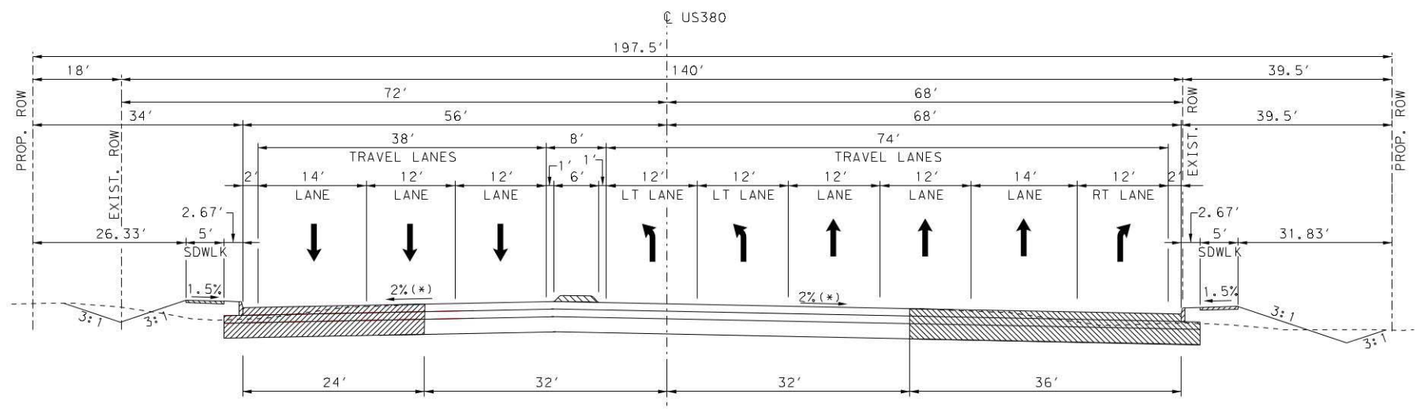

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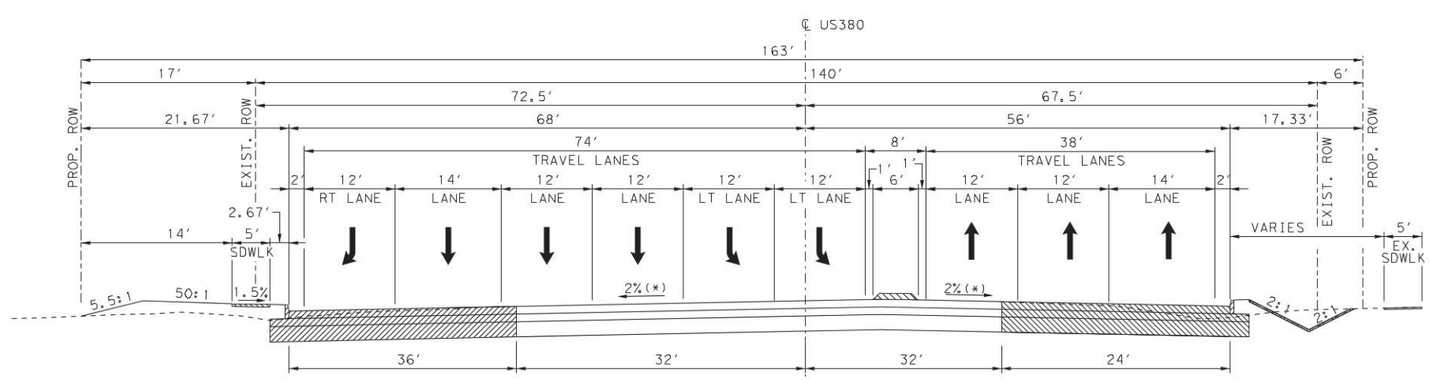

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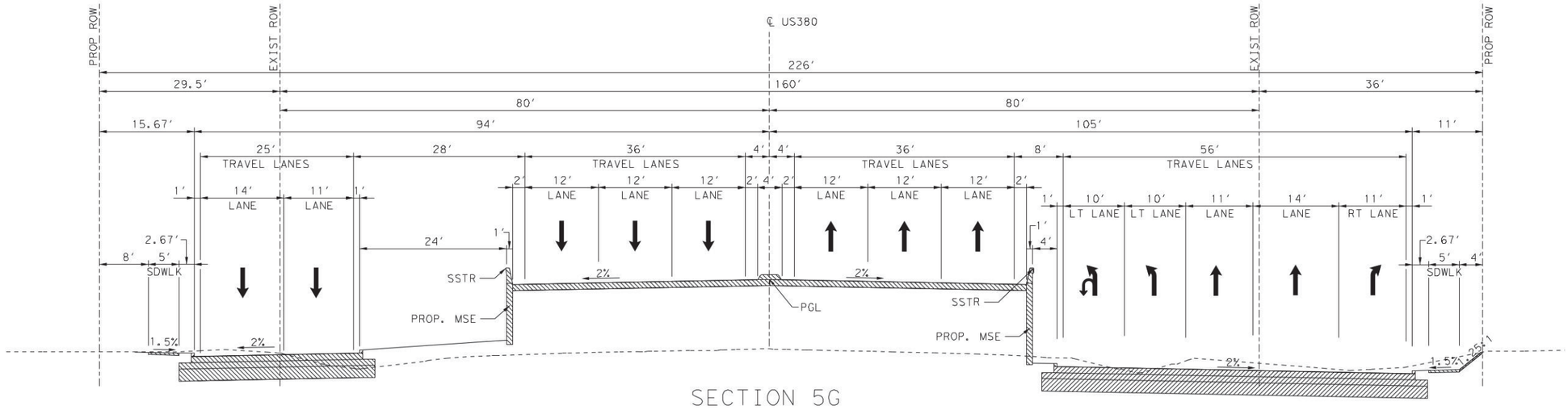

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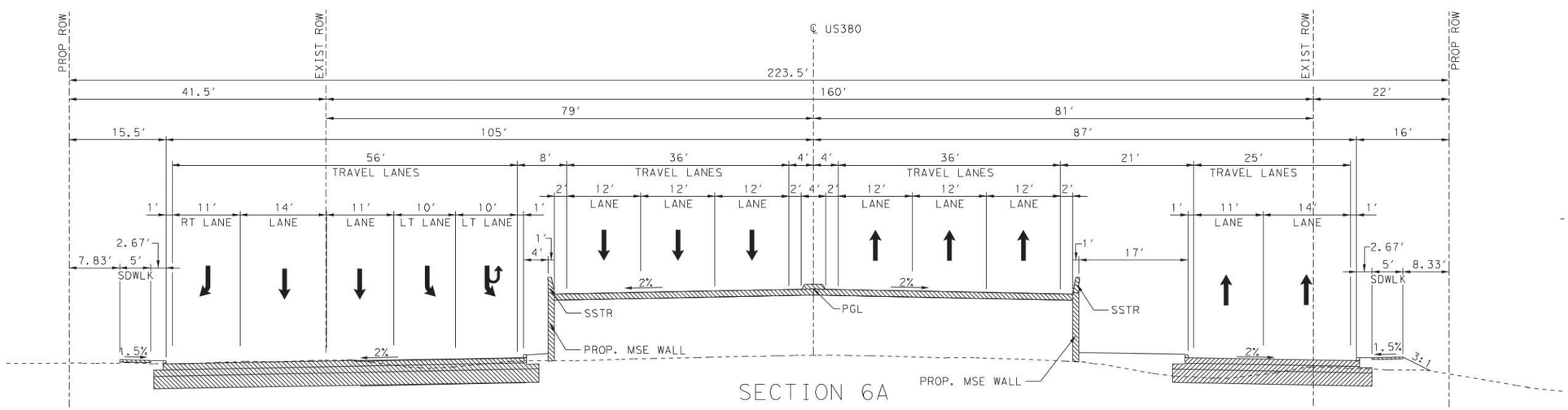
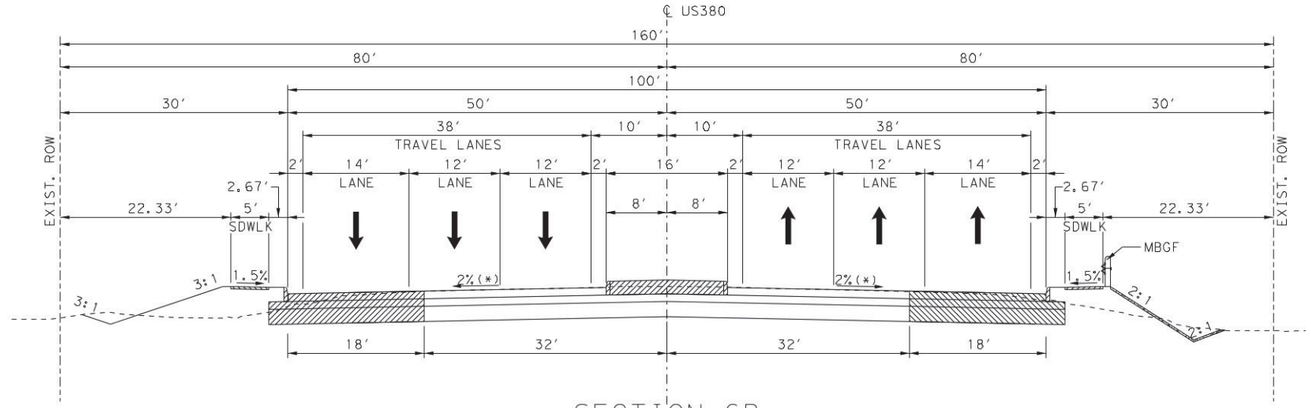


SECTION 6A



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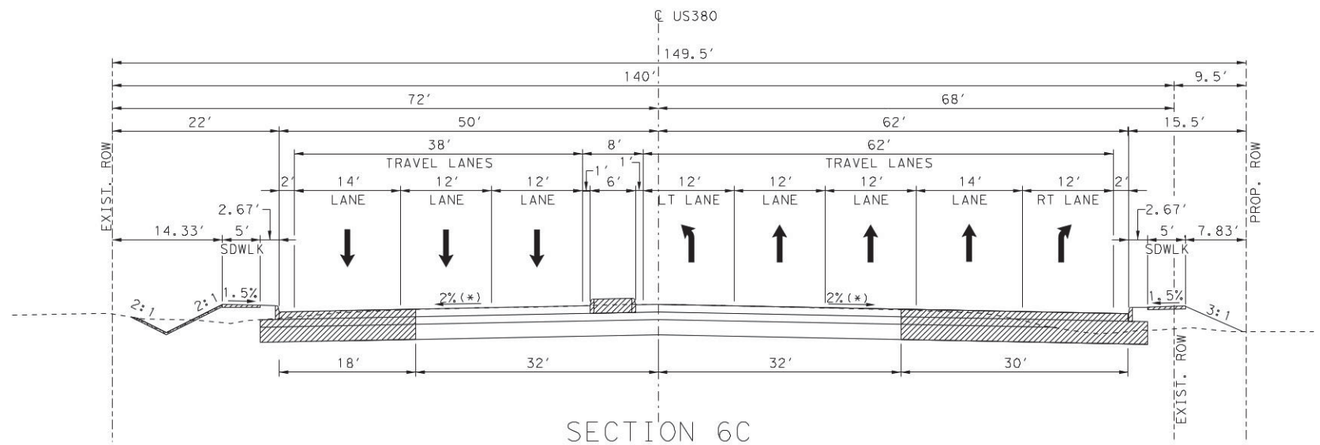

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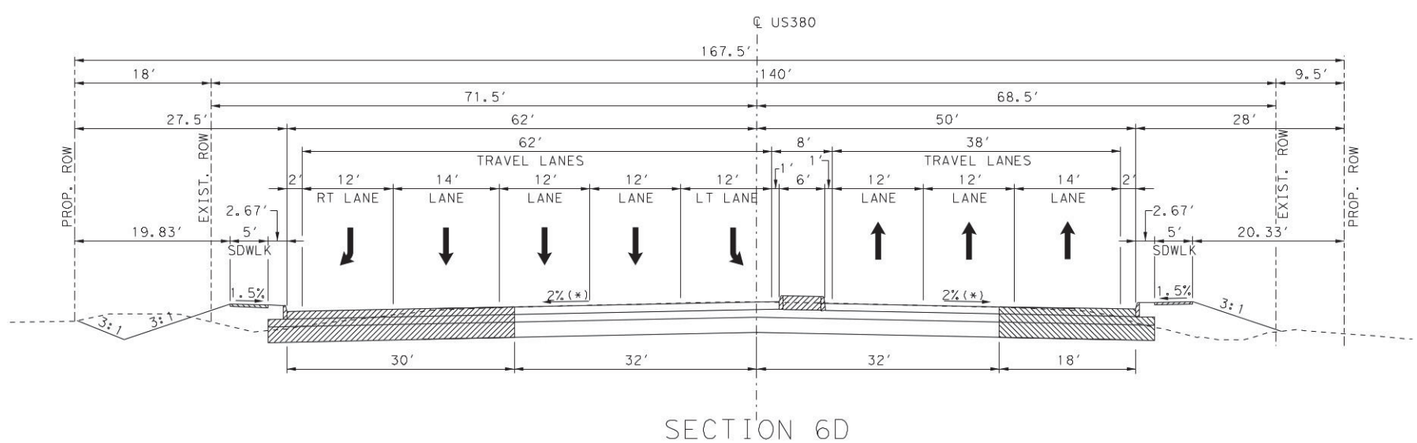

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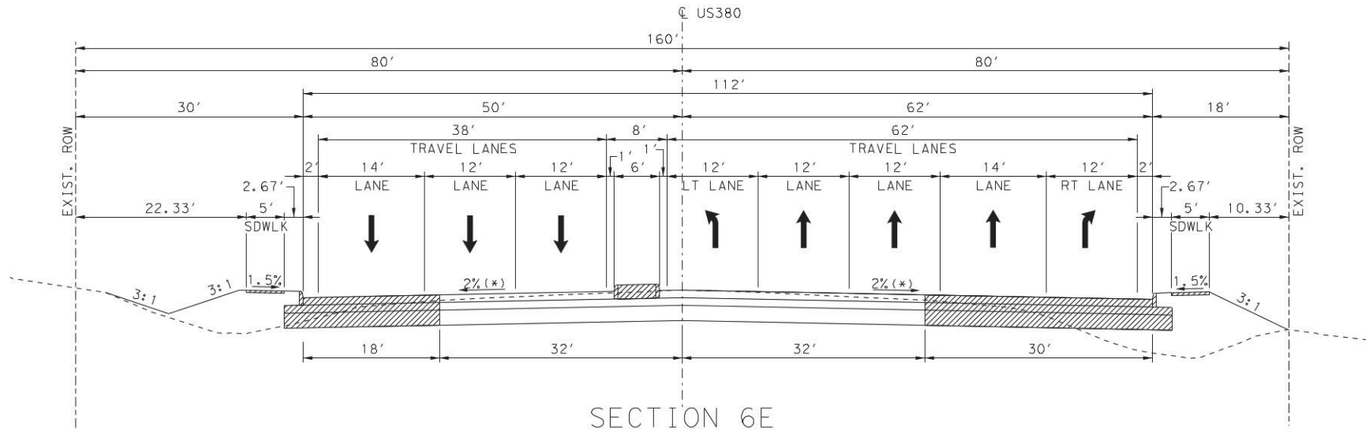
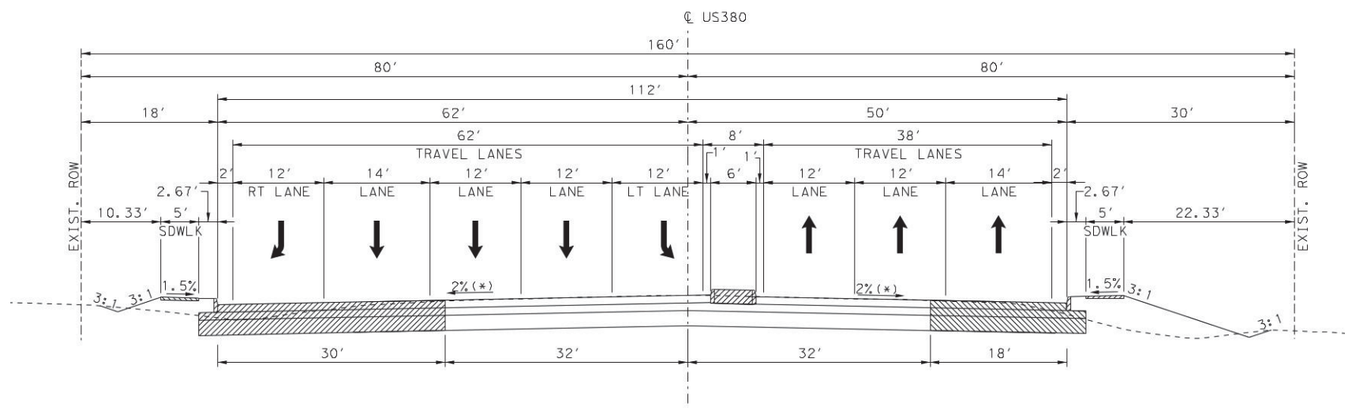
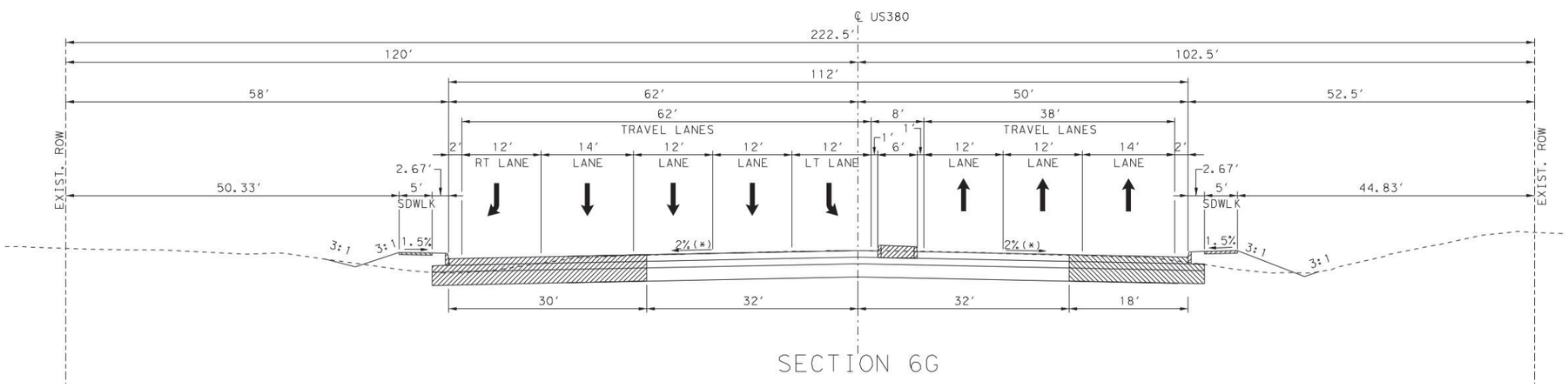




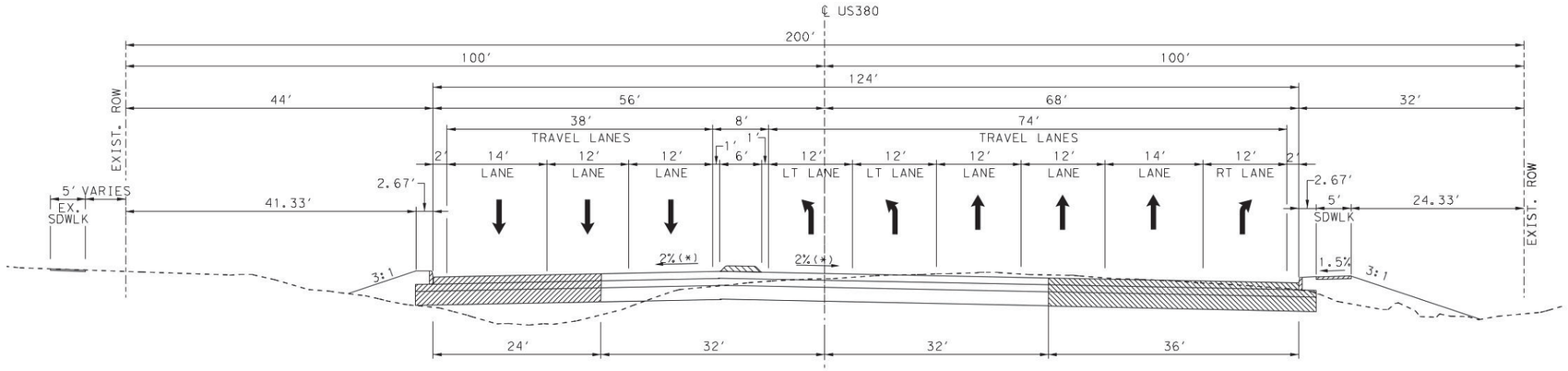


US 380

Proposed Typical Sections

CSJ: 0135-10-057, 0135-10-050

Sheet 22 of 37



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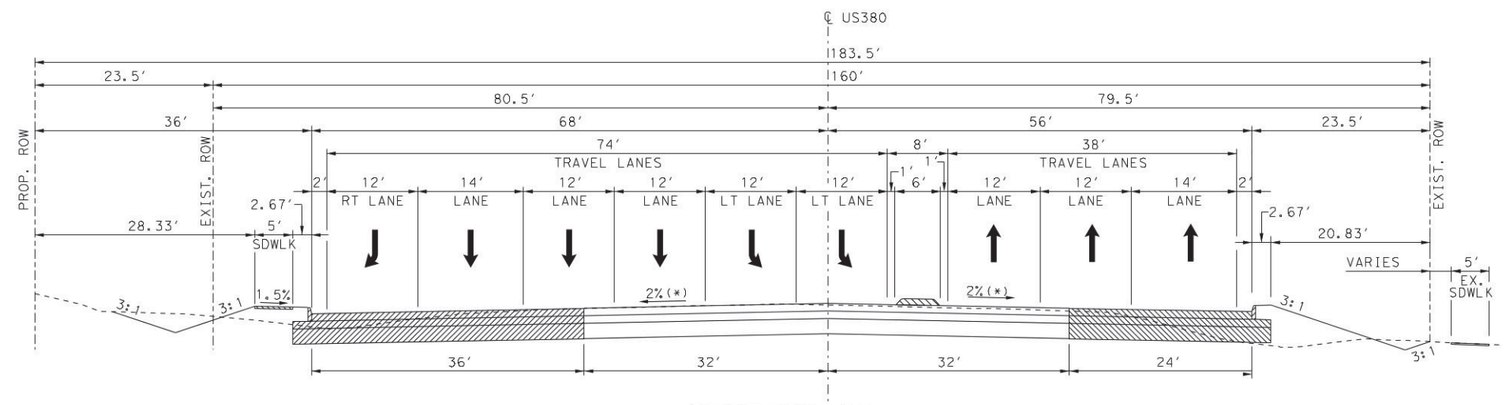
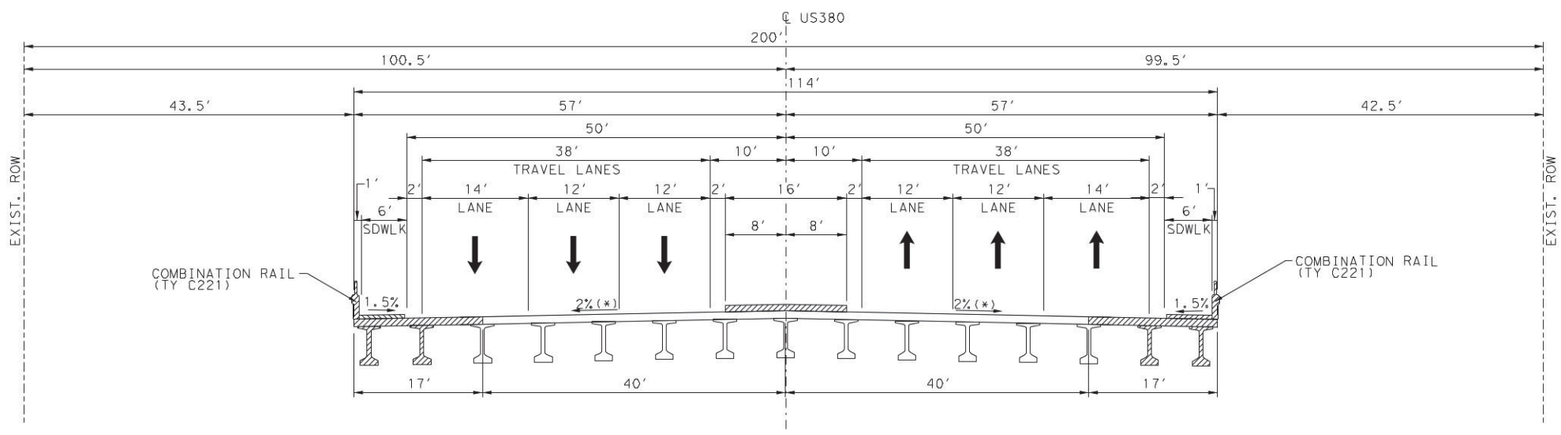
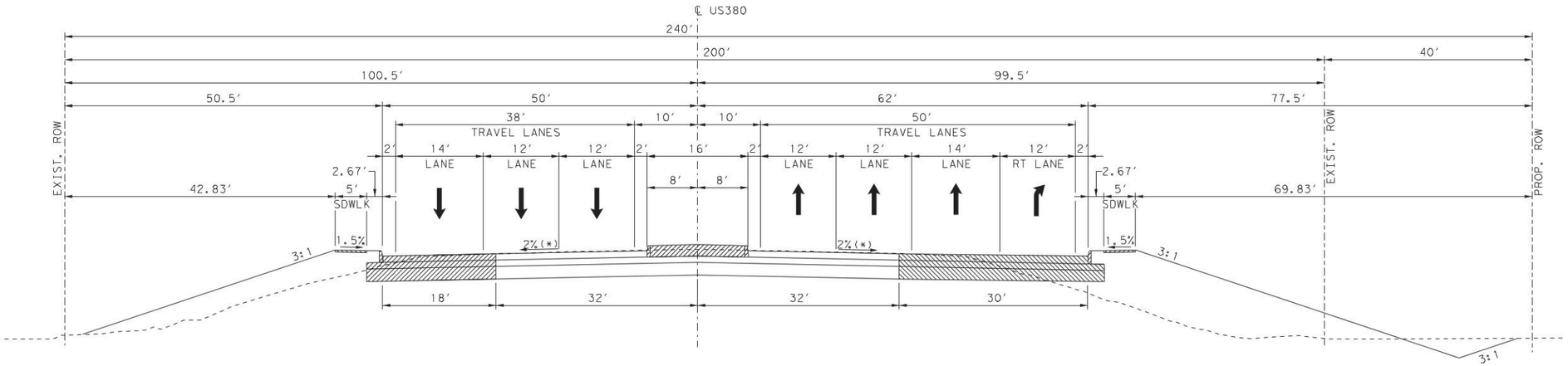


SECTION 6I



SECTION 7A



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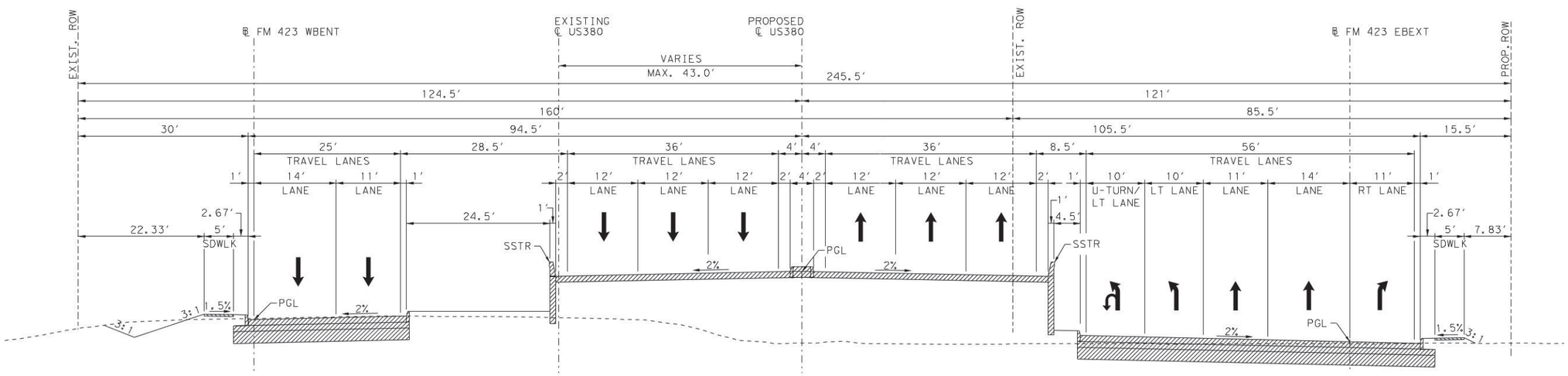

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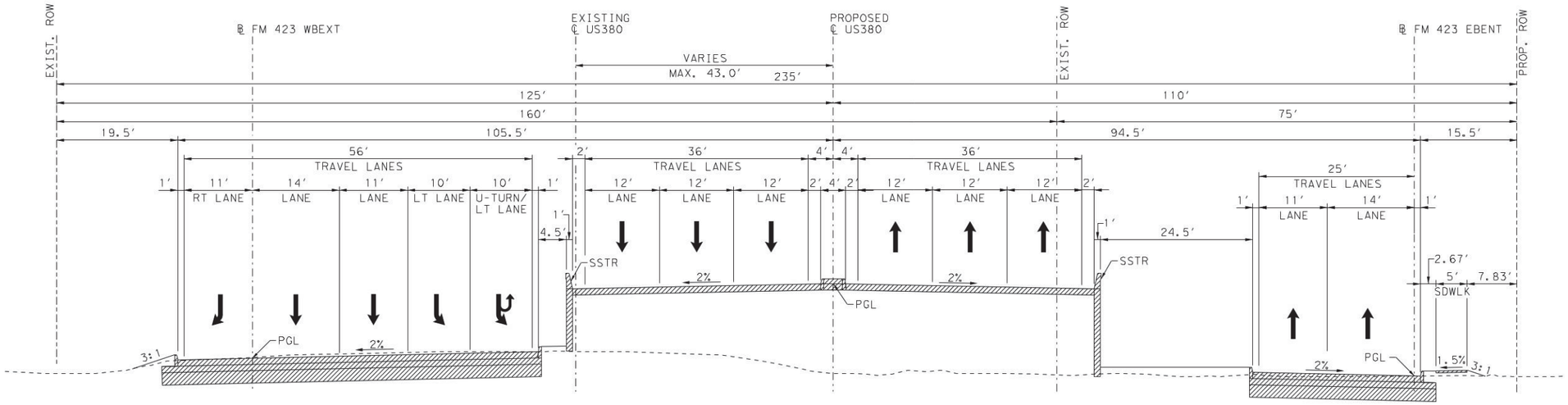

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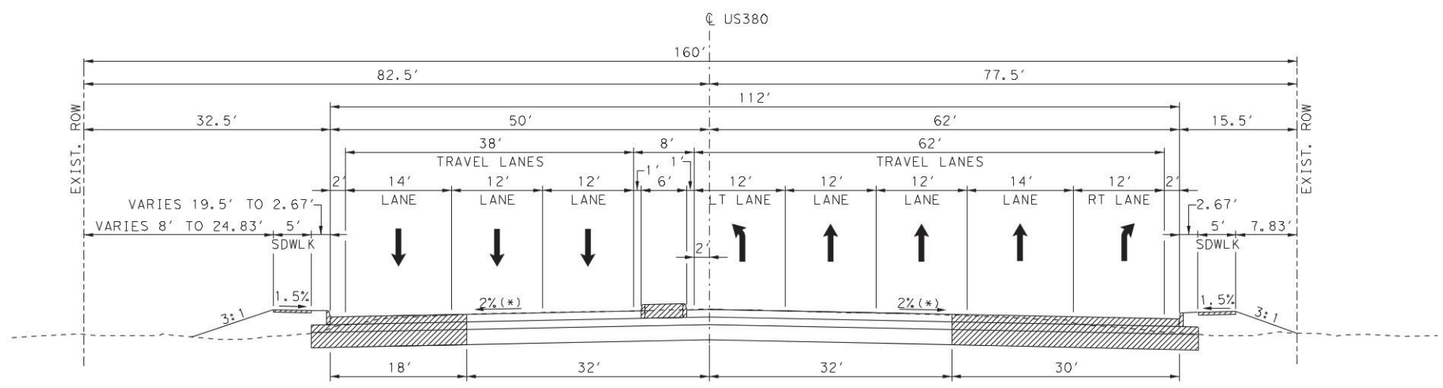

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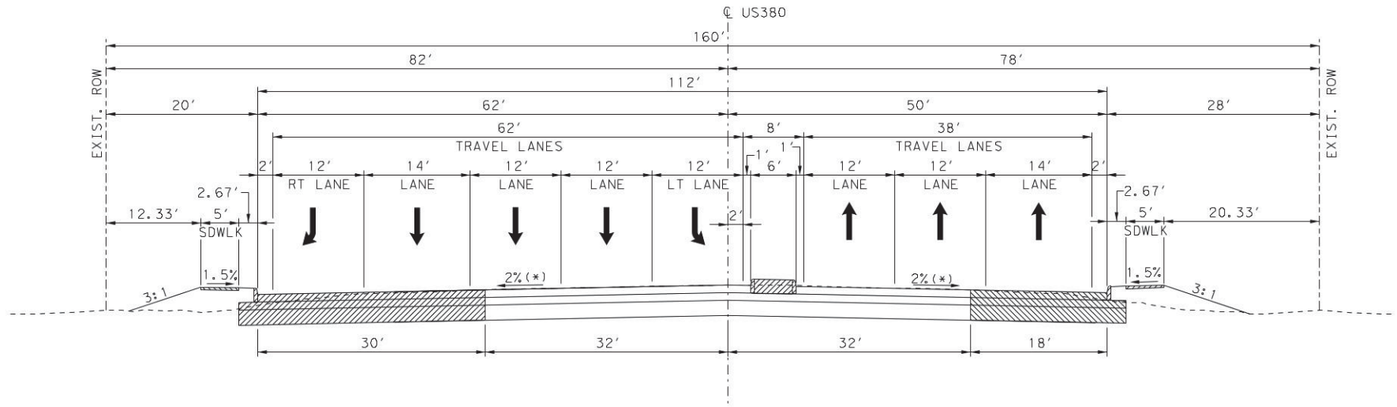

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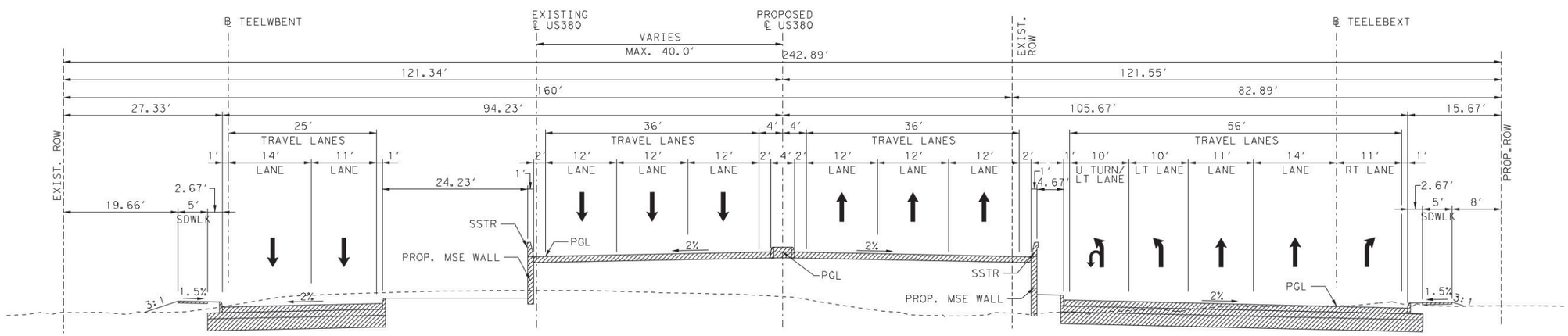
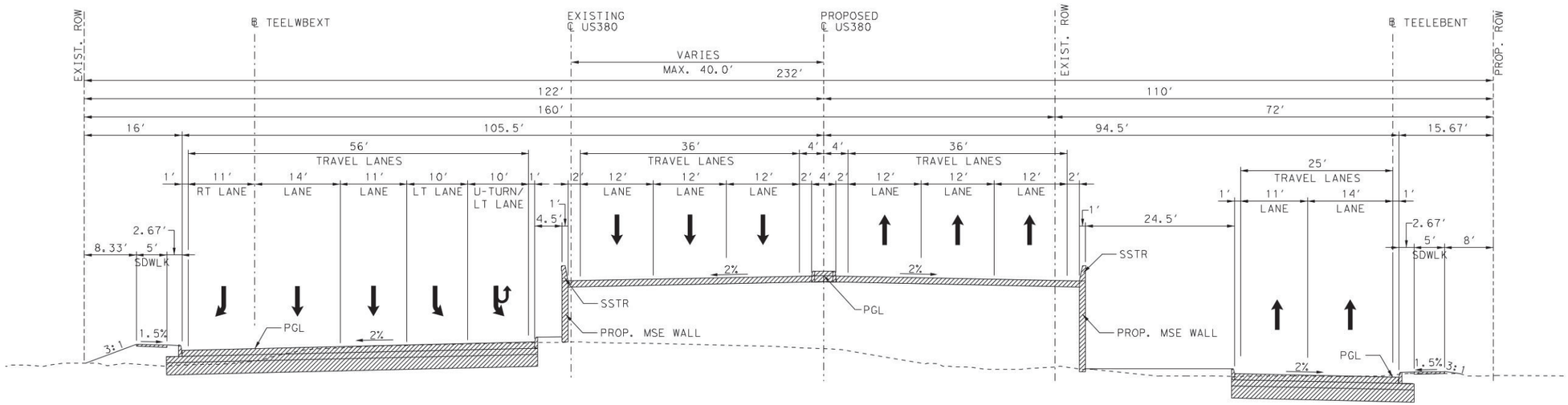


SECTION 8A



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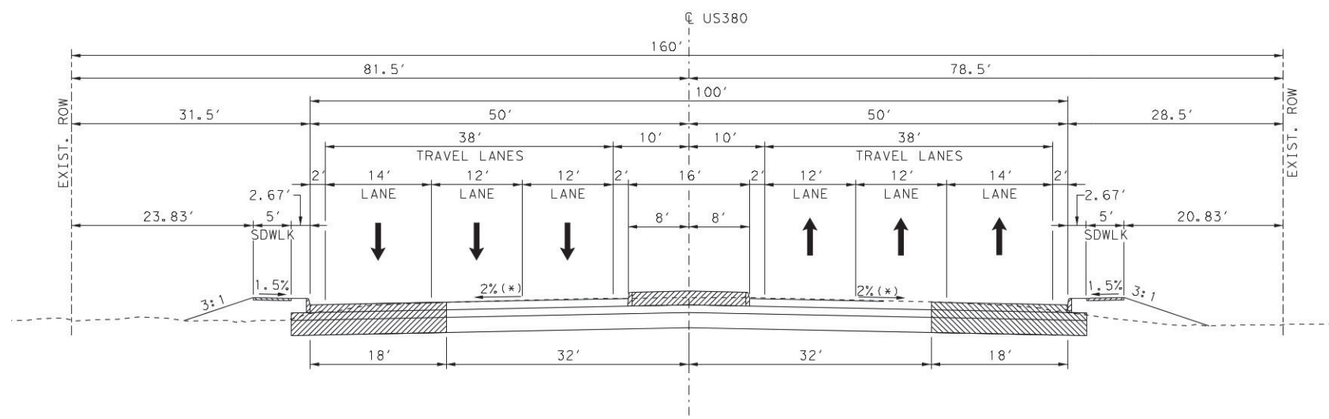

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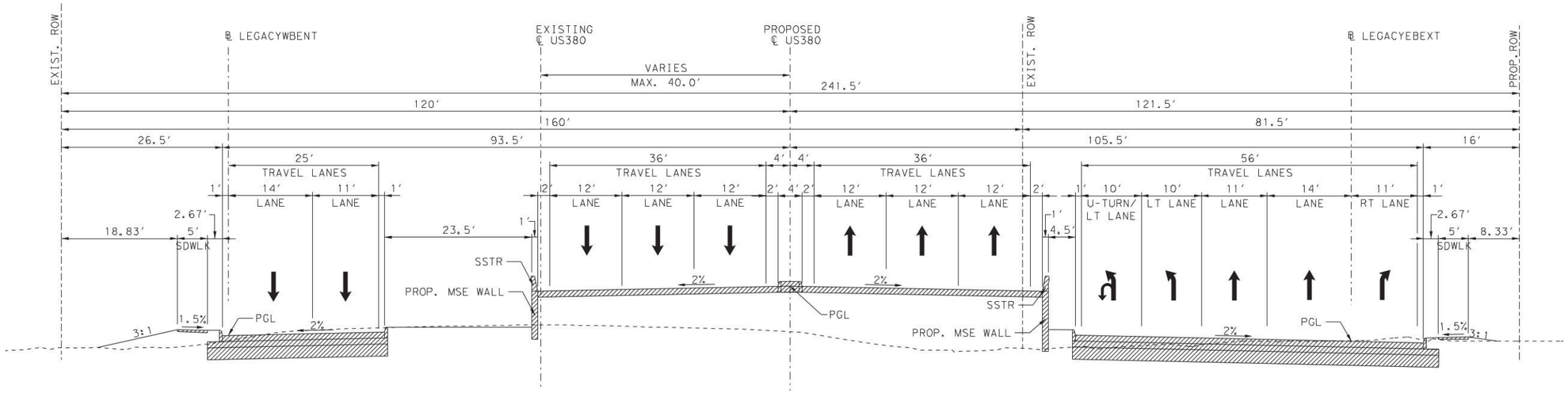

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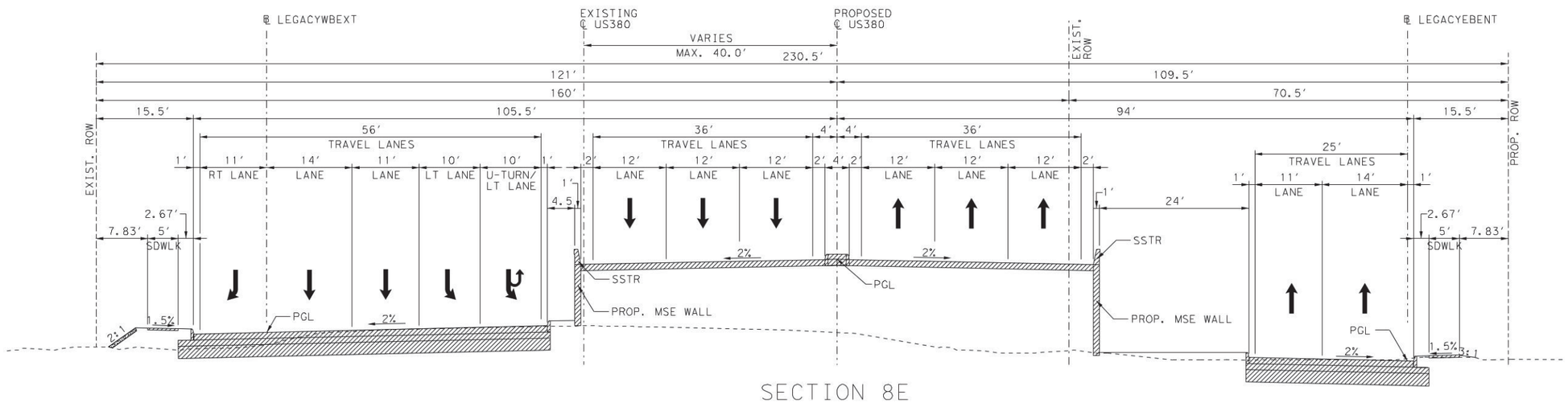

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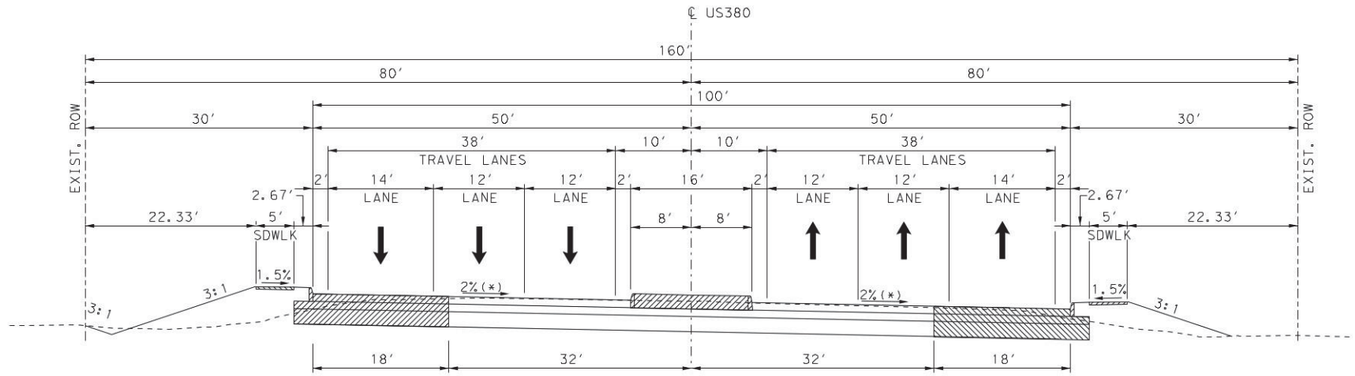
℄ US380
160'
80'
80'
100'
30'
50'
50'
30'
EXIST. ROW
EXIST. ROW
38'
10'
10'
38'
TRAVEL LANES
TRAVEL LANES
2'
14'
12'
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16'
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12'
14'
2'
LANE
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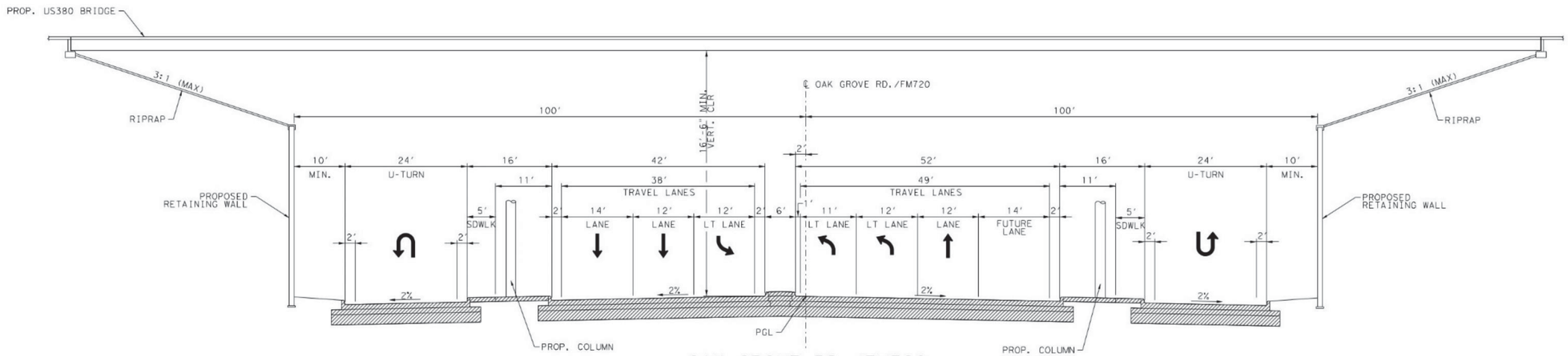
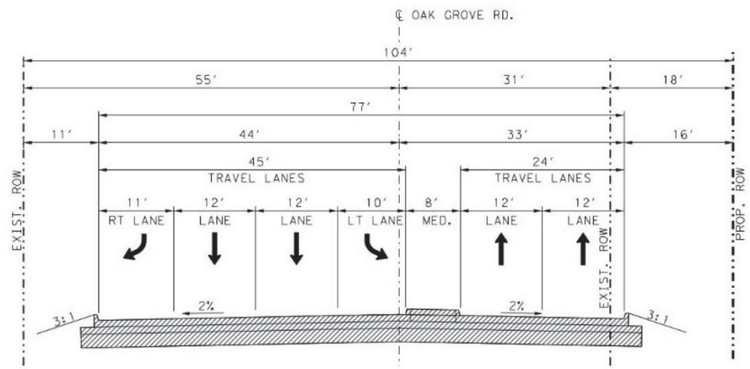
LANE
LANE
LANE
LANE
2.67'
2.67'
22.33'
5'
SDWLK
8'
8'
5'
SDWLK
22.33'
1.5%
1.5%
3:1
3:1
3:1
2%(*)
2%(*)
18'
32'
32'
18'

SECTION 8F

FM 720 INTERSECTION

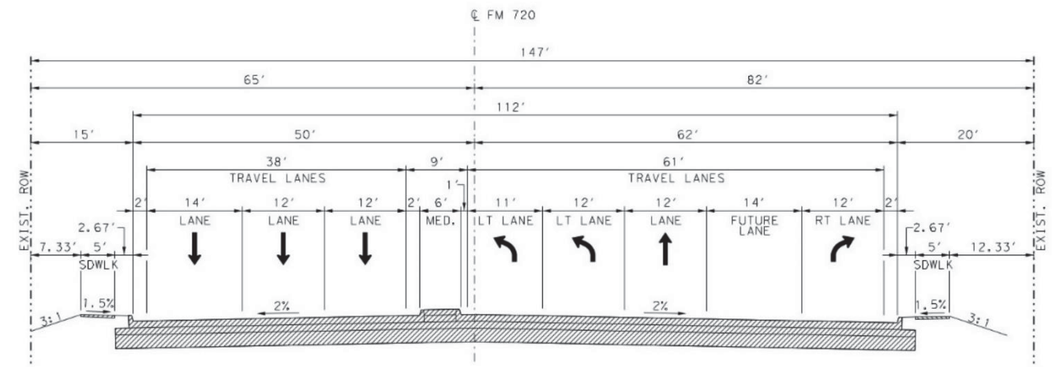


OAK GROVE RD./FM720
AT GRADE SECTION
(ULTIMATE CONFIGURATION)



OAK GROVE RD.

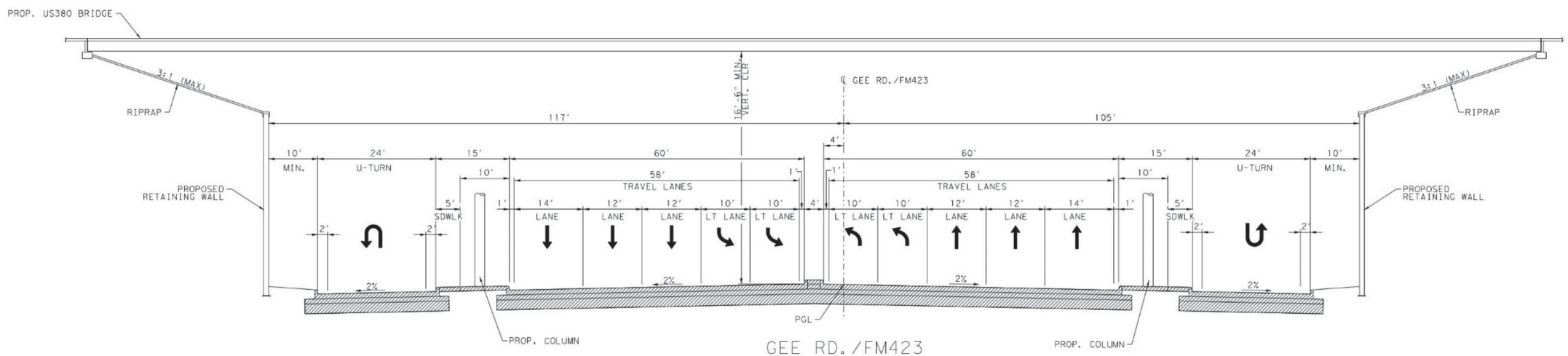
(OAK GROVE RD. TYPICAL SECTION IS MATCHING PROPOSED SECTION FROM THE MEMORANDUM OF UNDERSTANDING (MOU) BETWEEN THE TOWNS OF LITTLE ELM AND CROSS ROADS. THIS SECTION OF OAK GROVE RD. IS CURRENTLY UNDER CONSTRUCTION)



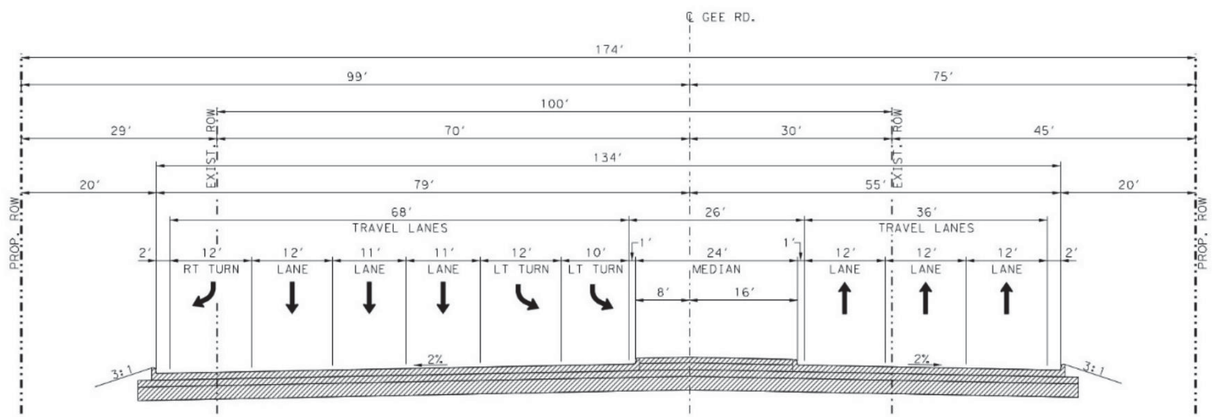
FM 720

(FM 720 TYPICAL SECTION IS MATCHING THE PS&E DESIGN PLANS PROVIDED BY TXDOT)

GEE RD / FM423 INTERSECTION

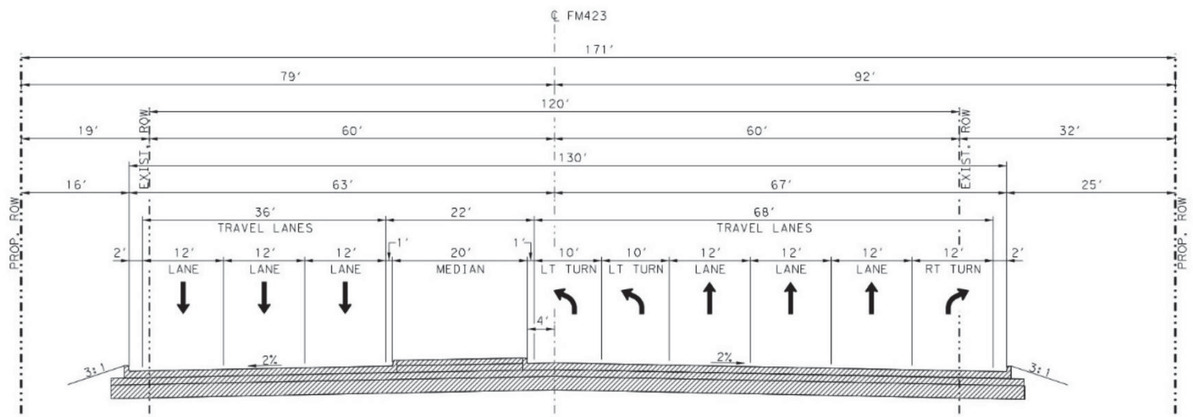


GEE RD./FM423
AT GRADE SECTION
(ULTIMATE CONFIGURATION)



GEE RD.

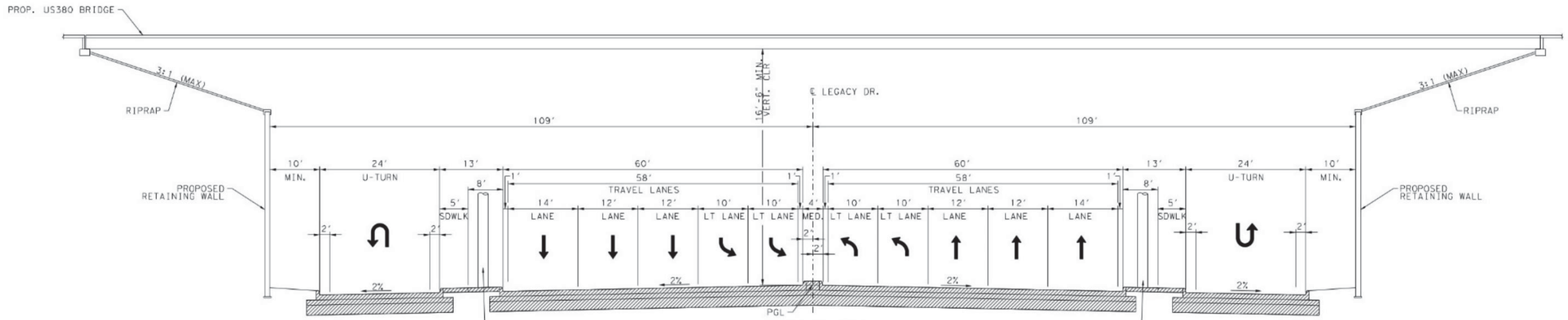
(GEE ROAD TYPICAL SECTION IS BASED ON THE PLANS RECEIVED FROM THE TOWN OF PROSPER. CURRENTLY UNDER CONSTRUCTION)



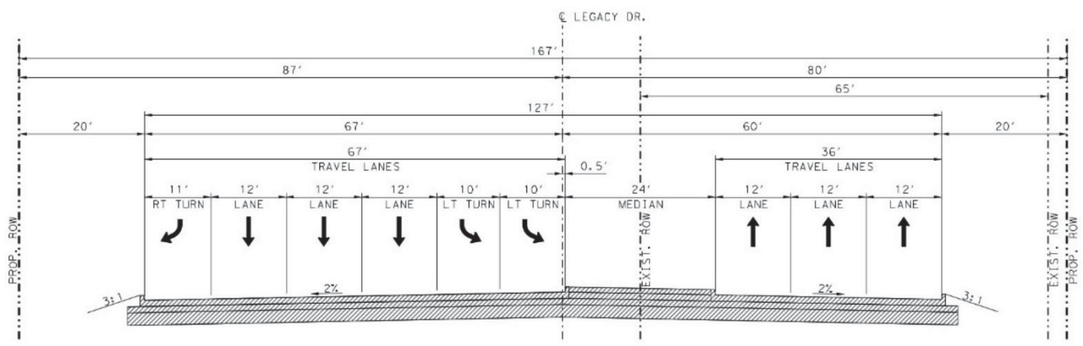
FM423

(FM423 TYPICAL SECTION IS BASED ON PS&E DESIGN PROVIDED BY TXDOT. PROPOSED SECTION MATCHES THE ROADWAY UNDER CONSTRUCTION)

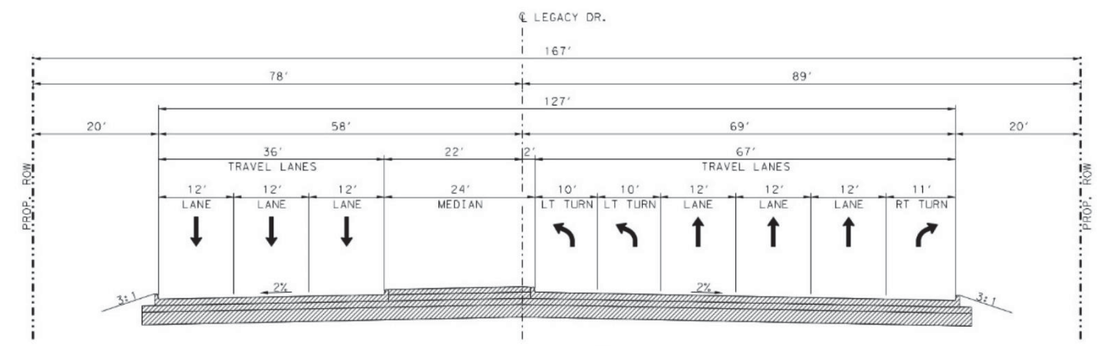
LEGACY DR INTERSECTION



LEGACY DR.
AT GRADE SECTION
(ULTIMATE CONFIGURATION)

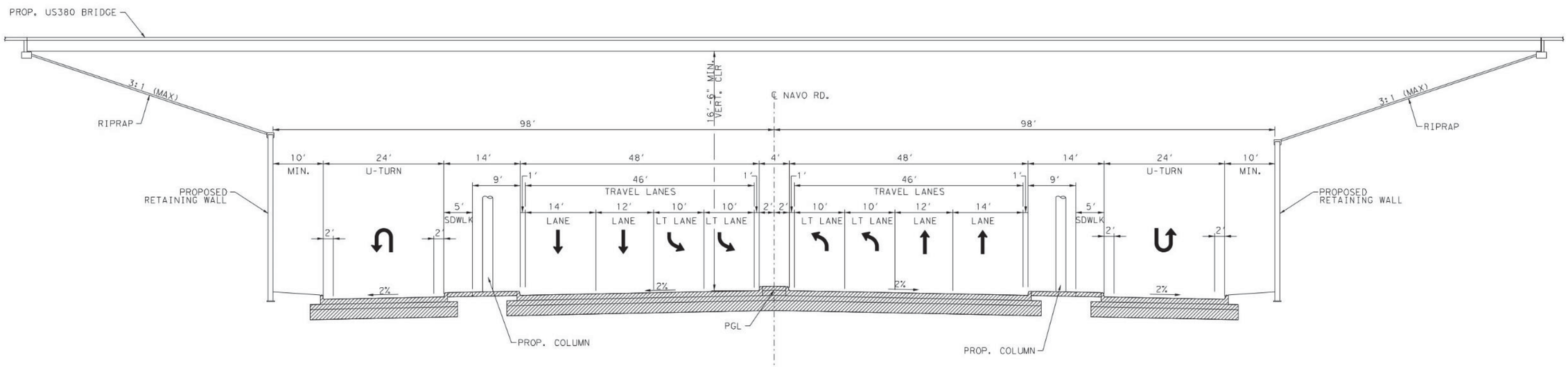


LEGACY DR.3
NORTH SECTION
(ULTIMATE CONFIGURATION)



LEGACY DR.2
SOUTH SECTION
(ULTIMATE CONFIGURATION)

NAVO RD INTERSECTION



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AT GRADE SECTION
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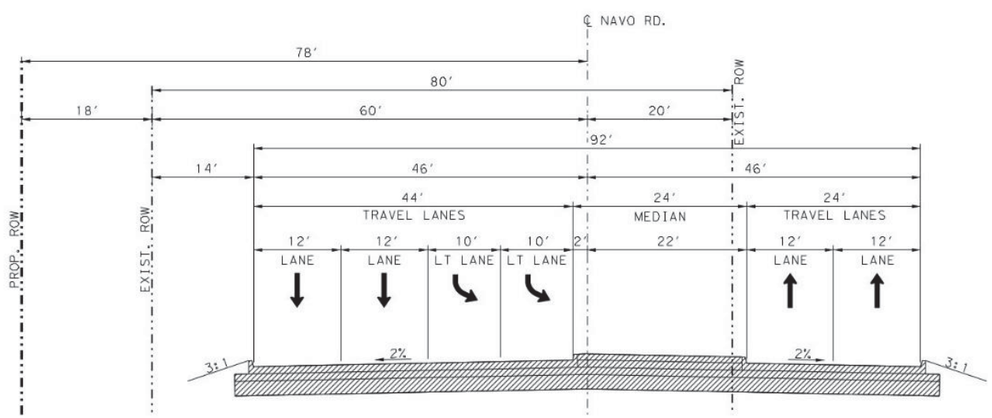

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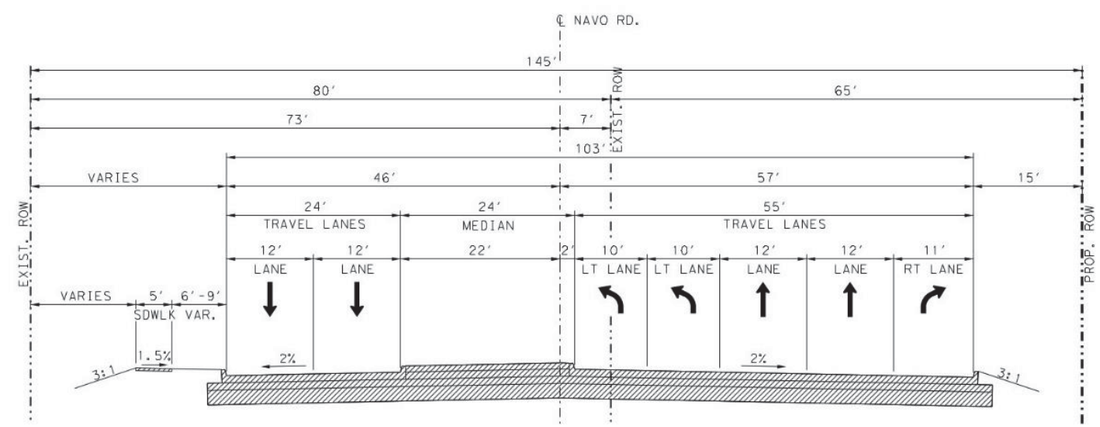
NORTH SECTION

(NAVO RD. TYPICAL SECTIONS ARE MATCHING THE SECTION RECENTLY COMPLETED EXISTING SECTION)



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SOUTH SECTION

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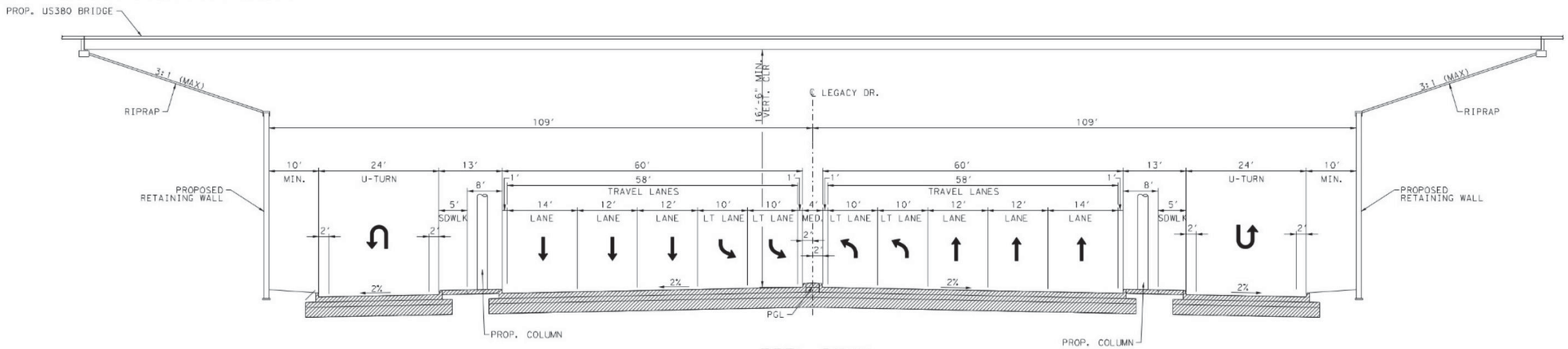
TEEL PKWY INTERSECTION



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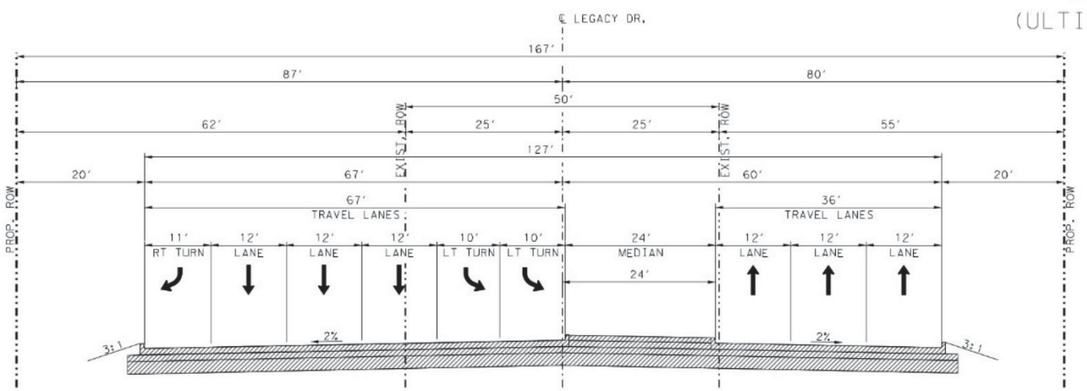
(ULTIMATE CONFIGURATION)



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NORTH SECTION

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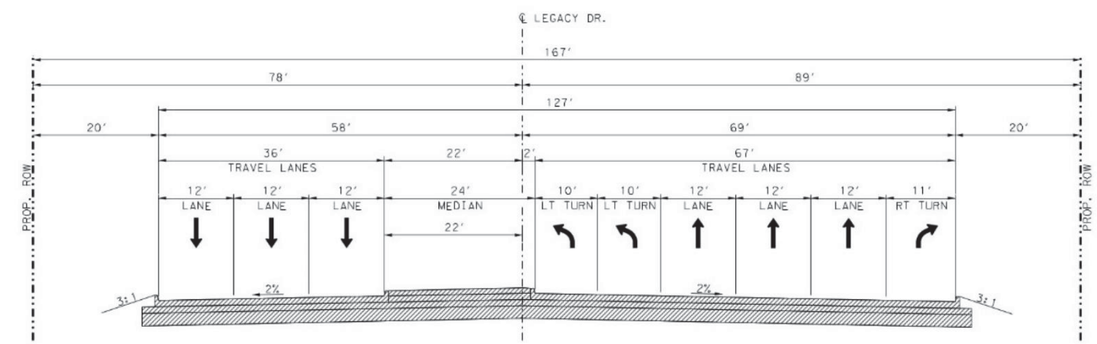
PLANS ARE BEING DEVELOPED BY THE TOWN AND THE CITY)



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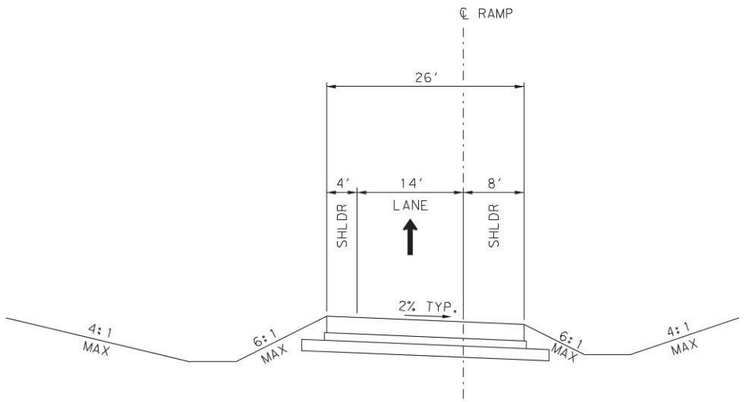

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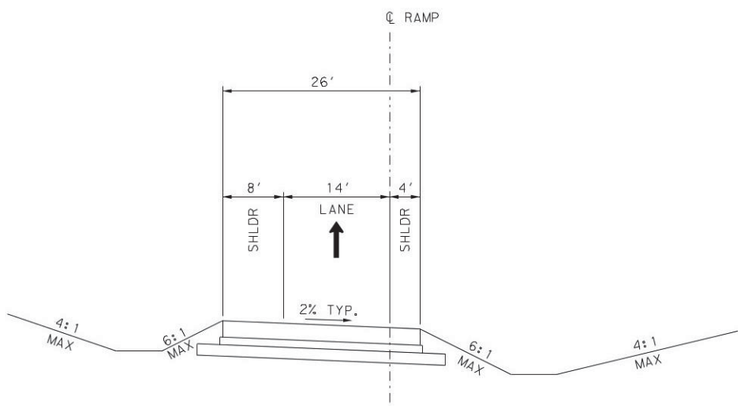

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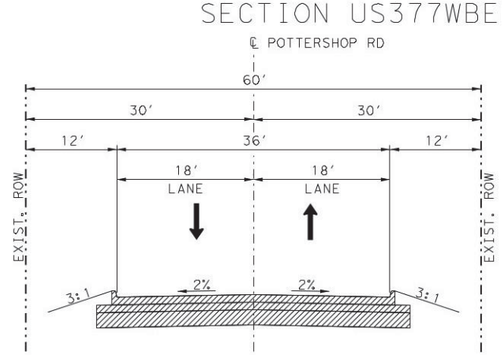
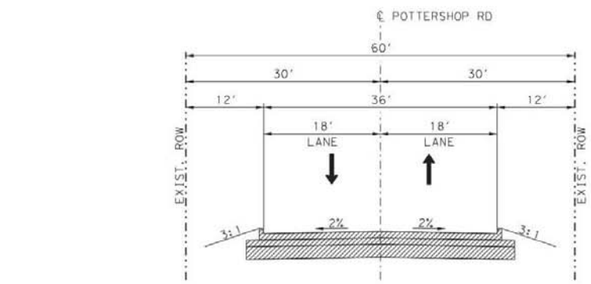


POTTER SHOP RD[5]
SOUTH SECTION



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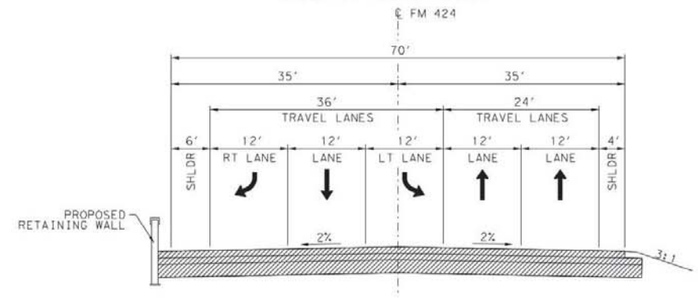

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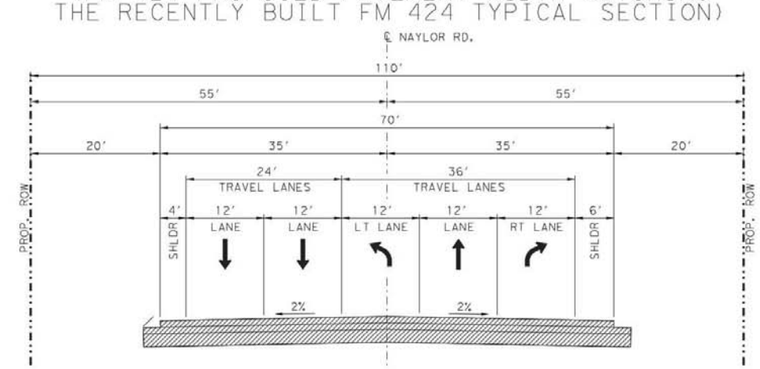

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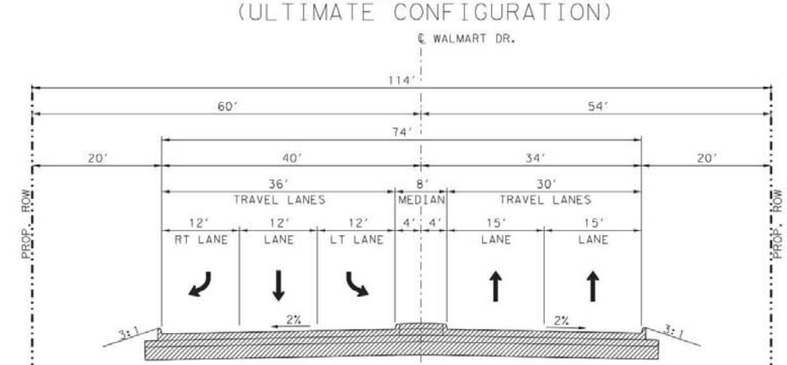
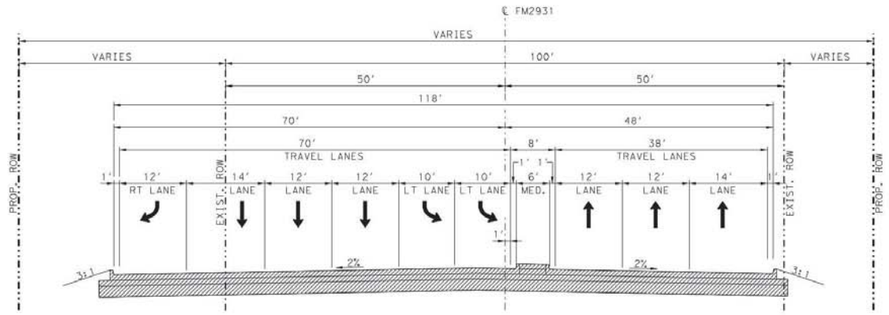


WALMART DR.[5]

US 380

Proposed Typical Sections

CSJ: 0135-10-057, 0135-10-050



FM2931[4]
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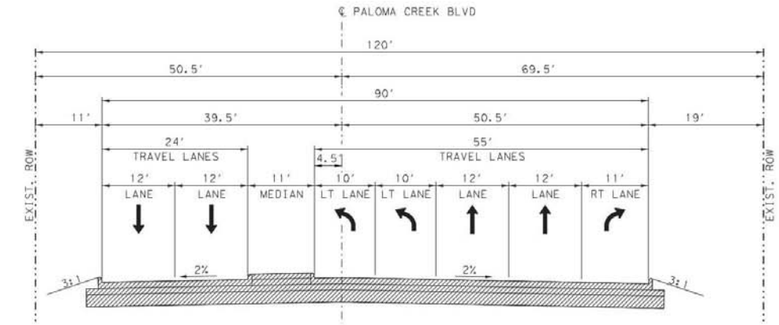
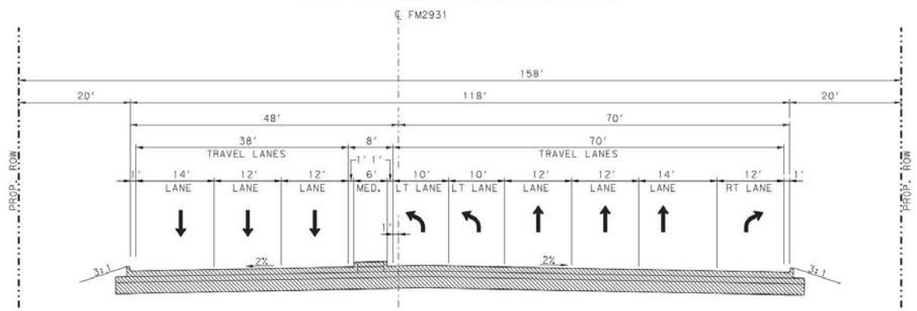
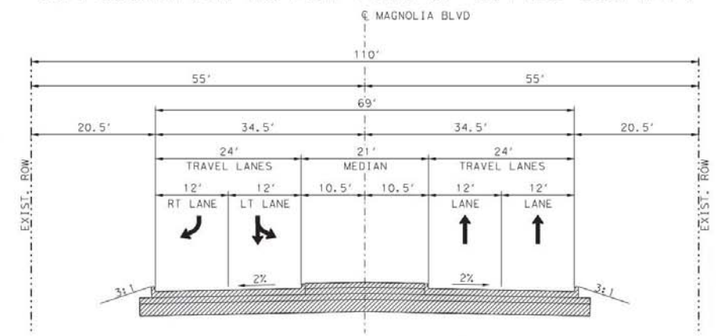


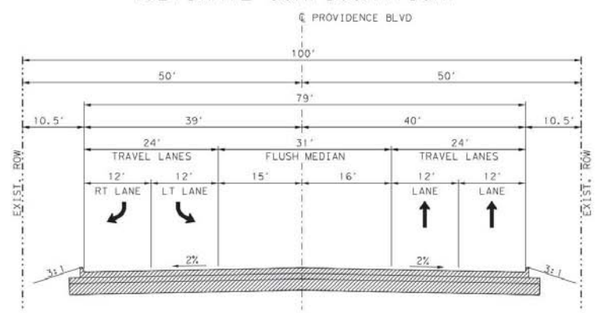
PALOMA CREEK BLVD
SOUTH SECTION
(PALOMA CREEK BLVD MATCHING THE ULTIMATE
CONFIGURATION AS PER TOWN OF LITTLE ELM MTP)



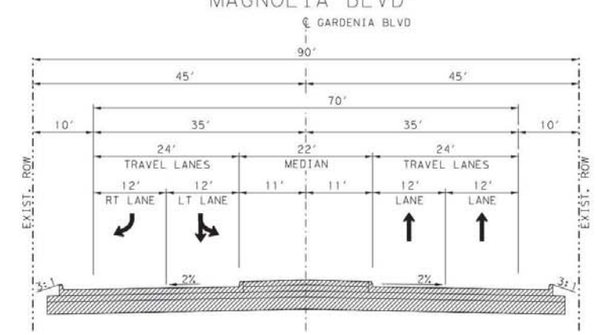
UN-NAMED CROSS STREET[4]
SOUTH OF US380 AT FM 2931
(ULTIMATE CONFIGURATION)



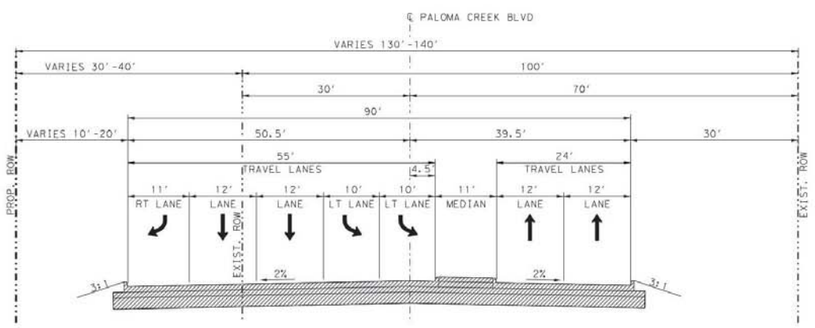
MAGNOLIA BLVD[4]



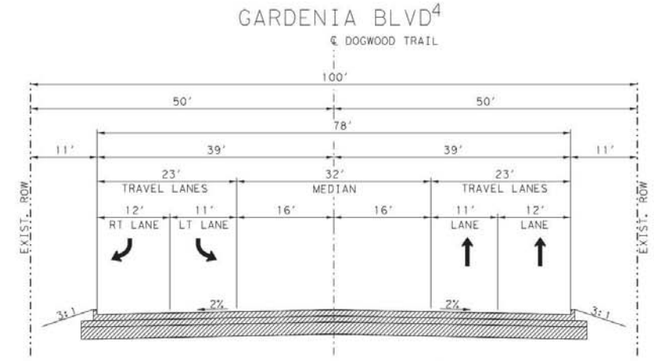
PROVIDENCE BLVD[4]



GARDENIA BLVD[4]



PALOMA CREEK BLVD
NORTH SECTION
(PALOMA CREEK BLVD MATCHING THE ULTIMATE
CONFIGURATION AS PER TOWN OF LITTLE ELM MTP)



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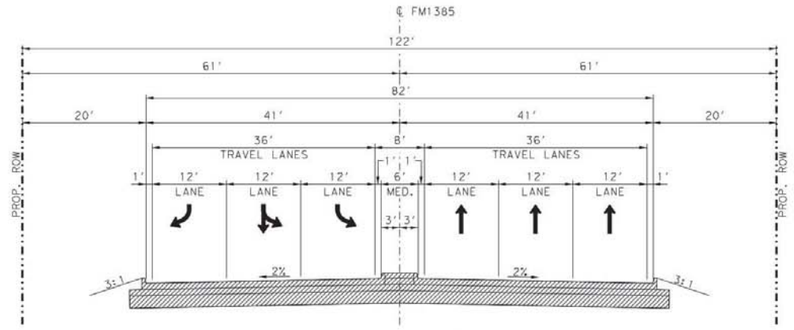
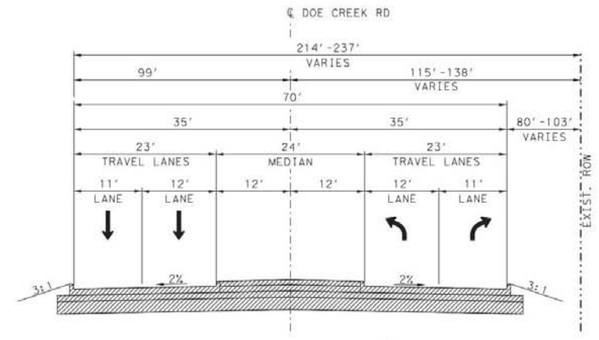


FM1385[4]
(ULTIMATE CONFIGURATION)



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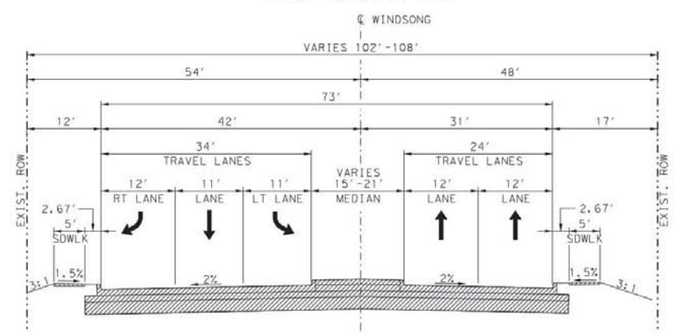
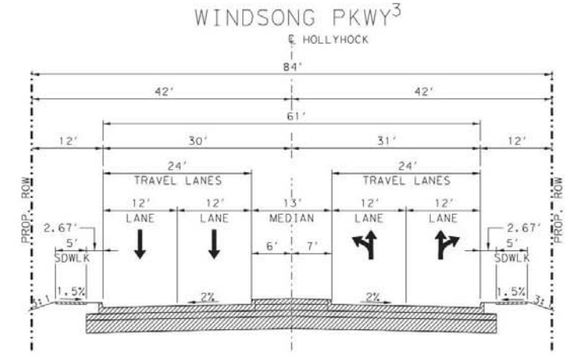


WINDSONG PKWY[3]



HOLLYHOCK RD[2]

Appendix E - Plans and Program Excerpts

NCTCOG CMP
PROJECT IMPLEMENTATION FORM

CONGESTION MANAGEMENT PROCESS

Submitter Name: Travis Owens, P.E.
Agency Name: Texas Department of Transportation - Dallas District
Agency Address: 4777 E. Highway 80, Mesquite, TX 74150-6643
Email: travis.owens@txdot.gov
Telephone Number: 214.320.6625

Date: 7/7/2017

Please answer the following questions

Project Name: US 380
Project Limits (From): SL 288 (East of US 377)
Project Limts (To): West of CR 26 (Collin County Line)

2. Does this project add roadway capacity? (IF NOT, THIS FORM IS NOT REQUIRED)

YES

3. Are complementary Travel Demand Management (TDM) or Transportation System Management & Operations (TSM&O) projects within the corridor in the TIP?
If "yes," enter the project name(s), TIP Code(s) and/or CSJ number(s) in table below.
This information can be verified at the following link: Transportation Improvement Program Information System (TIPINS)
*For a list of TDM and TSM&O project types see: Appendix A - TDM and TSM&O Strategies

YES

Project Name	US 380 FROM US 377 TO CR 26 (COLLIN COUNTY LINE)	**TIP Code**	20096	**CSJ#**	0135-10-050
Project Name	US 377 FROM SL 288 TO US 377/US 380 INTERSECTION	**TIP Code**	55104	**CSJ#**	0135-10-057
Project Name	FM 720 FROM SOUTH OF MARTOP STREET TO US 380	**TIP Code**	20178.2	**CSJ#**	[Enter Here]
Project Name	FM 423 FROM US 380 TO 0.8 MILES SOUTH OF FM 2934	**TIP Code**	28003	**CSJ#**	[Enter Here]

3b. Are there any other projects not included in the TIP that may compliment the project?
If "yes," enter the project name(s) and implementing agency in table below.

YES

Project Name	SL 288 FROM US 380 WEST OF DENTON TO IH 35W SOUTH OF DENTON	**Implementing Agency**	TxDOT
Project Name	SL 288 FROM IH 35 AT SL 288 TO US 380 WEST OF DENTON	**Implementing Agency**	TxDOT
Project Name	[Enter Here]	**Implementing Agency**	[Enter Here]
Project Name	[Enter Here]	**Implementing Agency**	[Enter Here]

4. Are the project limits within a corridor included in the current Metropolitan Transportation Plan?
This information can be verified in the Mobility Options found here: Appendix E of the MTP (pg. 53 - 97 / pg. 102 - 112)
If "yes," enter the MTP Reference #(s) in table below

PLEASE SELECT

MTP Reference #	RSA1-2.225.440
MTP Reference #	RSA1-2.225.445
MTP Reference #	RSA1-2.225.450
MTP Reference #	RSA1-2.225.475

5. Are the project limits within a corridor included in the current CMP Corridor Analysis?
The complete inventory of corridor fact sheets can be found here: Appendix C - CMP Corridor Fact Sheet

NO

*If "yes," please proceed to question six.
*If "no," please evaluate corridor to determine if improvements are needed by completing the Fact Sheet Form in Step 2 in the tab below, before proceeding to question six.

6. Is the corridor identified as deficient in any category?

YES

*If "yes," please proceed to questions seven.
*If "no," please proceed to question 11.

7. Identify corridor deficiencies as specified in the current CMP Corridor Analysis or in the CMP Roadway Deficiency Form. (Check all that apply)

- [x] Alternative Roadway Infrastructure
- [x] Modal Options
- [ ] System Demand
- [ ] System Reliability

8. Review Appendix A of the current CMP or other available resources to identify possible congestion mitigation strategies to correct the deficiency. (Check all that apply)
Appendix A - TDM and TSM&O Strategies

- [ ] Commuter Transportation Options
- [ ] Freight Management Activities
- [ ] Incentive to Use Alternative Modes
- [ ] In-Vehicle System Efficiency Improvements
- [ ] Roadway Incident and Emergency Management Options
- [x] Roadway Infrastructure Improvements
- [x] Sustainable Development Improvements
- [ ] System Management and Operations Improvements
- [ ] Transit System Efficiency Improvements
- [ ] Traveler Information Services
- [ ] Work Zone/Construction Management Operations

9. Specify deficiency-correcting congestion mitigation strategy that will be implemented as part of the project.

The proposed project would include reconstruction and widening of existing US 380 from a four lane undivided rural to a six-lane divided urban roadway consisting of two 12-foot wide inside travel lanes and one 14-foot wide outside shared-use lane (for bicycle accommodation) with raised median and curb and gutter in each direction. The proposed roadway also would include intersection improvements at designated locations. Left-turn and right-turn lanes would be added at designated locations. In addition, interchanges are also being proposed. A minimum of five-foot sidewalk would also be located along the outer lanes of the roadway.

10. If not implementing a congestion mitigation stragegy, please explain reason.

[ENTER HERE]

11. Submit completed form to NCTCOG - CMP Team at: CMP@nctcog.org or by clicking SUBMIT below

*Submit button will auto generate email to NCTCOG with completed excel document attached.
Please finalize step by sending the email.

SUBMIT

CMP CORRIDOR ANALYSIS - FACT SHEET

CONGESTION MANAGEMENT PROCESS

ROADWAY NAME	US 380

HIGHWAY	LIMITS	LENGTH	DIRECTION	MAINLANES
US 380	[SL 288 (East of US 377) to West of CR 26 (County Line)	14.72	west-east	4 to 6 lane divided urban

CORRIDOR FACTS (WITHIN 1 MILE)

Functional Class	Principal Arterial
HOV Lanes	NO
Parrallel Freeways (within 5 miles)	NO
Shoulders	YES
Frontage Roads	NO
Bike Options	NO
Available Transit	NO
Park and Ride	NO

Direct Connections	NO
Truck Lane Restriction	NO
Hazmat Route	NO
Population	394,303
Number of Employees	61,343
FIM Training Participants	Denton County
Crash Rate (Use Most Recent Year)	not available
Construction Status	Pre-Construction/Planning

PARRALLEL ARTERIALS (ENTIRE LIMITS)

[ENTER HERE]

PARRALLEL ARTERIALS (PARTIAL LIMITS)

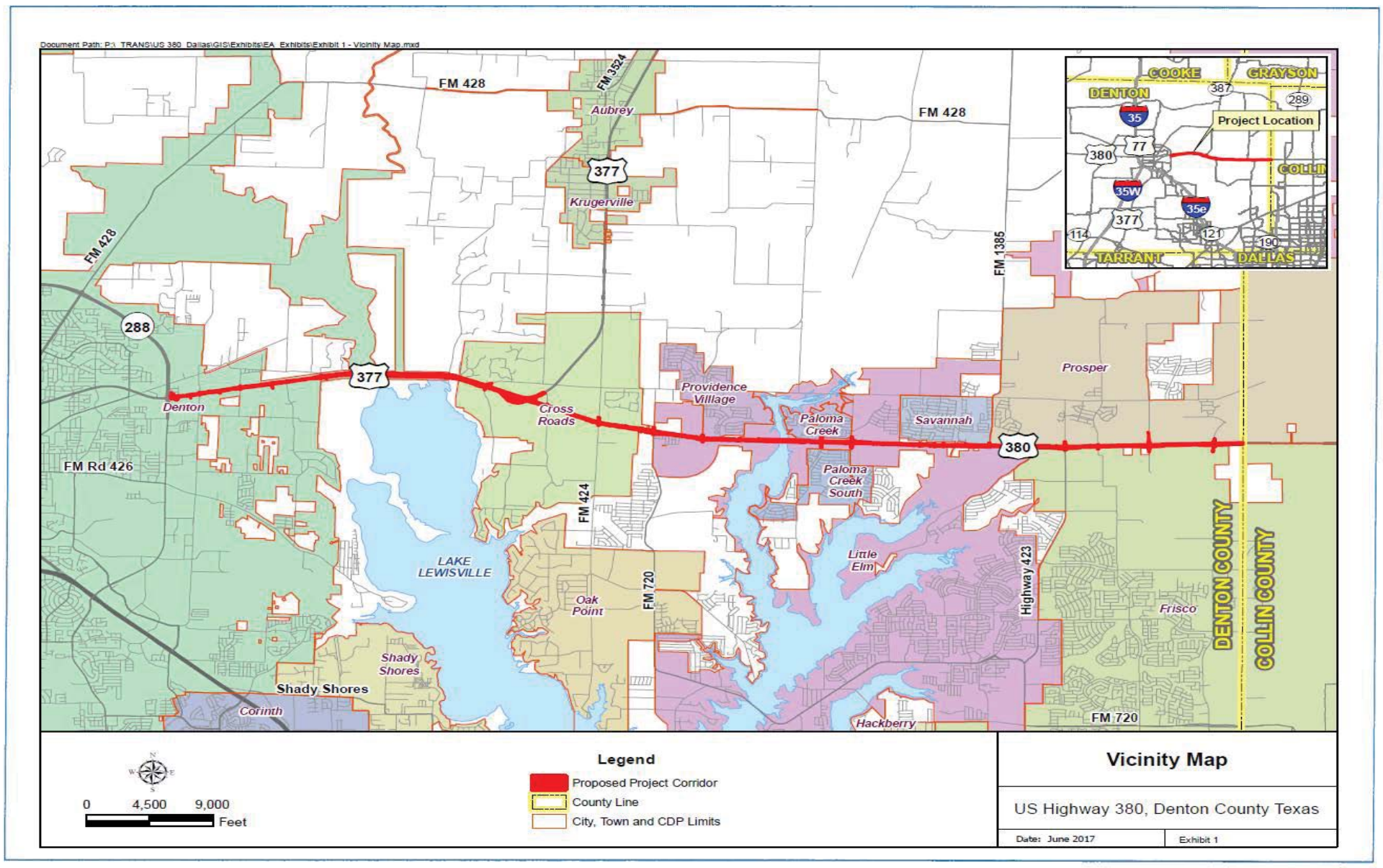
[ENTER HERE]

CORRIDOR SCORE (Results from Step 3 - CMP Deficiency Form)

ROADWAY	MODAL OPTIONS	SYSTEM DEMAND	SYSTEM RELIABILITY	SCORE
0	0	23	19	42

CONCLUSIONS/RECOMMENDATIONS

[ENTER HERE]



DEFICIENCY FORM IS REQUIRED WITH THIS SHEET
PLEASE COMPLETE BY GOING TO TAB 3 (STEP 3. DEFICIENCY FORM)
CLICK HERE

Project Name:	Travis Owens, P.E.
Project Limits (From and To):	SL 288 (East of US 377) to West of CR 26 (Collin County Line)
Agency Name:	Texas Department of Transportation - Dallas District
Submitter Name:	Travis Owens, P.E.
Telephone:	(214) 320-6625
Email:	travis.owens@txdot.gov
Date Submitted:	07/07/17

Alternative Roadway Corridor Deficiency

The factors that influence alternative roadway infrastructure include the presence of parallel freeways, frontage roads, parallel arterials, and direct connections or interchanges.

	Click Cell To Select Answer	Score
1. Does the roadway facility have a parallel freeway or toll road within five miles?	No	0
2. Does the roadway facility include a frontage road system?	No	0
3. Does the roadway facility have a parallel arterial within two miles?	No	0
4. Does the roadway network include a direct connection or non-signalized interchange to another highway?	No	0
Total Points Received in Alternative Roadway Infrastructure Category		**0**

If total score is 14 or below, then improvements are needed in this category. Please see Appendix A of the current CMP to identify possible congestion mitigation strategies to correct the deficiency.

Modal Options Deficiency

The factors that influence modal options include the presence of transit options (bus and/or rail), park-and-ride facilities, HOV/Managed Lanes, and bicycle/pedestrian options.

	Click Cell To Select Answer	Score
1. Does the roadway facility have established transit service?	No	0
2. Is a park-and-ride facility located along the roadway corridor?	No	0
3. Are HOV or Managed lanes available along the roadway corridor?	No	0
4. Are bike trails or other bike options available along the roadway corridor?	No	0
Total Points Received in Modal Options Category		**0**

If total score is 14 or below, then improvements are needed in this category. Please see Appendix A of the current CMP to identify possible congestion mitigation strategies to correct the deficiency.

System Demand (Recurring) Deficiency

The factors that influence system demand include traffic volume, truck volume/percentage, number of employees along the roadway corridor block, and residential population.

	Click Cell To Select Answer	Score
1. Is the peak hour volume capacity above or below the current average Peak V/C of 0.692?	Below or Equal to the Average	10
2. Is the truck volume percentage along the corridor above or below the current average of 9%?	Below or Equal to the Average	7
3. Is the total number of employees along the corridor above or below the current average of 82,549 (by TSZ)	Below or Equal to the Average	5
4. Is the population along the corridor above or below the current average of 74,611 (by TSZ)?	Above the Average	1
Total Points Received in System Demand Category		**23**

If total score is 14 or below, then improvements are needed in this category. Please see Appendix A of the current CMP to identify possible congestion mitigation strategies to correct the deficiency.

System Reliability (Non-Recurring) Deficiency

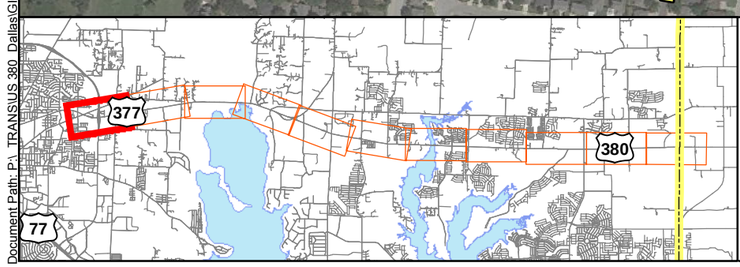
The factors that influence system reliability include facility crash rates, agencies that participate in incident management training, truck lane restrictions, roadway shoulders, and the presence of Intelligent Transportation Systems (ITS) technology.

	Click Cell To Select Answer	Score
1. Is the crash rate for the corridor below or above the current crash rate average of 75.19?*	Below or Equal to the Average	10
2. Does the roadway facility have paved shoulders?	Yes, full outside and inside shoulders	6
3. Have emergency response agencies (police and fire) along the corridor participated in Freeway Incident Management (FIM) training?**	Yes, entire limits	3
4. Have truck lane restrictions been implemented along the corridor?	No	0
5. Is Intelligent Transportation Systems (ITS) technology being utilized along the corridor?	No	0
Total Points Received in System Reliability Category		**19**

If total score is 14 or below, then improvements are needed in this category. Please see Appendix A of the current CMP to identify possible congestion mitigation strategies to correct the deficiency.

Notes
*Please use most recent crash year if available
**FIM attendance information is maintained by NCTCOG Safety staff. Please call 817-695-9245 to request information
CMP 2013 - Appendix A

Appendix F - Resource-specific Maps



N
W E
S

0 250 500 Feet

Legend

- County Line
- Project Area
- Existing ROW
- Streams
- Water Wells
- Pipelines
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement
- Parcels Adjacent to Existing ROW

Hazardous Material Concerns

- High (Potential to Impact)
- Moderate (Further Information Needed)

Sources: TxGoogleImagery - WMS, Texas 2017, and USDA FAS Online Texas Pipeline RRC ArcGIS dataset

Unresolved Hazardous Material Sites and Utility Map

US Highway 380, Denton County Texas

Date: December 2017

Appendix - Figure 1, Sheet 1 of 11

Document Path: P:_TRANSVS 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix F\Figure 1 - Unresolved Hazardous Material Sites_revised.mxd

Mingo

GREENLEAF CIR

FISHTRAP RD

Collins

Country Side

Trinity

ATMOS Natural Gas Pipeline

GEESLING RD

University Dr./U.S. 380/U.S. 377

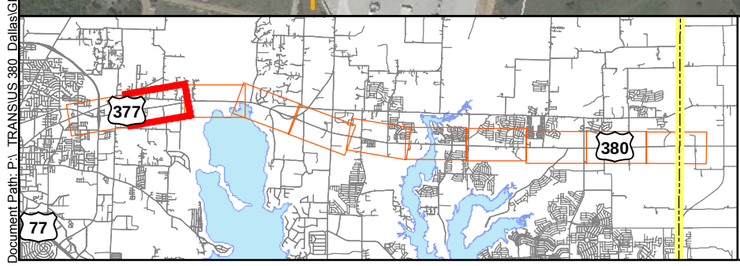
LAKEVIEW

N TRINITY RD

Geesling

ATMOS Natural Gas Pipeline

APPALOOSA



N
W
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S

0 250 500
Feet

Legend

- County Line
- Project Area
- Existing ROW
- Streams
- Water Wells
- Pipelines
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement
- Parcels Adjacent to Existing ROW

Hazardous Material Concerns

- High (Potential to Impact)
- Moderate (Further Information Needed)

Sources: TxGoogleImagery - WMS, Texas 2017, and USDA FAS Online Texas Pipeline RRC ArcGIS dataset

Unresolved Hazardous Material Sites and Utility Map

US Highway 380, Denton County Texas

Date: December 2017

Appendix - Figure 1, Sheet 2 of 11

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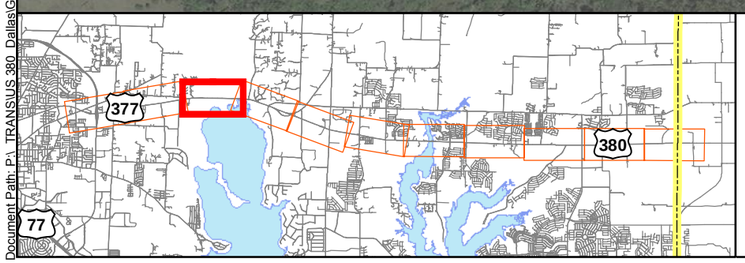


0 250 500 Feet

Legend

- County Line
- Project Area
- Existing ROW
- Streams
- Water Wells
- Pipelines
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement
- Parcels Adjacent to Existing ROW

Hazardous Material Concerns

- High (Potential to Impact)
- Moderate (Further Information Needed)

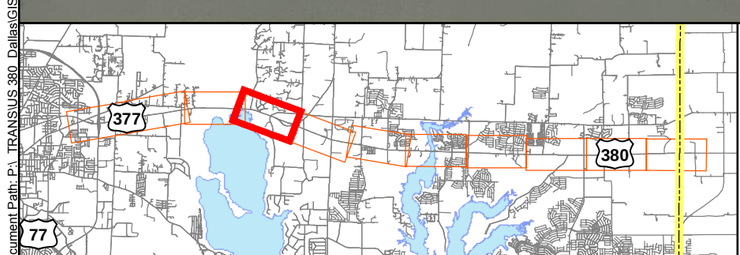
Sources: TxGoogleImagery - WMS, Texas 2017, and USDA FAS Online Texas Pipeline RRC ArcGIS dataset

Unresolved Hazardous Material Sites and Utility Map

US Highway 380, Denton County Texas

Date: December 2017

Appendix - Figure 1, Sheet 3 of 11



0 250 500 Feet

Legend

- County Line
- Project Area
- Existing ROW
- Streams
- Water Wells
- Pipelines
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement
- Parcels Adjacent to Existing ROW

Hazardous Material Concerns

- High (Potential to Impact)
- Moderate (Further Information Needed)

Sources: TxGoogleImagery - WMS, Texas 2017, and USDA FAS Online Texas Pipeline RRC ArcGIS dataset

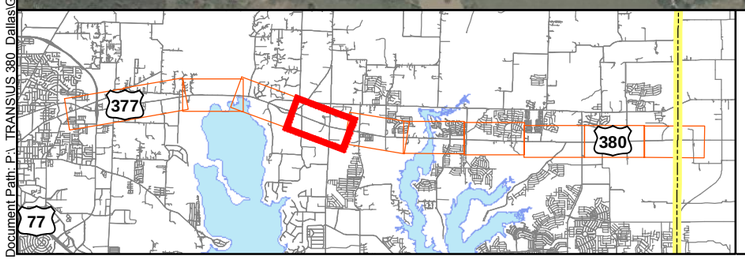
Unresolved Hazardous Material Sites and Utility Map

US Highway 380, Denton County Texas

Date: December 2017

Appendix - Figure 1, Sheet 4 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix F\Figure 1 - Unresolved Hazardous Material Sites_revised.mxd



0 250 500 Feet

Legend

- County Line
- Project Area
- Existing ROW
- Streams
- Water Wells
- Pipelines
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement
- Parcels Adjacent to Existing ROW

Hazardous Material Concerns

- High (Potential to Impact)
- Moderate (Further Information Needed)

Sources: TxGoogleImagery - WMS, Texas 2017, and USDA FAS Online Texas Pipeline RRC ArcGIS dataset

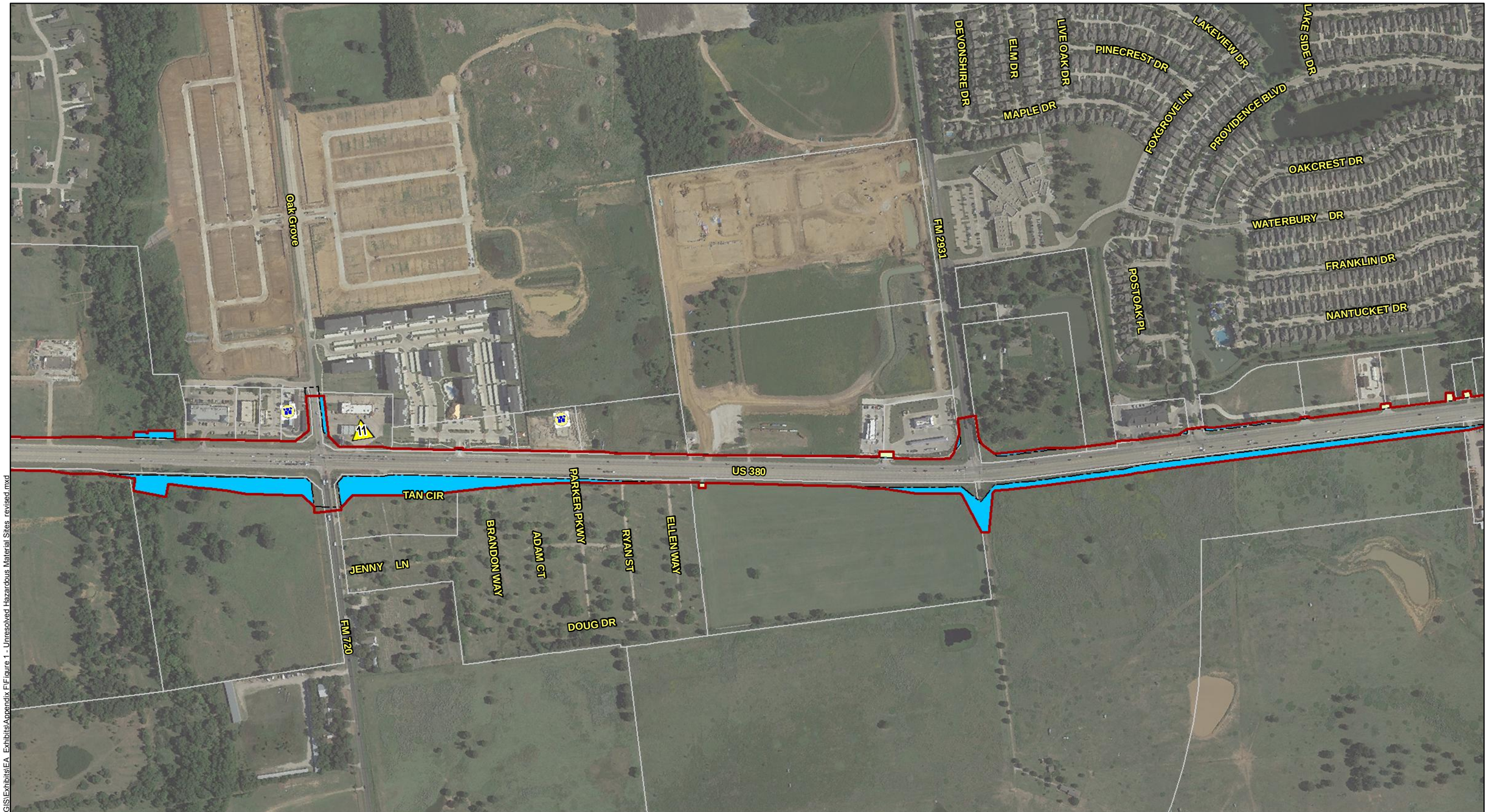
Unresolved Hazardous Material Sites and Utility Map

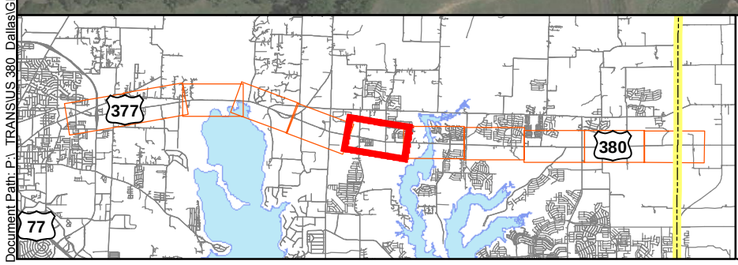
US Highway 380, Denton County Texas

Date: December 2017

Appendix - Figure 1, Sheet 5 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix F\Figure 1 - Unresolved Hazardous Material Sites_revised.mxd





Legend

- County Line
- Project Area
- Existing ROW
- Streams
- Water Wells
- Pipelines
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement
- Parcels Adjacent to Existing ROW

Hazardous Material Concerns

- High (Potential to Impact)
- Moderate (Further Information Needed)

0 250 500 Feet

Sources: TxGoogleImagery - WMS, Texas 2017, and USDA FAS Online Texas Pipeline RRC ArcGIS dataset

Unresolved Hazardous Material Sites and Utility Map

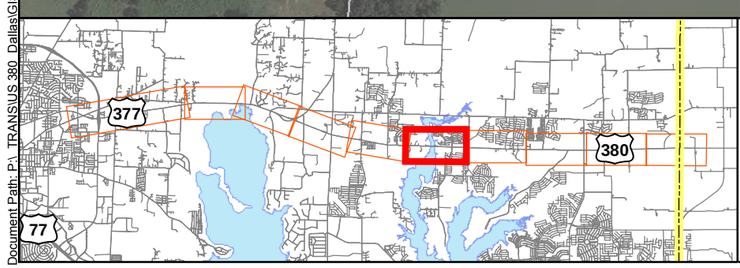
US Highway 380, Denton County Texas

Date: December 2017

Appendix - Figure 1, Sheet 6 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix F\Figure 1 - Unresolved Hazardous Material Sites_revised.mxd

PROVIDENCE BLVD
BRISTOL LN
CEDAR LAKE DR
OAKCREST DR
WATERBURY DR
FRANKLIN DR
NANTUCKET DR
N PALOMA CREEK BLVD
US 380
S PALOMA CREEK BLVD
Elm Fork Trinity River



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0 250 500
Feet

Legend

- County Line
- Project Area
- Existing ROW
- Streams
- Water Wells
- Pipelines
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement
- Parcels Adjacent to Existing ROW

Hazardous Material Concerns

- High (Potential to Impact)
- Moderate (Further Information Needed)

Sources: TxGoogleImagery - WMS, Texas 2017, and USDA FAS Online Texas Pipeline RRC ArcGIS dataset

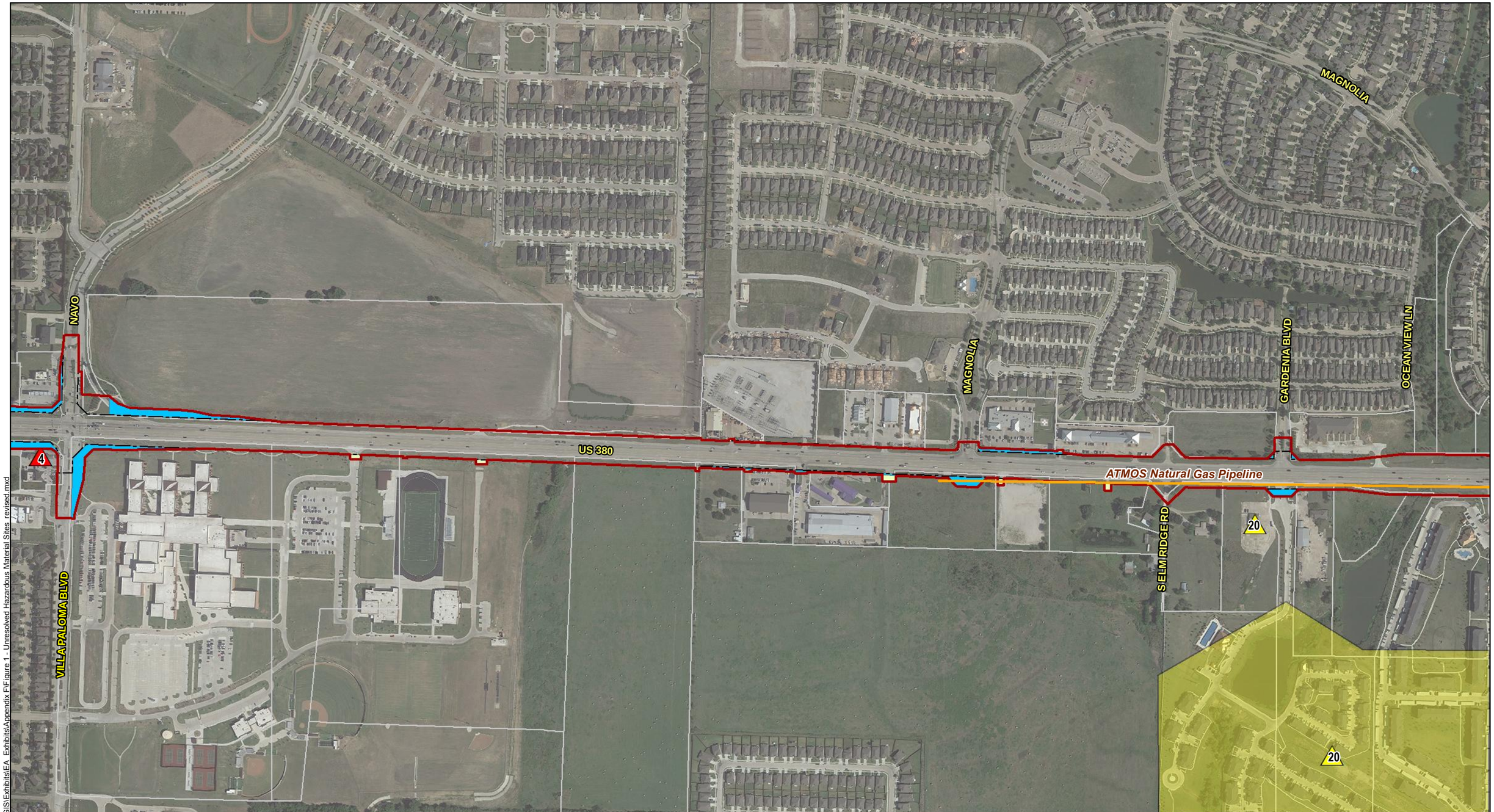
Unresolved Hazardous Material Sites and Utility Map

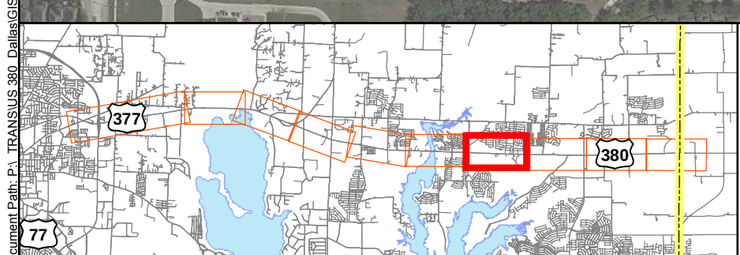
US Highway 380, Denton County Texas

Date: December 2017

Appendix - Figure 1, Sheet 7 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix F\Figure 1 - Unresolved Hazardous Material Sites_revised.mxd





Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix F\Figure 1 - Unresolved Hazardous Material Sites_revised.mxd

Legend

- County Line
- Project Area
- Existing ROW
- Streams
- Water Wells
- Pipelines
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement
- Parcels Adjacent to Existing ROW

N W E S

0 250 500 Feet

Hazardous Material Concerns

- High (Potential to Impact)
- Moderate (Further Information Needed)

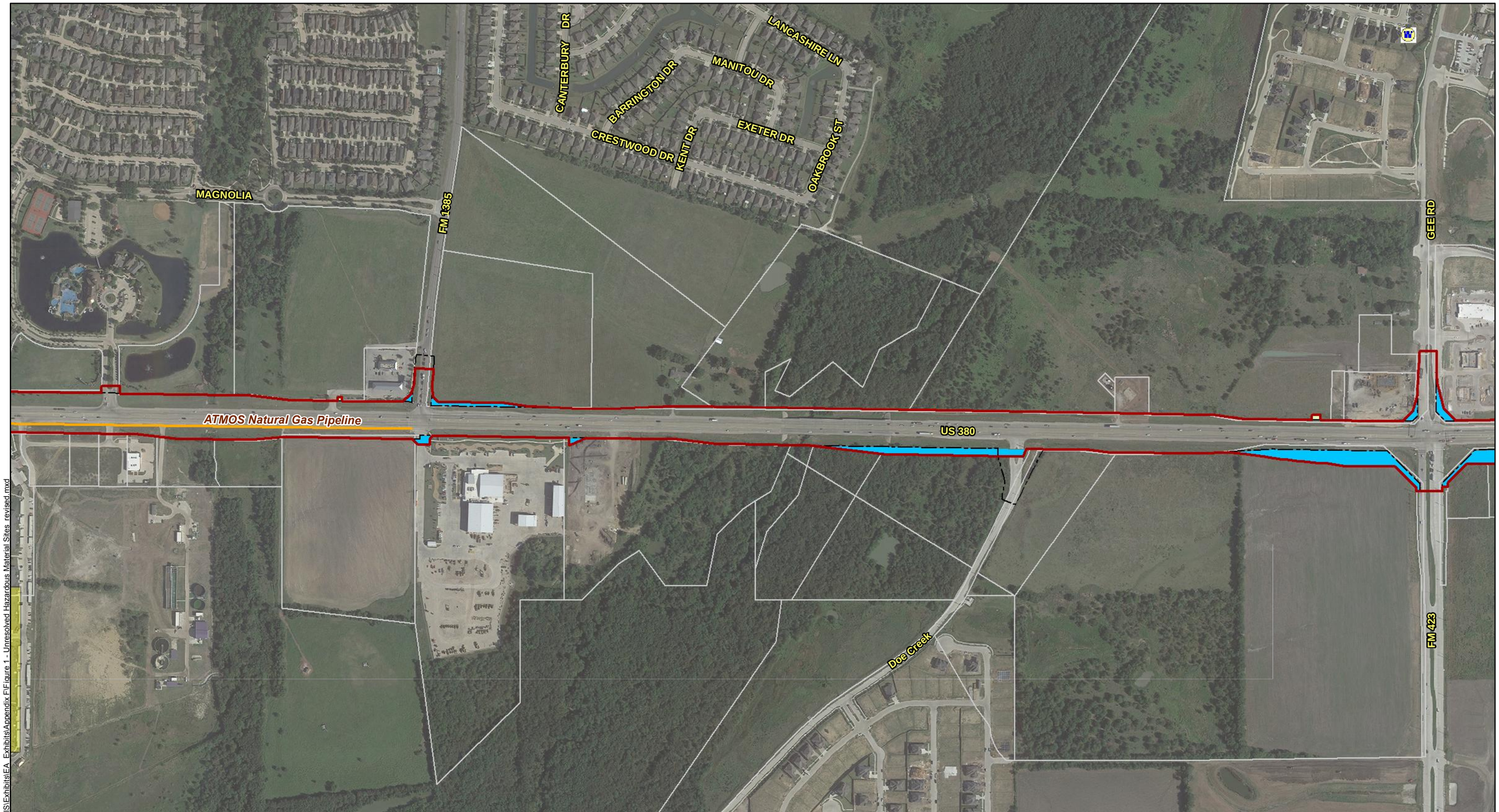
Sources: TxGoogleImagery - WMS, Texas 2017, and USDA FAS Online Texas Pipeline RRC ArcGIS dataset

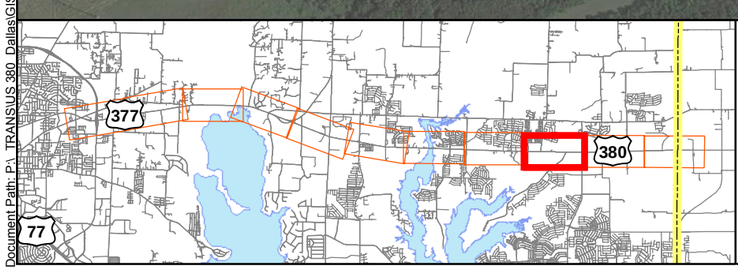
Unresolved Hazardous Material Sites and Utility Map

US Highway 380, Denton County Texas

Date: December 2017

Appendix - Figure 1, Sheet 8 of 11





N
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0 250 500 Feet

Legend

- County Line
- Project Area
- Existing ROW
- Streams
- Water Wells
- Pipelines
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement
- Parcels Adjacent to Existing ROW

Hazardous Material Concerns

- High (Potential to Impact)
- Moderate (Further Information Needed)

Sources: TxGoogleImagery - WMS, Texas 2017, and USDA FAS Online Texas Pipeline RRC ArcGIS dataset

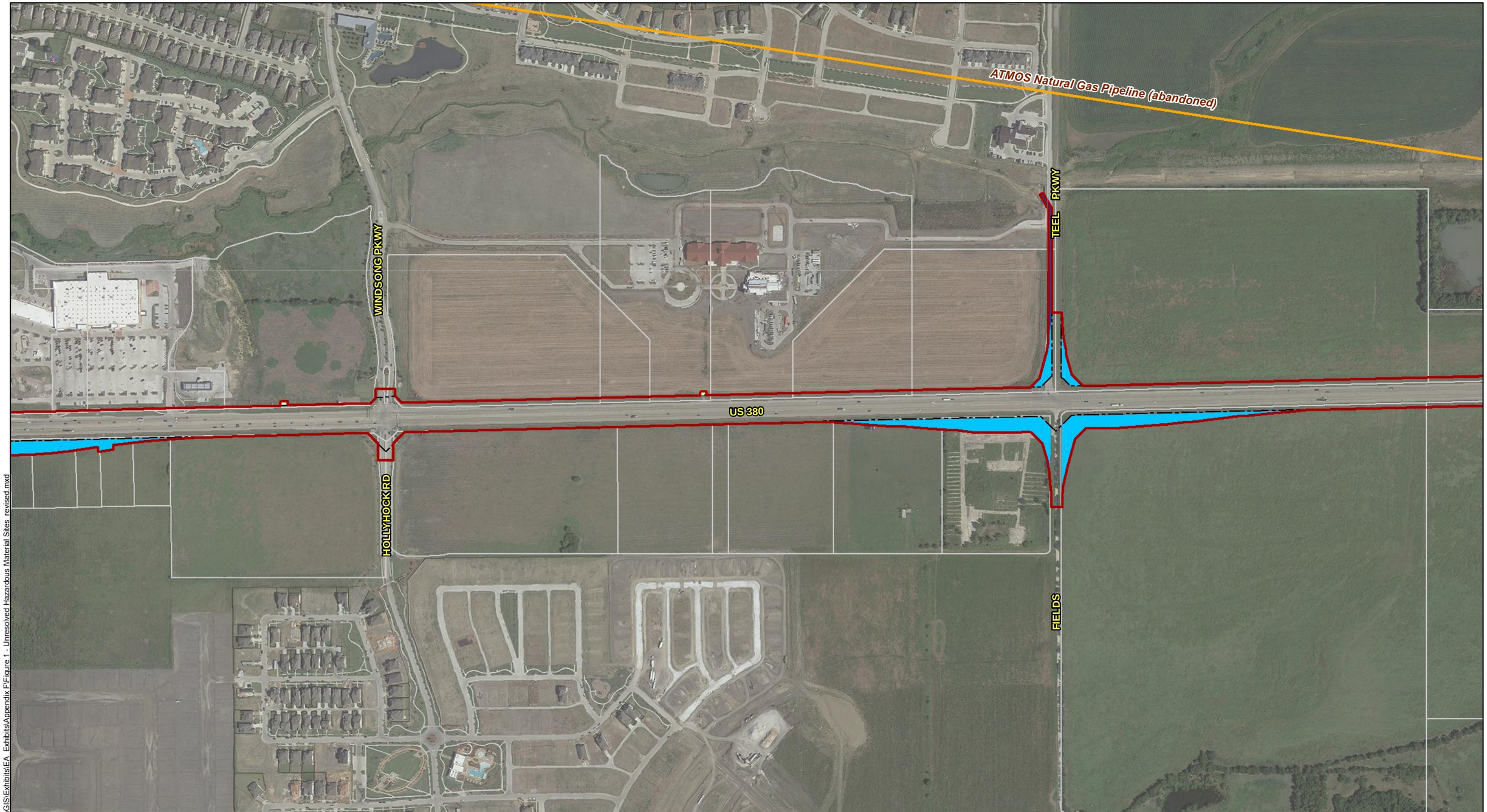
Unresolved Hazardous Material Sites and Utility Map

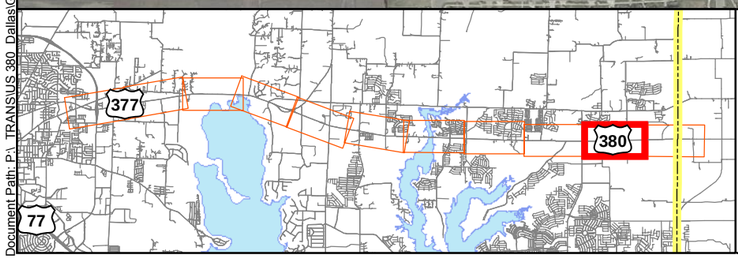
US Highway 380, Denton County Texas

Date: December 2017

Appendix - Figure 1, Sheet 9 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix F\Figure 1 - Unresolved Hazardous Material Sites_revised.mxd





0 250 500 Feet

Legend

- County Line
- Project Area
- Existing ROW
- Streams
- Water Wells
- Pipelines
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement
- Parcels Adjacent to Existing ROW

Hazardous Material Concerns

- High (Potential to Impact)
- Moderate (Further Information Needed)

Sources: TxGoogleImagery - WMS, Texas 2017, and USDA FAS Online Texas Pipeline RRC ArcGIS dataset

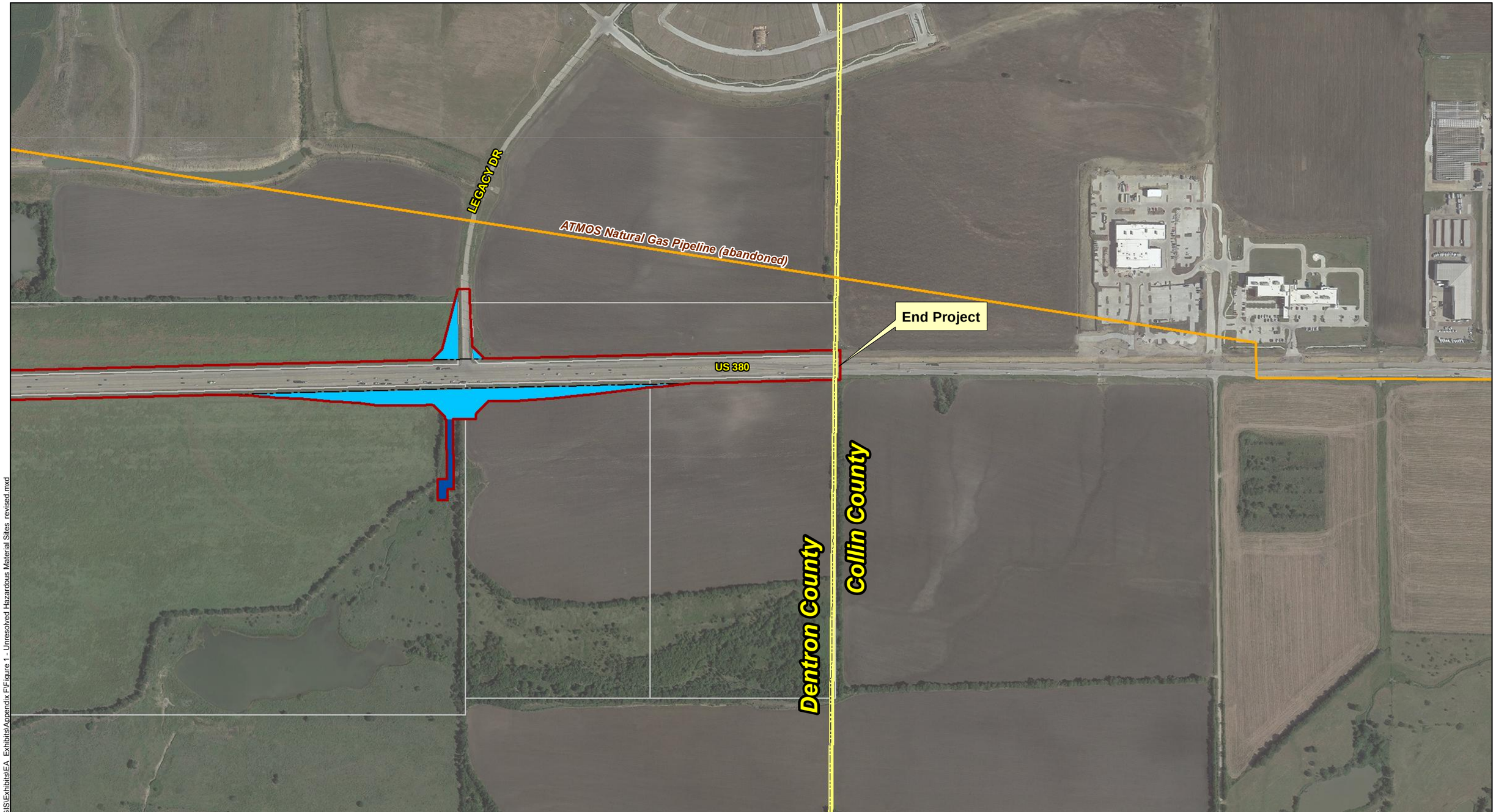
Unresolved Hazardous Material Sites and Utility Map

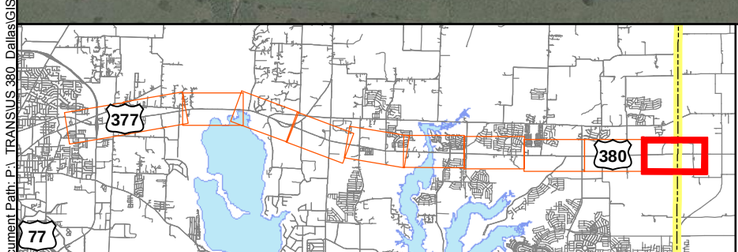
US Highway 380, Denton County Texas

Date: December 2017

Appendix - Figure 1, Sheet 10 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix F\Figure 1 - Unresolved Hazardous Material Sites_revised.mxd





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0 250 500 Feet

Legend

- County Line
- Project Area
- Existing ROW
- Streams
- Water Wells
- Pipelines
- Proposed Right-of-Way
- Proposed Drainage Easment
- Temporary Driveway Easement
- Existing Drainage Easement
- Parcels Adjacent to Existing ROW

Hazardous Material Concerns

- High (Potential to Impact)
- Moderate (Further Information Needed)

Sources: TxGoogleImagery - WMS, Texas 2017, and USDA FAS Online Texas Pipeline RRC ArcGIS dataset

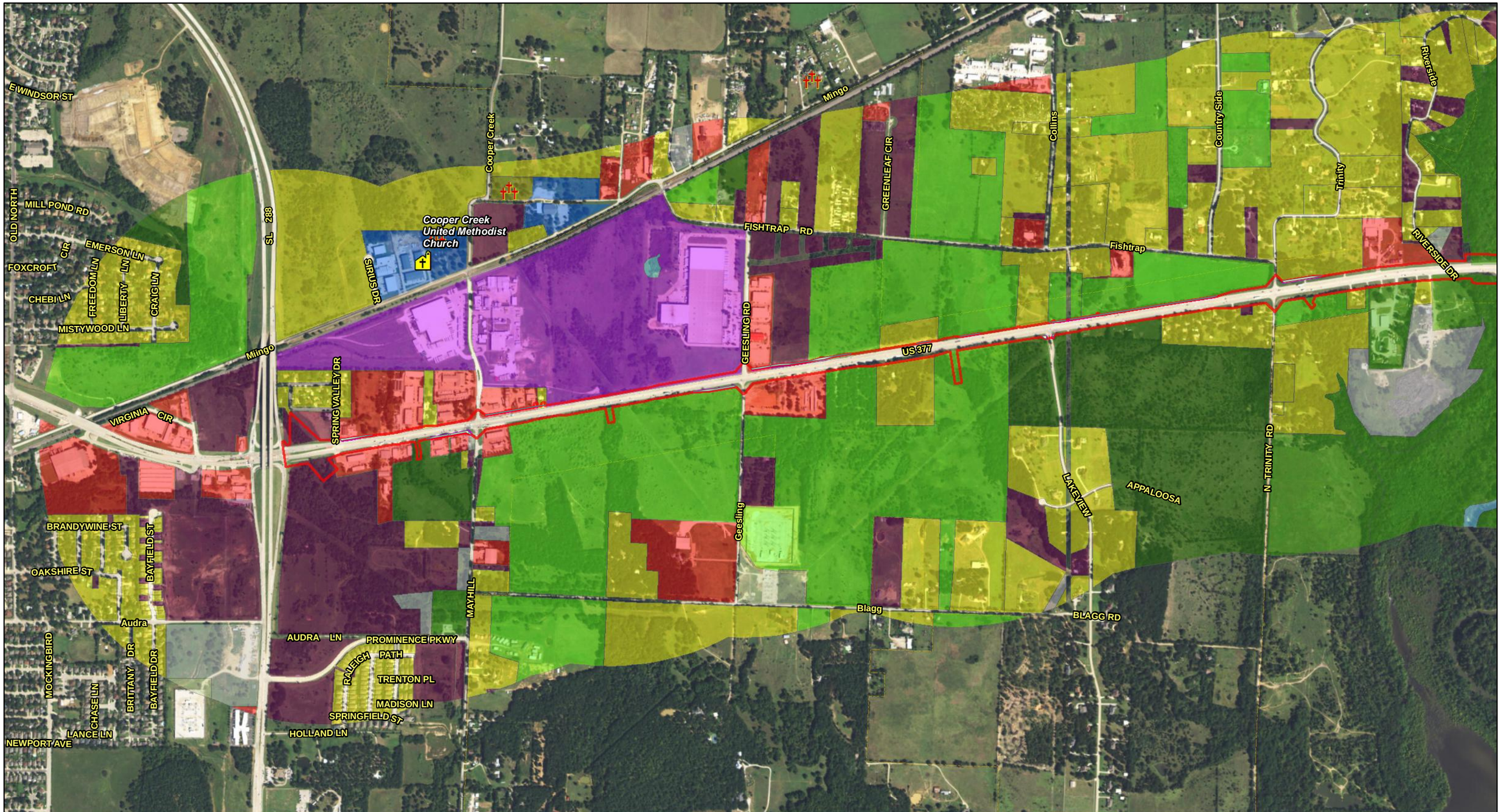
Unresolved Hazardous Material Sites and Utility Map

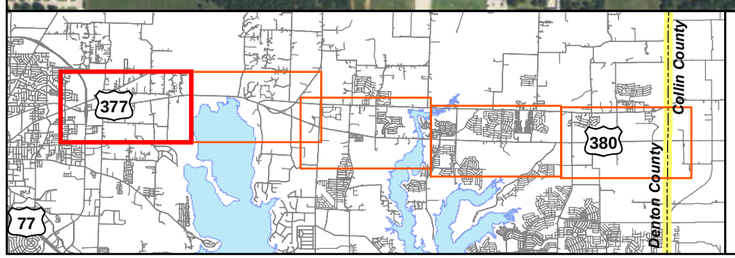
US Highway 380, Denton County Texas

Date: December 2017

Appendix - Figure 1, Sheet 11 of 11

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix F\Figure 1 - Unresolved Hazardous Material Sites_revised.mxd





Legend

N
W E
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0 500 1,000 Feet

County Line
Project Study Area

Land Use

Cemeteries
Commercial
Education/Public
Farmland/Ranch
Improved Acreage
Industrial
Mobile Home
Parks/Recreation
Residential
Timberland
Utilities
Vacant
Water

Community Resource

Hike Trail
Park
Fire Station
Hospitals
Cemetery
Place of Worship
School
Historic Cemetery

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Land Use with Community Resources

US Highway 380, Denton County Texas

Date: November 2017

Appendix F - Figure 2, Sheet 1

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix F\Figure 2 - Land Use COM.mxd

Greenbelt Corridor Ray Roberts/Lewisville Lake operated by Texas Parks and Wildlife Department

Fish Trap Park

377

Rock Hill

ROCK HILL RD

OAK BLUFF DR

CEDAR LN

ROSEWOOD DR

MESQUITE RDG

SUNSET POINTE

WOODLAND DR

STONETRAIL LN

WATERSTONE

FOREST HILLS DR

SPRING MOUNTAIN RD

New Hope

Fishtrap

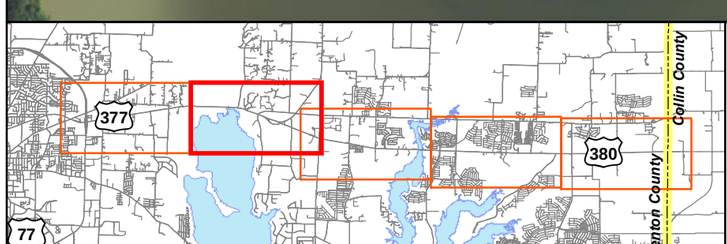
US 377

MOSELEY RD

N POTTER SHOP RD

S POTTER SHOP RD

US 380



Legend

County Line

Project Study Area

Land Use

Cemeteries

Commercial

Education/Public

Farmland/Ranch

Improved Acreage

Industrial

Mobile Home

Parks/Recreation

Residential

Timberland

Utilities

Vacant

Water

Community Resource

Hike Trail

Park

Fire Station

Hospitals

Cemetery

Place of Worship

School

Historic Cemetery

N W E S

0 500 1,000 Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Land Use with Community Resources

US Highway 380, Denton County Texas

Date: November 2017

Appendix F - Figure 2, Sheet 2

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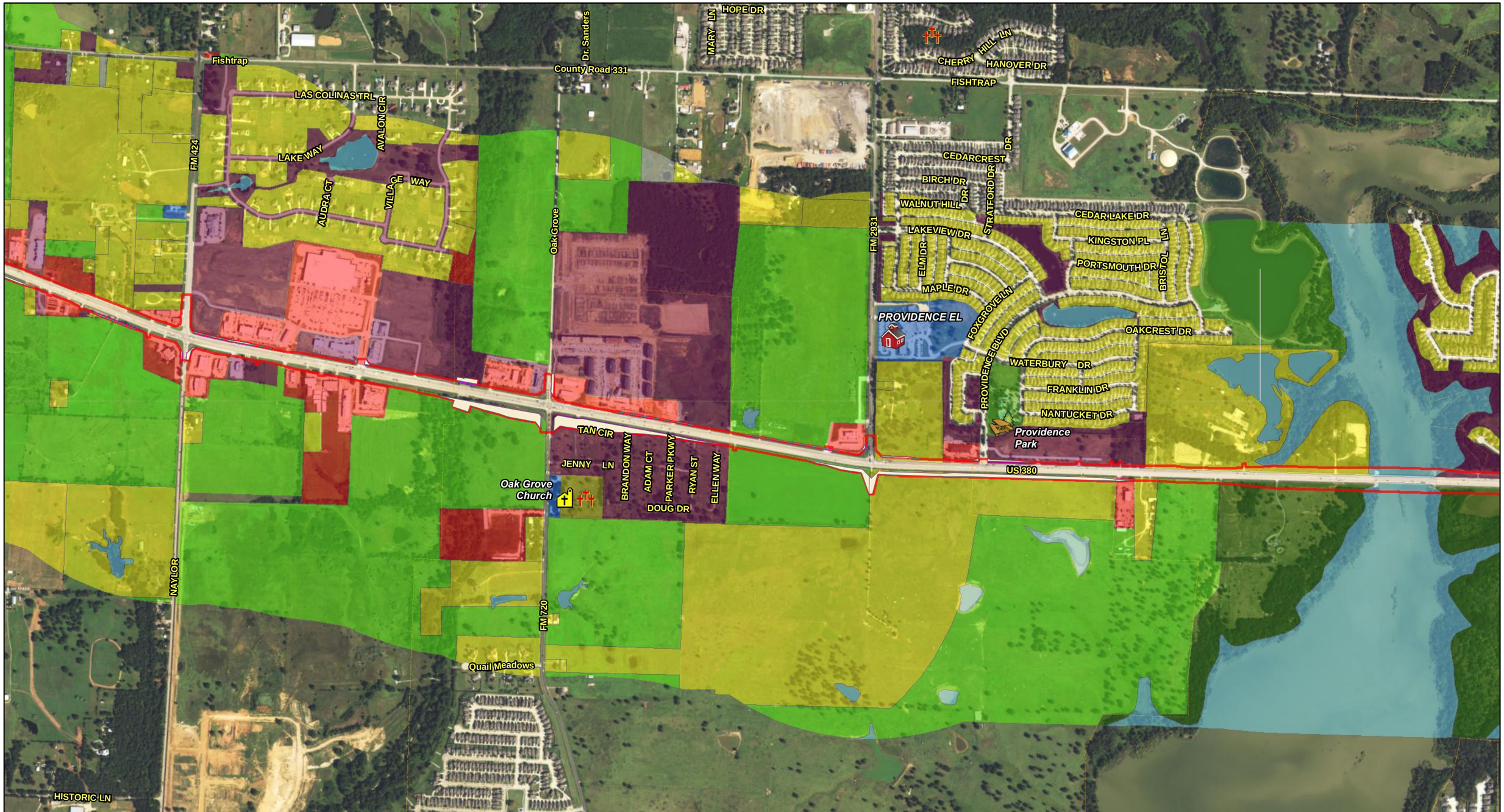

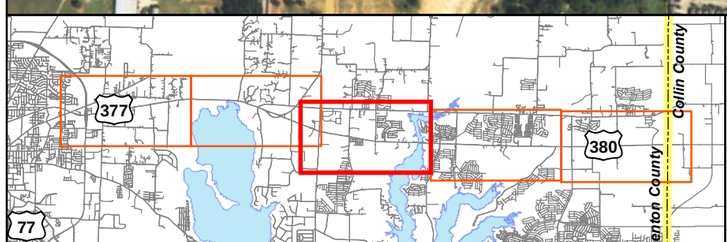

Legend

N
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0 500 1,000 Feet

County Line
Project Study Area

Land Use

Cemeteries
Commercial
Education/Public
Farmland/Ranch
Improved Acreage
Industrial
Mobile Home
Parks/Recreation
Residential
Timberland
Utilities
Vacant
Water

Community Resource

Hike Trail
Park
Fire Station
Hospitals
Cemetery
Place of Worship
School
Historic Cemetery

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Land Use with Community Resources

US Highway 380, Denton County Texas

Date: November 2017

Appendix F - Figure 2, Sheet 3

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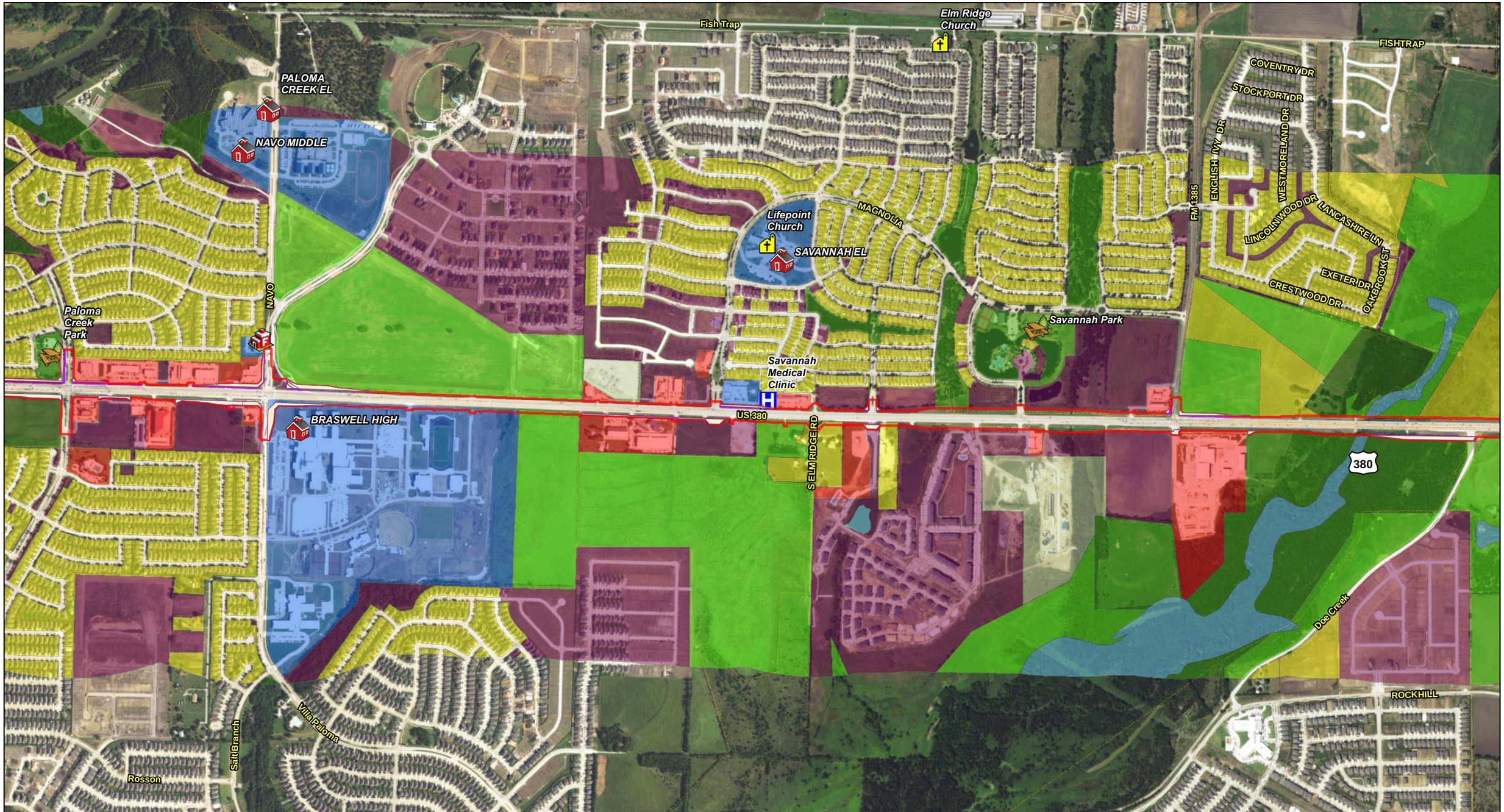
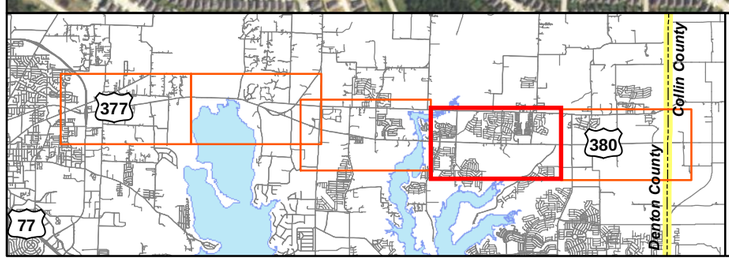




Legend

N
W E
S

0 500 1,000 Feet

County Line
Project Study Area

Land Use

Cemeteries
Commercial
Education/Public
Farmland/Ranch
Improved Acreage
Industrial
Mobile Home
Parks/Recreation
Residential
Timberland
Utilities
Vacant
Water

Community Resource

Hike Trail
Park
Fire Station
Hospitals
Cemetery
Place of Worship
School
Historic Cemetery

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Land Use with Community Resources

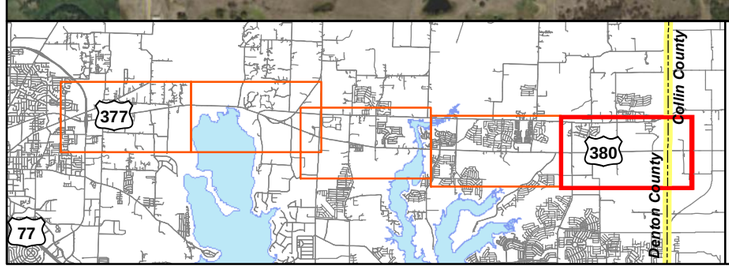
US Highway 380, Denton County Texas

Date: November 2017

Appendix F - Figure 2, Sheet 4

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix F\Figure 2 - Land Use COM.mxd

FISHTRAP
Fish Trap
GEE RD
WINDSONG PKWY
TEEL PKWY
LEGACY DR
Texas Health Prosper
US 380
Fields
VIRGINIA PKWY
CR 26
FM 423
Hawkins
ROCKHILL
GIBBS RD
Gibbs



Legend

N
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0 500 1,000 Feet

County Line
Project Study Area

Land Use

Cemeteries
Commercial
Education/Public
Farmland/Ranch
Improved Acreage
Industrial
Mobile Home
Parks/Recreation
Residential
Timberland
Utilities
Vacant
Water

Community Resource

Hike Trail
Park
Fire Station
Hospitals
Cemetery
Place of Worship
School
Historic Cemetery

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Land Use with Community Resources

US Highway 380, Denton County Texas

Date: November 2017

Appendix F - Figure 2, Sheet 5

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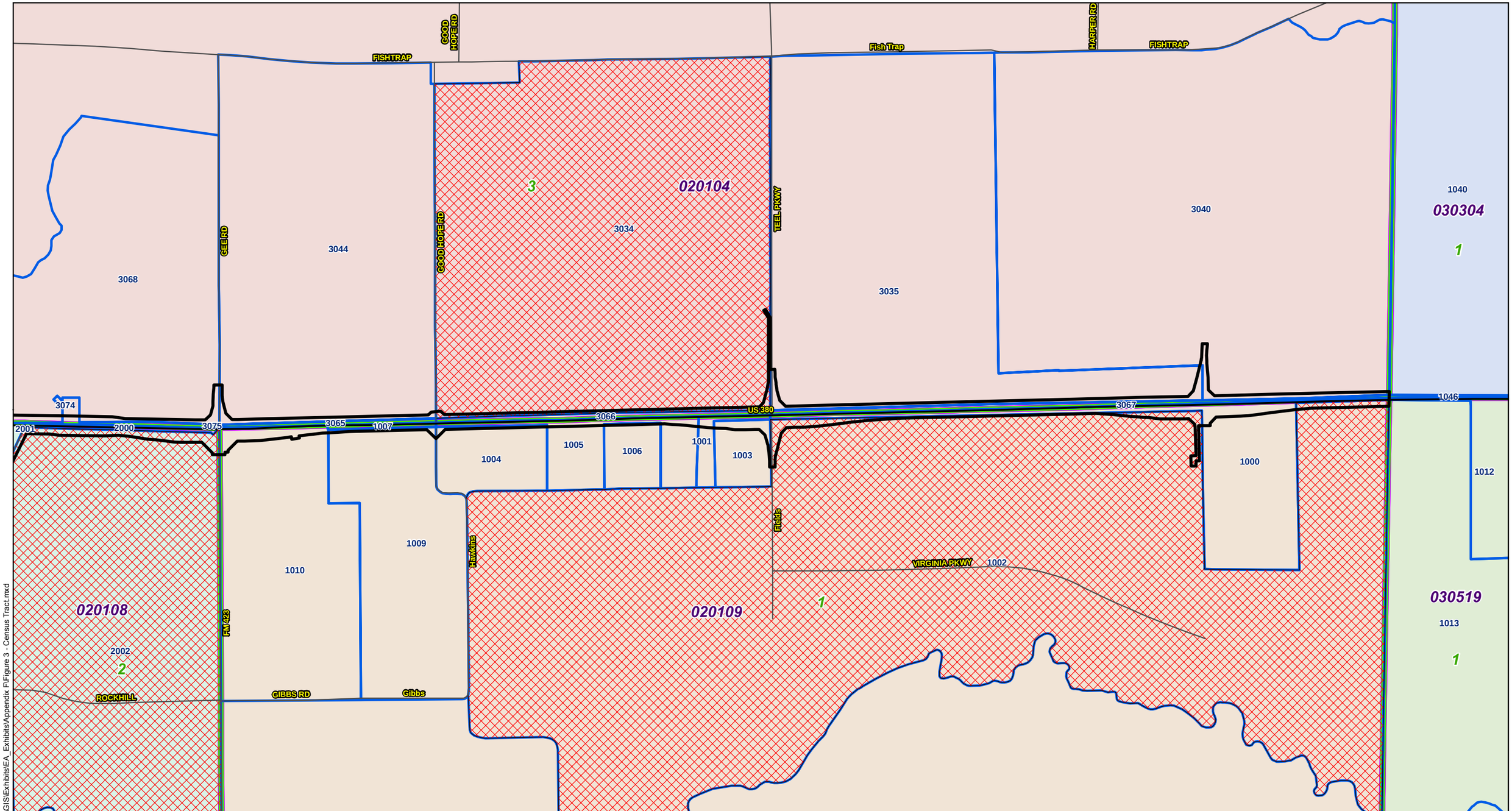
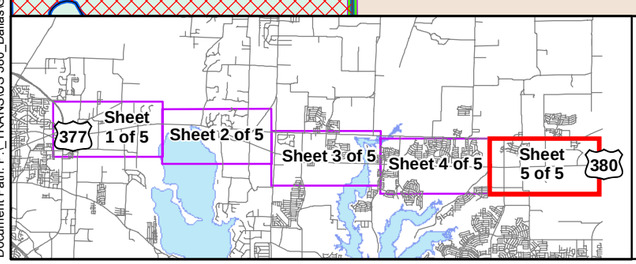




N

0 500 1,000 Feet

Legend

- Project Area
- Low Income
- 00 Census Block
- 00 Census Block Group
- 00 Census Tract

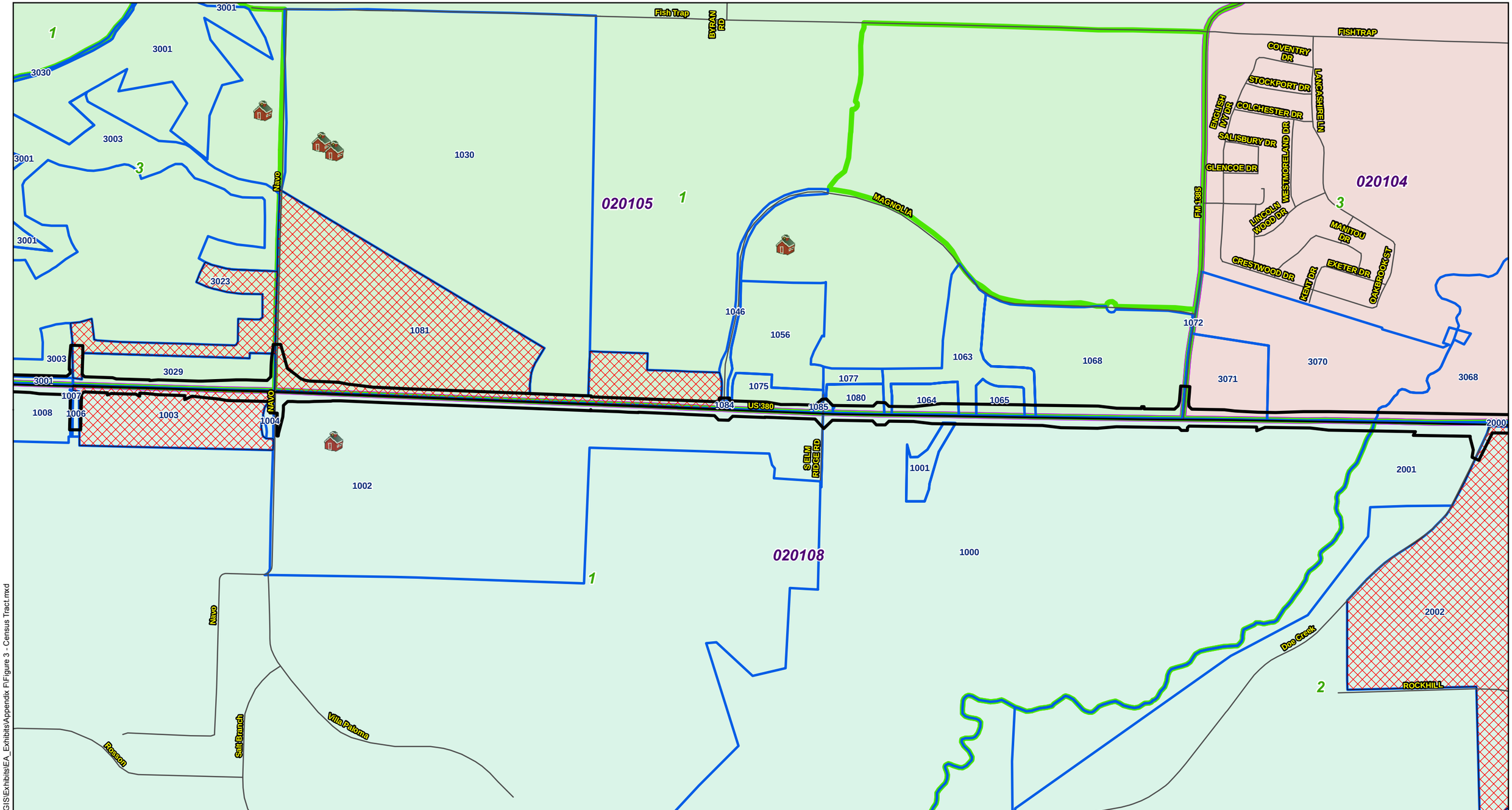
Census Tracts, Block Groups and Blocks in Project Area

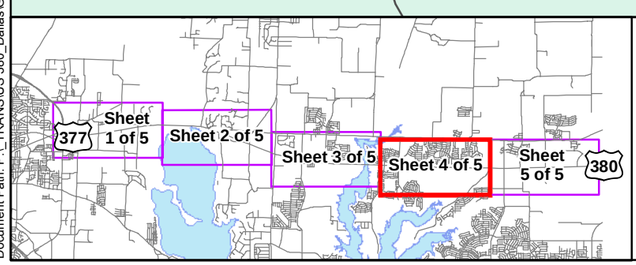
US Highway 380, Denton County Texas

Date: November 2017

Appendix F - Figure 3, Sheet 1

Document Path: P:_TRANS\US 380_Dallas\GIS\Exhibits\EA_Exhibits\Appendix F\Figure 3 - Census Tract.mxd





N

0 500 1,000 Feet

Legend

- Project Area
- Low Income
- 00 Census Block
- 00 Census Block Group
- 00 Census Tract

Census Tracts, Block Groups and Blocks in Project Area

US Highway 380, Denton County Texas

Date: November 2017

Appendix F - Figure 3, Sheet 2

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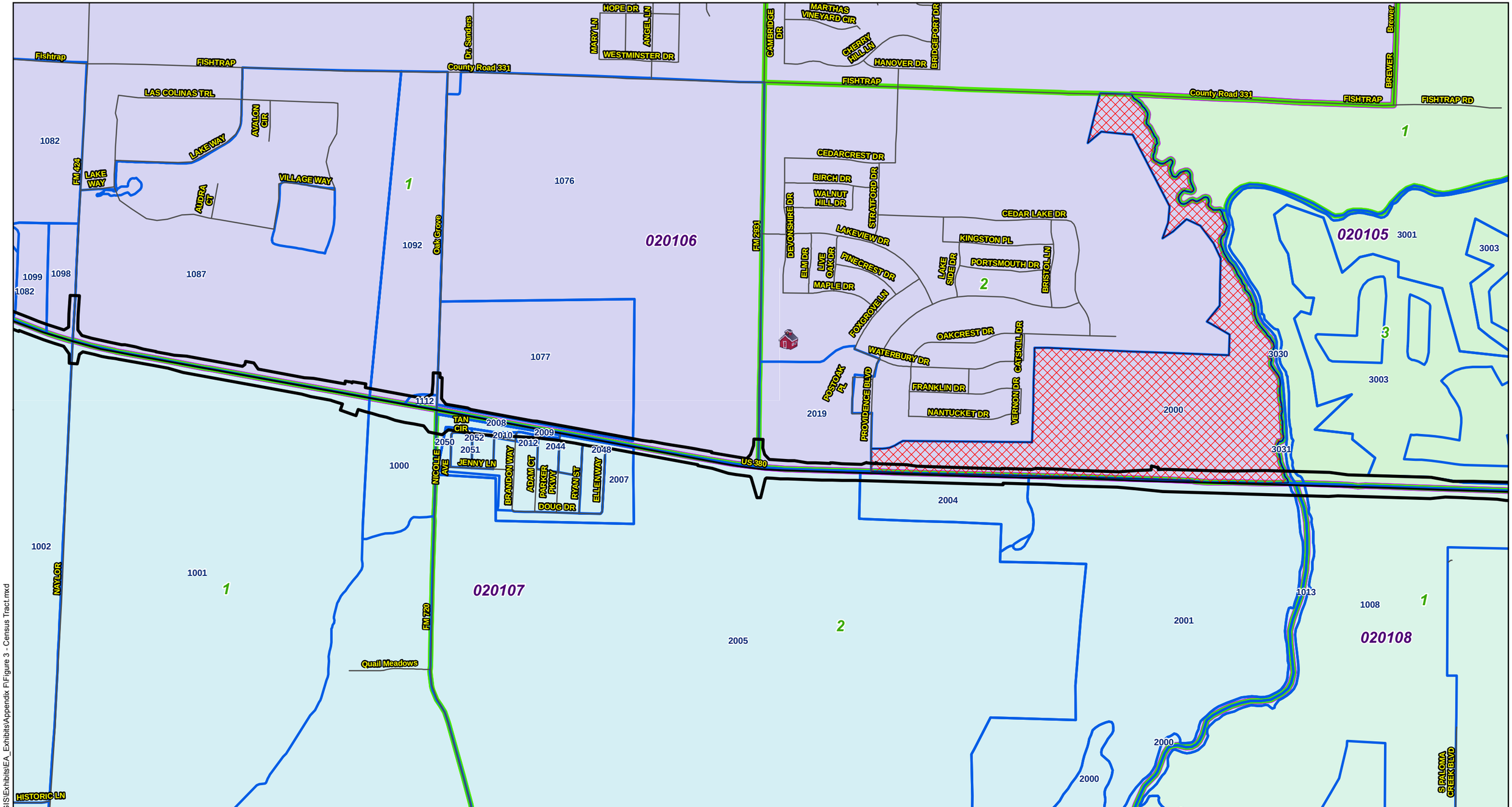

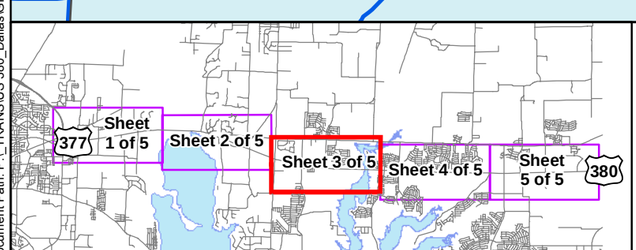

N

0 500 1,000 Feet

Legend

- Project Area
- Low Income
- 00 Census Block
- 00 Census Block Group
- 00 Census Tract

Census Tracts, Block Groups and Blocks in Project Area

US Highway 380, Denton County Texas

Date: November 2017

Appendix F - Figure 3, Sheet 3

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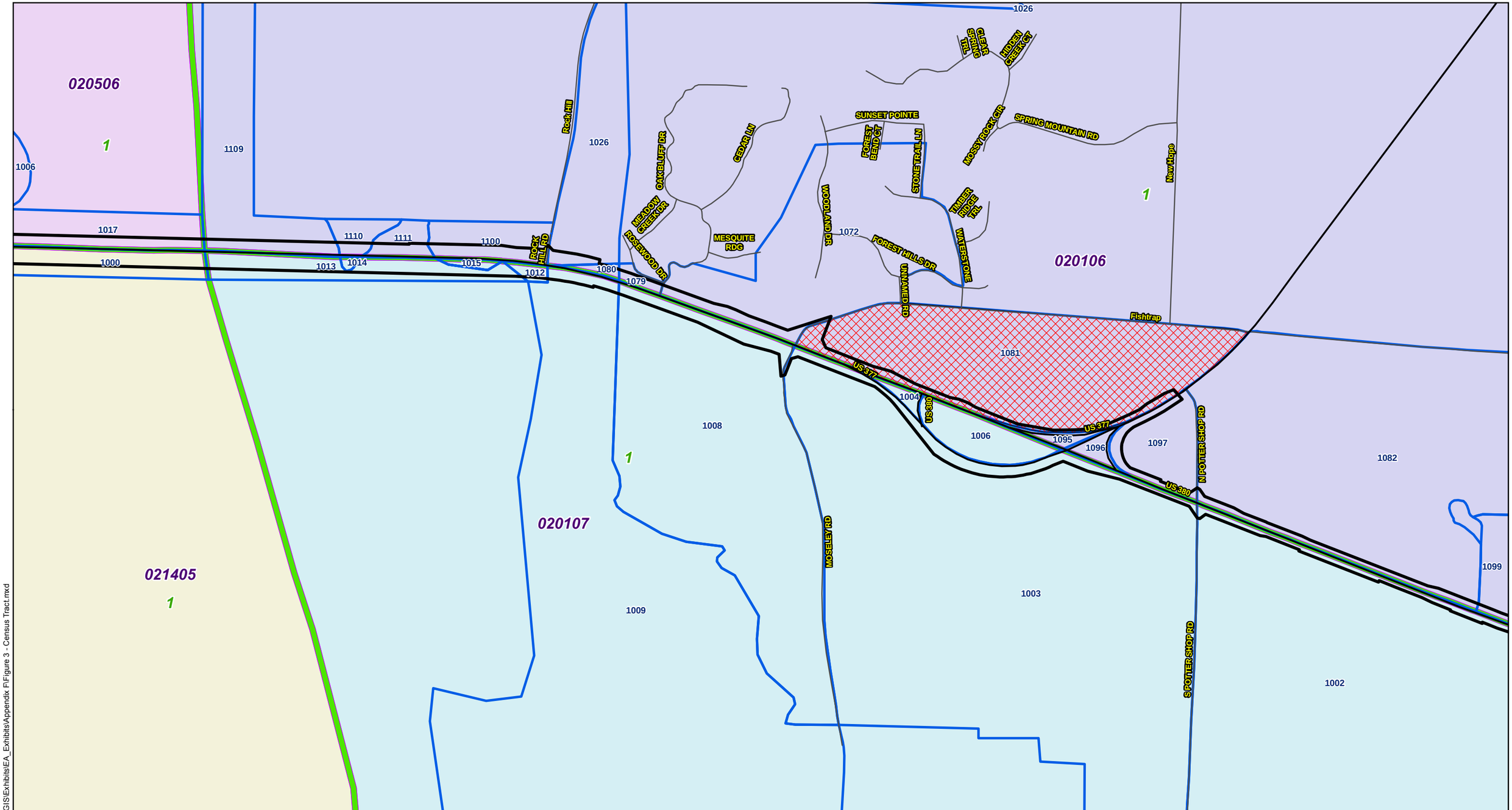

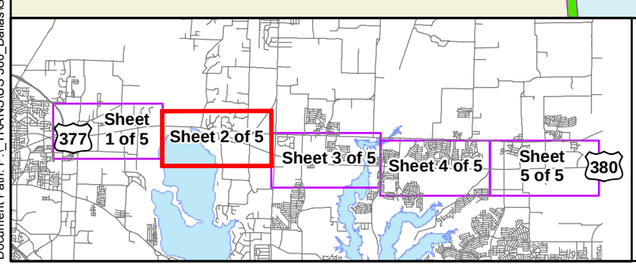

N

0 500 1,000 Feet

Legend

- Project Area
- Low Income
- 00 Census Block
- 00 Census Block Group
- 00 Census Tract

Census Tracts, Block Groups and Blocks in Project Area

US Highway 380, Denton County Texas

Date: November 2017

Appendix F - Figure 3, Sheet 4

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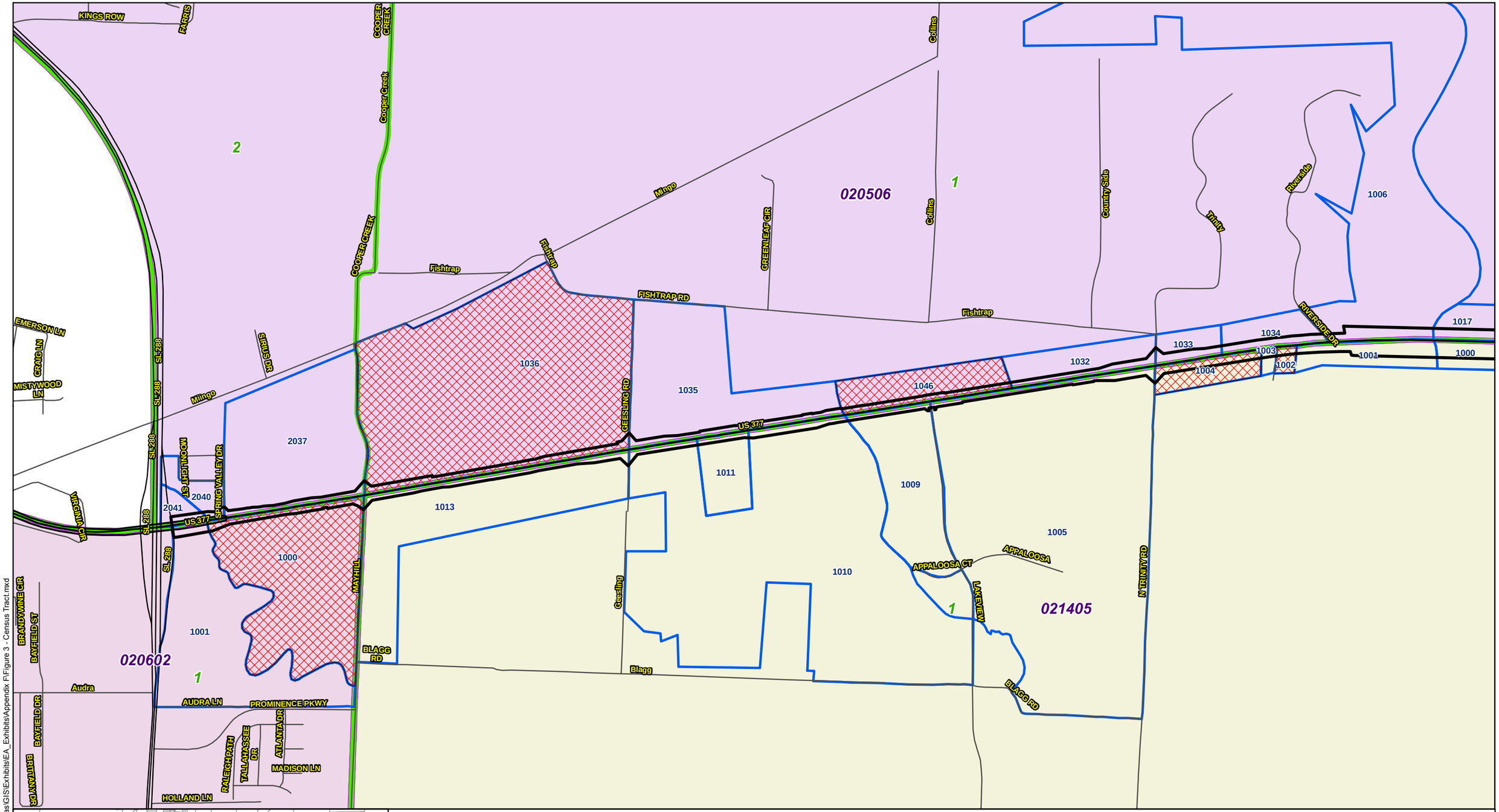

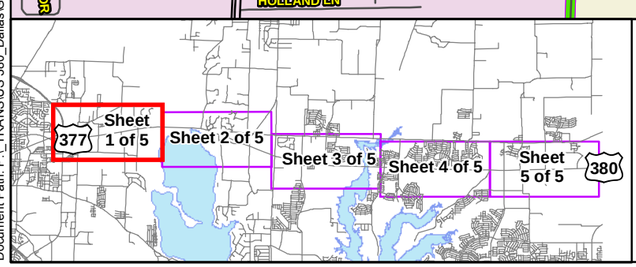

N

0 500 1,000 Feet

Legend

- Project Area
- Low Income
- 00 Census Block
- 00 Census Block Group
- 00 Census Tract

Census Tracts, Block Groups and Blocks in Project Area

US Highway 380, Denton County Texas

Date: November 2017

Appendix F - Figure 3, Sheet 5

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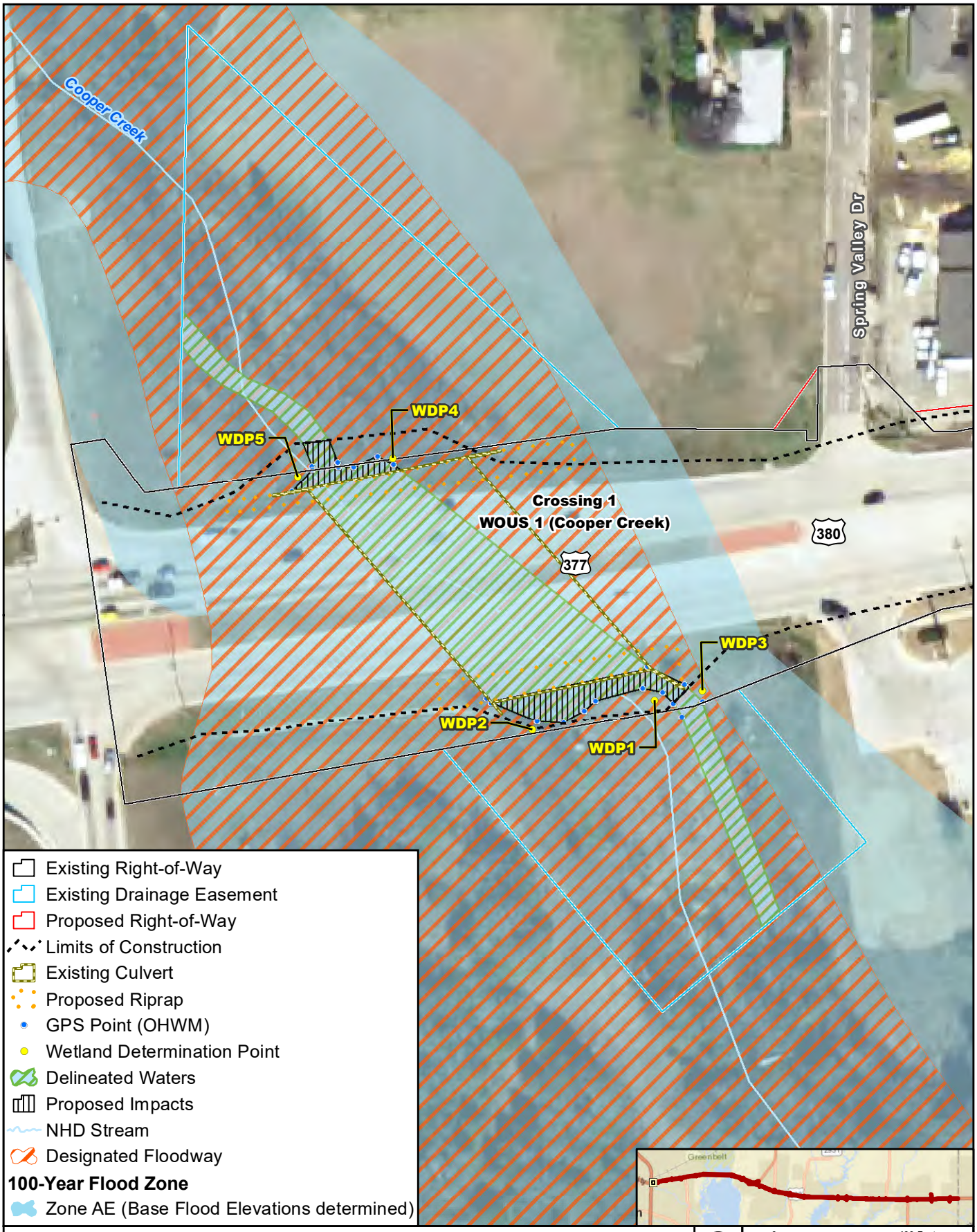

Appendix F - Figure 4, Sheet 1 of 18

Crossing 1 - WOUS 1 (Cooper Creek)

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

0 100 Feet
0 30 Meters

Prepared for: TxDOT	1 in = 100 feet
	Scale: 1:1,200
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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Appendix F - Figure 4, Sheet 2 of 18

Crossing 2 - Ditch 1

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

0 50 Feet
0 10 Meters

Prepared for: TxDOT	1 in = 50 feet
	Scale: 1:600
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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Appendix F - Figure 4, Sheet 3 of 18

Crossing 3 - Ditch 2

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

0 100 Feet
0 30 Meters

Prepared for: TxDOT	1 in = 100 feet
	Scale: 1:1,200
CSJ: 0135-10-050, 0135-10-057	Date: 7/17/2017

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Appendix F - Figure 4, Sheet 4 of 18

Crossing 4 - WOUS 2 (Timber Branch)

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

0 100 Feet
0 30 Meters

Prepared for: TxDOT	1 in = 100 feet
	Scale: 1:1,200
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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Appendix F - Figure 4, Sheet 5 of 18

Crossing 5 - WOUS 3

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

0 100 Feet
0 30 Meters

Prepared for: TxDOT	1 in = 100 feet
	Scale: 1:1,200
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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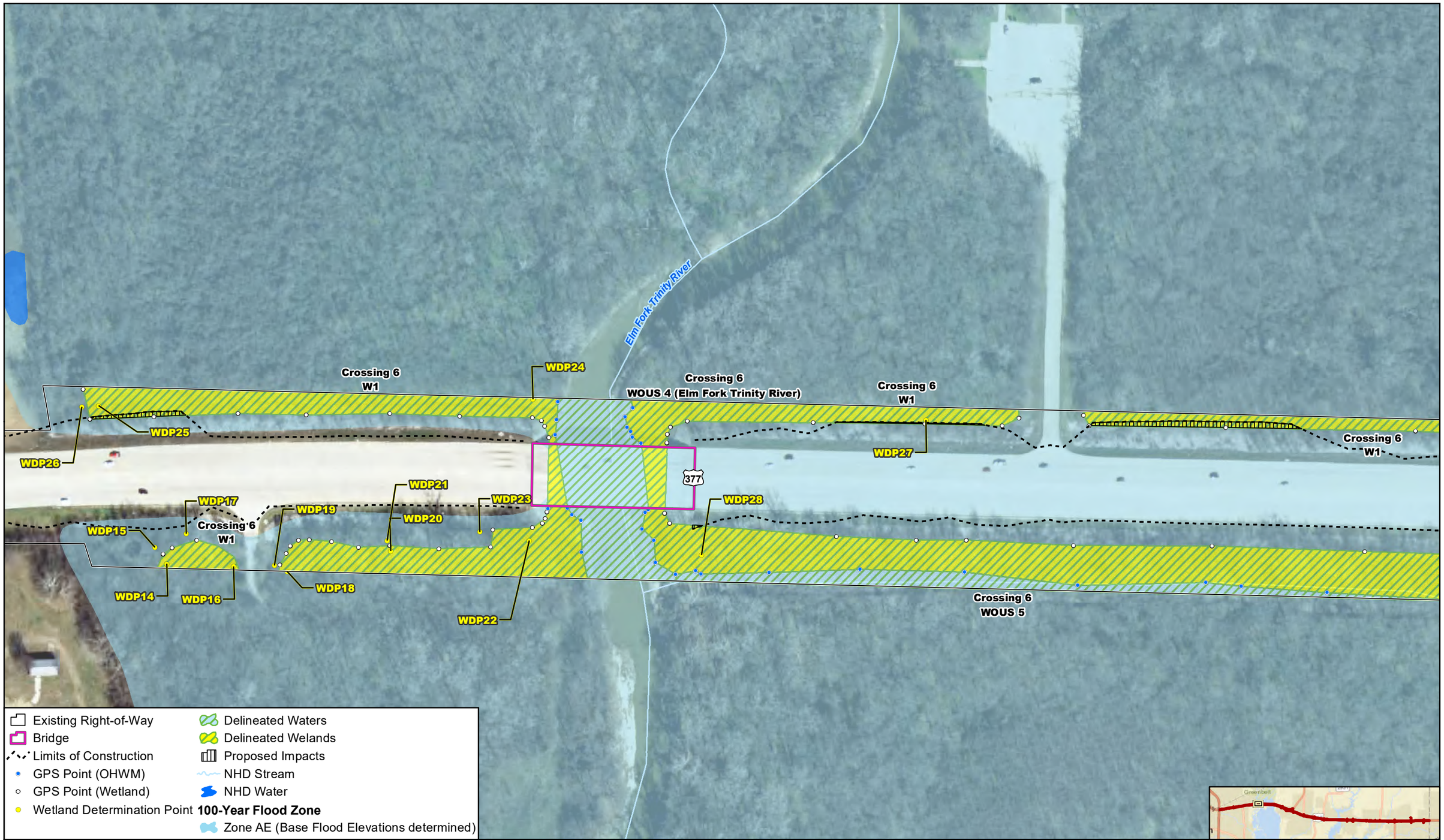

Appendix F - Figure 4, Sheet 6 of 18

Crossing 6 - W1, WOUS 4 (Elm Fork Trinity River), WOUS 5

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2015), CMEC (2016)
Aerial Source: TNRIS (2015)

Prepared for: TxDOT	1 in = 160 feet
	Scale: 1:1,920
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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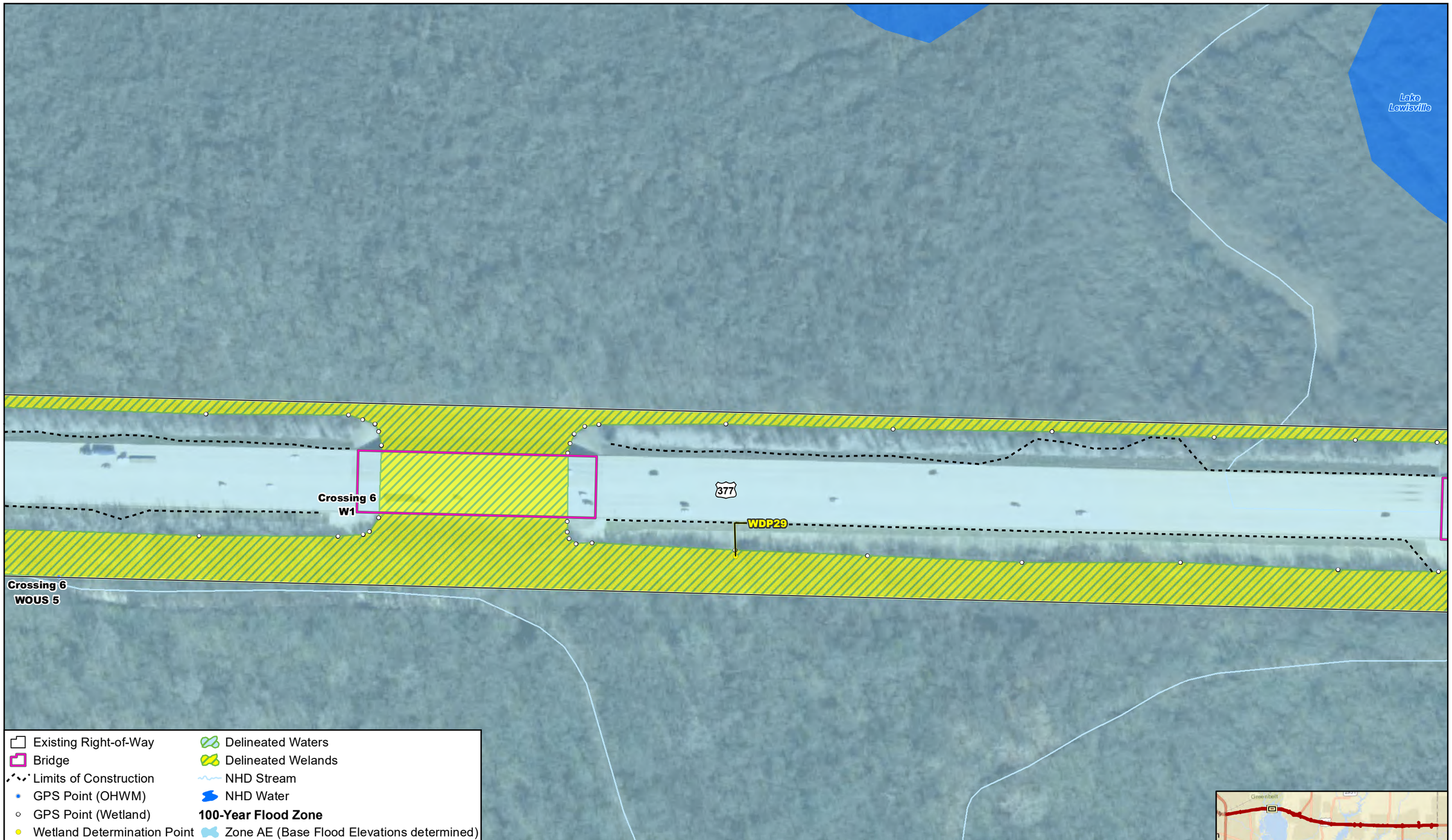

Appendix F - Figure 4, Sheet 7 of 18

Crossing 6 - W1, WOUS 5

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2015), CMEC (2016)
Aerial Source: TNRIS (2015)

Prepared for: TxDOT	1 in = 160 feet
	Scale: 1:1,920
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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Appendix F - Figure 4, Sheet 8 of 18

Crossing 6 - W1, WOUS 6

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2015), CMEC (2016)
Aerial Source: TNRIS (2015)

Prepared for: TxDOT	1 in = 160 feet
	Scale: 1:1,920
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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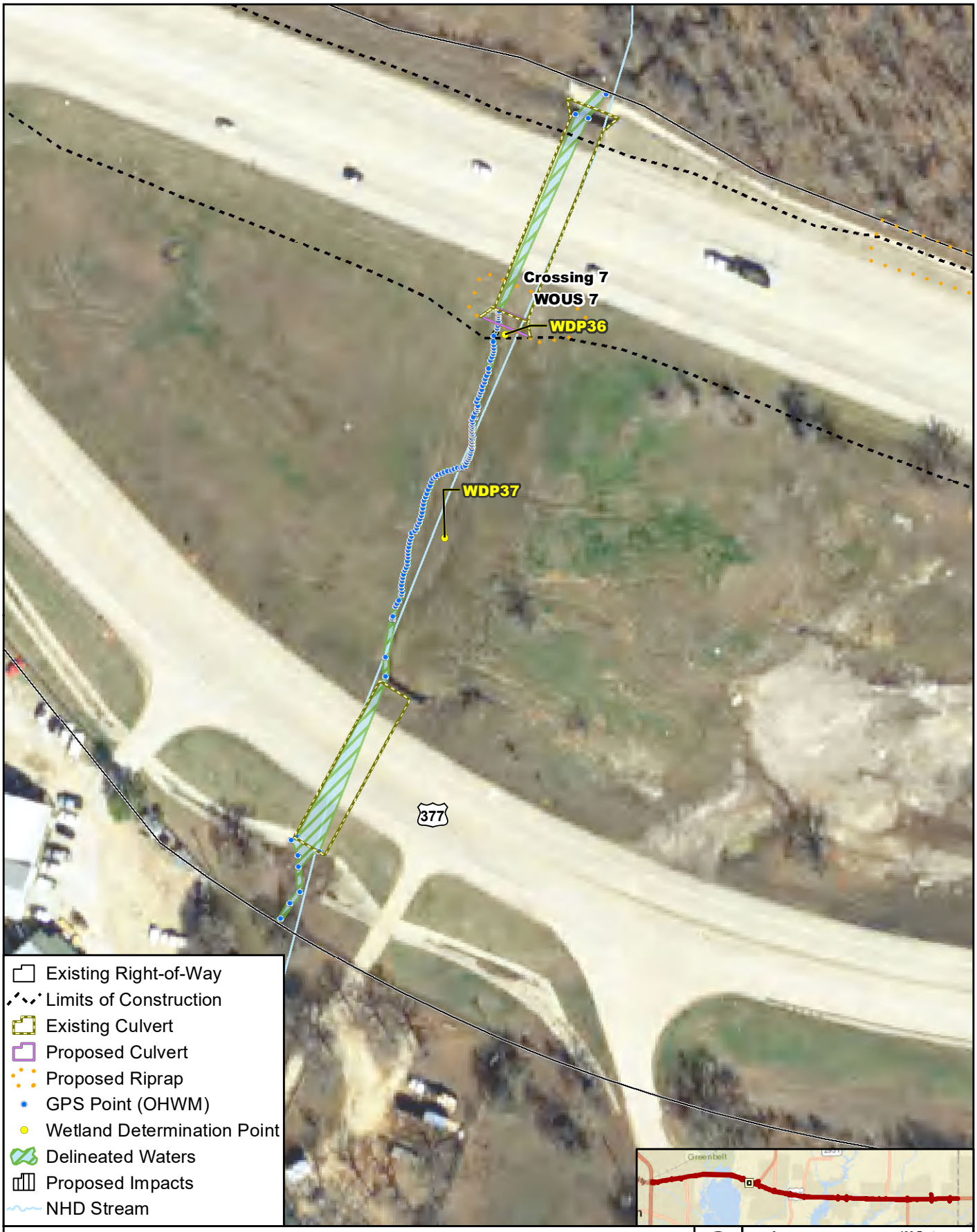

Appendix F - Figure 4, Sheet 9 of 18

Crossing 7 - WOUS 7

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

0 100 Feet
0 30 Meters

Prepared for: TxDOT	1 in = 100 feet
	Scale: 1:1,200
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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Appendix F - Figure 4, Sheet 10 of 18

Crossing 8 - WOUS 8

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

Prepared for: TxDOT	1 in = 50 feet
	Scale: 1:600
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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Appendix F - Figure 4, Sheet 11 of 18

Crossing 9 - WOUS 9

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

Prepared for: TxDOT	1 in = 50 feet
	Scale: 1:600
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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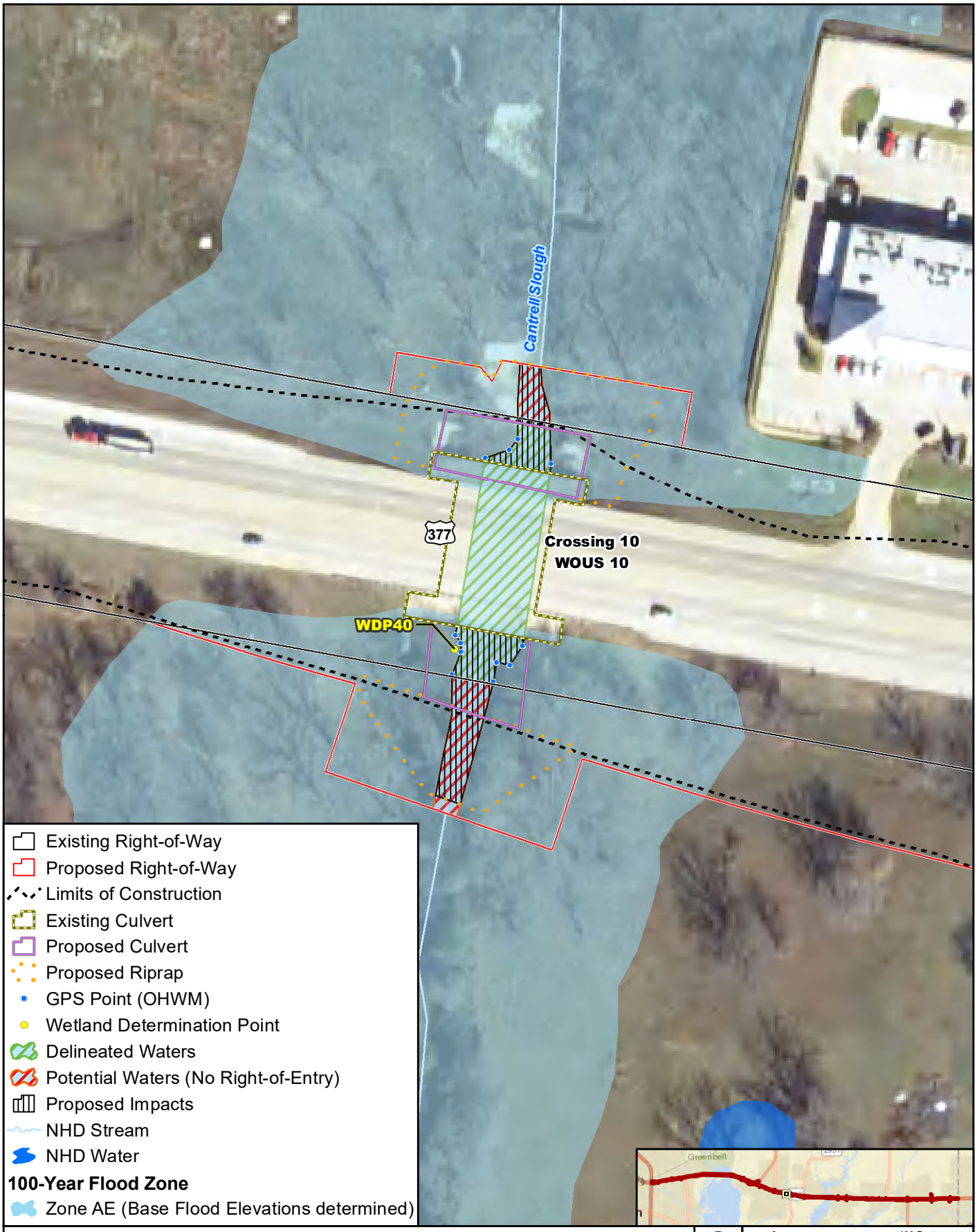

Appendix F - Figure 4, Sheet 12 of 18

Crossing 10 - WOUS 10

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

0 100 Feet
0 30 Meters

Prepared for: TxDOT	1 in = 100 feet
	Scale: 1:1,200
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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Appendix F - Figure 4, Sheet 13 of 18

Crossing 11 - EC1

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

0 100 Feet
0 30 Meters

Prepared for: TxDOT	1 in = 100 feet
	Scale: 1:1,200
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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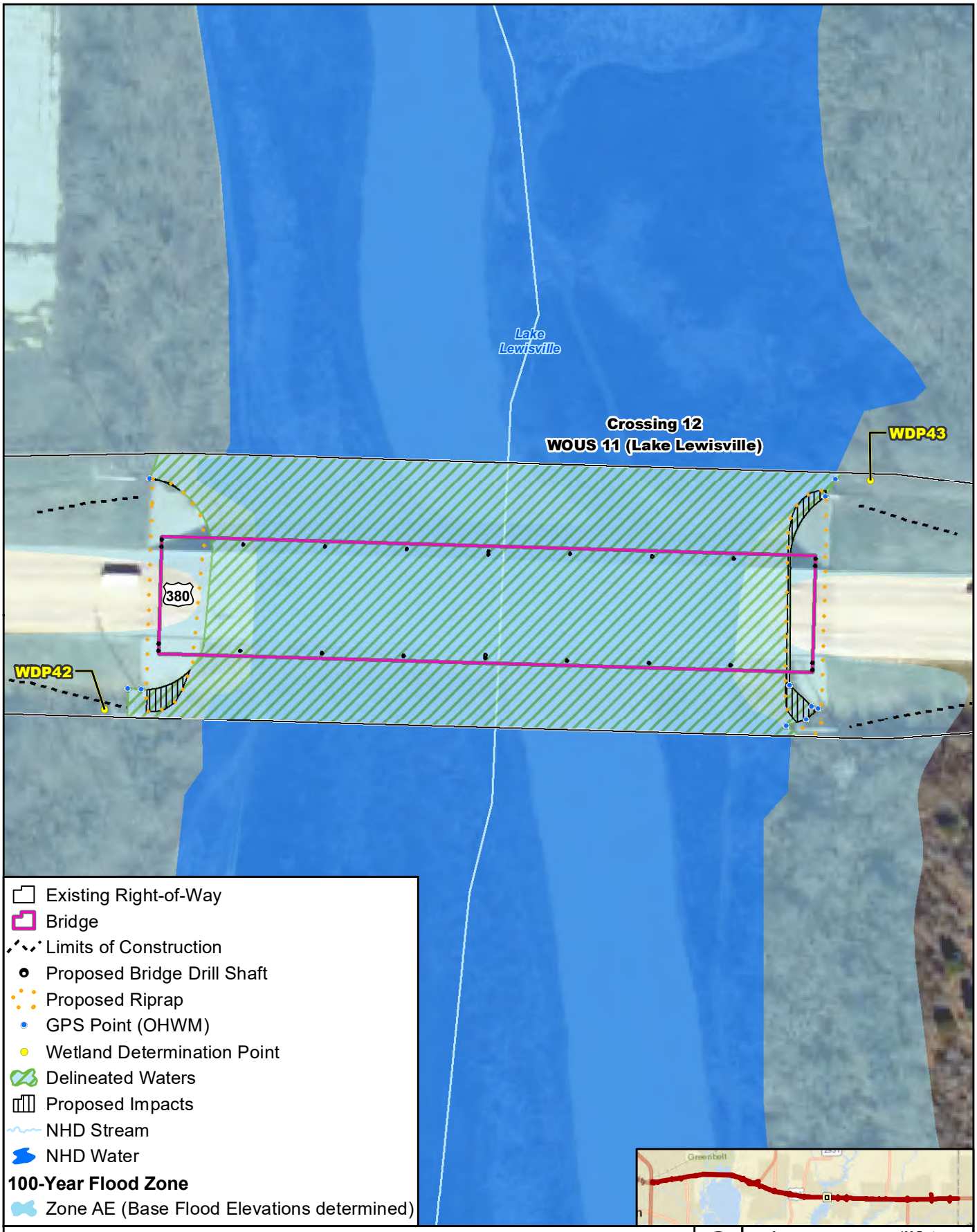

Appendix F - Figure 4, Sheet 14 of 18

Crossing 12 - WOUS 11 (Lake Lewisville)

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

0 130 Feet
0 40 Meters

Prepared for: TxDOT	1 in = 130 feet
	Scale: 1:1,560
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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Appendix F - Figure 4, Sheet 15 of 18

Crossing 13 - WOUS 12

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

0 100 Feet
0 30 Meters

Prepared for: TxDOT	1 in = 100 feet
	Scale: 1:1,200
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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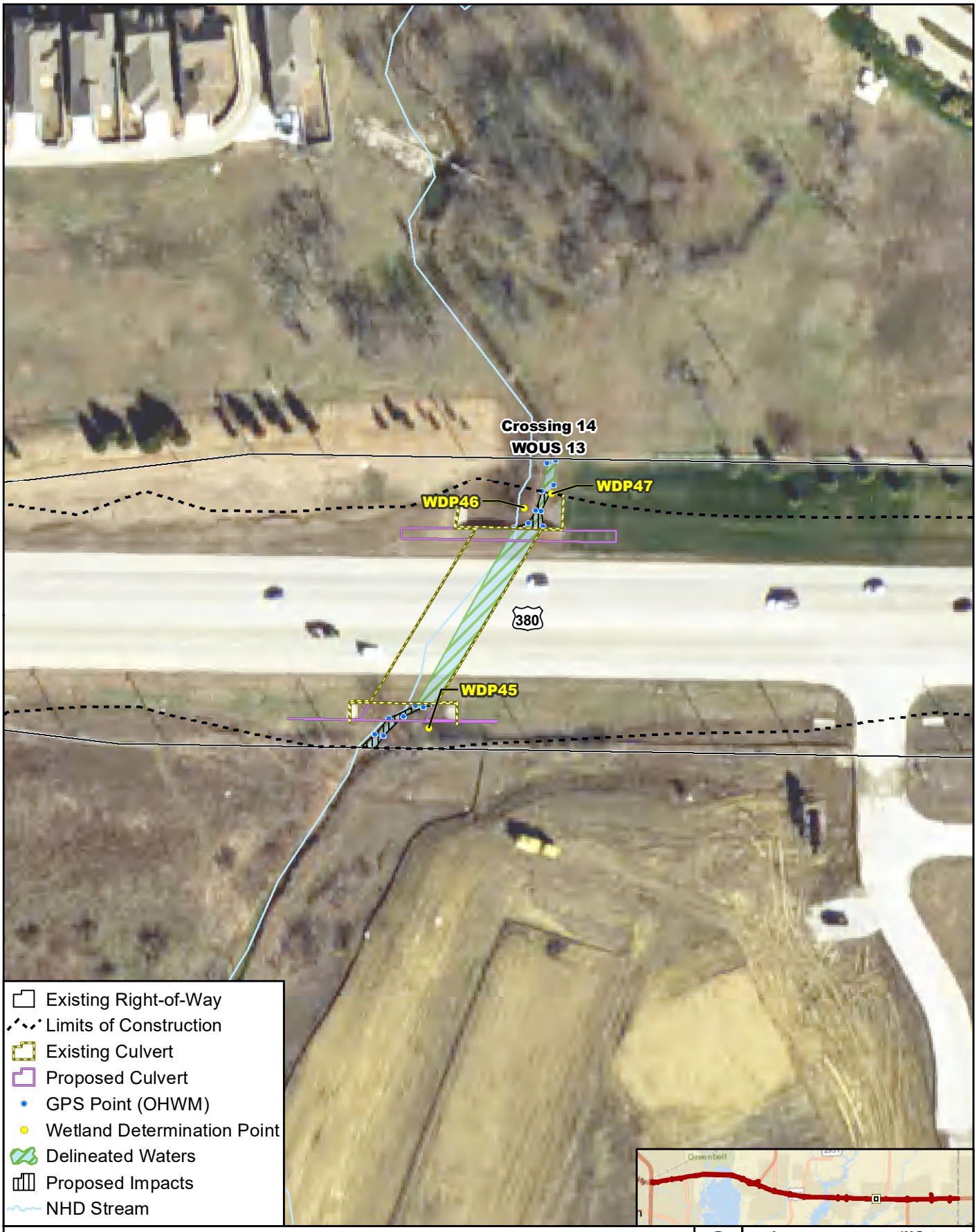

Appendix F - Figure 4, Sheet 16 of 18

Crossing 14 - WOUS 13

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

0 100 Feet
0 30 Meters

Prepared for: TxDOT	1 in = 100 feet
	Scale: 1:1,200
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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Appendix F - Figure 4, Sheet 17 of 18

Crossing 15 - WOUS 14

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

0 100 Feet
0 30 Meters

Prepared for: TxDOT	1 in = 100 feet
	Scale: 1:1,200
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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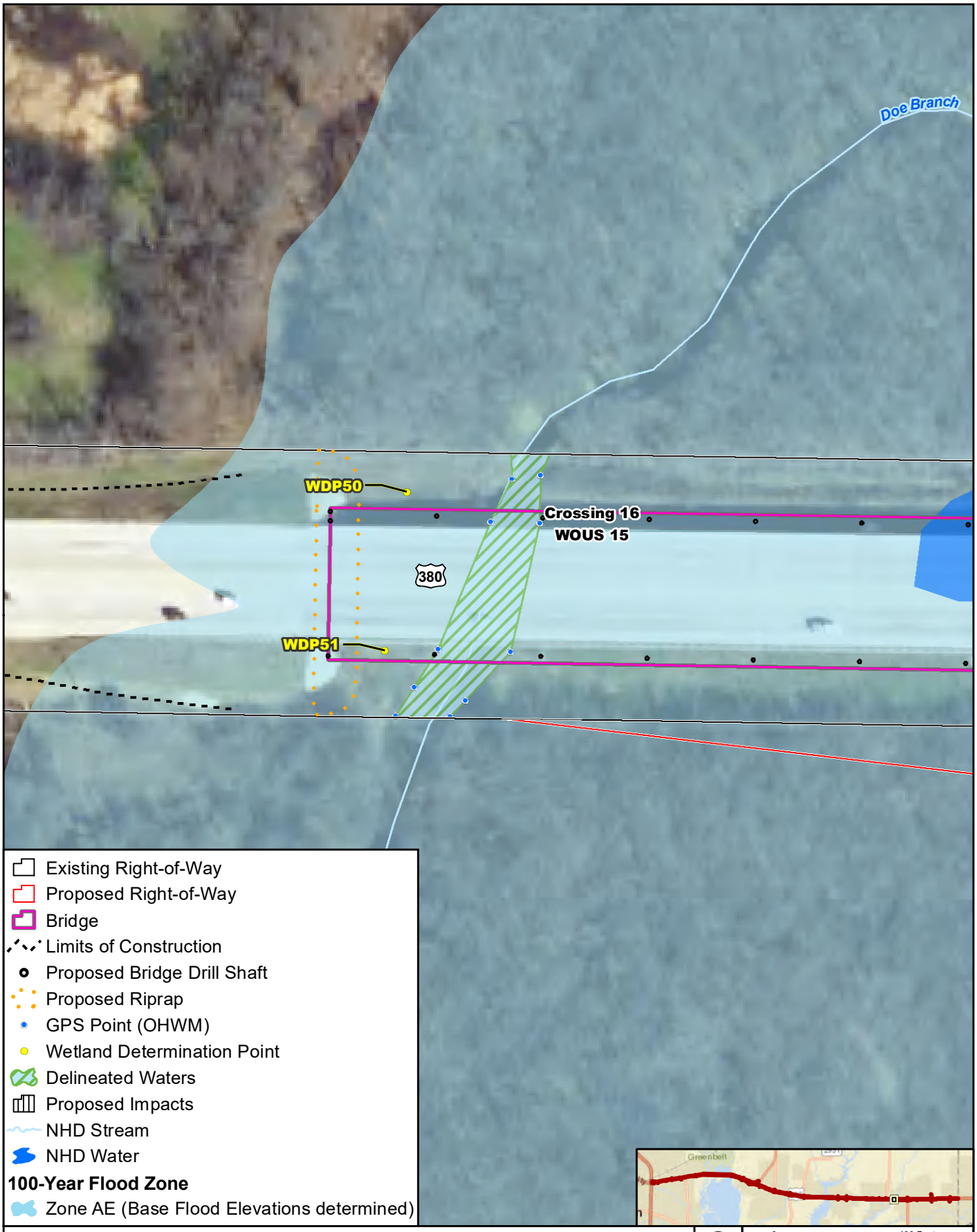

Appendix F - Figure 4, Sheet 18 of 18

Crossing 16 - WOUS 15

US 380 from State Loop (SL) 288 to West of CR 26 (County Line)

Data Sources: NHD (2014), FEMA NFHL (2017), CMEC (2016)
Aerial Source: TNRIS (2015)

0 100 Feet
0 30 Meters

Prepared for: TxDOT	1 in = 100 feet
	Scale: 1:1,200
CSJ: 0135-10-050, 0135-10-057	Date: 6/26/2017

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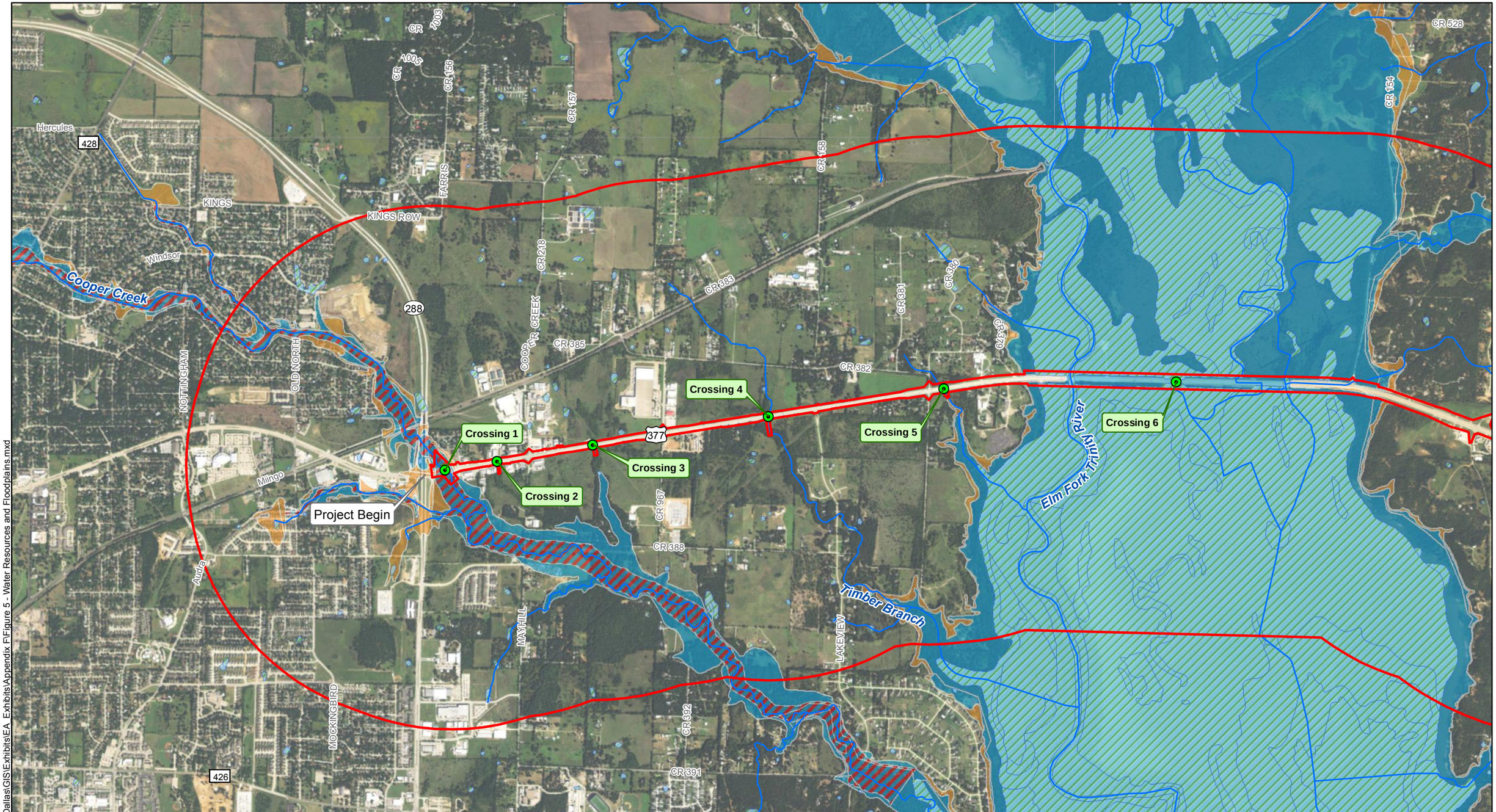

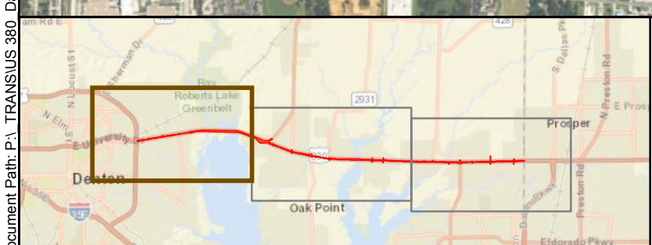

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics.

Legend

- Project Area
- Water Crossing
- NHD Stream
- NWI Wetlands

FEMA Flood Hazard Zones

- Regulatory Floodway
- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard

N W E S

0 1,000 2,000 Feet

Sources:
Stream, NHD, 2017;
NWI, USFWS, 2015;
Flood data, FEMA NFHL, 2017;
Aerial, TNRIS TOP, 2015.

Water Resources and Floodplains

US Highway 380, Denton County Texas

Date: June 2017

Appendix F - Figure 5, Sheet 1

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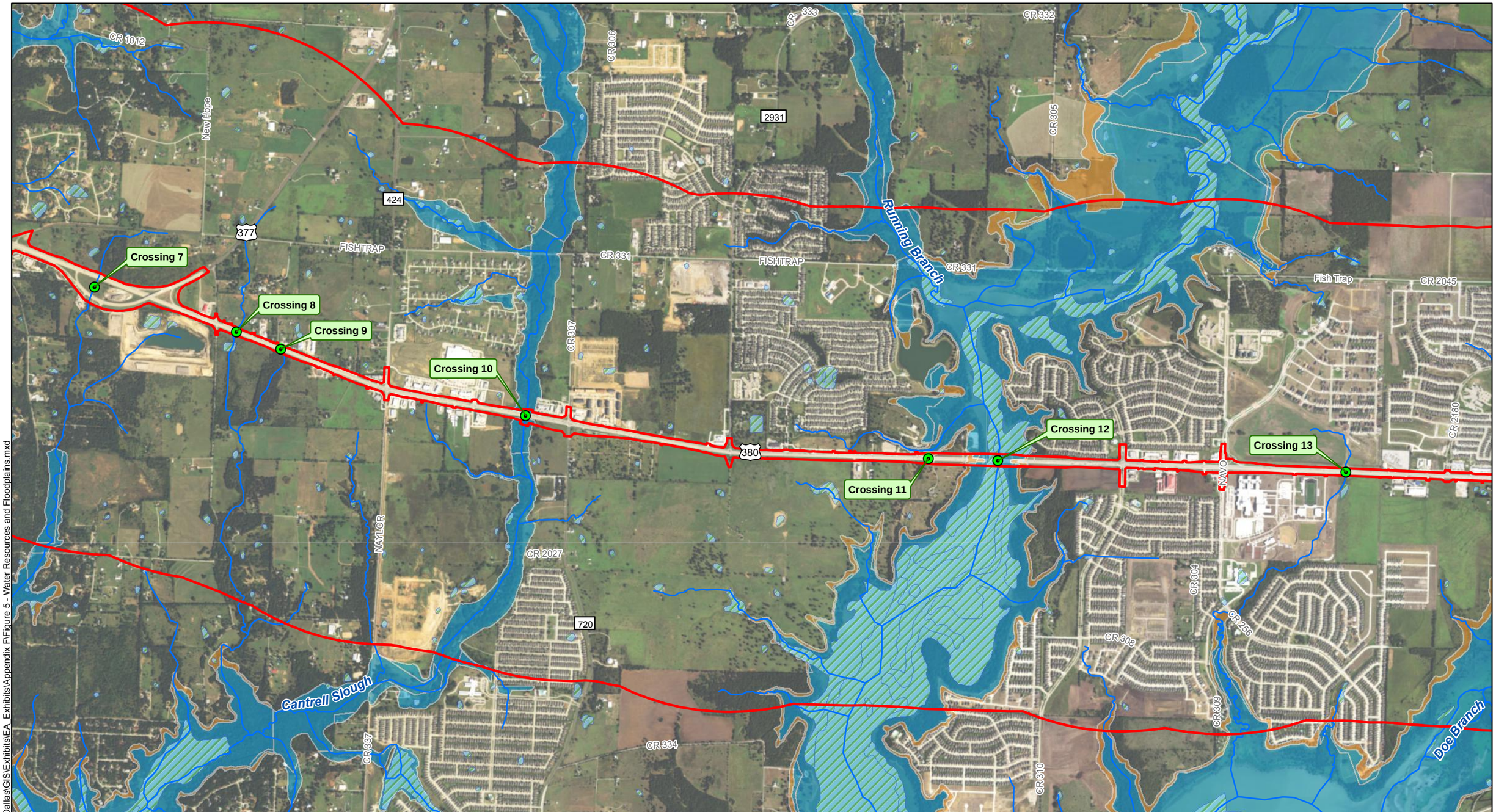
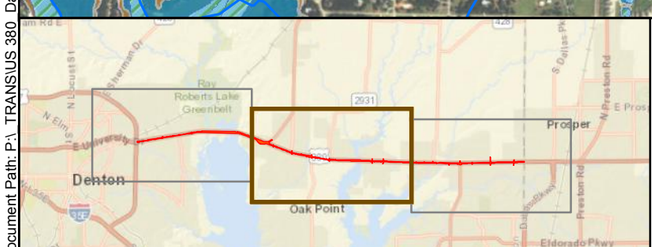




Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics.

Legend

- Project Area
- Water Crossing
- NHD Stream
- NWI Wetlands

FEMA Flood Hazard Zones

- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard

N W E S

0 1,000 2,000 Feet

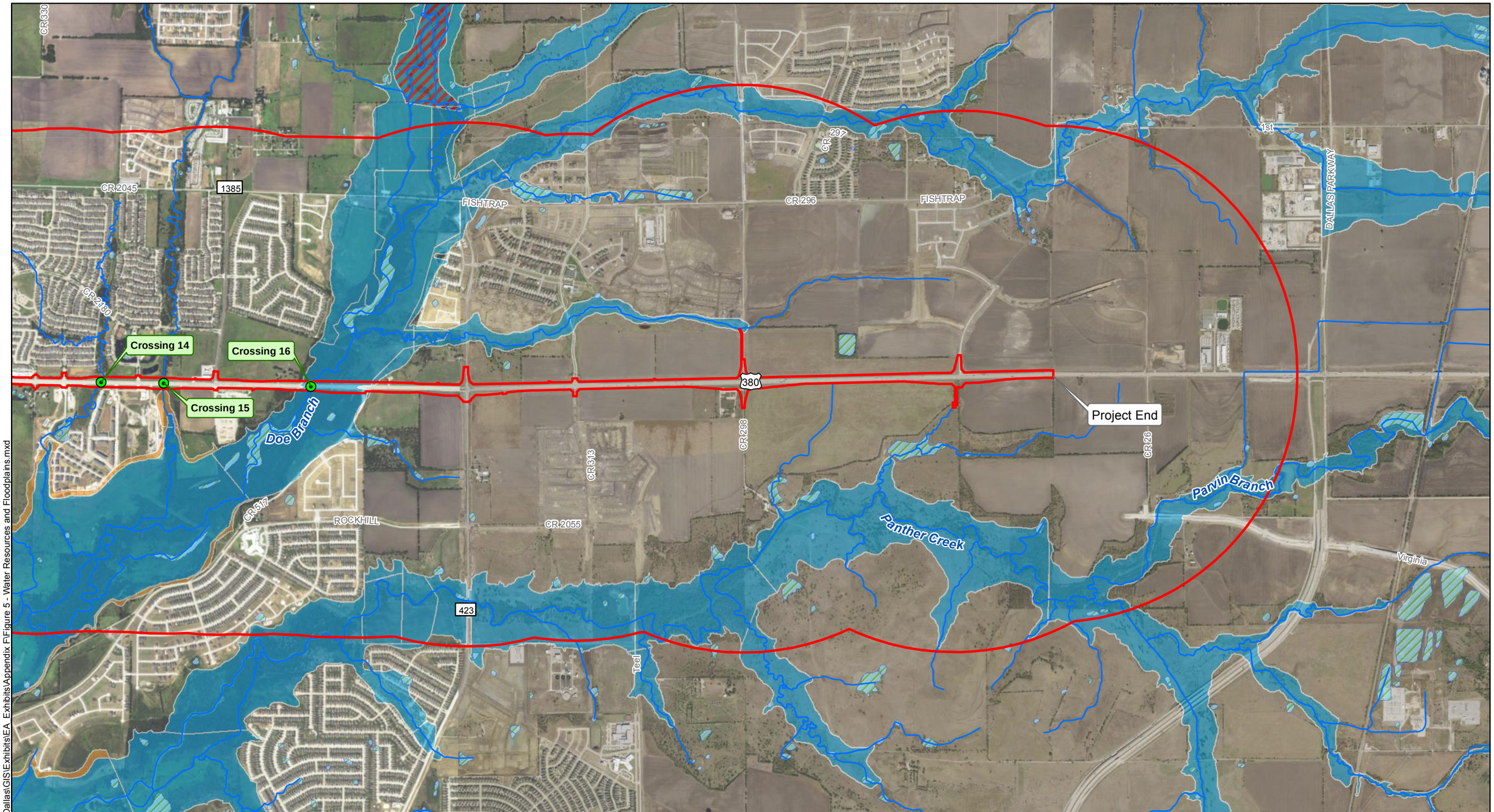
Sources:
Stream, NHD, 2017;
NWI, USFWS, 2015;
Flood data, FEMA NFHL, 2017;
Aerial, TNRIS TOP, 2015.

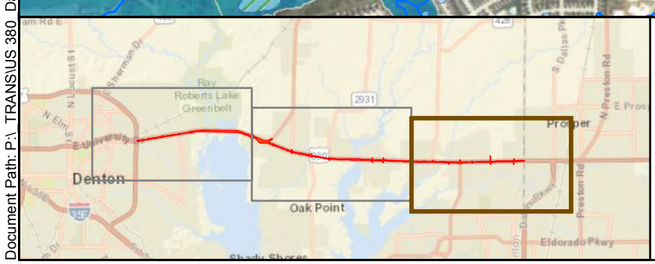
Water Resources and Floodplains

US Highway 380, Denton County Texas

Date: June 2017

Appendix F - Figure 5, Sheet 2





Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics.

Legend

- Project Area
- Water Crossing
- NHD Stream
- NWI Wetlands

FEMA Flood Hazard Zones

- Regulatory Floodway
- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard

N W E S

0 1,000 2,000 Feet

Sources:
Stream, NHD, 2017;
NWI, USFWS, 2015;
Flood data, FEMA NFHL, 2017;
Aerial, TNRIS TOP, 2015.

Water Resources and Floodplains

US Highway 380, Denton County Texas

Date: June 2017

Appendix F - Figure 5, Sheet 3

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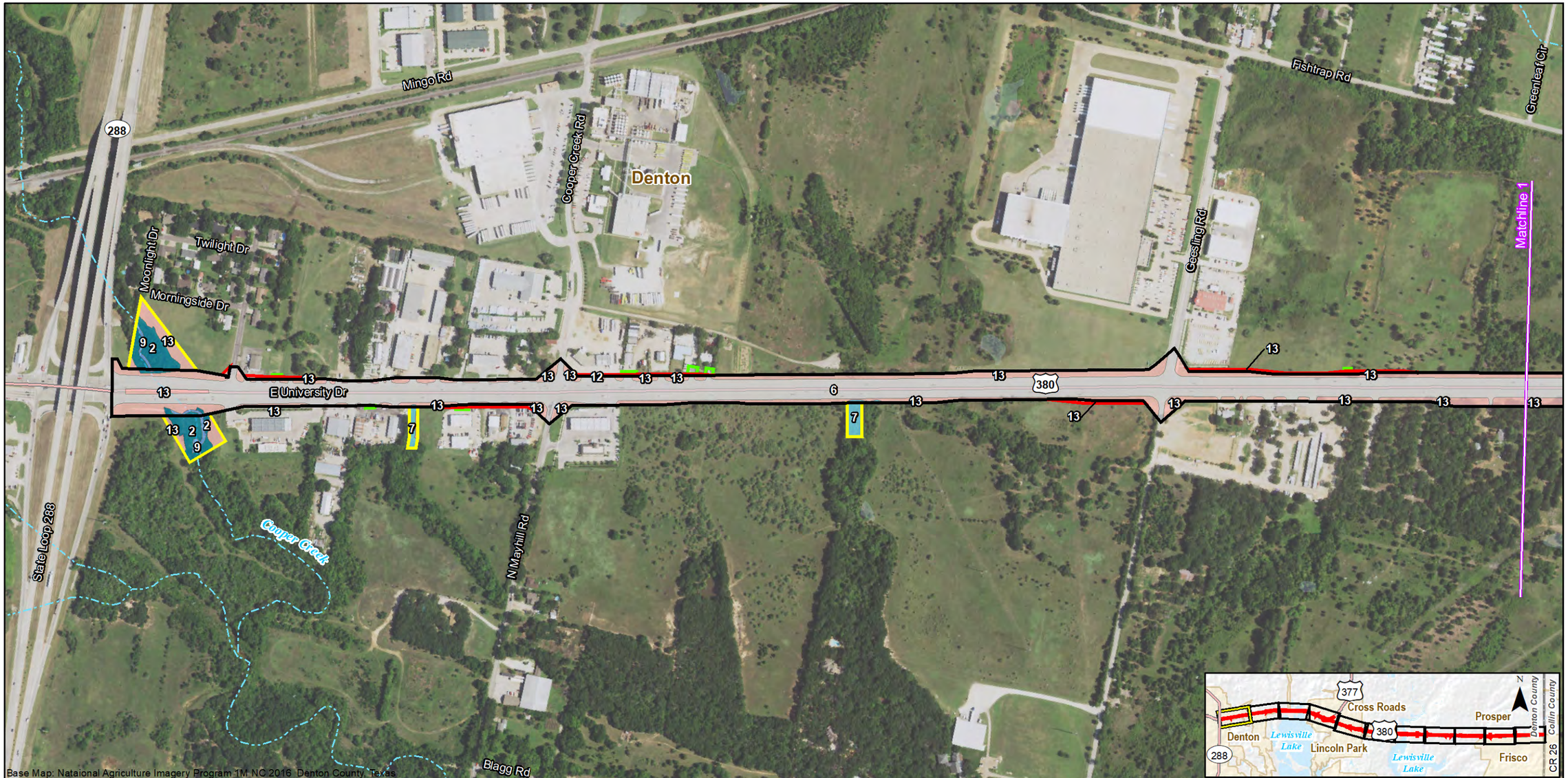


Existing Right-of-way
Existing Drainage Easement
Proposed Right-of-way
Proposed Drainage Easement
Temporary Driveway Easement

Field-Verified Vegetation Types

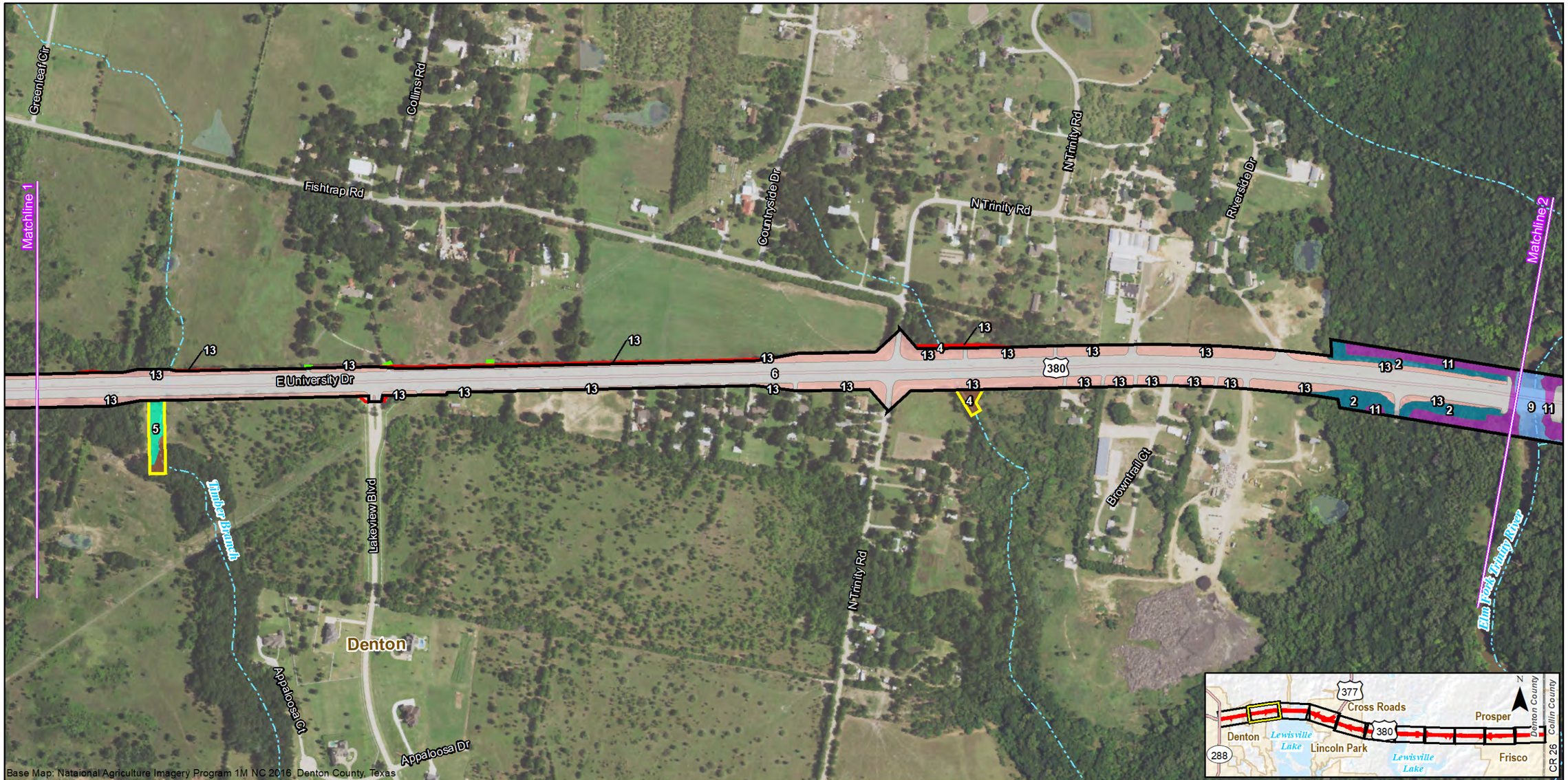
1 - Blackland Prairie: Disturbance or Tame Grassland
2 - Central Texas: Floodplain Hardwood Forest
3 - Central Texas: Floodplain Herbaceous Vegetation
4 - Central Texas: Riparian Hardwood Forest
5 - Central Texas: Riparian Herbaceous Vegetation
6 - Existing Transportation
7 - Native Invasive: Deciduous Woodland
8 - Native Invasive: Mesquite Shrubland
9 - Open Water
10 - Row Crops
11 - Swamp
12 - Urban High Intensity
13 - Urban Low Intensity

N W E S

1:6,000

0 500 1,000
Feet

Appendix F - Figure 6, Sheet 1 of 11
Field-Verified Vegetation Types
in the Project Area
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057



Existing Right-of-way
Existing Drainage Easement
Proposed Right-of-way
Proposed Drainage Easement
Temporary Driveway Easement

Field-Verified Vegetation Types

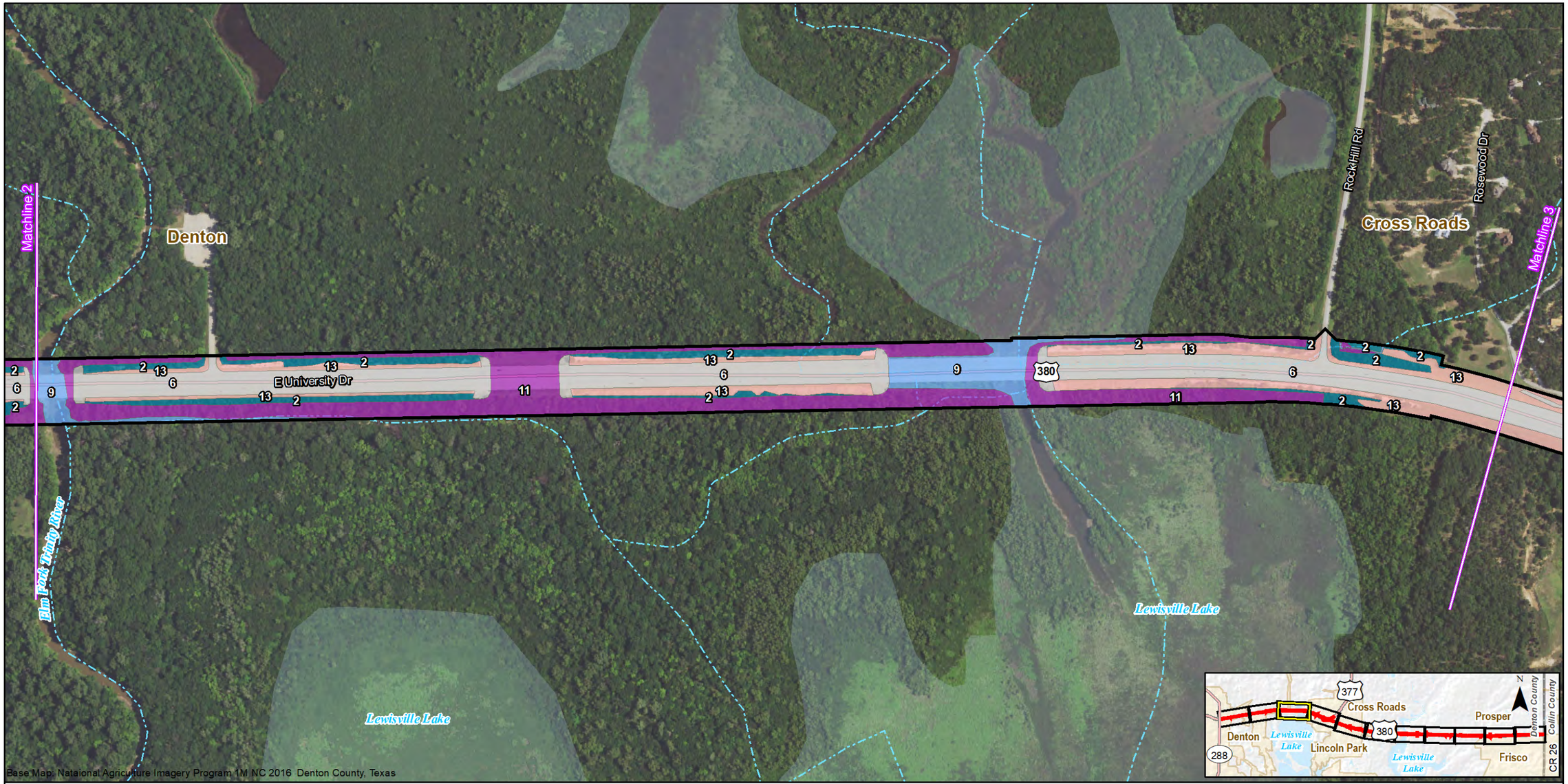
1 - Blackland Prairie: Disturbance or Tame Grassland
2 - Central Texas: Floodplain Hardwood Forest
3 - Central Texas: Floodplain Herbaceous Vegetation
4 - Central Texas: Riparian Hardwood Forest
5 - Central Texas: Riparian Herbaceous Vegetation
6 - Existing Transportation
7 - Native Invasive: Deciduous Woodland
8 - Native Invasive: Mesquite Shrubland
9 - Open Water
10 - Row Crops
11 - Swamp
12 - Urban High Intensity
13 - Urban Low Intensity

N W E S

1:6,000

0 500 1,000
Feet

Appendix F - Figure 6, Sheet 2 of 11
Field-Verified Vegetation Types
in the Project Area
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057



Existing Right-of-way
Existing Drainage Easement
Proposed Right-of-way
Proposed Drainage Easement
Temporary Driveway Easement

Field-Verified Vegetation Types

1 - Blackland Prairie: Disturbance or Tame Grassland
2 - Central Texas: Floodplain Hardwood Forest
3 - Central Texas: Floodplain Herbaceous Vegetation
4 - Central Texas: Riparian Hardwood Forest
5 - Central Texas: Riparian Herbaceous Vegetation
6 - Existing Transportation
7 - Native Invasive: Deciduous Woodland
8 - Native Invasive: Mesquite Shrubland
9 - Open Water
10 - Row Crops
11 - Swamp
12 - Urban High Intensity
13 - Urban Low Intensity

N W E S

1:6,000

0 500 1,000
Feet

Appendix F - Figure 6, Sheet 3 of 11
Field-Verified Vegetation Types
in the Project Area
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057

Existing Right-of-way
Existing Drainage Easement
Proposed Right-of-way
Proposed Drainage Easement
Temporary Driveway Easement

Field-Verified Vegetation Types

1 - Blackland Prairie: Disturbance or Tame Grassland
2 - Central Texas: Floodplain Hardwood Forest
3 - Central Texas: Floodplain Herbaceous Vegetation
4 - Central Texas: Riparian Hardwood Forest
5 - Central Texas: Riparian Herbaceous Vegetation
6 - Existing Transportation
7 - Native Invasive: Deciduous Woodland
8 - Native Invasive: Mesquite Shrubland
9 - Open Water
10 - Row Crops
11 - Swamp
12 - Urban High Intensity
13 - Urban Low Intensity

N W E S

1:6,000

0 500 1,000
Feet

Appendix F - Figure 6, Sheet 4 of 11
Field-Verified Vegetation Types
in the Project Area
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057

Existing Right-of-way
Existing Drainage Easement
Proposed Right-of-way
Proposed Drainage Easement
Temporary Driveway Easement

Field-Verified Vegetation Types

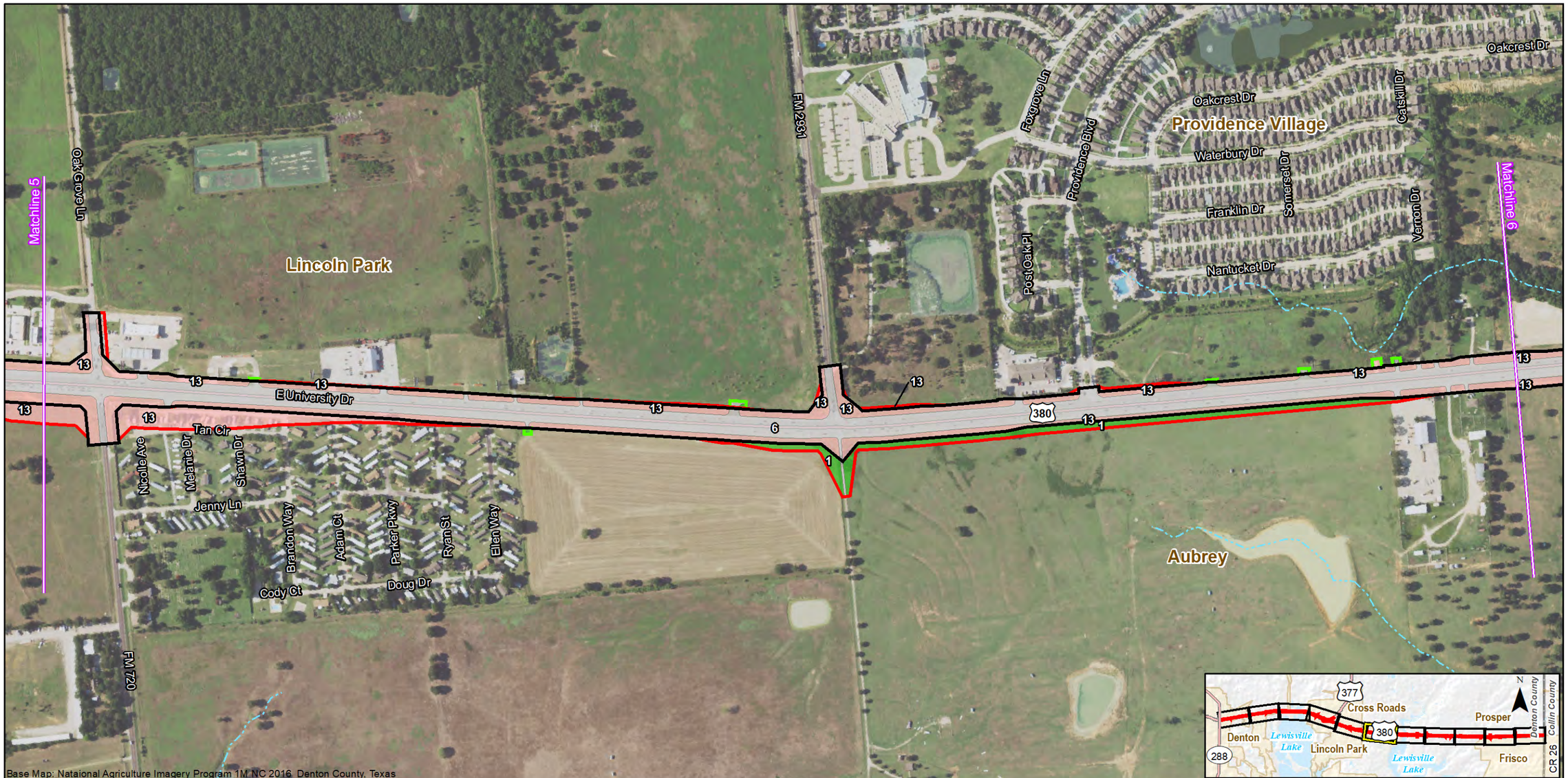
1 - Blackland Prairie: Disturbance or Tame Grassland
2 - Central Texas: Floodplain Hardwood Forest
3 - Central Texas: Floodplain Herbaceous Vegetation
4 - Central Texas: Riparian Hardwood Forest
5 - Central Texas: Riparian Herbaceous Vegetation
6 - Existing Transportation
7 - Native Invasive: Deciduous Woodland
8 - Native Invasive: Mesquite Shrubland
9 - Open Water
10 - Row Crops
11 - Swamp
12 - Urban High Intensity
13 - Urban Low Intensity

N W E S

1:6,000

0 500 1,000
Feet

Appendix F - Figure 6, Sheet 5 of 11
Field-Verified Vegetation Types
in the Project Area
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057



Existing Right-of-way
Existing Drainage Easement
Proposed Right-of-way
Proposed Drainage Easement
Temporary Driveway Easement

Field-Verified Vegetation Types

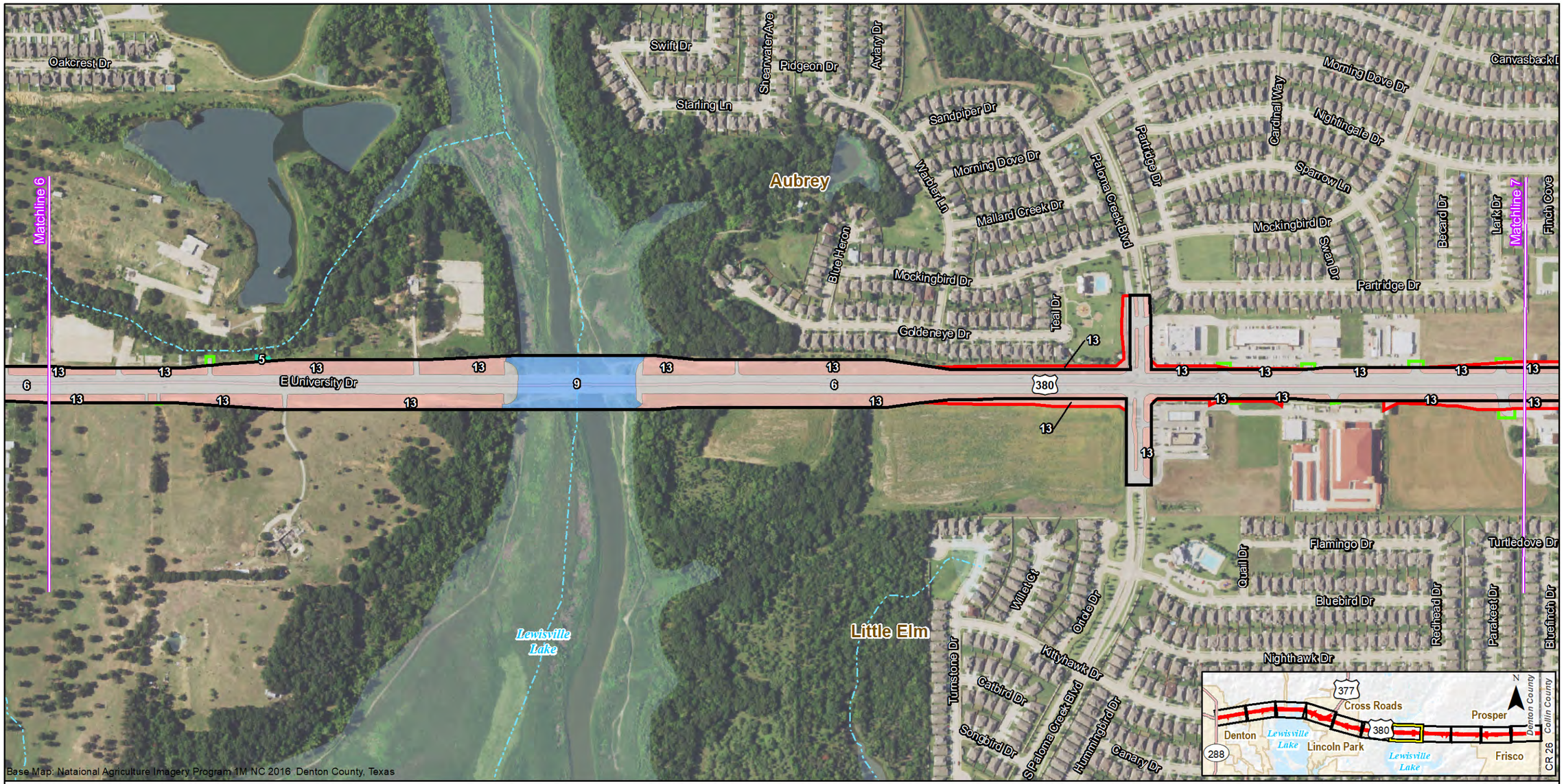
1 - Blackland Prairie: Disturbance or Tame Grassland
2 - Central Texas: Floodplain Hardwood Forest
3 - Central Texas: Floodplain Herbaceous Vegetation
4 - Central Texas: Riparian Hardwood Forest
5 - Central Texas: Riparian Herbaceous Vegetation
6 - Existing Transportation
7 - Native Invasive: Deciduous Woodland
8 - Native Invasive: Mesquite Shrubland
9 - Open Water
10 - Row Crops
11 - Swamp
12 - Urban High Intensity
13 - Urban Low Intensity

N W E S

1:6,000

0 500 1,000
Feet

Appendix F - Figure 6, Sheet 6 of 11
Field-Verified Vegetation Types
in the Project Area
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057



Existing Right-of-way
Existing Drainage Easement
Proposed Right-of-way
Proposed Drainage Easement
Temporary Driveway Easement

Field-Verified Vegetation Types

1 - Blackland Prairie: Disturbance or Tame Grassland
2 - Central Texas: Floodplain Hardwood Forest
3 - Central Texas: Floodplain Herbaceous Vegetation
4 - Central Texas: Riparian Hardwood Forest
5 - Central Texas: Riparian Herbaceous Vegetation
6 - Existing Transportation
7 - Native Invasive: Deciduous Woodland
8 - Native Invasive: Mesquite Shrubland
9 - Open Water
10 - Row Crops
11 - Swamp
12 - Urban High Intensity
13 - Urban Low Intensity

N W E S

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Appendix F - Figure 6, Sheet 7 of 11
Field-Verified Vegetation Types
in the Project Area
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057

Existing Right-of-way
Existing Drainage Easement
Proposed Right-of-way
Proposed Drainage Easement
Temporary Driveway Easement

Field-Verified Vegetation Types

1 - Blackland Prairie: Disturbance or Tame Grassland
2 - Central Texas: Floodplain Hardwood Forest
3 - Central Texas: Floodplain Herbaceous Vegetation
4 - Central Texas: Riparian Hardwood Forest
5 - Central Texas: Riparian Herbaceous Vegetation
6 - Existing Transportation
7 - Native Invasive: Deciduous Woodland
8 - Native Invasive: Mesquite Shrubland
9 - Open Water
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N W E S

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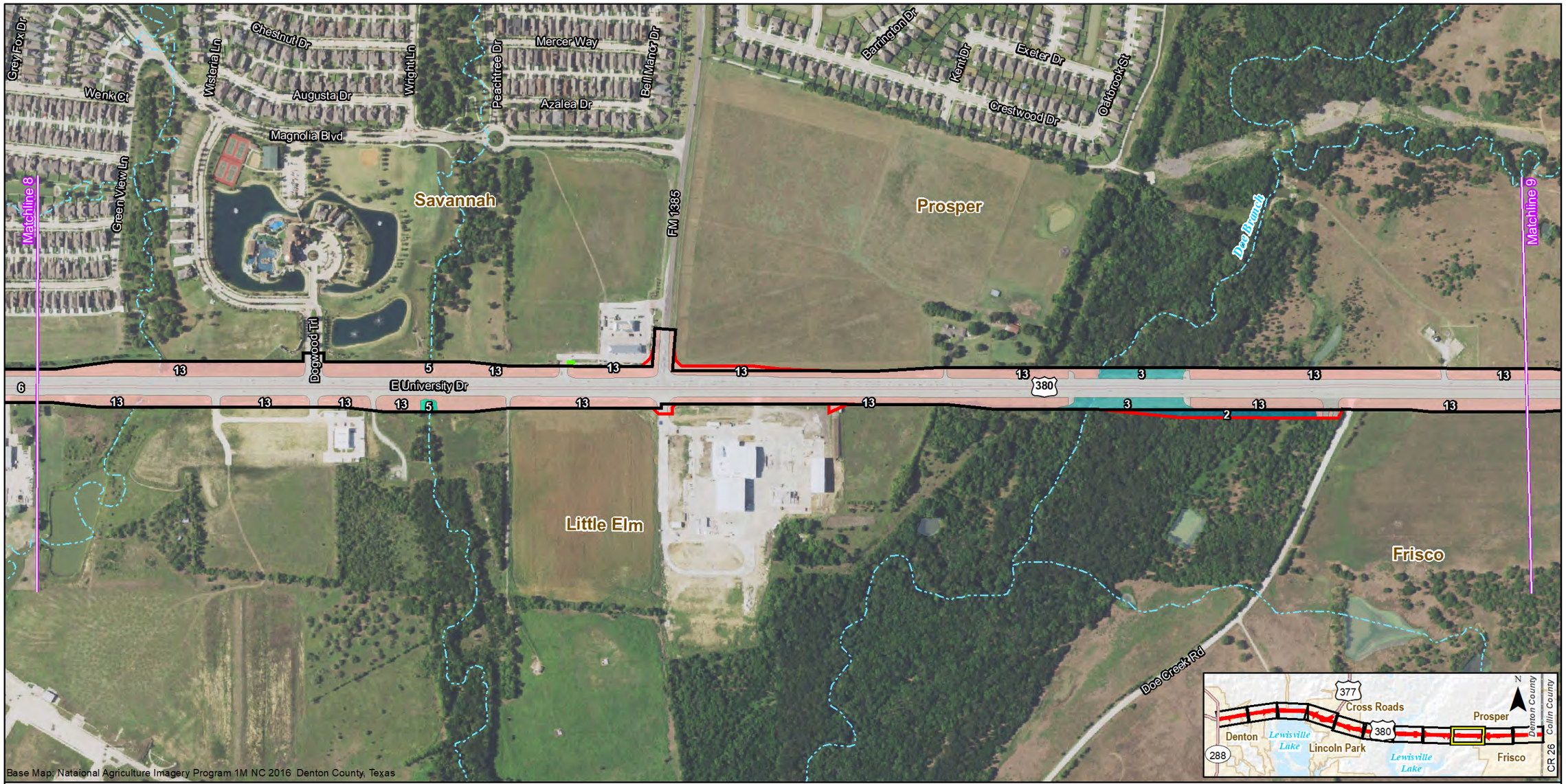
Appendix F - Figure 6, Sheet 8 of 11
Field-Verified Vegetation Types
in the Project Area
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057



Existing Right-of-way
Existing Drainage Easement
Proposed Right-of-way
Proposed Drainage Easement
Temporary Driveway Easement

Field-Verified Vegetation Types

1 - Blackland Prairie: Disturbance or Tame Grassland
2 - Central Texas: Floodplain Hardwood Forest
3 - Central Texas: Floodplain Herbaceous Vegetation
4 - Central Texas: Riparian Hardwood Forest
5 - Central Texas: Riparian Herbaceous Vegetation
6 - Existing Transportation
7 - Native Invasive: Deciduous Woodland
8 - Native Invasive: Mesquite Shrubland
9 - Open Water
10 - Row Crops
11 - Swamp
12 - Urban High Intensity
13 - Urban Low Intensity

N W E S

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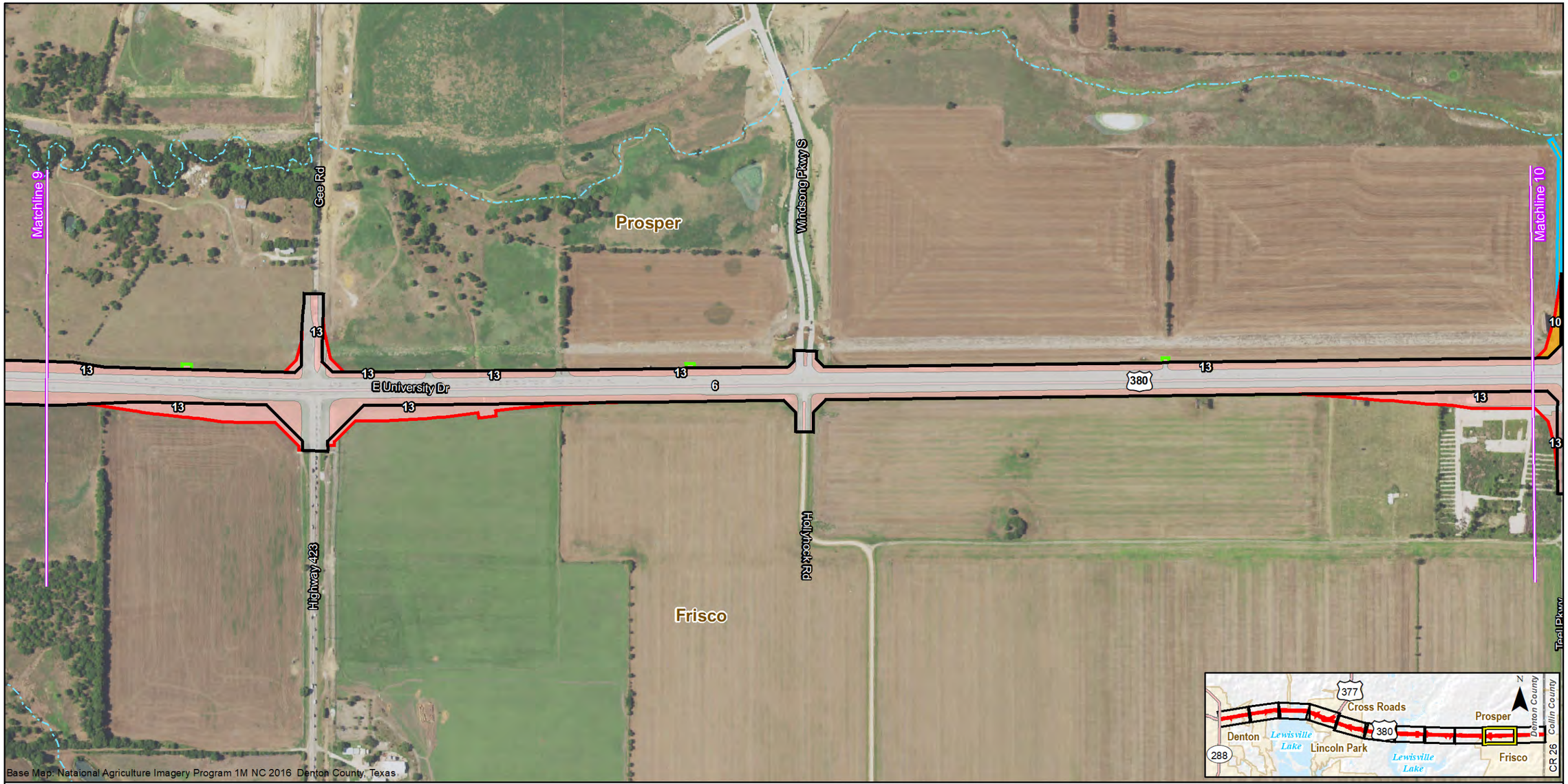
Appendix F - Figure 6, Sheet 9 of 11
Field-Verified Vegetation Types
in the Project Area
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057



Base Map: Natational Agriculture Imagery Program 1M NC 2016 Denton County, Texas

- Existing Right-of-way
- Existing Drainage Easement
- Proposed Right-of-way
- Proposed Drainage Easement
- Temporary Driveway Easement

Field-Verified Vegetation Types

- 1 - Blackland Prairie: Disturbance or Tame Grassland
- 2 - Central Texas: Floodplain Hardwood Forest
- 3 - Central Texas: Floodplain Herbaceous Vegetation
- 4 - Central Texas: Riparian Hardwood Forest
- 5 - Central Texas: Riparian Herbaceous Vegetation
- 6 - Existing Transportation
- 7 - Native Invasive: Deciduous Woodland
- 8 - Native Invasive: Mesquite Shrubland
- 9 - Open Water
- 10 - Row Crops
- 11 - Swamp
- 12 - Urban High Intensity
- 13 - Urban Low Intensity

N W E S

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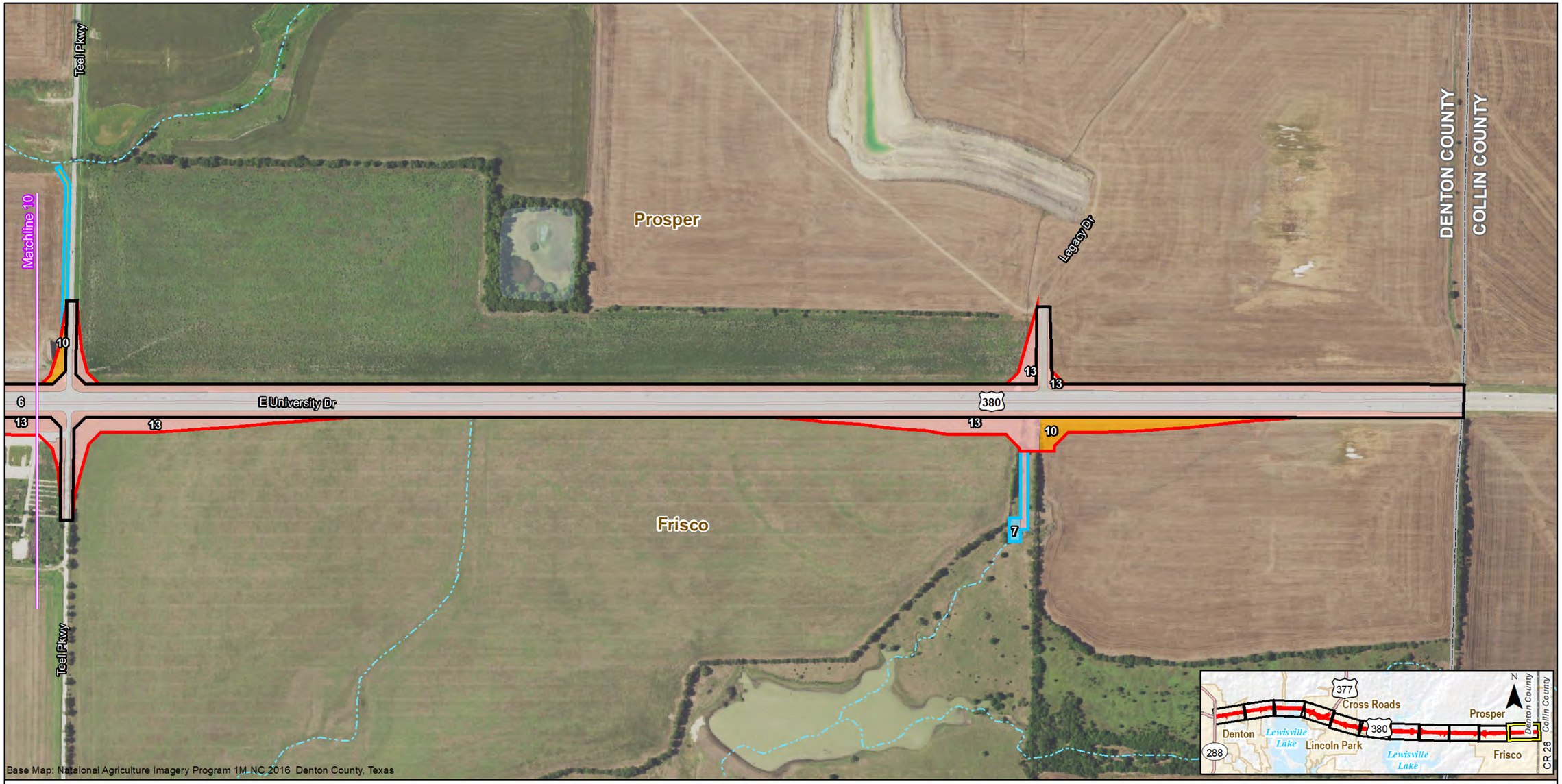
Feet

Appendix F - Figure 6, Sheet 10 of 11
Field-Verified Vegetation Types
in the Project Area
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057



Existing Right-of-way
Existing Drainage Easement
Proposed Right-of-way
Proposed Drainage Easement
Temporary Driveway Easement

Field-Verified Vegetation Types

1 - Blackland Prairie: Disturbance or Tame Grassland
2 - Central Texas: Floodplain Hardwood Forest
3 - Central Texas: Floodplain Herbaceous Vegetation
4 - Central Texas: Riparian Hardwood Forest
5 - Central Texas: Riparian Herbaceous Vegetation
6 - Existing Transportation
7 - Native Invasive: Deciduous Woodland
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9 - Open Water
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12 - Urban High Intensity
13 - Urban Low Intensity

N W E S

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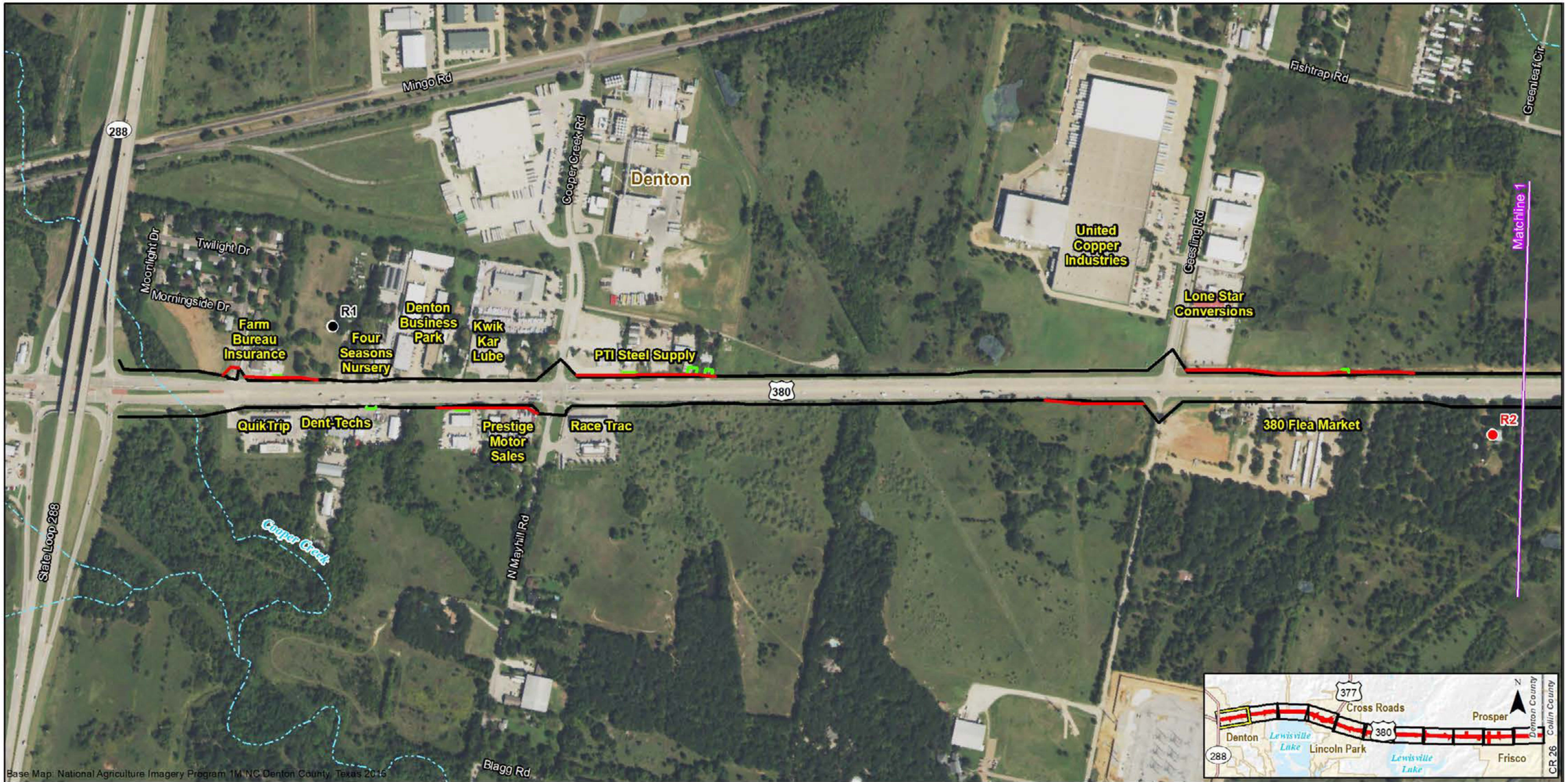
Appendix F - Figure 6, Sheet 11 of 11
Field-Verified Vegetation Types
in the Project Area
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057



Proposed Easement
Proposed Drainage Easement
Proposed Right-of-way
Existing Right-of-way
Non-impacted Noise Receiver (R#)
Impacted Noise Receiver (R#)

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Feet

Appendix F - Figure 7, Sheet 1 of 11
Noise Receiver Locations and Land Use
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057

Proposed Easement
Proposed Drainage Easement
Proposed Right-of-way
Existing Right-of-way
Non-impacted Noise Receiver (R#)
Impacted Noise Receiver (R#)

N W E S

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Feet

Appendix F - Figure 7, Sheet 2 of 11
Noise Receiver Locations and Land Use
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057

Proposed Easement
Proposed Drainage Easement
Proposed Right-of-way
Existing Right-of-way
Non-impacted Noise Receiver (R#)
Impacted Noise Receiver (R#)

N W E S

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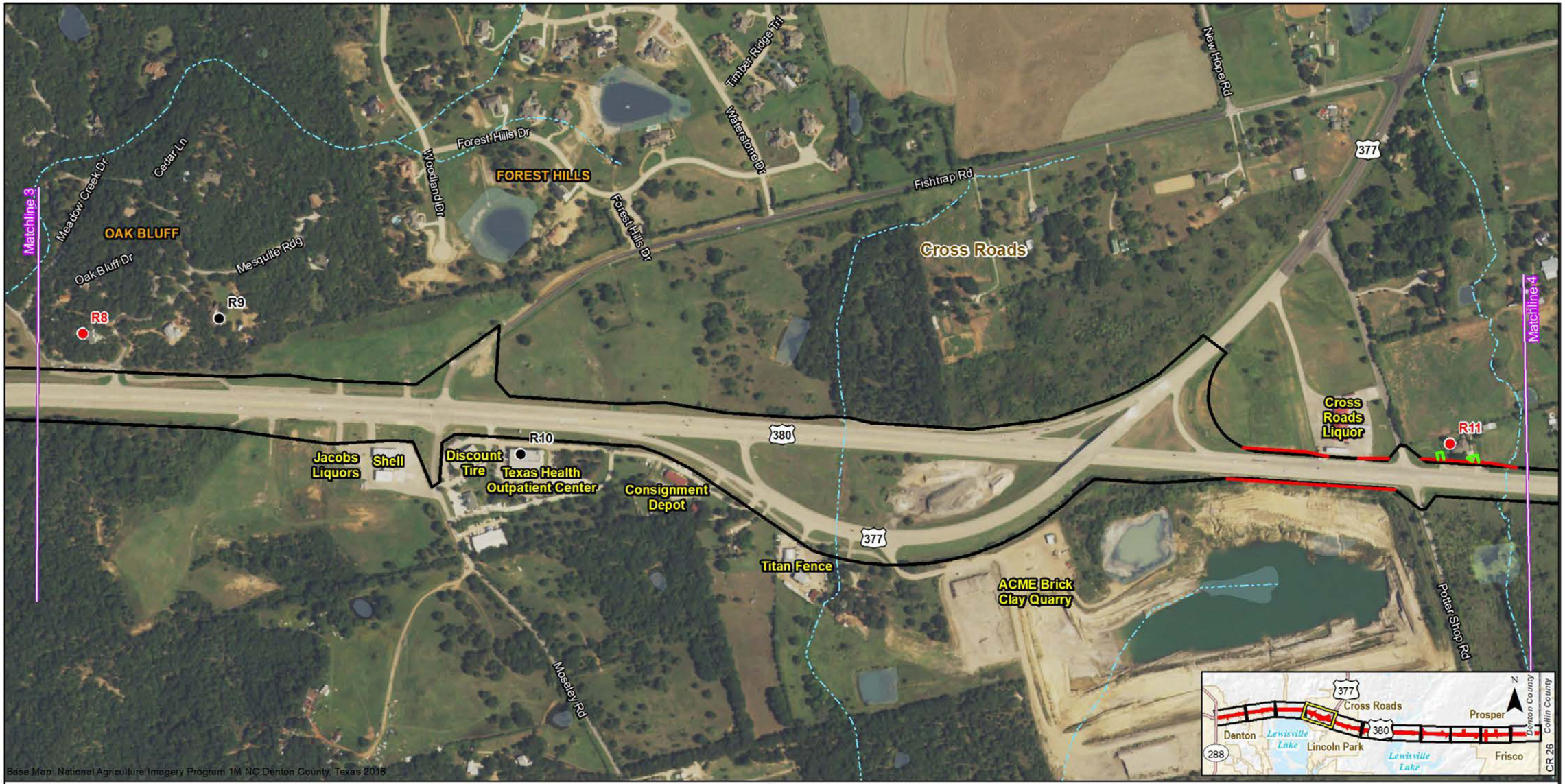
Appendix F - Figure 7, Sheet 3 of 11
Noise Receiver Locations and Land Use
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057



Proposed Easement

Proposed Drainage Easement

Proposed Right-of-way

Existing Right-of-way

Non-impacted Noise Receiver (R#)

Impacted Noise Receiver (R#)

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Appendix F - Figure 7, Sheet 4 of 11

Noise Receiver Locations and Land Use
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057

Proposed Easement

Proposed Drainage Easement

Proposed Right-of-way

Existing Right-of-way

Non-impacted Noise Receiver (R#)

Impacted Noise Receiver (R#)

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Feet

Appendix F - Figure 7, Sheet 5 of 11

Noise Receiver Locations and Land Use

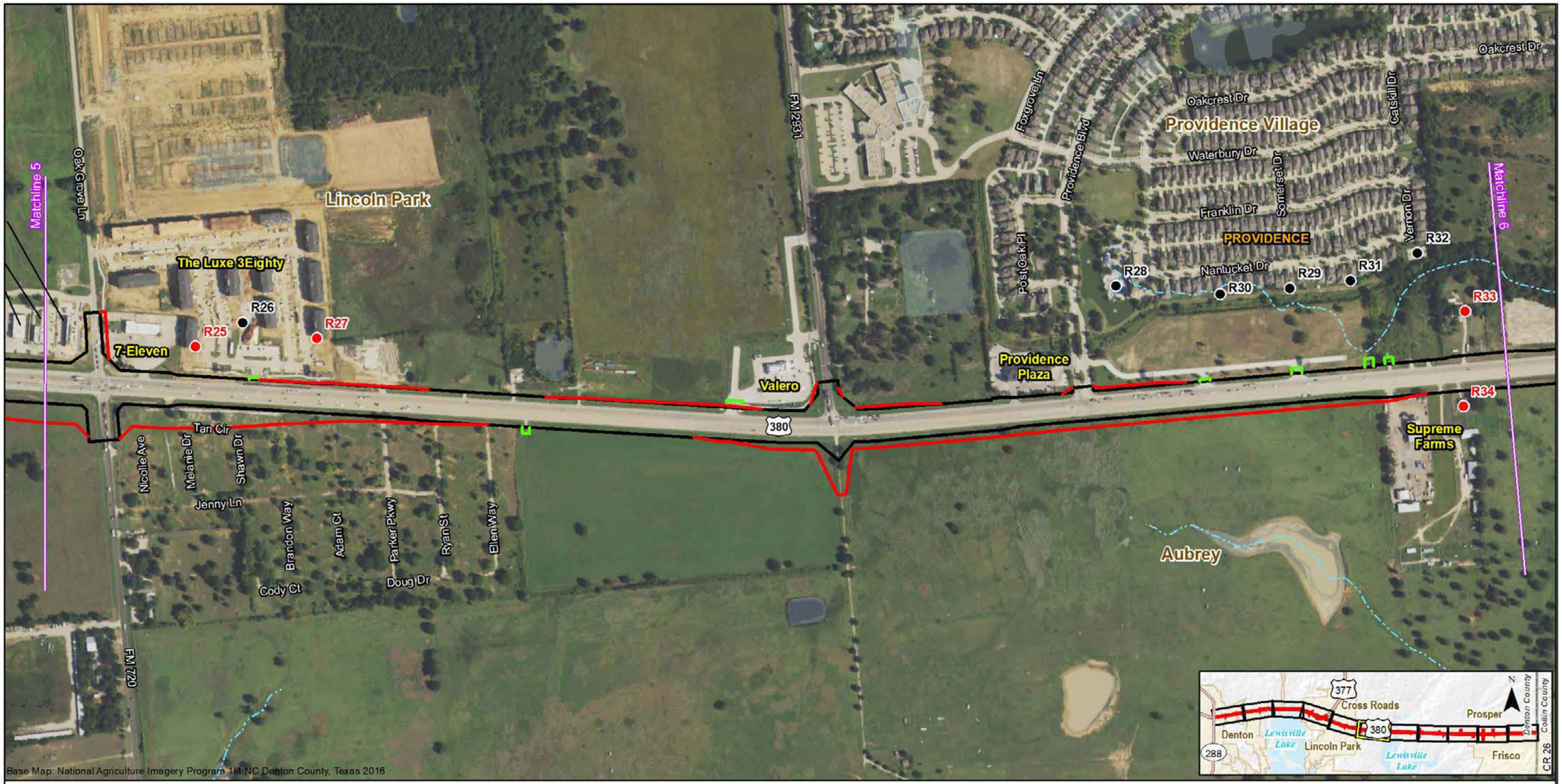
United States (US) 380 from

State Loop (SL) 288 to

West of County Road (CR) 26 (County Line)

Denton County, Texas

CSJs: 0135-10-050 & 0135-10-057



Proposed Easement
Proposed Drainage Easement
Proposed Right-of-way
Existing Right-of-way
Non-impacted Noise Receiver (R#)
Impacted Noise Receiver (R#)

N W E S

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Feet

Appendix F - Figure 7, Sheet 6 of 11
Noise Receiver Locations and Land Use
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057

Proposed Easement
Proposed Drainage Easement
Proposed Right-of-way
Existing Right-of-way
Non-impacted Noise Receiver (R#)
Impacted Noise Receiver (R#)

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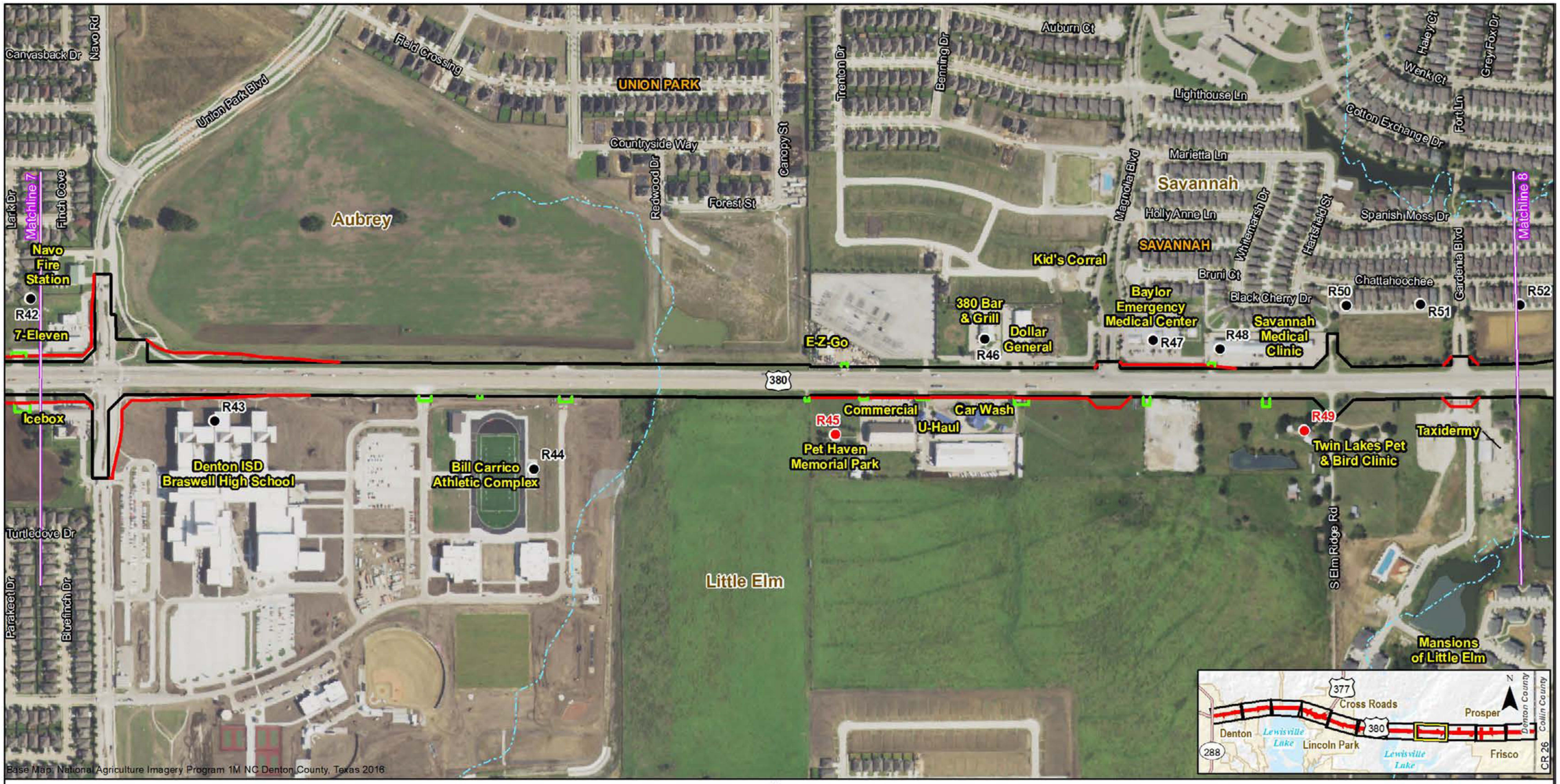
Appendix F - Figure 7, Sheet 7 of 11

Noise Receiver Locations and Land Use
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057



Proposed Easement
Proposed Drainage Easement
Proposed Right-of-way
Existing Right-of-way
Non-impacted Noise Receiver (R#)
Impacted Noise Receiver (R#)

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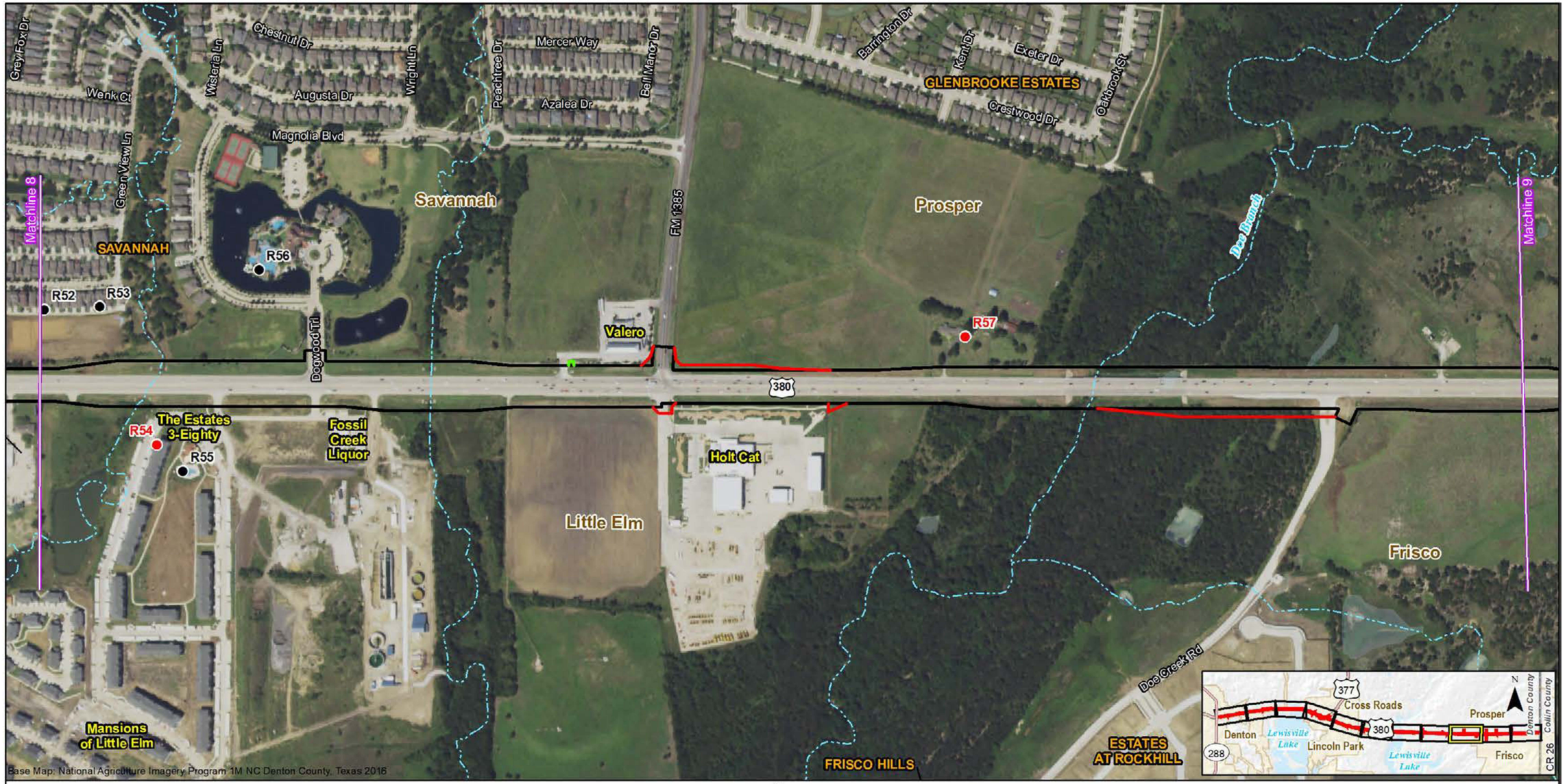
Feet

Appendix F - Figure 7, Sheet 8 of 11

Noise Receiver Locations and Land Use
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057



Proposed Easement

Proposed Drainage Easement

Proposed Right-of-way

Existing Right-of-way

Non-impacted Noise Receiver (R#)

Impacted Noise Receiver (R#)

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0 500 1,000
Feet

Appendix F - Figure 7, Sheet 8 of 11

Noise Receiver Locations and Land Use
United States (US) 380 from
State Loop (SL) 288 to
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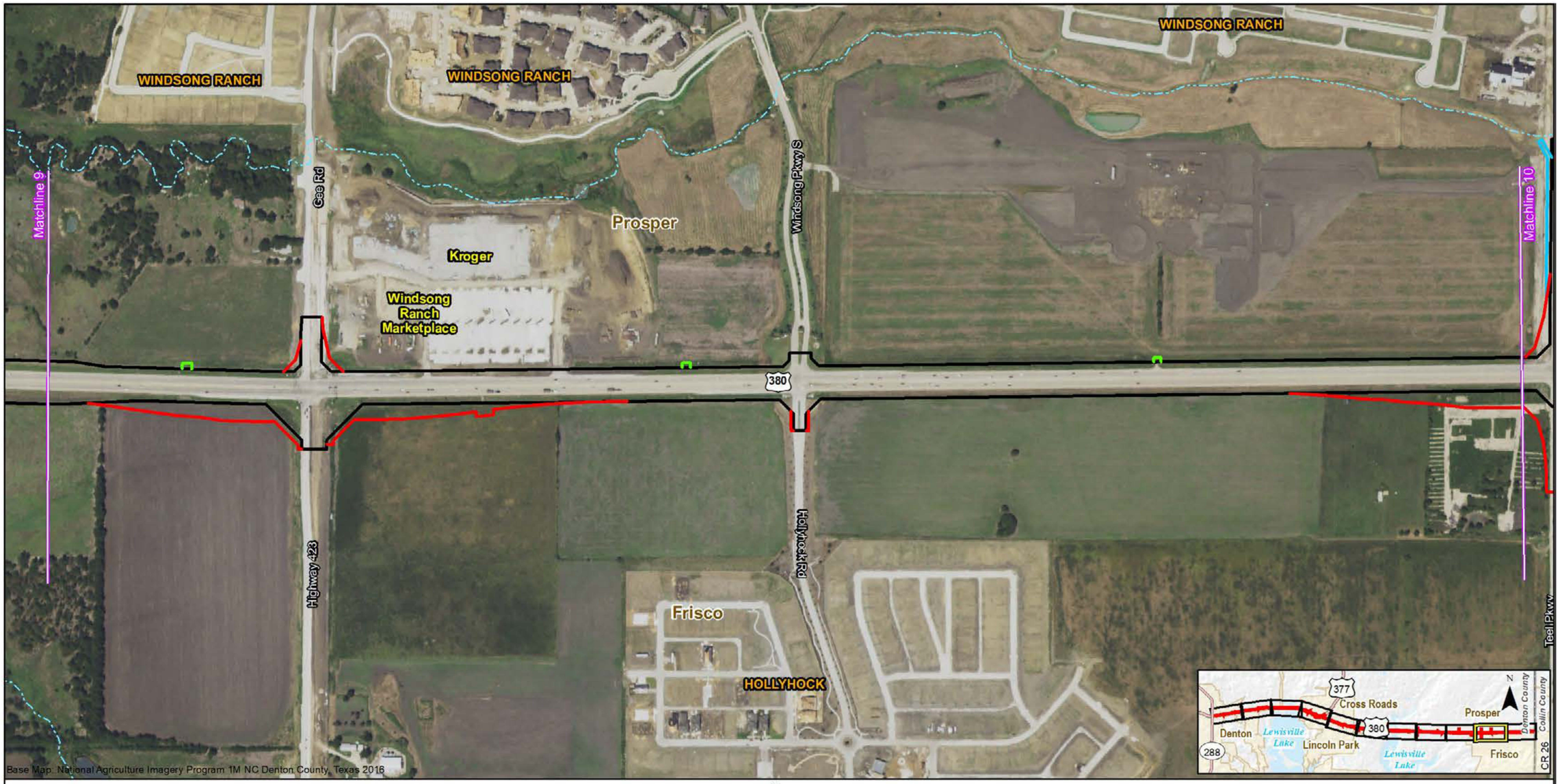
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057



Proposed Easement
Proposed Drainage Easement
Proposed Right-of-way
Existing Right-of-way
Non-impacted Noise Receiver (R#)
Impacted Noise Receiver (R#)

N W E S

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Feet

Appendix F - Figure 7, Sheet 10 of 11
Noise Receiver Locations and Land Use
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057

Proposed Easement
Proposed Drainage Easement
Proposed Right-of-way
Existing Right-of-way
Non-impacted Noise Receiver (R#)
Impacted Noise Receiver (R#)

N W E S

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Feet

Appendix F - Figure 7, Sheet 11 of 11
Noise Receiver Locations and Land Use
United States (US) 380 from
State Loop (SL) 288 to
West of County Road (CR) 26 (County Line)
Denton County, Texas
CSJs: 0135-10-050 & 0135-10-057

Appendix G - Resource Agency Coordination

Texas Department of Transportation

125 EAST 11TH STREET, AUSTIN, TEXAS 78701-2483 | 512.463.8588 | WWW.TXDOT.GOV

July 12, 2017

RE: CSJ: 0135-10-050: US 380 from SL 288 to the Collin County Line: Realign Existing Roadway on New Location, Section 106 Consultation; Denton County, Dallas District

To: Representatives of Federally-recognized Tribes with Interest in this Project Area

The above referenced transportation project is being considered for construction by the Federal Highway Administration (FHWA) and the Texas Department of Transportation (TxDOT). Environmental studies are in the process of being conducted for this project. 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 16, 2014, and executed by FHWA and TxDOT.

The purpose of this letter is to contact you in order to consult with your Tribe pursuant to stipulations of the Programmatic Agreement among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings (PA-TU). The project is located in an area that is of interest to your Tribe.

Undertaking Description

TxDOT's Dallas District is proposing to improve a short section of US 380 in Denton County, Texas. Exhibit A is the Map of the Project Vicinity within the State of Texas and within Denton County. Exhibit B is the Map of the Project Vicinity on Relevant USGS Topographic Maps. Exhibit C is the Project Plans.

The proposed project would widen the existing US 380 roadway from four to six lanes and improve intersections (including some overpasses). In addition, the project proposes to install turn lanes, a raised median, sidewalks, bicycle lanes, curbs, and gutters. All cross drainage structures would be widened to match the wider roadway. The proposed project would require approximately 27 acres of new right of way and 5.5 acres of easements.

Area of Potential Effects

The project's area of potential effects (APE) comprises the following area.

- The project limits extend from SL 288 west to the Denton/Collin County Line along US 380. The total project length is thus 77,721.6 feet (14.2 miles).
- The existing right of way varies between 120 and 680 feet in width.
- The existing right of way comprises an area estimated at 365.5 acres.
- Approximately 27 acres of proposed new right of way would be required. These acres are illustrated on Exhibit C: Project Plans.

- Approximately 5.5 acres of proposed new easements would be required. These acres are also illustrated on Exhibit C: Project Plans.

- The estimated depths of impact would be mostly only two feet. However, depths of up to 100 feet may be required for bridge and overpass supports.

- For the purposes of this cultural resources review, the APE also includes an additional 50-foot area around the previously-described horizontal dimensions to account for potential alterations to the proposed APE included in the final project design. Consultation would be continued if potential impacts extend beyond this additional area, based on the final design.

Identification Efforts

For this project, TxDOT has conducted a desktop-based study of available background information.

- Approximately ninety percent of the APE is located upon very ancient geology and sediments that formed prior to the generally accepted arrival of human beings into Denton County (12,000 years ago). Any archeological features and artifacts would be limited to the ground surface and subject to development, trampling, weathering, breakage, and mixing with other temporal human occupations. It would be therefore very difficult if not impossible for these materials to yield significant information important to prehistory. TxDOT therefore recommends no survey in these contexts.

- The remaining ten percent of the APE is located upon relatively recent alluvial deposits that have demonstrated potential for the presence of buried intact archeological deposits. These areas of the APE are located in the vicinity of creeks flowing into Lewisville Lake. Many of these areas are inundated by the lake.

- One hundred percent of the existing right of way within the APE has been subject to intensive archeological survey with no archeological sites identified.

- Most of the 27 acres of proposed new right of way as well as the 5.5 acres of the proposed new easements are located in heavily developed areas that have been subject to bulldozing associated with driveway entrances, landscaping, residential and commercial development. The remaining acres of proposed new right of way and new easements are located upon ancient geology and sediments that formed prior to the generally accepted arrival time of humans into Denton County (12,000 years ago). Any archeological features and artifacts would be limited to the ground surface and subject to development, trampling, weathering, breakage, and mixing with other temporal human occupations. It would be therefore very difficult if not impossible for these materials to yield new, significant, information important to prehistory. TxDOT therefore recommends that no survey is recommended in these contexts.

- There have been a total of eight archeological sites recorded within 0.625 miles (1 kilometer) of the existing US 380 right of way. 41DN4, 41DN20, 41DN26, 41DN381, 41DN382, 41DN383, and 41DN521 are all characterized as prehistoric open campsites. The remaining site, 41DN588, is a 20th century historic domestic trash scatter associated with a farmstead. All of these sites are located more than 200 feet away from the APE and will not be impacted.

- Based on the foregoing factors, there is little to no reason to expect archeological historic properties (36 CFR 800.16(l)) to be located within the APE.

Findings and Recommendations

Based on the above, TxDOT proposes the following findings and recommendations

- A desktop review has found that no archeological historic properties (36 CFR 800.16(l)) would be affected by this proposed undertaking and the proposed project may proceed to construction;

- A zone of 50 feet beyond the horizontal project limits be considered as part of the cultural resources evaluation; and

- If any future changes to the project APE extend beyond the additional 50-foot zone or if archeological deposits are discovered, your Tribe would then be contacted for further consultation.

According to our procedures and agreements currently in place regarding consultation under Section 106 of the National Historic Preservation Act, we are writing to request your comments on historic properties of cultural or religious significance to your Tribe that may be affected by the proposed project APE and the area within the above defined buffer. Any comments you may have on the TxDOT findings and recommendations should also be provided. 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. If you do not object that the proposed findings and recommendations are appropriate, please sign below to indicate your concurrence. In the event that further work discloses the presence of archeological deposits, we will contact your Tribe to continue consultation.

Thank you for your attention to this matter. If you have questions, please contact Laura Cruzada at 512/416-2638 (email: Laura.Cruzada@txdot.gov) or Chantal McKenzie at 512/416-2770 (email: Chantal.McKenzie@txdot.gov). When replying to this correspondence by US Mail, please ensure that the envelope address includes reference to the Archeological Studies Branch, Environmental Affairs Division.

Sincerely,

Scott Pletka, Deputy Section Director
Environmental Affairs Division

Kim Penrod
Delaware Nation Director, Cultural Resources/106
Concurrence by:

July 21, 2017
Date:

Enclosure

cc w/ enclosure: ENV-ARCH ECOS

Exhibit A: Map of the Project Vicinity within the State of Texas and within Denton County

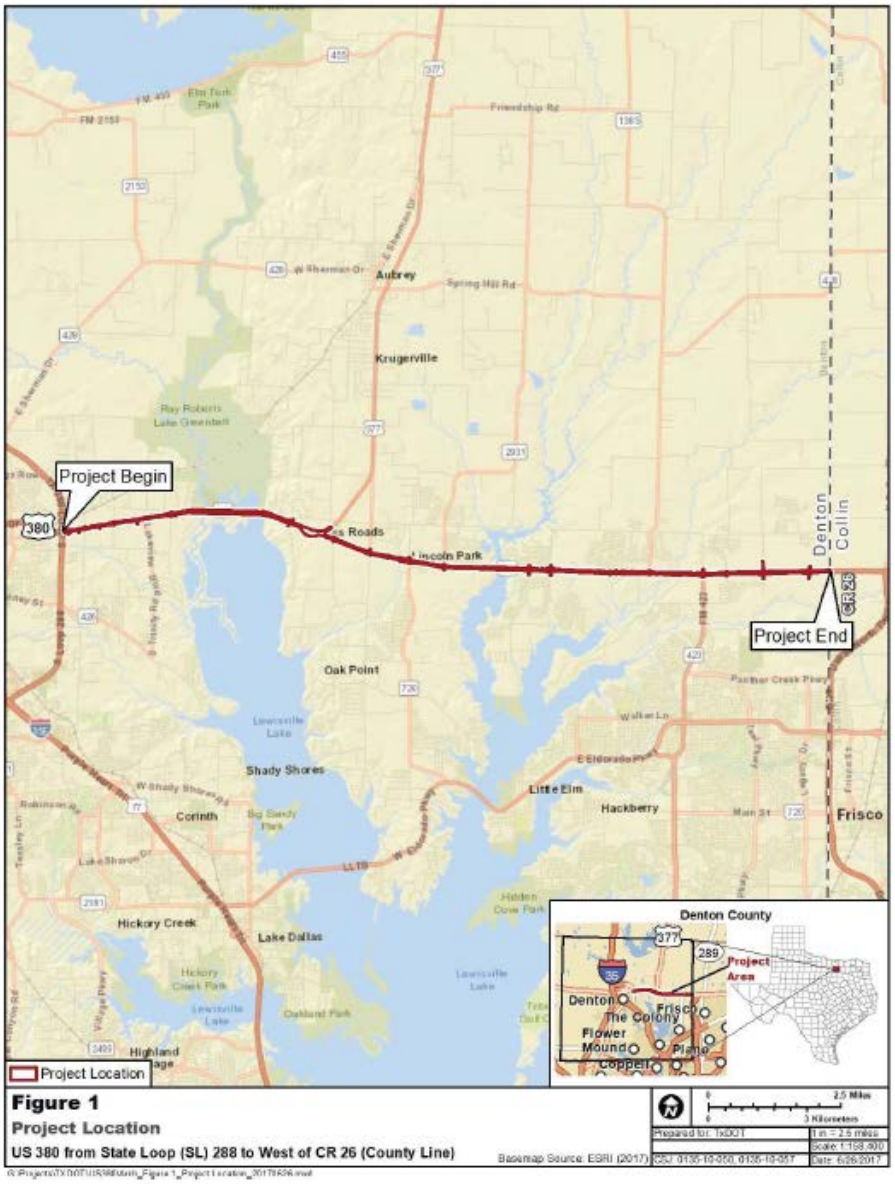


Exhibit B: Map of the Project Vicinity of the Project Area on Relevant USGS Topographic Maps

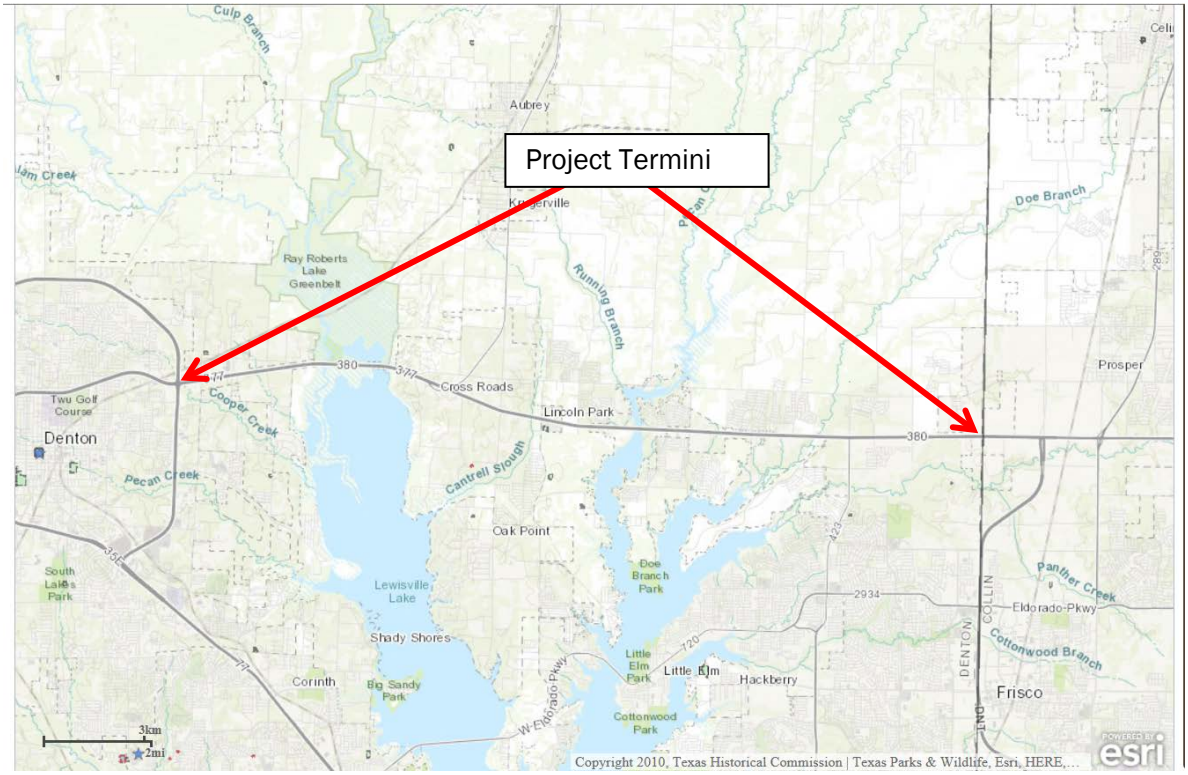
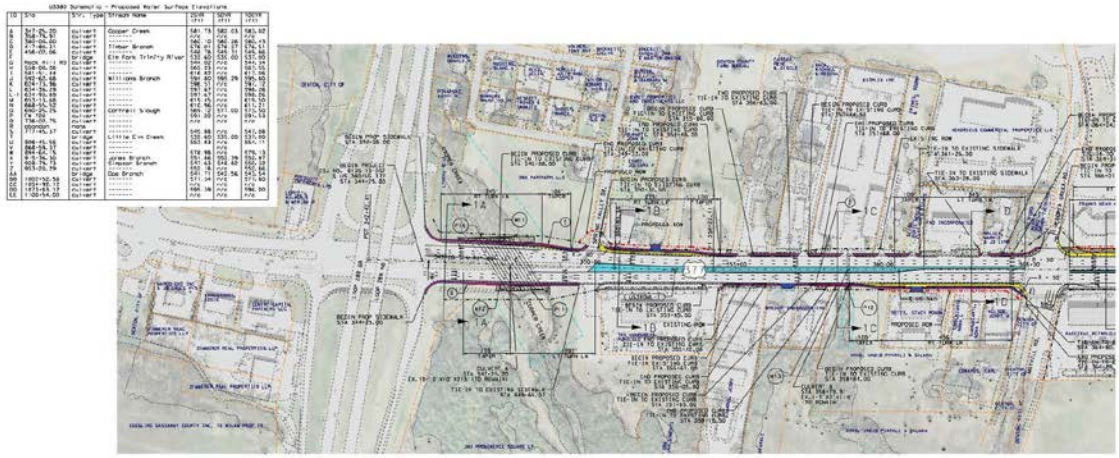
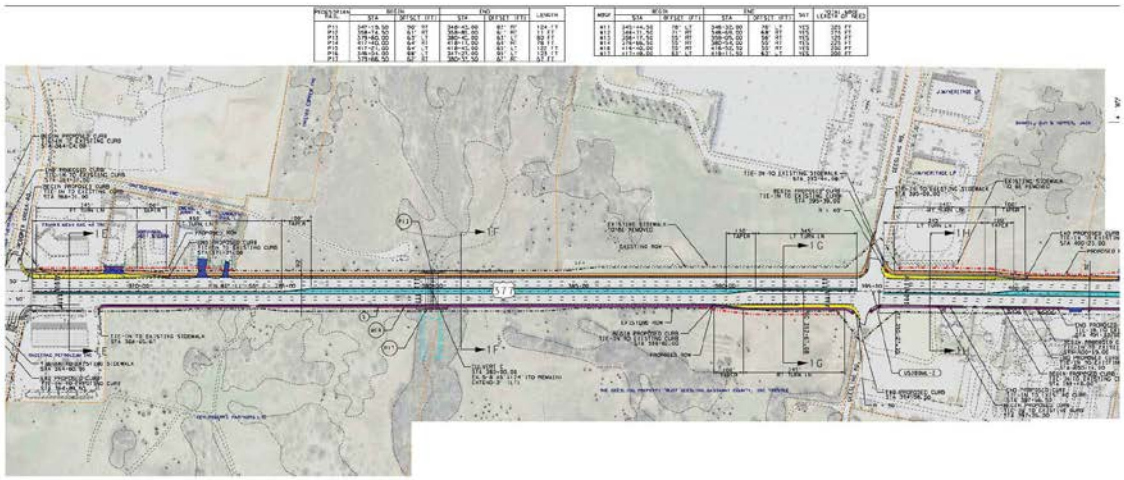


Exhibit C: Project Plans





US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 2 of 24
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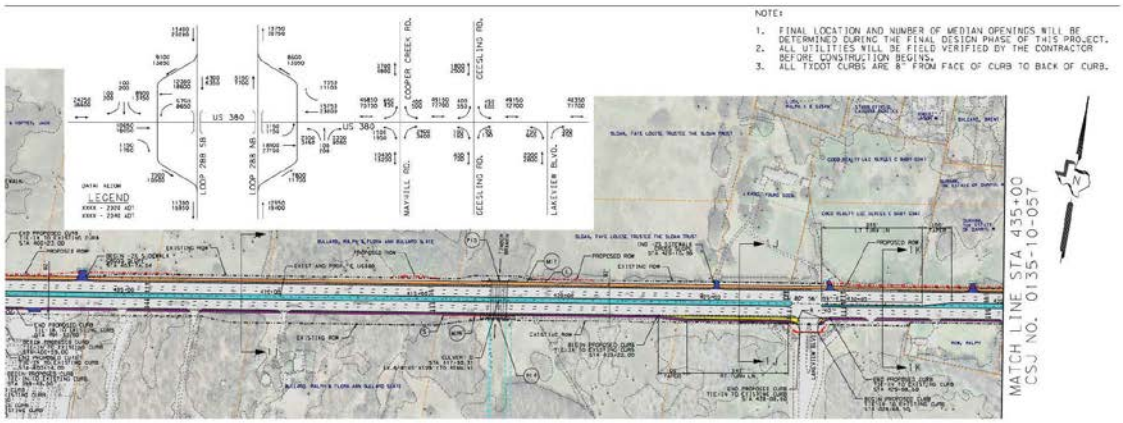

US 380
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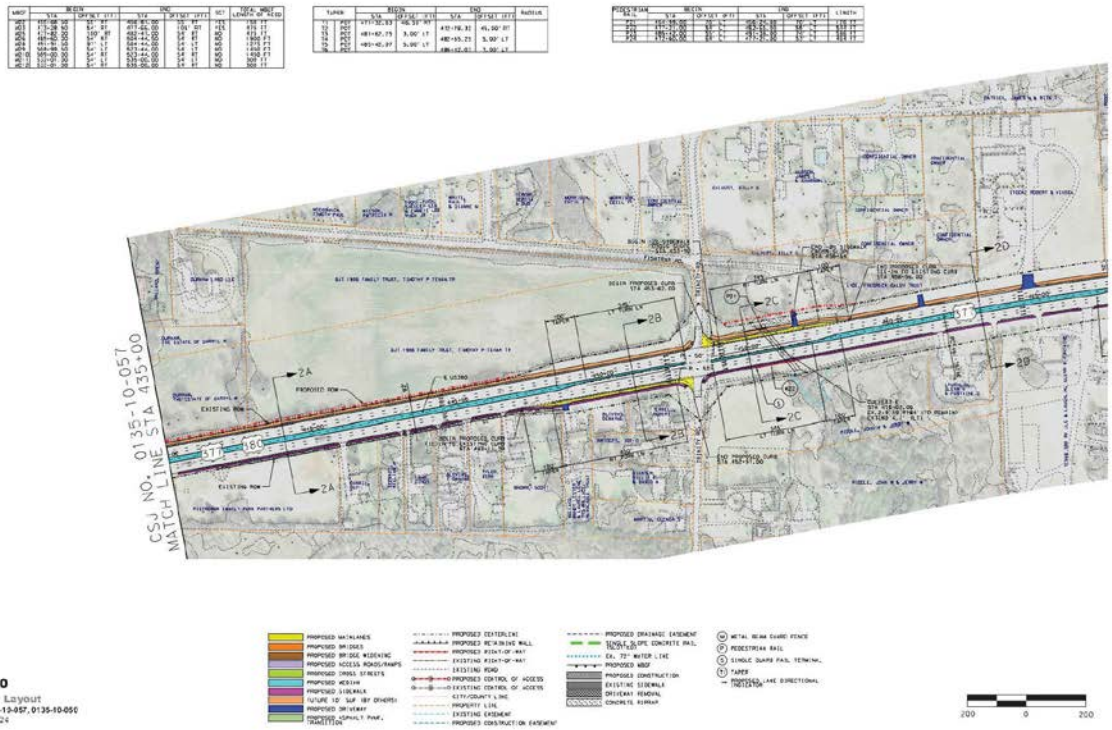
CSJ: 0135-10-057, 0135-10-050
Sheet 3 of 24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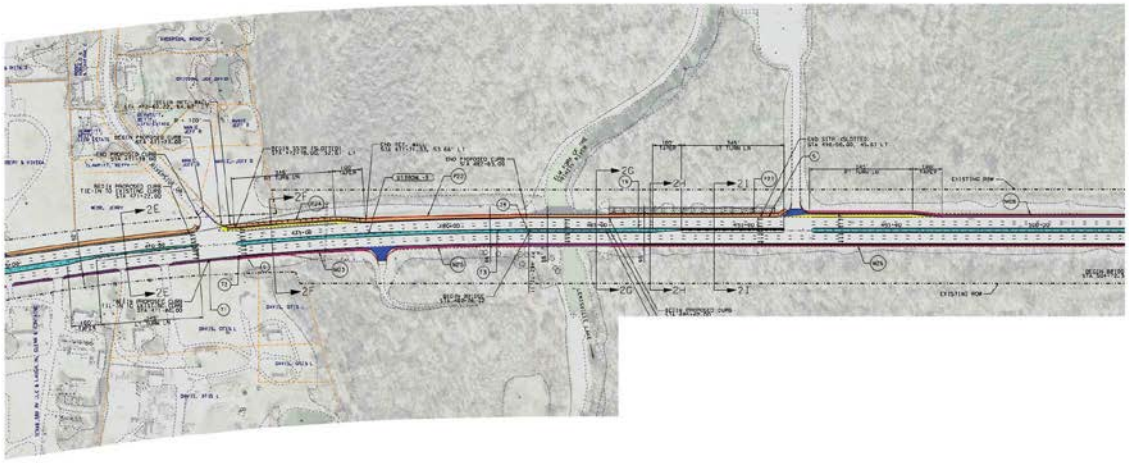
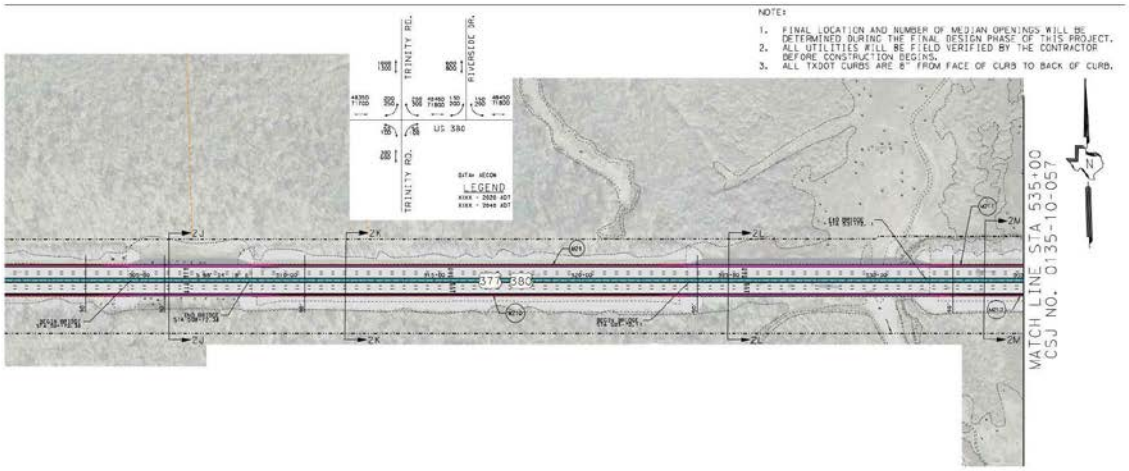
US 380
Project Layout
CSJ: 0135-13-057, 0135-10-050
Sheet 4 of 24



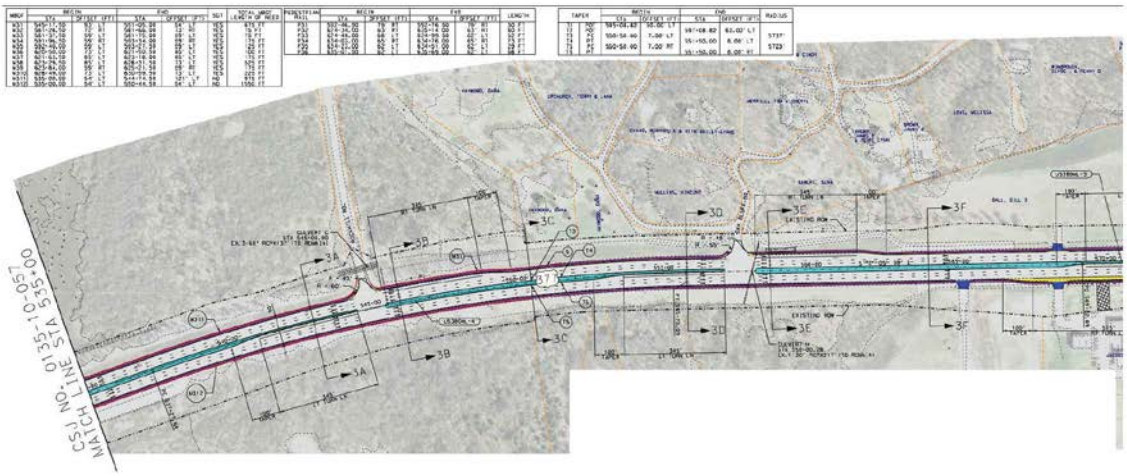
US 380
Project Layout
CSJ: 0135-13-057, 0135-10-050
Sheet 5 of 24

PROPOSED MAINLANES
PROPOSED BRIDGES
PROPOSED BRIDGE WIDENING
PROPOSED ACCESS ROADS/RAMPS
PROPOSED CROSS STREETS
PROPOSED MEDIAN
PROPOSED SIDEWALK
FUTURE 10' SUP (BY OTHERS)
PROPOSED DRIVEWAY
PROPOSED ASPHALT PAVE. TRANSITION
PROPOSED CENTERLINE
PROPOSED RETAINING WALL
PROPOSED RIGHT-OF-WAY
EXISTING ROAD
PROPOSED CONTROL OF ACCESS
EXISTING CONTROL OF ACCESS
CITY/COUNTY LINE
PROPOSED DRAINAGE EASEMENT
SINGLE SLOPE CONCRETE RAIL MOUNTED
EX. 72" WATER LINE
PROPOSED WBGF
PROPOSED CONSTRUCTION
EXISTING SIDEWALK
DRIVEWAY REMOVAL
CONCRETE REPAIR
(M) METAL BEAM GUARD FENCE
(P) PEDESTRIAN RAIL
(S) SINGLE SLOPE RAIL TERMINAL
(T) TAPER
PROPOSED LANE DIRECTIONAL TRAFFICWAY

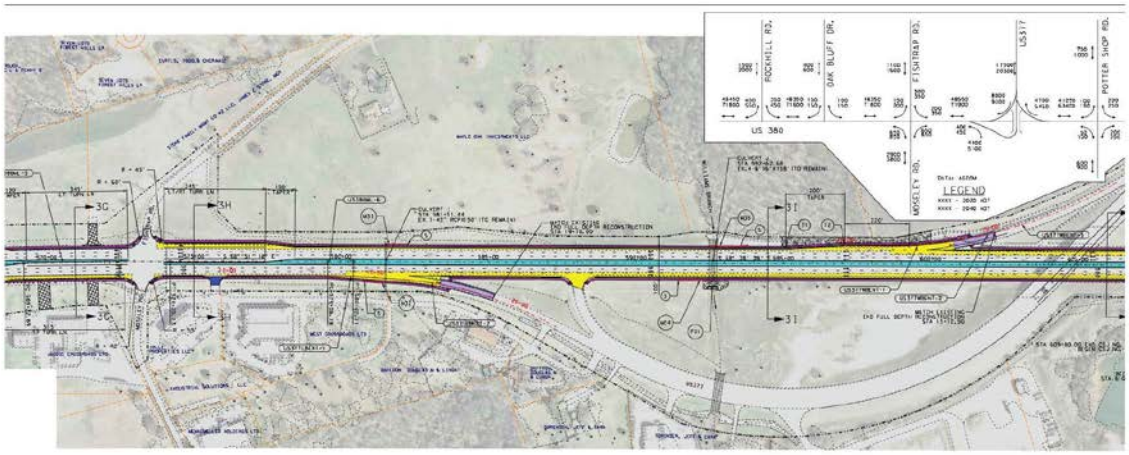
200 0 200



US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 5 of 24



US 380
Project Layout
CSJ: 0135-13-057, 0135-10-050
Sheet 7 of 24



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Sheet 5 of 24

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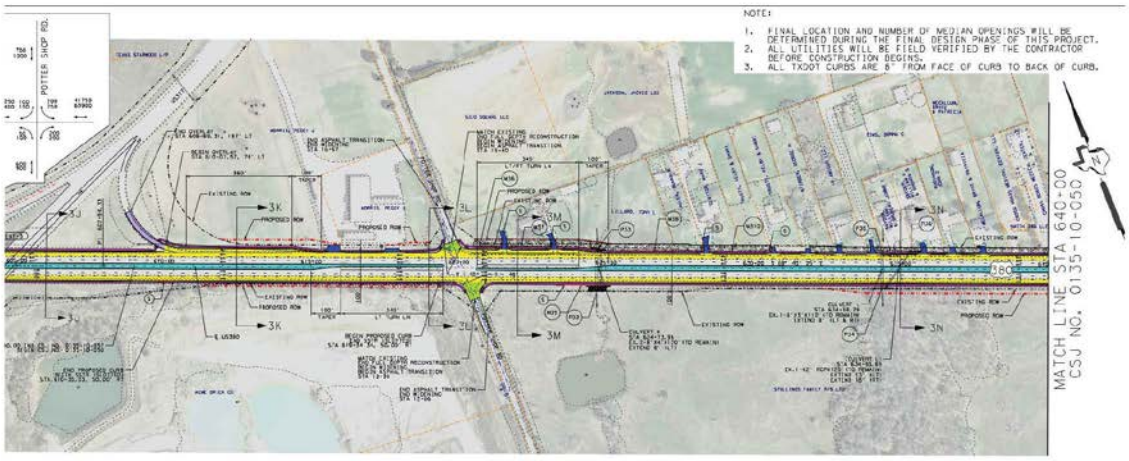

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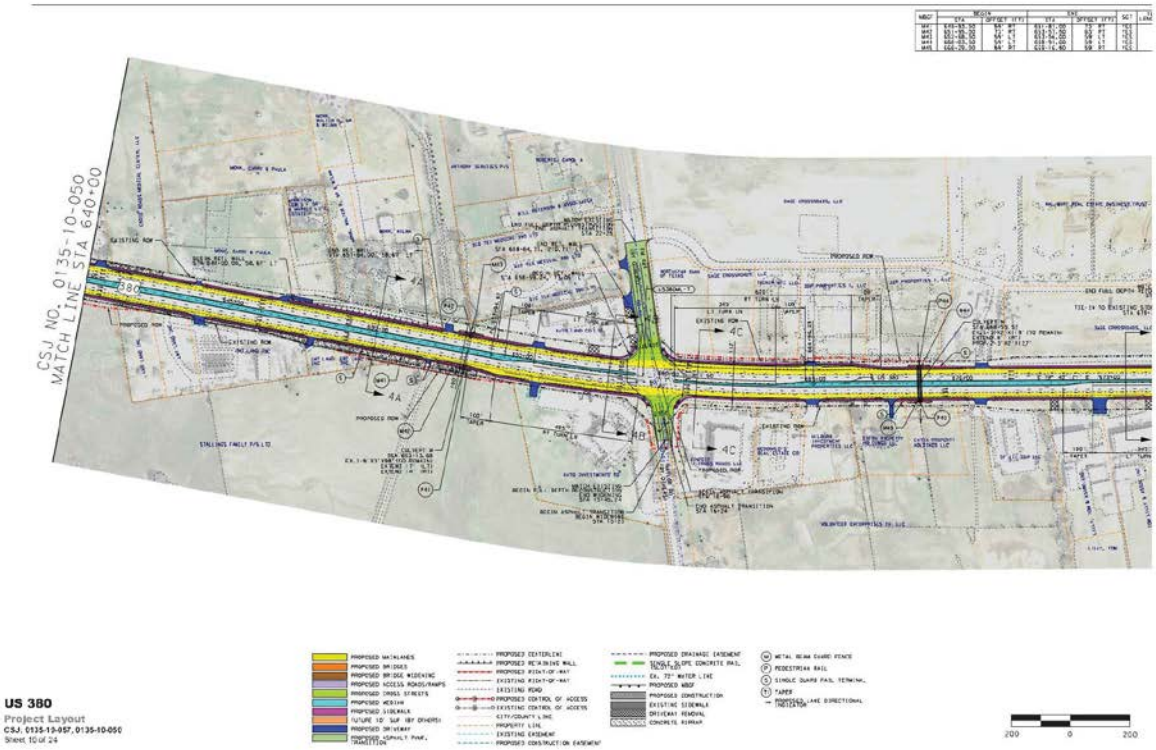
Sheet 9 of 24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Sheet 10 of 24
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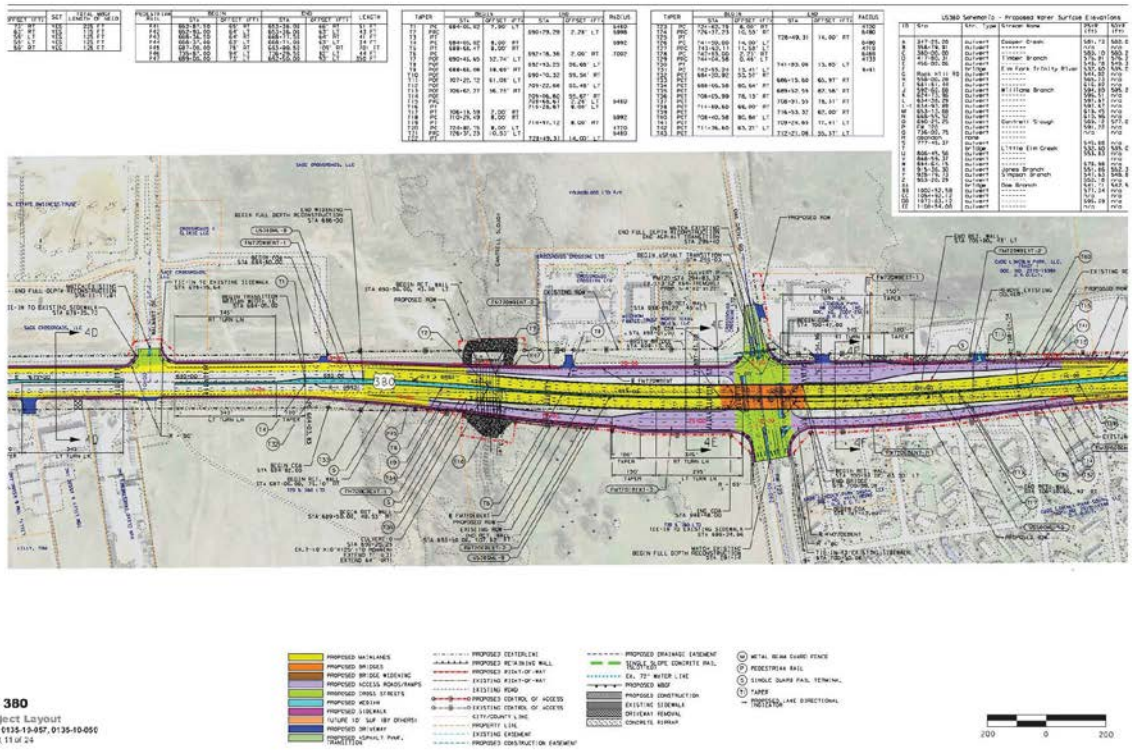

US 380
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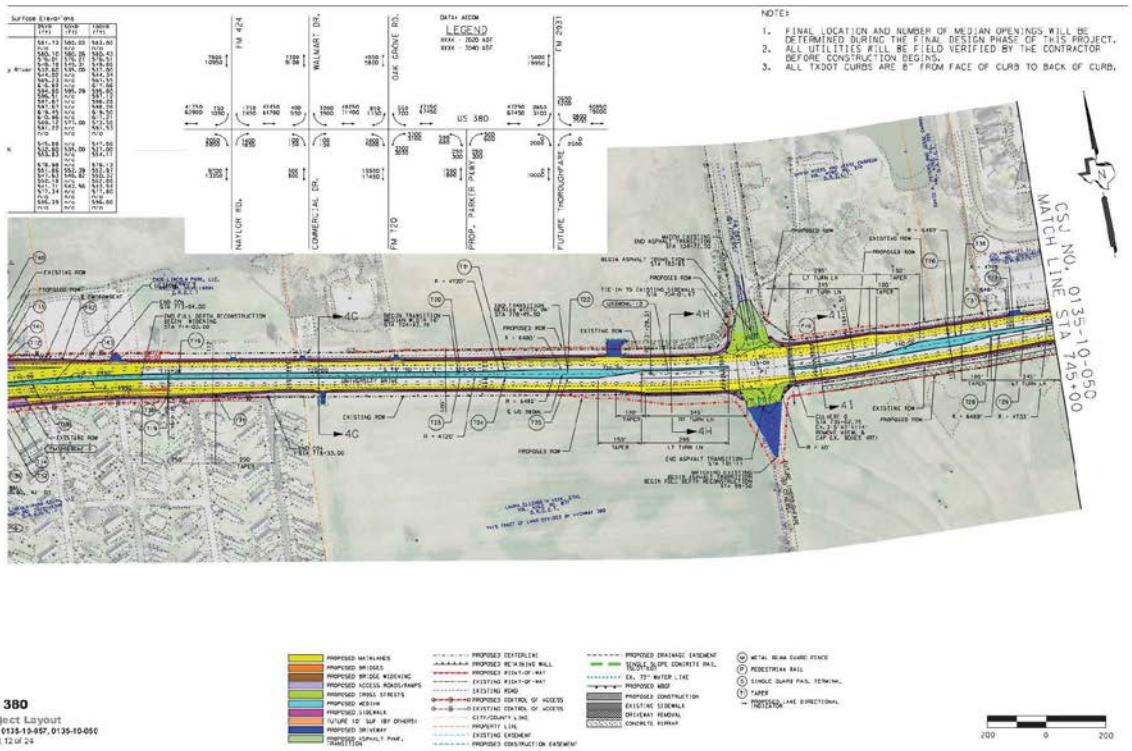
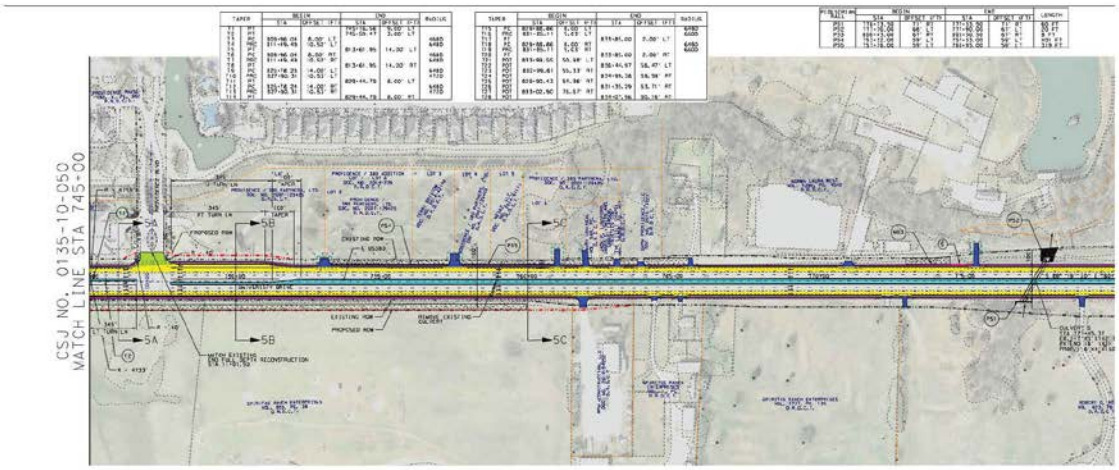
Sheet 11 of 24



US 380
Project Layout
CSJ: 0135-13-057, 0135-10-050
Sheet 12 of 24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US 380
Project Layout
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Sheet 13 of 24
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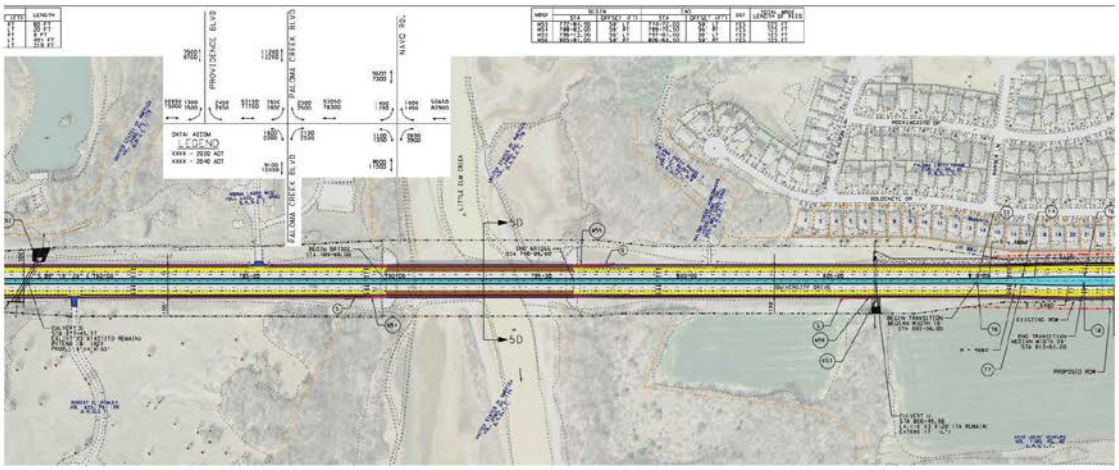
PROVIDENCE BLVD
PALOMA CREEK BLVD
NAVO RD.
LEGEND
LITTLE ELM CREEK
PROPOSED ROW

US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 14 of 24
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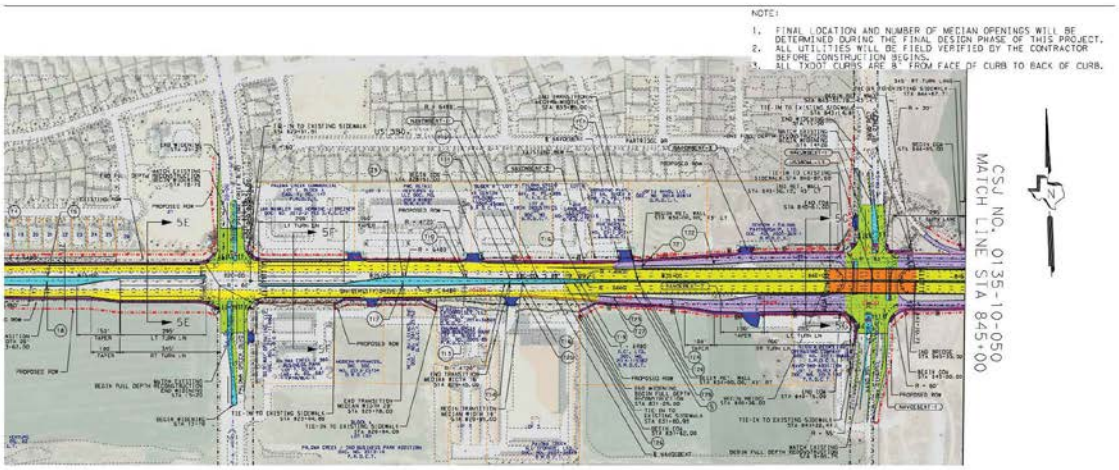
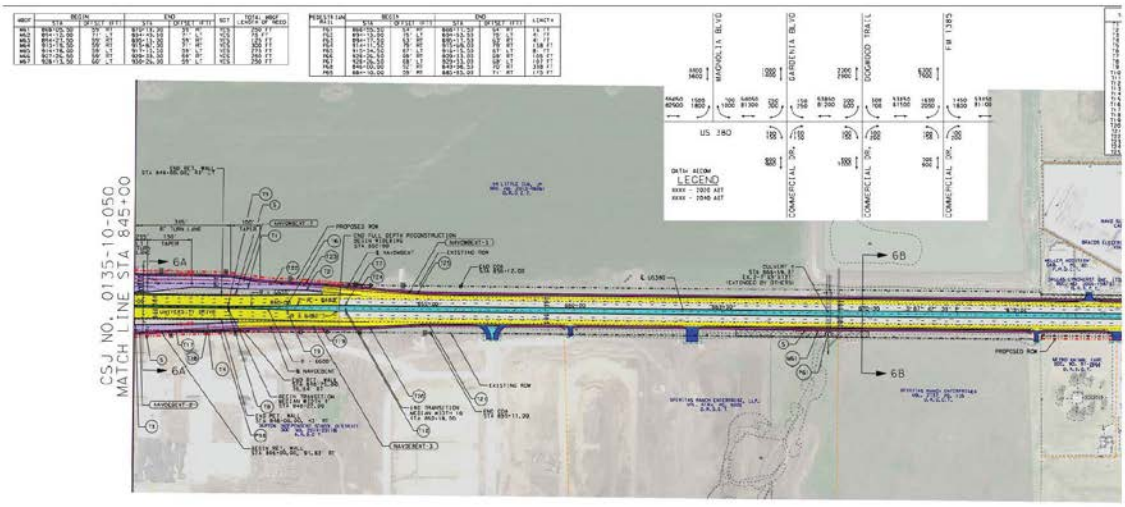
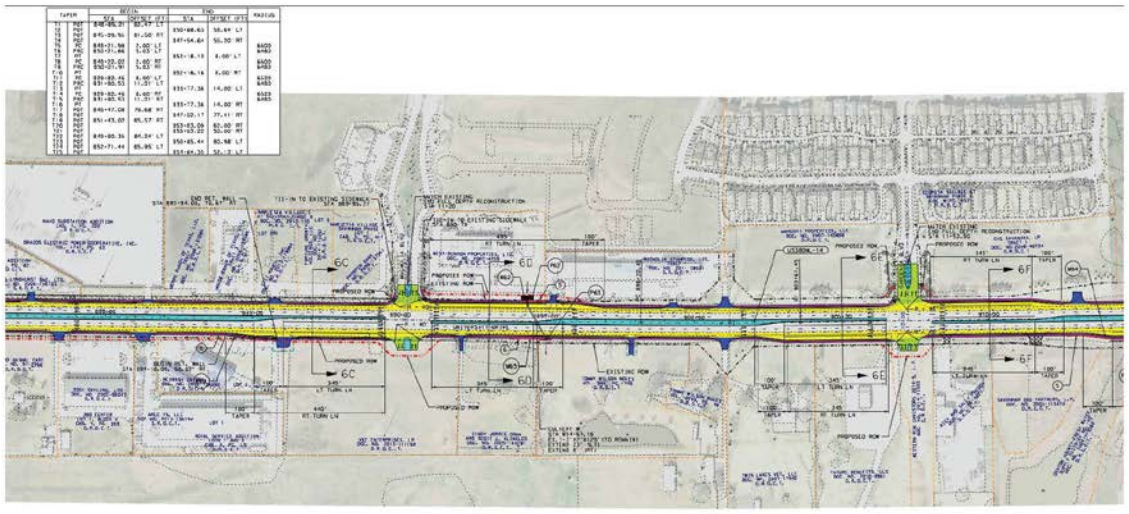


US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 15 of 24



US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 10 of 24



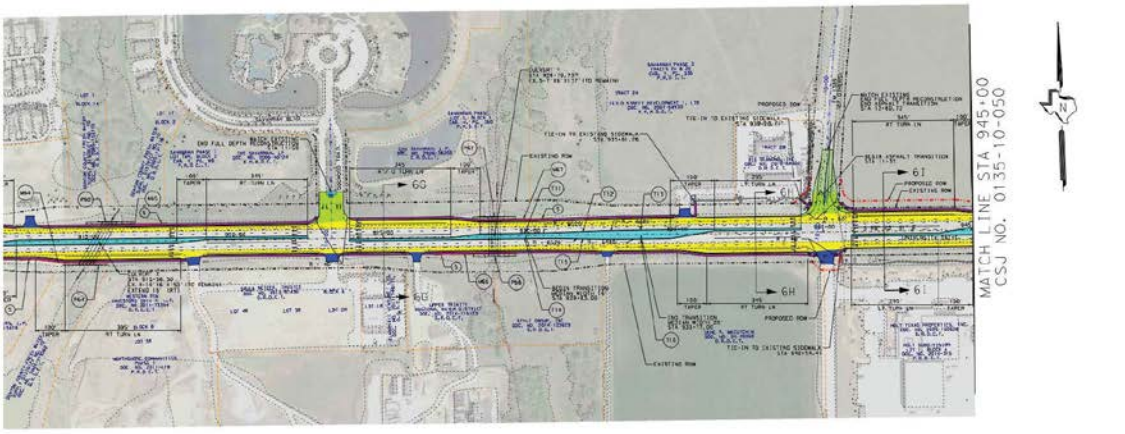
US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 17 of 24

PROPOSED UNDERLAYERS
PROPOSED BRIDGES
PROPOSED BRIDGE WIDENING
PROPOSED ACCESS ROADS/RAMPS
PROPOSED CROSS STREETS
PROPOSED MEDIAN
PROPOSED SIDEWALK
FUTURE 10' SUP (BY OTHERS)
PROPOSED DRIVEWAY
PROPOSED ASPHALT PAVT. TRANSITION
PROPOSED CENTERLINE
PROPOSED RETAINING WALL
PROPOSED RIGHT-OF-WAY
EXISTING RIGHT-OF-WAY
EXISTING ROAD
PROPOSED CONTROL OF ACCESS
EXISTING CONTROL OF ACCESS
CITY/COUNTY LINE
PROPERTY LINE
EXISTING EASEMENT
PROPOSED CONSTRUCTION EASEMENT
PROPOSED DRAINAGE EASEMENT
SINGLE SLOPE CONCRETE RAIL (SCT225)
EX. 72" WATER LINE
PROPOSED WBAT
PROPOSED CONSTRUCTION
EXISTING SIDEWALK
DRIVEWAY REMOVAL
CONCRETE VERNAL
METAL BEAM GUARD FENCE
PEDESTRIAN RAIL
SINGLE GUARD RAIL TERMINAL
TAPER
PROPOSED LANE DIRECTIONAL DIVERSION

200 0 200

NOTE:

1. FINAL LOCATION AND NUMBER OF MEDIAN OPENINGS WILL BE DETERMINED DURING THE FINAL DESIGN PHASE OF THIS PROJECT.
2. ALL UTILITIES WILL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION BEGINS.
3. ALL TXDOT CURBS ARE 8" FROM FACE OF CURB TO BACK OF CURB.



US 380

Project Layout

CSJ: 0135-10-057, 0135-10-050

Sheet 18 of 29

PROPOSED UNDERLAYER
PROPOSED BRIDGES
PROPOSED BRIDGE WIDENING
PROPOSED ACCESS ROADS/RAMPS
PROPOSED CROSS STREETS
PROPOSED MEDIAN
PROPOSED SIDEWALK
FUTURE 10' SUP (BY OTHERS)
PROPOSED DRIVEWAY
PROPOSED ASPHALT PAVT. TRANSITION
PROPOSED CENTERLINE
PROPOSED RETAINING WALL
PROPOSED RIGHT-OF-WAY
EXISTING RIGHT-OF-WAY
EXISTING ROAD
PROPOSED CONTROL OF ACCESS
EXISTING CONTROL OF ACCESS
CITY/COUNTY LINE
PROPERTY LINE
EXISTING EASEMENT
PROPOSED CONSTRUCTION EASEMENT
PROPOSED DRAINAGE EASEMENT
SINGLE SLOPE CONCRETE RAIL (SCT225)
EX. 72" WATER LINE
PROPOSED WBAT
PROPOSED CONSTRUCTION
EXISTING SIDEWALK
DRIVEWAY REMOVAL
CONCRETE REPAIR
(M) METAL BEAM GUARD FENCE
(P) PEDESTRIAN RAIL
(S) SINGLE BLADE RAIL TERMINAL
(T) TAPER
DESIGNED LANE DIRECTIONAL DIVERSION

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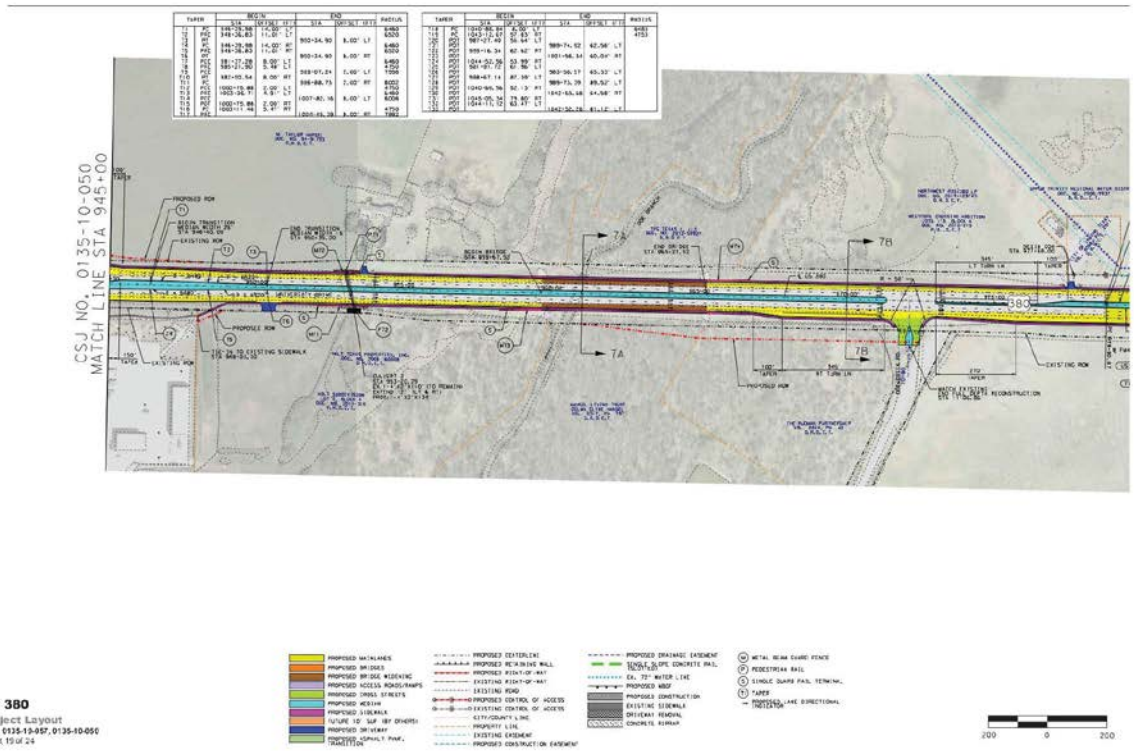
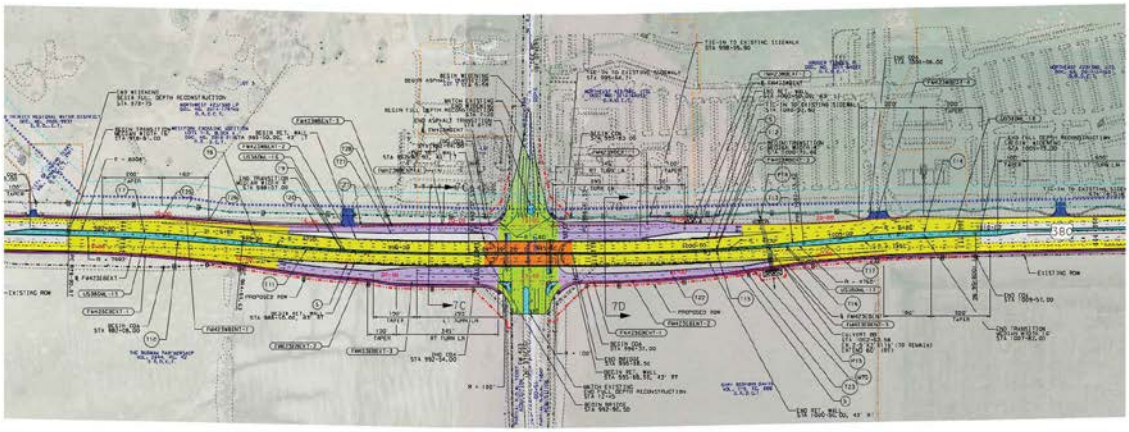


US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 19 of 24



US 380
Project Layout
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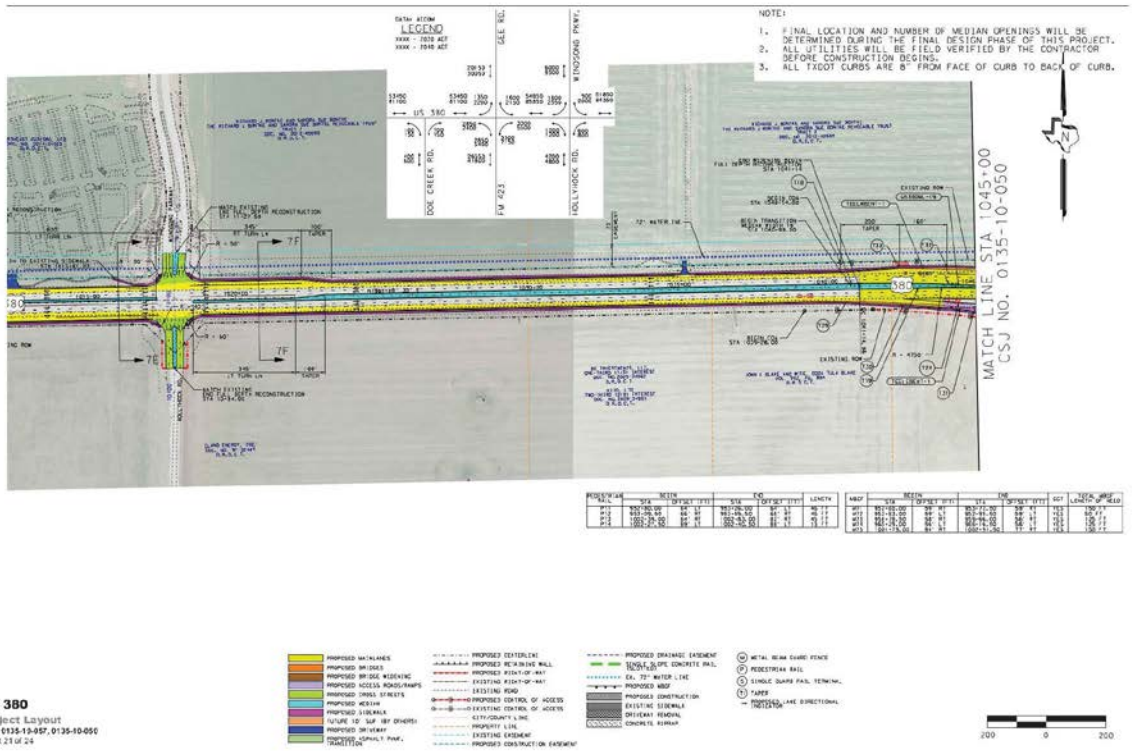
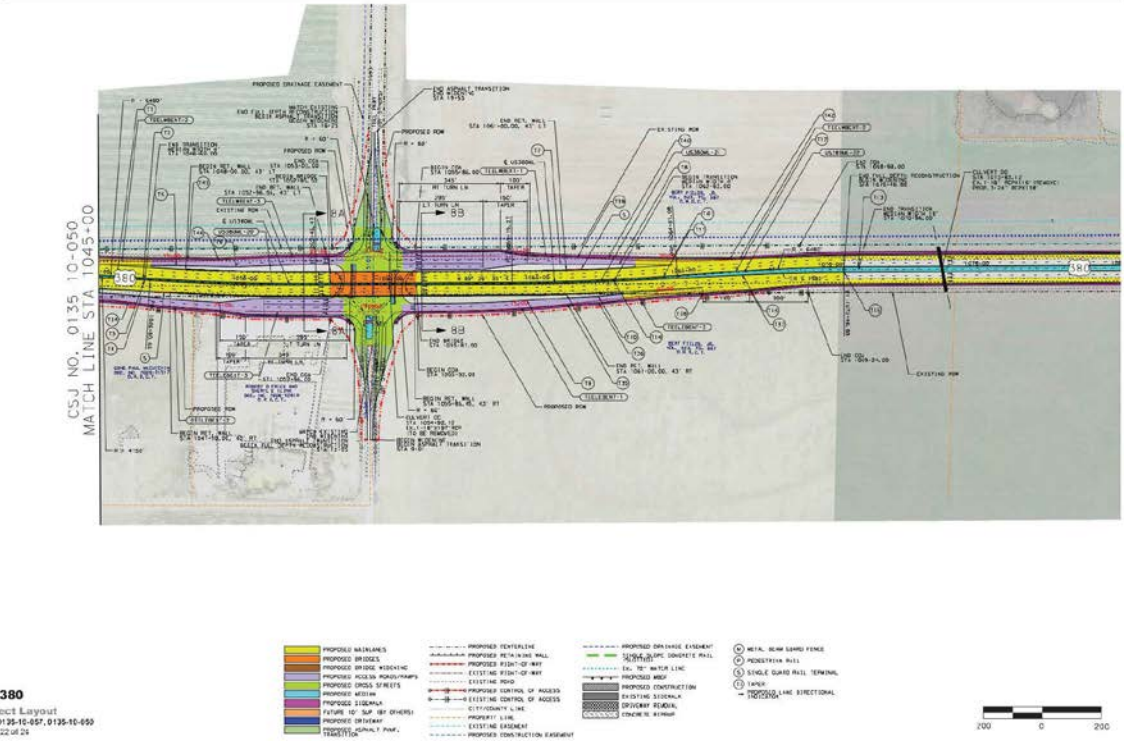
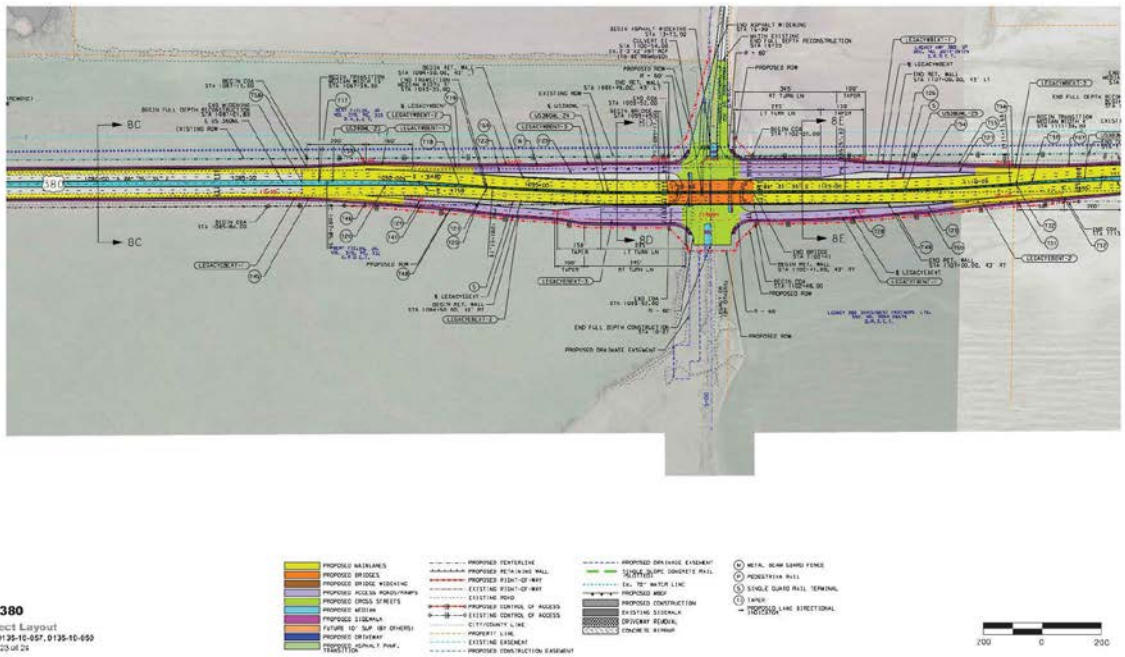
Sheet 20 of 24



US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 21 of 24



US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 22 of 24


US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 23 of 24
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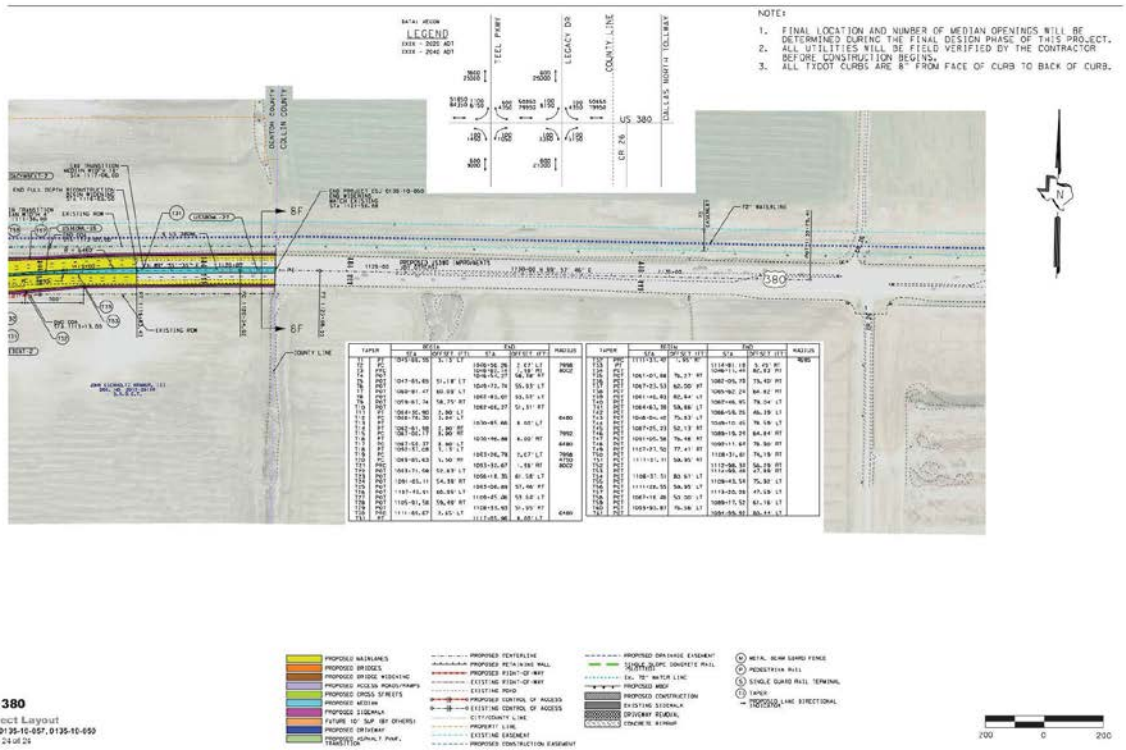

US 380
Project Layout
CSJ: 0135-10-057, 0135-10-050
Sheet 24 of 24

United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Collin County, Texas, and Denton County, Texas

US 380

June 1, 2017

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface.....2
How Soil Surveys Are Made.....6
Soil Map.....9
Soil Map (US 380).....10
Legend.....11
Map Unit Legend (US 380).....13
Map Unit Descriptions (US 380).....14
Collin County, Texas.....17
HoB—Houston Black clay, 1 to 3 percent slopes.....17
Denton County, Texas.....19
2—Altoga silty clay, 2 to 5 percent slopes.....19
3—Altoga silty clay, 5 to 8 percent slopes.....20
7—Arents, hilly.....21
12—Birome fine sandy loam, 3 to 5 percent slopes.....22
13—Birome-Rayex-Aubrey complex, 2 to 15 percent slopes.....23
18—Branyon clay, 0 to 1 percent slopes.....25
19—Branyon clay, 1 to 3 percent slopes.....27
20—Bunyan fine sandy loam, frequently flooded.....28
21—Burleson clay, 0 to 1 percent slopes.....29
22—Burleson clay, 1 to 3 percent slopes.....31
23—Callisburg fine sandy loam, 1 to 3 percent slopes.....32
24—Callisburg fine sandy loam, 3 to 5 percent slopes.....33
25—Callisburg soils, 2 to 5 percent slopes, severely erode d.....34
30—Energy fine sandy loam, frequently flooded.....35
32—Ferris-Heiden clay, 5 to 15 percent slopes.....36
34—Frio silty clay, frequently flooded.....38
35—Gasil fine sandy loam, 1 to 3 percent slopes.....39
36—Gasil fine sandy loam, 3 to 8 percent slopes.....40
38—Gasil and Konsil soils, 1 to 5 percent slopes.....42
39—Gowen clay loam, occasionally flooded.....43
41—Heiden clay, 1 to 3 percent slopes.....44
42—Heiden clay, 3 to 5 percent slopes.....46
49—Kaufman clay, 0 to 1 percent slopes, frequently flooded.....47
50—Konsil fine sandy loam, 1 to 3 percent slopes.....49
51—Konsil fine sandy loam, 3 to 8 percent slopes.....50
53—Lewisville clay loam, 3 to 5 percent slopes.....51
60—Navo clay loam, 1 to 3 percent slopes.....52
62—Navo-Urban land complex, 0 to 3 percent slopes.....53
64—Ovan clay, frequently flooded.....54
71—Silawa loamy fine sand, 2 to 5 percent slopes.....55
83—Wilson clay loam, 0 to 1 percent slopes.....56
84—Wilson clay loam, 1 to 3 percent slopes.....58
85—Wilson-Urban land complex, 0 to 2 percent slopes.....59
W—Water.....61

Soil Information for All Uses.....62
Suitabilities and Limitations for Use.....62
Land Classifications.....62
Farmland Classification (US 380).....62
Hydric Rating by Map Unit (US 380).....69
References.....76

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (US 380)

Map Scale: 1:128,000 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 1500 3000 6000 9000

Feet: 0 5000 10000 20000 30000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Collin County, Texas
Survey Area Data: Version 11, Sep 21, 2016

Soil Survey Area: Denton County, Texas
Survey Area Data: Version 12, Sep 21, 2016

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 13, 2010—May 7, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (US 380)

Collin County, Texas (TX085)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
HoB	Houston Black clay, 1 to 3 percent slopes	0.2	0.0%
Subtotals for Soil Survey Area		**0.2**	**0.0%**
Totals for Area of Interest		**402.2**	**100.0%**

Denton County, Texas (TX121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2	Altoga silty clay, 2 to 5 percent slopes	1.8	0.4%
3	Altoga silty clay, 5 to 8 percent slopes	1.2	0.3%
7	Arents, hilly	0.3	0.1%
12	Birome fine sandy loam, 3 to 5 percent slopes	33.4	8.3%
13	Birome-Rayex-Aubrey complex, 2 to 15 percent slopes	9.3	2.3%
18	Branyon clay, 0 to 1 percent slopes	56.1	13.9%
19	Branyon clay, 1 to 3 percent slopes	12.3	3.1%
20	Bunyan fine sandy loam, frequently flooded	12.7	3.2%
21	Burleson clay, 0 to 1 percent slopes	14.6	3.6%
22	Burleson clay, 1 to 3 percent slopes	11.9	3.0%
23	Callisburg fine sandy loam, 1 to 3 percent slopes	29.7	7.4%
24	Callisburg fine sandy loam, 3 to 5 percent slopes	4.0	1.0%
25	Callisburg soils, 2 to 5 percent slopes, severely erode d	0.5	0.1%
30	Energy fine sandy loam, frequently flooded	0.3	0.1%
32	Ferris-Heiden clay, 5 to 15 percent slopes	7.9	2.0%
34	Frio silty clay, frequently flooded	3.5	0.9%
35	Gasil fine sandy loam, 1 to 3 percent slopes	30.1	7.5%
36	Gasil fine sandy loam, 3 to 8 percent slopes	10.7	2.7%
38	Gasil and Konsil soils, 1 to 5 percent slopes	0.0	0.0%

Denton County, Texas (TX121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
39	Gowen clay loam, occasionally flooded	3.4	0.8%
41	Heiden clay, 1 to 3 percent slopes	2.4	0.6%
42	Heiden clay, 3 to 5 percent slopes	4.4	1.1%
49	Kaufman clay, 0 to 1 percent slopes, frequently flooded	3.4	0.8%
50	Konsil fine sandy loam, 1 to 3 percent slopes	17.6	4.4%
51	Konsil fine sandy loam, 3 to 8 percent slopes	4.4	1.1%
53	Lewisville clay loam, 3 to 5 percent slopes	7.0	1.7%
60	Navo clay loam, 1 to 3 percent slopes	12.1	3.0%
62	Navo-Urban land complex, 0 to 3 percent slopes	7.0	1.7%
64	Ovan clay, frequently flooded	42.5	10.6%
71	Silawa loamy fine sand, 2 to 5 percent slopes	0.0	0.0%
83	Wilson clay loam, 0 to 1 percent slopes	12.0	3.0%
84	Wilson clay loam, 1 to 3 percent slopes	40.7	10.1%
85	Wilson-Urban land complex, 0 to 2 percent slopes	1.0	0.3%
W	Water	3.8	0.9%
Subtotals for Soil Survey Area		**402.0**	**100.0%**
Totals for Area of Interest		**402.2**	**100.0%**

Map Unit Descriptions (US 380)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made

up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Collin County, Texas

HoB—Houston Black clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2ssh0
Elevation: 270 to 1,040 feet
Mean annual precipitation: 33 to 43 inches
Mean annual air temperature: 62 to 63 degrees F
Frost-free period: 217 to 244 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Houston black and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Houston Black

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Microfeatures of landform position: Linear gilgai
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Clayey residuum weathered from calcareous mudstone of upper cretaceous age

Typical profile

Ap - 0 to 6 inches: clay
Bkss - 6 to 70 inches: clay
BCkss - 70 to 80 inches: clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D

Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Minor Components

Heiden

Percent of map unit: 15 percent
Landform: Plains
Microfeatures of landform position: Linear gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Fairlie

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Denton County, Texas

2—Altoga silty clay, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2tr6t
Elevation: 430 to 860 feet
Mean annual precipitation: 36 to 39 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 242 to 256 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Altoga and similar soils: 92 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Altoga

Setting

Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Calcareous clayey alluvium derived from mudstone

Typical profile

Ap - 0 to 6 inches: silty clay
Bk - 6 to 56 inches: silty clay
C - 56 to 80 inches: silty clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 75 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: Clay Loam 28-40" PZ (R086AY199TX)
Hydric soil rating: No

Minor Components

Heiden

Percent of map unit: 8 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Microfeatures of landform position: Linear gilgai
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

3—Altoga silty clay, 5 to 8 percent slopes

Map Unit Setting

National map unit symbol: d7sk
Elevation: 500 to 1,500 feet
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 230 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Altoga and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Altoga

Setting

Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Clayey alluvium derived from mixed sources

Typical profile

H1 - 0 to 6 inches: silty clay
H2 - 6 to 60 inches: silty clay
H3 - 60 to 80 inches: silty clay

Properties and qualities

Slope: 5 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum in profile: 75 percent
Available water storage in profile: High (about 10.2 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: Clay Loam 28-40" PZ (R086AY199TX)
Hydric soil rating: No

7—Arents, hilly

Map Unit Setting
National map unit symbol: d7tz
Elevation: 50 to 850 feet
Mean annual precipitation: 20 to 41 inches
Mean annual air temperature: 64 to 73 degrees F
Frost-free period: 225 to 325 days
Farmland classification: Not prime farmland

Map Unit Composition
Arents and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arents

Setting
Landform: Ridges
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Slope alluvium over residuum

Typical profile
H1 - 0 to 80 inches: variable

Properties and qualities
Slope: 10 to 30 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (0.57 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: Clay Loam 30-38" PZ (R085XY179TX)
Hydric soil rating: No

12—Birome fine sandy loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: d7ry
Elevation: 400 to 1,100 feet
Mean annual precipitation: 32 to 43 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 225 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Birome and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Birome

Setting

Landform: Ridges
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy residuum weathered from sandstone

Typical profile

H1 - 0 to 6 inches: fine sandy loam
H2 - 6 to 27 inches: clay
H3 - 27 to 34 inches: sandy clay
H4 - 34 to 60 inches: bedrock

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: SANDY LOAM 32-40" PZ (R084CY194TX)
Hydric soil rating: No

13—Birome-Rayex-Aubrey complex, 2 to 15 percent slopes

Map Unit Setting

National map unit symbol: d7rz
Elevation: 400 to 1,100 feet
Mean annual precipitation: 32 to 43 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 220 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Birome and similar soils: 33 percent
Rayex and similar soils: 32 percent
Aubrey and similar soils: 29 percent
Minor components: 6 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Birome

Setting

Landform: Ridges
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy residuum weathered from sandstone

Typical profile

H1 - 0 to 8 inches: stony fine sandy loam
H2 - 8 to 31 inches: clay
H3 - 31 to 60 inches: bedrock

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: SANDSTONE HILL 32-40" PZ (R084CY192TX)
Hydric soil rating: No

Description of Rayex

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 7 inches: stony fine sandy loam
H2 - 7 to 15 inches: clay
H3 - 15 to 20 inches: bedrock

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: SANDSTONE HILL 32-40" PZ (R084CY192TX)
Hydric soil rating: No

Description of Aubrey

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Clayey residuum weathered from shale

Typical profile

H1 - 0 to 8 inches: stony fine sandy loam
H2 - 8 to 26 inches: clay
H3 - 26 to 66 inches: bedrock

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: SANDSTONE HILL 32-40" PZ (R084CY192TX)
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 6 percent
Hydric soil rating: No

18—Branyon clay, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2shgv
Elevation: 290 to 1,050 feet
Mean annual precipitation: 31 to 38 inches
Mean annual air temperature: 65 to 70 degrees F
Frost-free period: 238 to 288 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Branyon and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Branyon

Setting

Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Calcareous clayey alluvium derived from mudstone of pleistocene age

Typical profile

Ap - 0 to 12 inches: clay
Bkss - 12 to 72 inches: clay
BCkss - 72 to 80 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 7.0
Available water storage in profile: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: D
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Minor Components

Lewisville

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Clay Loam 28-40" PZ (R086AY199TX)
Hydric soil rating: No

Houston black

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Burleson

Percent of map unit: 5 percent
Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

19—Branyon clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2shgw
Elevation: 290 to 1,040 feet
Mean annual precipitation: 33 to 39 inches
Mean annual air temperature: 66 to 70 degrees F
Frost-free period: 243 to 288 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Branyon and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Branyon

Setting

Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Calcareous clayey alluvium derived from mudstone of pleistocene age

Typical profile

Ap - 0 to 12 inches: clay
Bkss - 12 to 72 inches: clay
BCkss - 72 to 80 inches: clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 7.0
Available water storage in profile: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: D
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Minor Components

Lewisville
Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Clay Loam 28-40" PZ (R086AY199TX)
Hydric soil rating: No

Houston black
Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Burleson
Percent of map unit: 5 percent
Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

20—Bunyan fine sandy loam, frequently flooded

Map Unit Setting
National map unit symbol: d7s7
Elevation: 150 to 1,500 feet
Mean annual precipitation: 32 to 42 inches
Mean annual air temperature: 63 to 72 degrees F
Frost-free period: 220 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition
Bunyan and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bunyan

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

H1 - 0 to 21 inches: fine sandy loam
H2 - 21 to 66 inches: sandy clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B
Ecological site: LOAMY BOTTOMLAND 32-40" PZ (R084CY191TX)
Hydric soil rating: No

21—Burleson clay, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2ssg6
Elevation: 300 to 800 feet
Mean annual precipitation: 32 to 45 inches
Mean annual air temperature: 63 to 70 degrees F
Frost-free period: 220 to 270 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Burleson and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Burleson

Setting

Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread

Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous clayey alluvium of pleistocene age derived from mixed sources

Typical profile

A - 0 to 23 inches: clay
Bss - 23 to 38 inches: clay
Bkss - 38 to 69 inches: clay
2Ck - 69 to 90 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: D
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Minor Components

Wilson

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: Claypan Prairie 32-40 PZ (R086BY214TX)
Hydric soil rating: No

Branyon

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

22—Burleson clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tbtx
Elevation: 120 to 970 feet
Mean annual precipitation: 34 to 47 inches
Mean annual air temperature: 62 to 69 degrees F
Frost-free period: 228 to 239 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Burleson and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Burleson

Setting

Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous clayey alluvium of pleistocene age derived from mudstone

Typical profile

Ap - 0 to 5 inches: clay
Bss - 5 to 20 inches: clay
Bkss - 20 to 43 inches: clay
2Ck - 43 to 60 inches: clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: D
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Minor Components

Wilson

Percent of map unit: 8 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: Claypan Prairie 28-40" PZ (R086AY200TX)
Hydric soil rating: No

Branyon

Percent of map unit: 7 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

23—Callisburg fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: d7sb
Elevation: 500 to 900 feet
Mean annual precipitation: 32 to 40 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 220 to 245 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Callisburg and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Callisburg

Setting

Landform: Ridges
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Clayey residuum weathered from shale

Typical profile

H1 - 0 to 5 inches: fine sandy loam
H2 - 5 to 56 inches: sandy clay

H3 - 56 to 80 inches: sandy clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: SANDY LOAM 32-40" PZ (R084CY194TX)
Hydric soil rating: No

24—Callisburg fine sandy loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: d7sc
Elevation: 500 to 900 feet
Mean annual precipitation: 32 to 40 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 220 to 245 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Callisburg and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Callisburg

Setting

Landform: Ridges
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Clayey residuum weathered from shale

Typical profile

H1 - 0 to 5 inches: fine sandy loam
H2 - 5 to 41 inches: sandy clay
H3 - 41 to 68 inches: clay

Properties and qualities

Slope: 3 to 5 percent

Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 7.3 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: SANDY LOAM 32-40" PZ (R084CY194TX)
Hydric soil rating: No

25—Callisburg soils, 2 to 5 percent slopes, severely erode d

Map Unit Setting
National map unit symbol: d7sd
Elevation: 500 to 900 feet
Mean annual precipitation: 32 to 40 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 220 to 245 days
Farmland classification: Not prime farmland

Map Unit Composition
Callisburg, severely eroded, and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Callisburg, Severely Eroded

Setting
Landform: Ridges
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Clayey residuum weathered from shale

Typical profile
H1 - 0 to 3 inches: fine sandy loam
H2 - 3 to 37 inches: clay
H3 - 37 to 60 inches: clay

Properties and qualities
Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 7.3 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: SANDY LOAM 32-40" PZ (R084CY194TX)
Hydric soil rating: No

30—Energy fine sandy loam, frequently flooded

Map Unit Setting
National map unit symbol: d7sl
Elevation: 500 to 1,500 feet
Mean annual precipitation: 26 to 33 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 226 to 242 days
Farmland classification: Not prime farmland

Map Unit Composition
Energy and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Energy

Setting
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile
H1 - 0 to 4 inches: fine sandy loam
H2 - 4 to 28 inches: sandy clay loam
H3 - 28 to 38 inches: loam
H4 - 38 to 44 inches: loamy sand
H5 - 44 to 62 inches: sandy clay loam

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B
Ecological site: LOAMY BOTTOMLAND 32-40" PZ (R084CY191TX)
Hydric soil rating: No

32—Ferris-Heiden clay, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: d7sn
Elevation: 400 to 1,000 feet
Mean annual precipitation: 28 to 42 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 225 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition

Ferris and similar soils: 50 percent
Heiden and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ferris

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Linear gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale in eagleford shale and taylor marl formations of cretaceous age

Typical profile

H1 - 0 to 6 inches: clay
H2 - 6 to 43 inches: clay
H3 - 43 to 60 inches: clay

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 40 to 60 inches to densic bedrock
Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: Eroded Blackland 28-40" PZ (R086AY201TX)
Hydric soil rating: No

Description of Heiden

Setting
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Linear gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Clayey residuum weathered from clayey shale of eagleford shale or taylor marl

Typical profile
H1 - 0 to 19 inches: clay
H2 - 19 to 37 inches: clay
H3 - 37 to 60 inches: clay
H4 - 60 to 80 inches: clay

Properties and qualities
Slope: 5 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 55 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 12.0
Available water storage in profile: Moderate (about 9.0 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D

Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Minor Components

Unnamed
Percent of map unit: 10 percent
Hydric soil rating: No

34—Frio silty clay, frequently flooded

Map Unit Setting
National map unit symbol: d7sq
Elevation: 400 to 1,700 feet
Mean annual precipitation: 25 to 36 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 220 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition
Frio and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Frio

Setting
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium derived from limestone and shale

Typical profile
H1 - 0 to 23 inches: silty clay
H2 - 23 to 64 inches: silty clay
H3 - 64 to 80 inches: silty clay

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C
Ecological site: Loamy Bottomland 30-38" PZ (R085XY181TX)
Hydric soil rating: No

35—Gasil fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2wn8n
Elevation: 500 to 850 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 220 to 250 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Gasil and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gasil

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy residuum weathered from sandstone

Typical profile

A - 0 to 7 inches: fine sandy loam
E - 7 to 13 inches: fine sandy loam
Bt - 13 to 80 inches: sandy clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: SANDY LOAM 32-40" PZ (R084CY194TX)
Hydric soil rating: No

Minor Components

Callisburg

Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: SANDY LOAM 32-40" PZ (R084CY194TX)
Hydric soil rating: No

Birome

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: SANDY LOAM 32-40" PZ (R084CY194TX)
Hydric soil rating: No

36—Gasil fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2wn8p
Elevation: 500 to 850 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 63 to 66 degrees F
Frost-free period: 220 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Gasil and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gasil

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Loamy residuum weathered from sandstone

Typical profile

A - 0 to 8 inches: fine sandy loam
E - 8 to 17 inches: fine sandy loam
Bt - 17 to 80 inches: sandy clay loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: SANDY LOAM 32-40" PZ (R084CY194TX)
Hydric soil rating: No

Minor Components

Crosstell

Percent of map unit: 8 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: TIGHT SANDY LOAM 32-40" PZ (R084CY195TX)
Hydric soil rating: No

Birome

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: SANDSTONE HILL 32-40" PZ (R084CY192TX)
Hydric soil rating: No

Heaton

Percent of map unit: 2 percent
Landform: Ridges
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: SANDY 32-40" PZ (R084CY193TX)

Hydric soil rating: No

38—Gasil and Konsil soils, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: d7sv
Elevation: 300 to 900 feet
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 63 to 70 degrees F
Frost-free period: 220 to 270 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Gasil and similar soils: 50 percent
Konsil and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gasil

Setting

Landform: Ridges
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loamy residuum weathered from interbedded sandstone and shale

Typical profile

H1 - 0 to 10 inches: sandy clay loam
H2 - 10 to 60 inches: sandy clay loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: SANDY LOAM 32-40" PZ (R084CY194TX)
Hydric soil rating: No

Description of Konsil

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy residuum weathered from sandstone, woodbine formation

Typical profile

H1 - 0 to 9 inches: sandy clay loam
H2 - 9 to 60 inches: sandy clay loam
H3 - 60 to 80 inches: variable

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: SANDY LOAM 32-40" PZ (R084CY194TX)
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 10 percent
Hydric soil rating: No

39—Gowen clay loam, occasionally flooded

Map Unit Setting

National map unit symbol: d7sw
Elevation: 200 to 950 feet
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 230 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Gowen and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gowen

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

H1 - 0 to 23 inches: clay loam
H2 - 23 to 65 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Gypsum, maximum in profile: 2 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: Loamy Bottomland 30-38" PZ (R085XY181TX)
Hydric soil rating: No

41—Heiden clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2v1v9
Elevation: 290 to 1,020 feet
Mean annual precipitation: 33 to 45 inches
Mean annual air temperature: 63 to 68 degrees F
Frost-free period: 224 to 278 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Heiden and similar soils: 85 percent
Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Heiden

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Microfeatures of landform position: Linear gilgai
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey residuum weathered from mudstone

Typical profile

Ap - 0 to 6 inches: clay
A - 6 to 18 inches: clay
Bkss - 18 to 58 inches: clay
CBdk - 58 to 70 inches: clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: 40 to 65 inches to densic material
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 12.0
Available water storage in profile: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Minor Components

Houston black

Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Interfluve
Microfeatures of landform position: Circular gilgai
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Ferris

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Linear gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Eroded Blackland 28-40" PZ (R086AY201TX)
Hydric soil rating: No

42—Heiden clay, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2v1vc
Elevation: 260 to 890 feet
Mean annual precipitation: 33 to 42 inches
Mean annual air temperature: 63 to 68 degrees F
Frost-free period: 233 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Heiden and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Heiden

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope, interfluve
Microfeatures of landform position: Linear gilgai
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from mudstone

Typical profile

Ap - 0 to 6 inches: clay
Bkss1 - 6 to 18 inches: clay
Bkss2 - 18 to 58 inches: clay
CBdk - 58 to 80 inches: clay

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: 40 to 65 inches to densic material
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 12.0
Available water storage in profile: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Minor Components

Houston black

Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Circular gilgai
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Ferris, moderately eroded

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Linear gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Eroded Blackland 28-40" PZ (R086AY201TX)
Hydric soil rating: No

49—Kaufman clay, 0 to 1 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2wg9d
Elevation: 130 to 660 feet
Mean annual precipitation: 38 to 47 inches
Mean annual air temperature: 62 to 68 degrees F
Frost-free period: 218 to 254 days
Farmland classification: Not prime farmland

Map Unit Composition

Kaufman and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kaufman

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from mudstone

Typical profile

A - 0 to 6 inches: clay
Bss1 - 6 to 69 inches: clay
Bss2 - 69 to 80 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: D
Ecological site: Clayey Bottomland 28-40" PZ (R086AY198TX)
Hydric soil rating: Yes

Minor Components

Trinity

Percent of map unit: 10 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Clayey Bottomland 28-40" PZ (R086AY198TX)
Hydric soil rating: Yes

Whitesboro

Percent of map unit: 4 percent
Landform: Flood plains
Down-slope shape: Linear

Across-slope shape: Concave
Ecological site: Loamy Bottomland 28-40" PZ (R086AY203TX)
Hydric soil rating: No

Gladewater
Percent of map unit: 1 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: Clayey Bottomland 28-40" PZ (R086AY198TX)
Hydric soil rating: Yes

50—Konsil fine sandy loam, 1 to 3 percent slopes

Map Unit Setting
National map unit symbol: d7t9
Elevation: 500 to 900 feet
Mean annual precipitation: 32 to 40 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 220 to 245 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Konsil and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Konsil

Setting
Landform: Ridges
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy residuum weathered from sandstone, woodbine formation

Typical profile
H1 - 0 to 12 inches: fine sandy loam
H2 - 12 to 66 inches: sandy clay loam

Properties and qualities
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: SANDY LOAM 32-40" PZ (R084CY194TX)
Hydric soil rating: No

51—Konsil fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: d7tb
Elevation: 500 to 900 feet
Mean annual precipitation: 32 to 40 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 220 to 245 days
Farmland classification: Not prime farmland

Map Unit Composition

Konsil and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Konsil

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy residuum weathered from sandstone, woodbine formation

Typical profile

H1 - 0 to 12 inches: fine sandy loam
H2 - 12 to 64 inches: sandy clay loam
H3 - 64 to 80 inches: variable

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B

Ecological site: SANDY LOAM 32-40" PZ (R084CY194TX)
Hydric soil rating: No

53—Lewisville clay loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2wn9p
Elevation: 400 to 1,800 feet
Mean annual precipitation: 29 to 39 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 230 to 245 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Lewisville and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lewisville

Setting

Landform: Stream terraces, hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Linear
Across-slope shape: Linear, convex
Parent material: Calcareous loamy alluvium and/or slope alluvium derived from limestone and shale

Typical profile

A - 0 to 16 inches: clay loam
Bk - 16 to 42 inches: clay loam
BCk - 42 to 80 inches: clay loam

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 3.0
Available water storage in profile: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: Clay Loam 30-38" PZ (R085XY179TX)
Hydric soil rating: No

Minor Components

Altoga

Percent of map unit: 7 percent
Landform: Stream terraces, hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, riser
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: Clay Loam 30-38" PZ (R085XY179TX)
Hydric soil rating: No

Krum

Percent of map unit: 3 percent
Landform: Stream terraces, hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: Clay Loam 30-38" PZ (R085XY179TX)
Hydric soil rating: No

60—Navo clay loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: d7tn
Elevation: 490 to 520 feet
Mean annual precipitation: 30 to 34 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 225 to 235 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Navo and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Navo

Setting

Landform: Ridges
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear

Parent material: Loamy residuum weathered from sandstone and shale of the woodbine formation

Typical profile

H1 - 0 to 5 inches: clay loam
H2 - 5 to 72 inches: clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: Claypan Prairie 28-40" PZ (R086AY200TX)
Hydric soil rating: No

62—Navo-Urban land complex, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: d7tq
Elevation: 0 to 4,000 feet
Mean annual precipitation: 8 to 60 inches
Mean annual air temperature: 54 to 73 degrees F
Frost-free period: 180 to 310 days
Farmland classification: Not prime farmland

Map Unit Composition

Navo and similar soils: 55 percent
Urban land: 25 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Navo

Setting

Landform: Ridges
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy residuum weathered from sandstone and shale of the woodbine formation

Typical profile

H1 - 0 to 5 inches: clay loam
H2 - 5 to 72 inches: clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Urban Land

Typical profile

H1 - 0 to 40 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 20 percent
Hydric soil rating: No

64—Ovan clay, frequently flooded

Map Unit Setting

National map unit symbol: d7ts
Elevation: 350 to 600 feet
Mean annual precipitation: 30 to 38 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 220 to 255 days
Farmland classification: Not prime farmland

Map Unit Composition

Ovan and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ovan

Setting

Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium of quaternary age derived from mixed sources

Typical profile

H1 - 0 to 66 inches: clay
H2 - 66 to 80 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C
Ecological site: Clayey Bottomland 28-40" PZ (R086AY198TX)
Hydric soil rating: No

71—Silawa loamy fine sand, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: d7v1
Elevation: 350 to 800 feet
Mean annual precipitation: 30 to 42 inches
Mean annual air temperature: 63 to 70 degrees F
Frost-free period: 220 to 270 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Silawa and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Silawa

Setting

Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy alluvium

Typical profile

H1 - 0 to 14 inches: loamy fine sand
H2 - 14 to 56 inches: sandy clay loam
H3 - 56 to 60 inches: loamy fine sand

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: LOAMY SAND 32-40" PZ (R084CY616TX)
Hydric soil rating: No

83—Wilson clay loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2wst1
Elevation: 200 to 770 feet
Mean annual precipitation: 34 to 43 inches
Mean annual air temperature: 65 to 69 degrees F
Frost-free period: 240 to 278 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Wilson and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wilson

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loamy and/or clayey alluvium derived from mudstone

Typical profile

Ap - 0 to 7 inches: clay loam
Btss - 7 to 31 inches: clay
Btkss - 31 to 36 inches: clay
Btkssyg - 36 to 42 inches: clay
Btkyg - 42 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 5 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 20 percent
Gypsum, maximum in profile: 15 percent
Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 10.0
Available water storage in profile: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: Claypan Prairie 28-40" PZ (R086AY200TX)
Hydric soil rating: No

Minor Components

Burleson

Percent of map unit: 10 percent
Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Crockett

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Claypan Prairie 28-40" PZ (R086AY200TX)
Hydric soil rating: No

84—Wilson clay loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2wg9f
Elevation: 200 to 770 feet
Mean annual precipitation: 34 to 48 inches
Mean annual air temperature: 64 to 67 degrees F
Frost-free period: 243 to 262 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Wilson and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wilson

Setting

Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loamy and/or clayey alluvium derived from mudstone

Typical profile

Ap - 0 to 7 inches: clay loam
Btss - 7 to 31 inches: clay
Btkss - 31 to 36 inches: clay
Btkssyg - 36 to 42 inches: clay
Btkyg - 42 to 80 inches: clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 20 percent
Gypsum, maximum in profile: 15 percent

Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 10.0
Available water storage in profile: Moderate (about 7.6 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: Claypan Prairie 28-40" PZ (R086AY200TX)
Hydric soil rating: No

Minor Components

Burleson
Percent of map unit: 10 percent
Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Blackland 28-40" PZ (R086AY196TX)
Hydric soil rating: No

Crockett
Percent of map unit: 5 percent
Landform: Ridges, stream terraces
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, tread
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Claypan Prairie 28-40" PZ (R086AY200TX)
Hydric soil rating: No

85—Wilson-Urban land complex, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: d7vj
Elevation: 0 to 4,000 feet
Mean annual precipitation: 8 to 60 inches
Mean annual air temperature: 54 to 73 degrees F
Frost-free period: 180 to 310 days
Farmland classification: Not prime farmland

Map Unit Composition
Wilson and similar soils: 55 percent
Urban land: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wilson

Setting

Landform: Paleoterraces, paleoterraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Clayey alluvium of quaternary age derived from mixed sources

Typical profile

H1 - 0 to 5 inches: clay loam
H2 - 5 to 34 inches: clay
H3 - 34 to 77 inches: clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 20 percent
Gypsum, maximum in profile: 15 percent
Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 10.0
Available water storage in profile: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Urban Land

Typical profile

H1 - 0 to 40 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 15 percent
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: d7vl
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 220 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Farmland Classification (US 380)

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Map—Farmland Classification (US 380)

Map Scale: 1:128,000 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 1500 3000 6000 9000

Feet: 0 5000 10000 20000 30000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Lines

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Points

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Water Features

MAP INFORMATION

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Collin County, Texas
Survey Area Data: Version 11, Sep 21, 2016

Soil Survey Area: Denton County, Texas
Survey Area Data: Version 12, Sep 21, 2016

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 13, 2010—May 7, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Farmland Classification (US 380)

Farmland Classification— Summary by Map Unit — Collin County, Texas (TX085)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
HoB	Houston Black clay, 1 to 3 percent slopes	All areas are prime farmland	0.2	0.0%
Subtotals for Soil Survey Area			**0.2**	**0.0%**
Totals for Area of Interest			**402.2**	**100.0%**

Farmland Classification— Summary by Map Unit — Denton County, Texas (TX121)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
2	Altoga silty clay, 2 to 5 percent slopes	Farmland of statewide importance	1.8	0.4%
3	Altoga silty clay, 5 to 8 percent slopes	Not prime farmland	1.2	0.3%
7	Arents, hilly	Not prime farmland	0.3	0.1%
12	Birome fine sandy loam, 3 to 5 percent slopes	Not prime farmland	33.4	8.3%
13	Birome-Rayex-Aubrey complex, 2 to 15 percent slopes	Not prime farmland	9.3	2.3%
18	Branyon clay, 0 to 1 percent slopes	All areas are prime farmland	56.1	13.9%
19	Branyon clay, 1 to 3 percent slopes	All areas are prime farmland	12.3	3.1%
20	Bunyan fine sandy loam, frequently flooded	Not prime farmland	12.7	3.2%
21	Burleson clay, 0 to 1 percent slopes	All areas are prime farmland	14.6	3.6%
22	Burleson clay, 1 to 3 percent slopes	All areas are prime farmland	11.9	3.0%
23	Callisburg fine sandy loam, 1 to 3 percent slopes	All areas are prime farmland	29.7	7.4%
24	Callisburg fine sandy loam, 3 to 5 percent slopes	All areas are prime farmland	4.0	1.0%
25	Callisburg soils, 2 to 5 percent slopes, severely erode d	Not prime farmland	0.5	0.1%
30	Energy fine sandy loam, frequently flooded	Not prime farmland	0.3	0.1%
32	Ferris-Heiden clay, 5 to 15 percent slopes	Not prime farmland	7.9	2.0%
34	Frio silty clay, frequently flooded	Not prime farmland	3.5	0.9%
35	Gasil fine sandy loam, 1 to 3 percent slopes	All areas are prime farmland	30.1	7.5%

Farmland Classification— Summary by Map Unit — Denton County, Texas (TX121)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
36	Gasil fine sandy loam, 3 to 8 percent slopes	Not prime farmland	10.7	2.7%
38	Gasil and Konsil soils, 1 to 5 percent slopes	All areas are prime farmland	0.0	0.0%
39	Gowen clay loam, occasionally flooded	Not prime farmland	3.4	0.8%
41	Heiden clay, 1 to 3 percent slopes	All areas are prime farmland	2.4	0.6%
42	Heiden clay, 3 to 5 percent slopes	All areas are prime farmland	4.4	1.1%
49	Kaufman clay, 0 to 1 percent slopes, frequently flooded	Not prime farmland	3.4	0.8%
50	Konsil fine sandy loam, 1 to 3 percent slopes	All areas are prime farmland	17.6	4.4%
51	Konsil fine sandy loam, 3 to 8 percent slopes	Not prime farmland	4.4	1.1%
53	Lewisville clay loam, 3 to 5 percent slopes	All areas are prime farmland	7.0	1.7%
60	Navo clay loam, 1 to 3 percent slopes	Farmland of statewide importance	12.1	3.0%
62	Navo-Urban land complex, 0 to 3 percent slopes	Not prime farmland	7.0	1.7%
64	Ovan clay, frequently flooded	Not prime farmland	42.5	10.6%
71	Silawa loamy fine sand, 2 to 5 percent slopes	All areas are prime farmland	0.0	0.0%
83	Wilson clay loam, 0 to 1 percent slopes	Farmland of statewide importance	12.0	3.0%
84	Wilson clay loam, 1 to 3 percent slopes	Farmland of statewide importance	40.7	10.1%
85	Wilson-Urban land complex, 0 to 2 percent slopes	Not prime farmland	1.0	0.3%
W	Water	Not prime farmland	3.8	0.9%
Subtotals for Soil Survey Area			**402.0**	**100.0%**
Totals for Area of Interest			**402.2**	**100.0%**

Rating Options—Farmland Classification (US 380)

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Hydric Rating by Map Unit (US 380)

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

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Custom Soil Resource Report
Map—Hydric Rating by Map Unit (US 380)

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

Soil Rating Lines

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

Soil Rating Points

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Collin County, Texas
Survey Area Data: Version 11, Sep 21, 2016

Soil Survey Area: Denton County, Texas
Survey Area Data: Version 12, Sep 21, 2016

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 13, 2010—May 7, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydric Rating by Map Unit (US 380)

Hydric Rating by Map Unit— Summary by Map Unit — Collin County, Texas (TX085)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
HoB	Houston Black clay, 1 to 3 percent slopes	0	0.2	0.0%
Subtotals for Soil Survey Area			**0.2**	**0.0%**
Totals for Area of Interest			**402.2**	**100.0%**

Hydric Rating by Map Unit— Summary by Map Unit — Denton County, Texas (TX121)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
2	Altoga silty clay, 2 to 5 percent slopes	0	1.8	0.4%
3	Altoga silty clay, 5 to 8 percent slopes	0	1.2	0.3%
7	Arents, hilly	0	0.3	0.1%
12	Birome fine sandy loam, 3 to 5 percent slopes	0	33.4	8.3%
13	Birome-Rayex-Aubrey complex, 2 to 15 percent slopes	0	9.3	2.3%
18	Branyon clay, 0 to 1 percent slopes	0	56.1	13.9%
19	Branyon clay, 1 to 3 percent slopes	0	12.3	3.1%
20	Bunyan fine sandy loam, frequently flooded	0	12.7	3.2%
21	Burleson clay, 0 to 1 percent slopes	0	14.6	3.6%
22	Burleson clay, 1 to 3 percent slopes	0	11.9	3.0%
23	Callisburg fine sandy loam, 1 to 3 percent slopes	0	29.7	7.4%
24	Callisburg fine sandy loam, 3 to 5 percent slopes	0	4.0	1.0%
25	Callisburg soils, 2 to 5 percent slopes, severely erode d	0	0.5	0.1%
30	Energy fine sandy loam, frequently flooded	0	0.3	0.1%
32	Ferris-Heiden clay, 5 to 15 percent slopes	0	7.9	2.0%
34	Frio silty clay, frequently flooded	0	3.5	0.9%
35	Gasil fine sandy loam, 1 to 3 percent slopes	0	30.1	7.5%

Hydric Rating by Map Unit— Summary by Map Unit — Denton County, Texas (TX121)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
36	Gasil fine sandy loam, 3 to 8 percent slopes	0	10.7	2.7%
38	Gasil and Konsil soils, 1 to 5 percent slopes	0	0.0	0.0%
39	Gowen clay loam, occasionally flooded	0	3.4	0.8%
41	Heiden clay, 1 to 3 percent slopes	0	2.4	0.6%
42	Heiden clay, 3 to 5 percent slopes	0	4.4	1.1%
49	Kaufman clay, 0 to 1 percent slopes, frequently flooded	96	3.4	0.8%
50	Konsil fine sandy loam, 1 to 3 percent slopes	0	17.6	4.4%
51	Konsil fine sandy loam, 3 to 8 percent slopes	0	4.4	1.1%
53	Lewisville clay loam, 3 to 5 percent slopes	0	7.0	1.7%
60	Navo clay loam, 1 to 3 percent slopes	0	12.1	3.0%
62	Navo-Urban land complex, 0 to 3 percent slopes	0	7.0	1.7%
64	Ovan clay, frequently flooded	0	42.5	10.6%
71	Silawa loamy fine sand, 2 to 5 percent slopes	0	0.0	0.0%
83	Wilson clay loam, 0 to 1 percent slopes	0	12.0	3.0%
84	Wilson clay loam, 1 to 3 percent slopes	0	40.7	10.1%
85	Wilson-Urban land complex, 0 to 2 percent slopes	0	1.0	0.3%
W	Water	0	3.8	0.9%
Subtotals for Soil Survey Area			**402.0**	**100.0%**
Totals for Area of Interest			**402.2**	**100.0%**

Rating Options—Hydric Rating by Map Unit (US 380)

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

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TEXAS BLACKLAND PRAIRIES SPECIES OF GREATEST CONSERVATION NEED

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place
		Federal	State	Global	State	
MAMMALS						
Blarina hylophaga plumblea	Elliot's short-tailed shrew			G5T1Q	S1	Savanna/Open Woodland
Geomys attwateri	Attwater's pocket gopher			G4	S4	Shrubland
Lutra canadensis	River otter			G5	S4	Riparian
Mustela frenata	Long-tailed weasel			G5	S5	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland
Myotis austroriparius	Southeastern myotis			G3G4	S3	Caves/Karst, Forest, Riparian
Myotis velifer	Cave myotis			G5	S4	Caves/Karst,
Puma concolor	Mountain lion			G5	S2	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland, Riparian
Spilogale putorius	Eastern spotted skunk			G4T	S4	Savanna/Open Woodland, Grassland
Sylvilagus aquaticus	Swamp rabbit			G5	S5	Riparian, Freshwater Wetland
Tadarida brasiliensis	Brazilian free-tailed bat			G5	S5	Cave/Karst, Artificial Refugia
Taxidea taxus	American badger			G5	S5	Grassland, Desert scrub, Woodland, Savanna/Open Woodland, Forest
Ursus americanus	Black bear	SAT	T	G5	S3	Forest, Woodland, Savanna/Open Woodland, Desert Scrub, Shrubland
BIRDS						
Anas acuta	Northern Pintail			G5	S3B,S5N	Lacustrine, freshwater wetland, saltwater wetland, coastal, marine
Colinus virginianus	Northern Bobwhite			G5	S4B	Grassland, Shrubland, Savanna/Open Woodland
Tympanuchus cupido	Greater Prairie-Chicken (Interior)			G4	S1B	Grassland
Meleagris gallopavo	Wild Turkey			G5	S5B	Shrubland, Savanna/Open Woodland, Forest, Riparian, Agricultural
Ixobrychus exilis	Least Bittern			G5	S4B	Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary
Egretta thula	Snowy Egret			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic
Egretta caerulea	Little Blue Heron			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic
Butorides virescens	Green Heron			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Cultural Aquatic
Mycteria americana	Wood Stork		T	G4	SHB,S2N	Riverine, Freshwater wetland
Ictinia mississippiensis	Mississippi Kite			G5	S4B	Woodland, Forest, Riparian, Developed:Urban/Suburban/Rural
Haliaeetus leucocephalus	Bald Eagle			G5	S3B,S3N	Riparian, Lacustrine, Freshwater Wetland, Saltwater Wetland
Circus cyaneus	Northern Harrier			G5	S2B,S3N	Grassland, Shrubland
Buteo lineatus	Red-shouldered Hawk			G5	S4B	Woodland, Forest, Riparian, Freshwater Wetland
Pluvialis dominica	American Golden-Plover			G5	S3	Grassland, Freshwater Wetland, Agricultural
Charadrius montanus	Mountain Plover	PT		G3	S2	Agricultural, Grassland
Scolopax minor	American Woodcock			G5	S2B,S3N	Woodland, Forest, Riparian
Sternula antillarum	Least Tern	LE*	E*	G4	S3B	Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Marine, Developed: Industrial
Asio flammeus	Short-eared Owl			G5	S4N	Grassland, Shrubland, Agricultural
Caprimulgus carolinensis	Chuck-will's-widow			G5	S3S4B	Woodland, Forest, Riparian
Melanerpes erythrocephalus	Red-headed Woodpecker			G5	S3B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural
Dryocopus pileatus	Pileated Woodpecker			G5	S4B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural
Tyrannus forficatus	Scissor-tailed Flycatcher			G5	S3B	Desert Scrub, Grassland, Shrubland, Agricultural, Developed
Lanius ludovicianus	Loggerhead Shrike			G4	S4B	Desert Scrub, Grassland, Shrubland, Savanna/Open Woodland, Agricultural, Developed
Vireo bellii	Bell's Vireo			G5	S3B	Desert scrub, Shrubland, Riparian
Poecile carolinensis	Carolina Chickadee			G5	S5B	Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place
		Federal	State	Global	State	
Thryomanes bewickii (bewickii)	Bewick's Wren			G5	S5B	Shrubland, Savanna/Open Woodland, Woodland, Developed: Urban/Suburban/Rural
Cistothorus platensis	Sedge Wren			G5	S4	Grassland, Freshwater Wetland
Hylocichla mustelina	Wood Thrush			G5	S4B	Woodland, Forest, Riparian
Anthus spragueii	Sprague's Pipit	C		G4	S3N	Barren/Sparse Vegetation, Grassland, Shrubland, Agricultural
Dendroica dominica	Yellow-throated Warbler			G5	S4B	Woodland, Forest, Riparian
Protonotaria citrea	Prothonotary Warbler			G5	S3B	Woodland, Forest, Riparian, Lacustrine, Freshwater Wetland
Limnothlypis swainsonii	Swainson's Warbler			G4	S3B	Woodland, Forest, Riparian
Seiurus motacilla	Louisiana Waterthrush			G5	S3B	Woodland, Forest, Riparian
Oporornis formosus	Kentucky Warbler			G5	S3B	Woodland, Forest
Spizella pusilla	Field Sparrow			G5	S5B	Grassland, Shrubland, Savanna/Open Woodland
Ammodramus savannarum	Grasshopper Sparrow			G5	S3B	Grassland, Agricultural
Chondestes grammacus	Lark Sparrow			G5	S4B	Grassland, Shrubland, Savanna/Open Woodland
Ammodramus henslowii	Henslow's Sparrow			G4	S2S3N,SXB	Grassland, Savanna/Open Woodland
Ammodramus leconteii	Le Conte's Sparrow					Grassland
Zonotrichia querula	Harris's Sparrow			G5	S4	Shrubland, Agricultural
Calcarius mccownii	McCown's Longspur			G4	S4	Grassland, Agricultural
Calcarius pictus	Smith's Longspur					Grassland, Agricultural
Piranga rubra	Summer Tanager			G5	S5B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural
Passerina ciris	Painted Bunting			G5	S4B	Shrubland, Agricultural
Spiza americana	Dickcissel			G5	S4B	Grassland, Agricultural
Sturnella magna	Eastern Meadowlark			G5	S5B	Grassland, Shrubland, Savanna/Open Woodland
Euphagus carolinus	Rusty Blackbird			G4	S3	Woodland, Forest, Riparian, Lacustrine, Freshwater Wetland
Icterus spurius	Orchard Oriole			G5	S4B	Shrubland, Savanna/Open Woodland, Woodland, Riparian
REPTILES AND AMPHIBIANS						
Anaxyrus (Bufo) woodhousii	Woodhouse's toad			G5	SU	woodland, forest, freshwater wetland
Apalone mutica	smooth softshell turtle					riparian, riverine, lacustrine, freshwater wetland
Apalone spinifera	spiny softshell turtle					riparian, riverine, lacustrine, freshwater wetland
Cheylydra serpentina	Common snapping turtle					riparina, riverine
Crotalus atrox	Western diamondback rattlesnake				S4	barren/sparse vegetation, desert scrub, grassland, shrubland, savanna, woodland, caves/karst
Crotalus horridus	Timber (Canebrake) Rattlesnake		T	G4	S4	woodland, forest, riparian
Graptemys caglei	Cagle's map turtle		T	G3	S1	riparian, riverine
Graptemys versa	Texas map turtle			G4	SU	riparian, riverine
Heterodon nasicus	Western hognosed snake					desert scrub, grassland, shrubland
Macrochelys temminckii	alligator snapping turtle		T	G3G4	S3	riparian, riverine, cultural aquatic
Ophisaurus attenuatus	western slender glass lizard					grassland, savanna
Phrynosoma cornutum	Texas horned lizard		T	G4G5	S4	desert scrub, grassland, savanna
Pseudacris streckeri	Strecker's Chorus Frog			G5	S3	grassland, savanna, woodland, riparian, cultural aquatic, freshwater wetland
Sistrurus catenatus	massasauga					grassland, barren/sparse vegetation, shrubland, coastal,
Terrapene carolina	Eastern box turtle			G5	S3	grasslands, savanna, woodland
Terrapene ornata	Ornate box turtle			G5	S3	grassland, barren/sparse vegetation, deset scrub, savanna, woodland
Thamnophis sirtalis annectans	Texas Garter Snake (Eastern/Texas/ New Mexico)			G5	S2	riparian, around lacustrine and cultural aquatic sites
Trachemys scripta	Red-eared slider					riparian, riverine, lacustrine, freshwater wetland, cultural aquatic
FRESHWATER FISHES						
Anguilla rostrata	American eel			G4	S5	streams and reservoirs in drainages connected to marine environments
Atractosteus spatula	alligator gar					channel snag, pool-snag complex, pool-edge, and pool-vegetation habitat

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place
		Federal	State	Global	State	
Cycleptus elongatus	Blue sucker		T	G3G4	S3	large, deep rivers, and deeper zones of lakes
Etheostoma fonticola	Fountain darter	LE	E	G1	S1	usually in dense beds of *Vallisneria, Elodia, Ludwigia* and other aquatic plants; substrate normally mucky
Macryhbopsis storeriana	Silver chub					over silt or mud, turbid water with very soft sand/silt substrate
Micropterus treculii	Guadalupe bass			G3	S3	small lentic environments; commonly taken in flowing water
Notropis atrocaudalis	Blackspot shiner					backwater and swiftest currents
Notropis bairdi	Red River shiner					streambeds with widely fluctuating flows subject to high summer temperatures, high rates of evaporation, and
Notropis buccula	Small eye shiner	C		G2Q	S2	condition tolerances (turbidity, salinity, oxygen).
Notropis chalybaeus	Ironcolor shiner					Plain streams and rivers of low to moderate gradient; often at the upstream ends of pools, with a moderate to
Notropis oxyrhynchus	Sharpnose shiner	C		G3	S3	Moderate current velocities and depths, sand bottom
Notropis potteri	Chub shiner		T	G4	S3	turbid, flowing water with silt or sand substrate; tolerant of high salinities
Notropis shumardi	Silverband shiner					channel with moderate to swift current velocities and moderate to deep depths; associated with turbid water
Percina apristis	Guadalupe darter					collections from the clearest waters tributary to the Guadalupe, namely spring heads and the main river west
Polyodon spathula	Paddlefish		T	G4	S3	rivers, sluggish pools, backwaters, bayous, and oxbows with abundant zooplankton; large reservoirs if
Satan eurystomus	Widemouth blindcat		T	G1	S1	Karst: Subterranean waters
Trogloglanis pattersoni	Toothless blindcat		T	G1	S1	Karst: Subterranean waters
INVERTEBRATES						
Bombus pensylvanicus	American bumblebee			GU	SU*	Grassland, Savanna/Open Woodland
Chimarra holzenthali	Holzenthal's Philopotamid caddisfly			G1G2	S1	Riparian, Riverine
Cotinis boylei	A scarab beetle			G2*	S2*	Grassland, Shrubland, Woodland
Nicrophorus americanus	American Burying Beetle	LE		G1	S1	Grassland, Savanna/Open Woodland
Potamilus amphichaenus	Texas heelsplitter		T	G1G2	S1	Riverine
Procambarus regalis	Regal burrowing crayfish			G2G3	S2?*	Freshwater Wetland, Grassland
Procambarus steigmani	Parkhill prairie crayfish			G1G2	S1S2*	Freshwater Wetland, Grassland
Pseudocentroptiloides morihari	A mayfly			G2G3	S2?*	Riverine, Riparian
Sphinx eremitoides	Sage sphinx			G1G2	S1?*	Grassland
Susperatus tonkawa	A mayfly			G1	S1*	Riparian, Riverine
PLANTS						
Agalinis densiflora	Osage Plains false foxglove			G3	S2	Savanna/Open Woodland - Outcrops
Astragalus reflexus	Texas milk vetch			G3	S3	Savanna/Open Woodland
Calopogon oklahomensis	Oklahoma grass pink			G3	S1S2	Savanna/Open Woodland; Grassland; Freshwater Wetland
Carex edwardsiana	canyon sedge			G3G4S3S4	S3S4	Woodland (slopes above Riparian)
Carex shinnersii	Shinner's sedge			G3?	S2	Grassland
Crataegus dallasiana	Dallas hawthorn			G3Q	S3	Riparian (creeks in the Blackland Prairie)
Cuscuta exaltata	tree dodder			G3	S3	Woodland
Dalea hallii	Hall's prairie-clover			G3	S3	Savanna/Open Woodland; Grassland
Echinacea atrorubens	Topeka purple-coneflower			G3	S3	Savanna/Open Woodland
Hexalectris nitida	Glass Mountains coral-root			G3	S3	Woodland
Hexalectris warnockii	Warnock's coral-root			G2G3	S2	Woodland
Hymenoxys pygmea	Pygmy prairie dawn			G1	S1	Barren/Sparse Vegetation with Grassland matrix (saline prairie)
Liatris glandulosa	glandular gay-feather			G3	S3	Savanna/Open Woodland
Paronychia setacea	bristle nailwort			G3	S3	Savanna/Open Woodland
Phlox oklahomensis	Oklahoma phlox			G3	SH	Savanna/Open Woodland
Physaria engelmannii	Engelmann's bladderpod			G3	S3	Savanna/Open Woodland
Polygonella parksii	Parks' jointweed			G2	S2	Savanna/Open Woodland (sandhills); Grassland
Prunus texana	Texas peachbush			G3G4	S3S4	Savanna/Open Woodland; Grassland

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place
		Federal	State	Global	State	
Thalictrum texanum	Texas meadow-rue			G2	S2	Savanna/Open Woodland; Riparian (bottomland forest)
Zizania texana	Texas wild rice	LE	E	G1	S1	Riverine (spring-fed, clear, thermally constant, moderate current, sand to gravel substrate)

Cross Timbers Ecoregion Species of Greatest Conservation Need

CROSS TIMBERS SPECIES OF GREATEST CONSERVATION NEED

Scientific Name	Common Name	Status Federal	Status State	Abundance Ranking Global	Abundance Ranking State	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH - AZNM	TBPR	ECPL	WGCP	GCPM Upper	GCPM Mid	GCPM lower	STPL	General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
							Note: Other ecoregions are included in this ecoregion's list for cross-reference and coordination on conservation actions as needed														
MAMMALS																			W.B. Davis and D.J. Schmidly. 1997 and 1994. Mammals of Texas (online and in print). Texas Tech University (1997) and Texas Parks and Wildlife Department (1994). http://www.nsrl.ttu.edu/tmot1/Default.htm (accessed 2011)		
Conepatus leuconotus	Hog-nosed skunk			G5	S4	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH						GCPM-LWR	STPL	Shrubland, Savanna/Open Woodland, Barren/Sparse Vegetation,		N
Dipodomys elator	Texas kangaroo rat		T	G1G2	S2	CRTB	CGPL		SWTB										Shrubland, Agricultural	status in review	Y
Lutra canadensis	River otter			G5	S4	CRTB	CGPL	EDPT				TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID			Riparian	Appendix II, CITES	N
Mustela frenata	Long-tailed weasel			G5	S5	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland	Statewide	N
Myotis velifer	Cave myotis			G5	S4	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL					STPL	Caves/Karst,		N
Neovison vison	Mink			G5	S4	CRTB	CGPL								GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Riparian, Riverine, Lacustrine, Freshwater Wetland		N
Puma concolor	Mountain lion			G5	S2	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	(GCPM-LWR)	STPL	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland, Riparian	Statewide	N
Spilogale putorius	Eastern spotted skunk			G4T	S4	CRTB	CGPL	EDPT	SWTB	HIPL		TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Savanna/Open Woodland, Grassland		N
Sylvilagus aquaticus	Swamp rabbit			G5	S5	CRTB		EDPT				TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID			Riparian, Freshwater Wetland		N
Tadarida brasiliensis	Brazilian free-tailed bat			G5	S5	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	(GCPM-LWR)	STPL	Cave/Karst, Artificial Refugia	Statewide	N
Taxidea taxus	American badger			G5	S5	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL		GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Grassland, Desert scrub, Woodland, Savanna/Open Woodland, Forest		N
BIRDS																			The Birds of North America Online (A. Poole, Ed.). 2005 (with current updates by species). Retrieved from The Birds of North America Online database: http://bna.birds.cornell.edu/BNA/ (accessed 2011). Supported by information from the Cornell Lab of Ornithology and the American Ornithologists' Union (http://www.aou.org/).		BIRDS ONLY: instead of endemism these numbers are for taxonomic sorting
Anas acuta	Northern Pintail			G5	S3B,S5N	CRTB	CGPL		SWTB	HIPL		TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Lacustrine, freshwater wetland, saltwater wetland, coastal, marine	Winter	2
Colinus virginianus	Northern Bobwhite			G5	S4B	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Grassland, Shrubland, Savanna/Open Woodland	deleted for CHIH	4
Tympanuchus cupido	Greater Prairie-Chicken (Interior)			G4	S1B	CRTB						TBPR							Grassland	Year-round	6
Meleagris gallopavo	Wild Turkey			G5	S5B	CRTB	CGPL	EDPT	SWTB		CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Shrubland, Savanna/Open Woodland, Forest, Riparian, Agricultural	Year-round, added *merriami* for CHIH	8
Egretta thula	Snowy Egret			G5	S5B	CRTB						TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR		Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic	Breeding	12
Egretta caerulea	Little Blue Heron			G5	S5B	CRTB						TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR		Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic	Breeding	13
Butorides virescens	Green Heron			G5	S5B	CRTB						TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR		Riparian, Riverine, Lacustrine, Freshwater Wetland, Cultural Aquatic	Breeding	16
Ictinia mississippiensis	Mississippi Kite			G5	S4B	CRTB	CGPL		SWTB	HIPL		TBPR	(ECPL)	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR		Woodland, Forest, Riparian, Developed:Urban/Suburban/Rural	Breeding	20
Haliaeetus leucocephalus	Bald Eagle			G5	S3B,S3N	CRTB	CGPL					TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR		Riparian, Lacustrine, Freshwater Wetland, Saltwater Wetland	Year-round, added CRTB	22
Circus cyaneus	Northern Harrier			G5	S2B,S3N	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Grassland, Shrubland	Year-round	23
Buteo lineatus	Red-shouldered Hawk			G5	S4B	CRTB		EDPT				TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Woodland, Forest, Riparian, Freshwater Wetland	Year-round	26
Buteo swainsoni	Swainson's Hawk			G5	S4B	CRTB	CGPL		SWTB	HIPL	CHIH				GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Desert Scrub, Grassland, Shrubland	Breeding	28
Pluvialis dominica	American Golden-Plover			G5	S3	CRTB	CGPL					TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR		Grassland, Freshwater Wetland, Agricultural	Migrant	39
Sternula antillarum	Least Tern	LE*	E*	G4	S3B	CRTB	CGPL		SWTB			TBPR	ECPL					STPL	Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Marine, Developed: Industrial	Year-round; subspecies *athalassos*	54
Athene cunicularia	Burrowing Owl			G4	S3B	CRTB	CGPL		SWTB	HIPL	CHIH				GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Desert Scrub, Grassland, Shrubland, Agricultural, Developed	Year-round	63
Asio flammeus	Short-eared Owl			G5	S4N	CRTB	CGPL		SWTB	HIPL		TBPR	ECPL		GCPM-UP	GCPM-MID	GCPM-LWR		Grassland, Shrubland, Agricultural	Winter	65
Caprimulgus carolinensis	Chuck-will's-widow			G5	S3S4B	CRTB	CGPL	EDPT	SWTB			TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID			Woodland, Forest, Riparian	Breeding	66
Melanerpes erythrocephalus	Red-headed Woodpecker			G5	S3B	CRTB	CGPL		SWTB			TBPR	ECPL	WGCP					Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	67
Tyrannus forficatus	Scissor-tailed Flycatcher			G5	S3B	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Desert Scrub, Grassland, Shrubland, Agricultural, Developed	Breeding	71
Lanius ludovicianus	Loggerhead Shrike			G4	S4B	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Desert Scrub, Grassland, Shrubland, Savanna/Open Woodland, Agricultural, Developed	Year-round	73
Vireo bellii	Bell's Vireo			G5	S3B	CRTB		EDPT	SWTB		CHIH	TBPR	ECPL					STPL	Desert scrub, Shrubland, Riparian	Breeding	74
Vireo atricapilla	Black-capped Vireo	LE	E	G3	S2B	CRTB	CGPL	EDPT			CHIH								Shrubland	Breeding	75
Poecile carolinensis	Carolina Chickadee			G5	S5B	CRTB	CGPL	EDPT	SWTB			TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID			Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	76
Anthus spragueii	Sprague's Pipit	C		G4	S3N	CRTB	CGPL	EDPT				TBPR	ECPL			GCPM-MID	GCPM-LWR	STPL	Barren/Sparse Vegetation, Grassland, Shrubland, Agricultural	Winter	80
*Dendroica chrysoparia**	Golden-cheeked Warbler	LE	E	G2	S2B	CRTB		EDPT											Woodland	Breeding; *taxonomic change likely to *Setophaga chrysoparia*	83
Aimophila cassinii	Cassin's Sparrow			G5	S4B	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH					GCPM-MID	GCPM-LWR	STPL	Grassland, Shrubland	Breeding	92
Aimophila ruficeps	Rufous-crowned Sparrow			G5	S4B	CRTB	CGPL	EDPT	SWTB		CHIH								Grassland	Year-round	95
Spizella pusilla	Field Sparrow			G5	S5B	CRTB	CGPL	EDPT	SWTB	HIPL		TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Grassland, Shrubland, Savanna/Open Woodland	Year-round	96
Ammodramus savannarum	Grasshopper Sparrow			G5	S3B	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Grassland, Agricultural	Year-round	97
Chondestes grammacus	Lark Sparrow			G5	S4B	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Grassland, Shrubland, Savanna/Open Woodland	Year-round	98
Ammodramus leconteii	Le Conte's Sparrow					CRTB		EDPT				TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR		Grassland	Winter	101
Zonotrichia querula	Harris's Sparrow			G5	S4	CRTB	CGPL	EDPT	SWTB			TBPR	ECPL			GCPM-MID			Shrubland, Agricultural	Winter	103
Calcarius mccownii	McCown's Longspur			G4	S4	CRTB	CGPL		SWTB	HIPL	CHIH	TBPR	ECPL						Grassland, Agricultural	Winter, TBPR (northern), ECPL (northern)	104
Piranga rubra	Summer Tanager			G5	S5B	CRTB	CGPL	EDPT			CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Breeding	106
Passerina ciris	Painted Bunting			G5	S4B	CRTB	CGPL	EDPT	SWTB		CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Shrubland, Agricultural	Breeding	107
Spiza americana	Dickcissel			G5	S4B	CRTB	CGPL	EDPT	SWTB	HIPL		TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Grassland, Agricultural	Breeding	108
Sturnella magna	Eastern Meadowlark			G5	S5B	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Grassland, Shrubland, Savanna/Open Woodland	Year-round; subspecies *lilliana* added for CHIH	109
Icterus spurius	Orchard Oriole			G5	S4B	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Shrubland, Savanna/Open Woodland, Woodland, Riparian	Breeding	111
REPTILES AND AMPHIBIANS																			J.E. Werler and J.R. Dixon. 2000. Texas Snakes: Identification, Distribution, and Natural History. University of Texas Press, Austin. 519 pgs. J.R. Dixon. 1987. Amphibians and Reptiles of Texas. Texas A&M University Press, College Station. 434 pp.		
Anaxyrus (Bufo) woodhousii	Woodhouse's toad			G5	SU	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL						woodland, forest, freshwater wetland		N
Apalone mutica	smooth softshell turtle					CRTB	CGPL	EDPT	SWTB	HIPL		TBPR	ECPL	WGCP	GCPM-UP				riparian, riverine, lacustrine, freshwater wetland	added	N
Chelydra serpentina	Common snapping turtle					CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID		STPL	riparina, riverine	added	N
Crotalus atrox	Western diamondback rattlesnake				S4	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL		GCPM-UP	GCPM-MID	GCPM-LWR	STPL	barren/sparse vegetation, desert scrub, grassland, shrubland, savanna, woodland, caves/karst		N
Crotalus horridus	Timber (Canebrake) Rattlesnake		T	G4	S4	CRTB						TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID			woodland, forest, riparian		N
Eurycea chisolmensis	Salado Springs salamander	C		G1	S1	CRTB													freshwater wetland (springs)		Y
Eurycea naufragia	Georgetown Salamander	C		G1	S1	CRTB		EDPT											caves and karst, freshwater wetland (springs)		Y
Graptemys versa	Texas map turtle			G4	SU	CRTB	CGPL	EDPT				TBPR							riparian, riverine		Y
Heterodon nasicus	Western hognosed snake					CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL		GCPM-UP	GCPM-MID	GCPM-LWR	STPL	desert scrub, grassland, shrubland	added	N
Macrochelys temminckii	alligator snapping turtle		T	G3G4	S3	CRTB	CGPL					TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID			riparian, riverine, cultural aquatic	added	N
Nerodia harteri	Brazos Water Snake		T		S1	CRTB	CGPL		SWTB										riparian, riverine, cultural aquatic		Y
Phrynosoma cornutum	Texas horned lizard		T	G4G5	S4	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL		GCPM-UP	GCPM-MID	GCPM-LWR	STPL	desert scrub, grassland, savanna		N
Pseudacris streckeri	Strecker's Chorus Frog			G5	S3	CRTB		EDPT				TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR		grassland, savanna, woodland, riparian, cultural aquatic, freshwater wetland		N
Sistrurus catenatus	massasauga					CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR				GCPM-MID	GCPM-LWR	STPL	grassland, barren/sparse vegetation, shrubland, coastal,	added	N
Terrapene ornata	Ornate box turtle			G5	S3	CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	grassland, barren/sparse vegetation, deset scrub, savanna, woodland		N
Thamnophis sirtalis annectans	Texas Garter Snake (Eastern/Texas/New Mexico)			G5	S2	CRTB	CGPL	EDPT	SWTB			TBPR	ECPL						riparian, around lacustrine and cultural aquatic sites		Y
Trachemys scripta	Red-eared slider					CRTB	CGPL	EDPT	SWTB	HIPL	CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	riparian, riverine, lacustrine, freshwater wetland, cultural aquatic	added	N
FRESHWATER FISHES																			C. Thomas, T.H. Bonner and B.G. Whiteside. 2007. Freshwater Fishes of Texas: A Field Guide. Sponsored by The River Systems Institute at Texas State University, published by Texas A&M University Press. *Editor's Note: All freshwater fishes life history information in this table was sourced directly from the online version; citations are embedded in the online version at http://www.bio.txstate.edu/~tbonner/txfishes/*	Range in Texas, as known	
Anguilla rostrata	American eel			G4	S5	CRTB	CGPL	EDPT			CHIH	TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	streams and reservoirs in drainages connected to marine environments	the mouth upstream to and including the Kiamichi River), Sabine Lake (including minor	N
Cycleptus elongatus	Blue sucker		T	G3G4	S3	CRTB						TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID			large, deep rivers, and deeper zones of lakes	(including minor coastal drainages west to Galveston Bay), Galveston Bay (including	N
Hiodon alosoides	Goldeye					CRTB							ECPL	WGCP					of large lakes; backwaters	Red River	N
Ictalurus lupus	Headwater catfish			G3	S2	CRTB	CGPL	EDPT			CHIH							STPL	clear streams and rivers with moderate gradients, deep spring runs	Guadalupe, and Colorado basins, but appears to be extirpated from these systems	N
Macryhbopsis storeriana	Silver chub					CRTB	CGPL					TBPR	ECPL						common over silt or mud, turbid water with very soft sand/silt substrate	from other populations of this species, which range through the Mississippi River Basin	N
Micropterus treculii	Guadalupe bass			G3	S3	CRTB		EDPT				TBPR				GCPM-MID			small lentic environments; commonly taken in flowing water	portions of the Brazos, Colorado, Guadalupe, and San Antonio basins; species also	Y
Notropis bairdi	Red River shiner					CRTB	CGPL					TBPR	ECPL	WGCP					streambeds with widely fluctuating flows subject to high summer temperatures, high rates of evaporation,	Red River, from the mouth upstream to and including the Kiamichi River	N
Notropis oxyrhynchus	Sharpnose shiner	C		G3	S3	CRTB	CGPL		SWTB			TBPR	ECPL						Moderate current velocities and depths, sand bottom	captured into the Red River drainage; introduced in Colorado River drainage	Y
Notropis potteri	Chub shiner		T	G4	S3	CRTB	CGPL		SWTB			TBPR	ECPL	WGCP					turbid, flowing water with silt or sand substrate; tolerant of high salinities	Brazos River, Colorado River, San Jacinto River, Trinity Rivers, and Galveston Bay	N
Polyodon spathula	Paddlefish		T	G4	S3	CRTB						TBPR	ECPL	WGCP	GCPM-UP				sized rivers, sluggish pools, backwaters, bayous, and oxbows with abundant zooplankton; large reservoirs if	eastward; currently only Red River, from the mouth upstream to and including the	N

Cross Timbers Ecoregion Species of Greatest Conservation Need

Scientific Name	Common Name	Status		Abundance Ranking		CRTB	CGPL	EDPT	SWTB	HIPL	CHIH - AZNM	TBPR	ECPL	WGCP	GCPM Upper	GCPM Mid	GCPM lower	STPL	General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State		Note: Other ecoregions are included in this ecoregion's list for cross-reference and coordination on conservation actions as needed														
INVERTEBRATES																			www.uga.edu/nsf/ – guide for identification and sampling information www.texasento.net – compilation of information on insects in Texas www.odonatacentral.org – resource for identification and distribution of damselflies and dragonflies www.butterfliesandmoths.org – resource for identification and distribution of Lepidoptera www.texasmussels.wordpress.com – resource for information on freshwater mussels in Texas Howells, R. G., R. W. Neck and H. D. Murray. 1996. Freshwater Mussels of Texas. Texas Parks and Wildlife Press, Austin.		*Editor's Note: Most karst invertebrates are likely endemic*
Amblycorypha uhleri	A katydid			G2G3*	S2?*	CRTB		EDPT											Savanna/Open Woodland	Terrestrial - Insects - Grasshoppers	
Arethaea ambulator	A katydid			G2G3*	S2?*	CRTB		EDPT											Savanna/Open Woodland	Terrestrial - Insects - Grasshoppers	
Bombus pensylvanicus	American bumblebee			GU	SU*	CRTB	CGPL	EDPT		HIPL		TBPR	ECPL	WGCP	GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Grassland, Savanna/Open Woodland	Terrestrial - Insect - Bee/Wasp/Ant	
Pleurobema riddellii	Louisiana pigtoe		T	G1G2	S1	CRTB								WGCP					Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	
Pogonomyrmex comanche	Comanche harvester ant			G2G3*	S2*	CRTB	CGPL	EDPT						WGCP	GCPM-UP	GCPM-MID	GCPM-LWR		Barren/Sparse Vegetation	Terrestrial - Insect - Bee/Wasp/Ant; ecoregions added	
Potamilus amphichaenus	Texas heelsplitter		T	G1G2	S1	CRTB						TBPR	ECPL	WGCP					Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	
Quadrula aurea	Golden orb		T	G1	S2*	CRTB		EDPT					ECPL		GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	Y
Quadrula houstonensis	Smooth pimpleback		T	G2	S1S2*	CRTB		EDPT					ECPL						Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	Y
Quadrula mitchelli	False Spike		T	GH	SH	CRTB		EDPT			CHIH		ECPL		GCPM-UP	GCPM-MID	GCPM-LWR		Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	
Taeniopteryx starki	Texas willowfly			G1	S1	CRTB													Riparian, Riverine	Aquatic - Insects - Stoneflies	
Truncilla macrodon	Texas fawnsfoot		T	G2Q	S1*	CRTB		EDPT					ECPL		GCPM-UP	GCPM-MID	GCPM-LWR		Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	Y
PLANTS																			J.M. Poole, W.R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station. D.S. Correll and M.C Johnston. 1979. Manual of the Vascular Plants of Texas. The University of Texas at Dallas, Richardson. M.C. Johnston. 1990. The Vascular Plants of Texas: A List Up-dating the Manual of the Vascular Plants of Texas, 2nd Edition. Marshall C. Johnston, Austin. F.W. Gould. 1975. The Grasses of Texas. Texas A & M University Press, College Station. S.D. Jones, J.K. Wipff, and P.M. Montgomery. 1997. Vascular Plants of Texas: A Comprehensive Checklist including Synonymy; Bibliography, and Index. University of Texas Press, Austin. R.A. Vines. 2004. Trees, Shrubs and Woody Vines of the Southwest. Blackburn Press.		
Agalinis auriculata	earleaf false foxglove			G3	SH	CRTB													Savanna/Open Woodland; Grrassland	Terrestrial	N
Agalinis densiflora	Osage Plains false foxglove			G3	S2	CRTB	CGPL	EDPT				TBPR							Savanna/Open Woodland - Outcrops	Terrestrial	N
Argythamnia aphoroides	Hill Country wild-mercury			G2G3	S2S3	CRTB	CGPL	EDPT											Savanna/Open Woodland	Terrestrial	Y
Carex edwardsiana	canyon sedge			G3G4S3S4	S3S4	CRTB		EDPT				TBPR							Woodland (slopes above Riparian)	Wetland	Y
Carex shinnersii	Shinner's sedge			G3?	S2	CRTB						TBPR	ECPL						Grassland	Wetland	N
Clematis texensis	scarlet leather-flower			G3G4	S3S4	CRTB		EDPT											Woodland	Terrestrial	Y
Croton alabamensis var. texensis	Texabama croton			G3T2	S2	CRTB		EDPT											Woodland	Terrestrial	Y
Cuscuta exaltata	tree dodder			G3	S3	CRTB		EDPT				TBPR	ECPL		GCPM-UP	GCPM-MID	GCPM-LWR	STPL	Woodland	Terrestrial	N
Dalea reverchonii	Comanche Peak prairie-clover			G2	S2	CRTB													Savanna/Open Woodland; Grassland	Terrestrial	Y
Echinacea atrorubens	Topeka purple-coneflower			G3	S3	CRTB						TBPR		WGCP	GCPM-UP	GCPM-MID	GCPM-LWR		Savanna/Open Woodland	Terrestrial	N
Festuca versuta	Texas fescue			G3	S3	CRTB		EDPT					ECPL						Woodland	Terrestrial	N
Gaura triangulata	prairie butterfly-weed			G3G4	S3	CRTB			SWTB										Grassland	Terrestrial	N
Hexalectris nitida	Glass Mountains coral-root			G3	S3	CRTB		EDPT			CHIH	TBPR							Woodland	Terrestrial	N
Ipomoea shumardiana	Shumard's morning glory			G2G3	S1	CRTB													Savanna/Open Woodland	Terrestrial	N
Liatris glandulosa	glandular gay-feather			G3	S3	CRTB						TBPR							Savanna/Open Woodland	Terrestrial	Y
Oenothera coryi	Cory's Evening-primrose			G3	S3	CRTB			SWTB										Savanna/Open Woodland	Terrestrial	Y
Pediomelum cyphocalyx	turnip-root scurfpea			G3G4	S3S4	CRTB		EDPT											Grassland	Terrestrial	Y
Pediomelum reverchonii	Reverchon's curfpea			G3	S3	CRTB													Grassland	Terrestrial	N
Physaria engelmannii	Engelmann's bladderpod			G3	S3	CRTB	CGPL	EDPT				TBPR	ECPL						Savanna/Open Woodland	Terrestrial	Y
Prunus minutiflora	Texas almond			G3G4	S3S4	CRTB		EDPT										STPL	Savanna/Open Woodland	Terrestrial	N
Schoenoplectus hallii	Hall's baby bulrush			G2G3	S1	CRTB													Freshwater Wetland (ponds)	Wetland	N
Senecio quaylei	Quayle's butterweed			G1Q	S1	CRTB													Savanna/Open Woodland	Terrestrial	Y
Styrax platanifolius subsp. platanifolius	sycamore-leaf snowbell			G3T3	S3	CRTB		EDPT											Woodland	Terrestrial	Y
Valerianella stenocarpa	bigflower cornsalad			G3	S3	CRTB		EDPT											Savanna/Open Woodland	Terrestrial	Y
Yucca necopina	Glen Rose yucca			G1G2	S1S2	CRTB													Savanna/Open Woodland	Terrestrial	Y

US 380 - Denton
EMST

FID_Distri	Veg_ID	Common	EcoClass_I	EcoSystem	MOU_Habita	Phase	Acres	NS_Number	TPWD_Ecosy	EcoRegion	EcoRegion_	Feature_Ty	Shape_Leng	Shape_Area
294460	9600	Open Water	Water	mu, Water	Riparian	1-North	0.06168943012	TPW101.004	Open Water	Texas Blackland Prairies	32	VEGETATION	222587.67840400000	59031190.33700000000
371239	1904	Central Texas: Riparian Hardwood Forest	R084CY194TX	SANDY LOAM PE 52-64	Riparian	1-North	0.04628136915	CES205.709	Southeastern Great Plains Riparian Forest	Cross Timbers	29	VEGETATION	769.52498022300	6282.51888976000
371466	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.06476667951	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	900.00000000000	6900.00000000000
371468	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.01163590507	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	991.80382106700	33404.09256750000
371751	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.06883486243	TPW101.003	Urban	Cross Timbers	29	VEGETATION	730.26095306200	4600.13428963000
371752	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.17408658824	TPW101.003	Urban	Cross Timbers	29	VEGETATION	352.42203264700	704.50342761400
371753	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.10313786846	TPW101.003	Urban	Cross Timbers	29	VEGETATION	184.80482989000	421.23594887300
371884	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.16759504957	TPW101.003	Urban	Cross Timbers	29	VEGETATION	744.34069172900	6550.62617186000
371888	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.07291417915	TPW101.003	Urban	Cross Timbers	29	VEGETATION	425.66570334600	7361.20674983000
371889	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	9.21123955911	TPW101.003	Urban	Cross Timbers	29	VEGETATION	5699.47728988000	77307.11277980000
371890	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.25001812032	TPW101.003	Urban	Cross Timbers	29	VEGETATION	982.69600232800	11439.69970610000
371891	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.12897999761	TPW101.003	Urban	Cross Timbers	29	VEGETATION	685.49303933000	6673.93487356000
371952	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.80443398922	TPW101.003	Urban	Cross Timbers	29	VEGETATION	467.39507569800	4676.76575408000
372086	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.01632318254	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	678.30648440700	8698.82291453000
372088	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.86625187679	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	1096.25182170000	16124.82519100000
372089	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	1.41741427817	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	656.33263340200	23655.90064000000
372091	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.06507909433	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	1819.89741957000	99746.73368630000
372629	504	Crosstimbers: Post Oak Woodland	R084CY192TX	SANDSTONE HILL PE 52-64	Crosstimbers Woodland and Forest	1-North	0.14635861976	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	16748.35626270000	560945.48576000000
372631	504	Crosstimbers: Post Oak Woodland	R084CY192TX	SANDSTONE HILL PE 52-64	Crosstimbers Woodland and Forest	1-North	0.03623749741	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	3717.29538245000	126964.58902500000
373051	9410	Urban High Intensity	R084CY192TX	SANDSTONE HILL PE 52-64	Urban	1-North	1.97268531244	TPW101.003	Urban	Cross Timbers	29	VEGETATION	2043.76187359000	26550.31479710000
373302	9411	Urban Low Intensity	R084CY192TX	SANDSTONE HILL PE 52-64	Urban	1-North	1.43205631519	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1037.21646278000	8817.27401620000
373303	9411	Urban Low Intensity	R084CY192TX	SANDSTONE HILL PE 52-64	Urban	1-North	1.86126238581	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1228.42001249000	14640.86877170000
373571	507	Crosstimbers: Savanna Grassland	R084CY192TX	SANDSTONE HILL PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00458285411	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	658.45236396000	8422.86458520000
374291	1804	Central Texas: Floodplain Hardwood Forest	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Floodplain	1-North	0.42818427657	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	2255.65979734000	78994.92760680000
374292	1804	Central Texas: Floodplain Hardwood Forest	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Floodplain	1-North	0.96289165287	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	741.82601653100	20167.98664240000
374293	1804	Central Texas: Floodplain Hardwood Forest	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Floodplain	1-North	1.48200198016	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	1368.70926081000	26079.72170420000
374294	1804	Central Texas: Floodplain Hardwood Forest	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Floodplain	1-North	0.16126222899	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	4893.41727069000	210524.25505100000
374360	9600	Open Water	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Riparian	1-North	0.62203097770	TPW101.004	Open Water	Cross Timbers	29	VEGETATION	725.41420126800	2570.11937934000
374369	9410	Urban High Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.93170047565	TPW101.003	Urban	Cross Timbers	29	VEGETATION	733.01415686400	5476.18270753000
374370	9410	Urban High Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.35901218150	TPW101.003	Urban	Cross Timbers	29	VEGETATION	310.58457857700	1452.87075217000
374391	9411	Urban Low Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.00034415867	TPW101.003	Urban	Cross Timbers	29	VEGETATION	12.51219871030	1.39276073977
374392	9411	Urban Low Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.33764521653	TPW101.003	Urban	Cross Timbers	29	VEGETATION	361.27066858200	1391.35639371000
374393	9411	Urban Low Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.19255321312	TPW101.003	Urban	Cross Timbers	29	VEGETATION	190.80518921100	779.23520728200
374394	9411	Urban Low Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.33173166485	TPW101.003	Urban	Cross Timbers	29	VEGETATION	441.37989648600	1342.47041851000
374404	9004	Swamp	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Riparian	1-North	0.11760107718	TPW101.009	Azonal Wetland	Cross Timbers	29	VEGETATION	1038.59654643000	27932.86184740000
374510	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.54943772896	TPW101.003	Urban	Cross Timbers	29	VEGETATION	979.36836604800	19729.63363970000
374517	507	Crosstimbers: Savanna Grassland	R086AY196TX	BLACKLAND PE 44-64	Crosstimbers Woodland and Forest	1-North	0.15342452237	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	949.23664674500	27577.28176450000
374543	9410	Urban High Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.05200844400	TPW101.003	Urban	Cross Timbers	29	VEGETATION	319.55653884900	2533.04202351000
374548	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.22343329060	TPW101.003	Urban	Cross Timbers	29	VEGETATION	348.97742331600	6700.33167372000
374551	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	1.85500609059	TPW101.003	Urban	Cross Timbers	29	VEGETATION	4424.50764083000	150589.82059200000
374630	1904	Central Texas: Riparian Hardwood Forest	R084CY194TX	SANDY LOAM PE 52-64	Riparian	1-North	0.02022585873	CES205.709	Southeastern Great Plains Riparian Forest	Cross Timbers	29	VEGETATION	1272.42603442000	23039.21657870000
374891	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.07015373241	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	1904.41111327000	53257.93939880000
374892	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.18024269152	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	1600.39174764000	116807.52645100000
375267	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.00060775489	TPW101.003	Urban	Cross Timbers	29	VEGETATION	401.18156913600	7438.56969619000
375269	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.02579209412	TPW101.003	Urban	Cross Timbers	29	VEGETATION	122.01759804900	166.52428384600
375478	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.08318028657	TPW101.003	Urban	Cross Timbers	29	VEGETATION	174.18709525200	363.12549958000
375479	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.34565573128	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1923.54519212000	34303.41936670000
375483	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.62649153742	TPW101.003	Urban	Cross Timbers	29	VEGETATION	2063.20820498000	30034.66942750000
375484	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.74864303565	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1431.16924854000	38344.93561550000
375488	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.24781413099	TPW101.003	Urban	Cross Timbers	29	VEGETATION	2828.92332581000	23475.42012180000
375603	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.01347788569	TPW101.003	Urban	Cross Timbers	29	VEGETATION	347.59179306900	3396.00896779000
375804	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.13624333627	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	306.29988086300	4226.27771226000
375813	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.07929926409	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	2212.43709525000	56154.26760540000
375815	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00253866451	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	306.50714044300	2354.49574432000
375817	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.21995592330	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	9564.76304821000	516300.47059700000
375819	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.11515690742	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	1571.55868895000	31416.29607730000
377043	1904	Central Texas: Riparian Hardwood Forest	R086AY199TX	CLAY LOAM PE 44-64	Riparian	1-North	0.00000432111	CES205.709	Southeastern Great Plains Riparian Forest	Cross Timbers	29	VEGETATION	1504.72358650000	25687.89175810000
377129	1804	Central Texas: Floodplain Hardwood Forest	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Floodplain	1-North	0.37760588109	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	7639.00886800000	205094.68697300000
377130	1804	Central Texas: Floodplain Hardwood Forest	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Floodplain	1-North	0.24833221266	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	2429.46863476000	50199.50581850000
377188	1804	Central Texas: Floodplain Hardwood Forest	R085XY181TX	Loamy Bottomland PE 40-54	Floodplain	1-North	0.00140524774	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	177.96510079200	1728.27367601000
377254	9410	Urban High Intensity	R085XY181TX	Loamy Bottomland PE 40-54	Urban	1-North	0.61734392777	TPW101.003	Urban	Cross Timbers	29	VEGETATION	307.40218038500	2553.81887664000
377279	9411	Urban Low Intensity	R085XY181TX	Loamy Bottomland PE 40-54	Urban	1-North	1.11109605239	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1043.09368824000	7805.05529955000
377418	1904	Central Texas: Riparian Hardwood Forest	R084CY194TX	SANDY LOAM PE 52-64	Riparian	1-North	0.00296571321	CES205.709	Southeastern Great Plains Riparian Forest	Cross Timbers	29	VEGETATION	526.18263908800	5004.75565262000
377639	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.04127463455	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	405.07427482900	4675.38878642000
377988	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.67997143128	TPW101.003	Urban	Cross Timbers	29	VEGETATION	631.89485262700	2751.74675357000
377989	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	2.05023831299	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1585.91440711000	27194.91613520000
378170	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.91676076768	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1457.05576283000	80188.94238350000
378171	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.54274956166	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1513.66498032000	27326.23051910000
378175	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.01874953144	TPW101.003	Urban	Cross Timbers	29	VEGETATION	547.33494417600	13369.53024710000
378177	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.07186693879	TPW101.003	Urban	Cross Timbers	29	VEGETATION	393.04281352000	6782.13698142000
378181	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	2.64147731087	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1860.96905260000	20202.47392850000
378182	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.16769694423	TPW101.003	Urban	Cross Timbers	29	VEGETATION	736.53055735400	11638.97598790000
378183	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.28391796815	TPW101.003	Urban	Cross Timbers	29	VEGETATION	667.01103022200	3962.01238901000
378186	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.00254604353	TPW101.003	Urban	Cross Timbers	29	VEGETATION	527.27967179700	6804.84812463000
378328	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.28490405336	TPW101.003	Urban	Cross Timbers	29	VEGETATION	514.24869291700	3327.20135225000
378514	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00003610123	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	722.84027404100	5791.91967475000
378525	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.03500256987	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	3094.54258029000	205945.30149300000
378536	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.81161071412	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	4353.64709443000	172761.63267900000
378809	1904	Central Texas: Riparian Hardwood Forest	R084CY194TX	SANDY LOAM PE 52-64	Riparian	1-North	0.02428981168	CES205.709	Southeastern Great Plains Riparian Forest	Cross Timbers	29	VEGETATION	207.71744575400	1650.50176385000
378954	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00521443788	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	1033.98358205000	33320.35084820000
378957	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.03688643310	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	272.40072344100	3635.34827849000

US 380 - Denton
EMST

FID_Distri	Veg_ID	Common	EcoClass_I	EcoSystem	MOU_Habita	Phase	Acres	NS_Number	TPWD_Ecosy	EcoRegion	EcoRegion_	Feature_Ty	Shape_Leng	Shape_Area
378960	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.22520894208	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	1002.89202408000	37972.07226760000
378962	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.54408885890	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	420.61217292100	5548.33843220000
379187	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.01190968115	TPW101.003	Urban	Cross Timbers	29	VEGETATION	234.60550741300	770.32159552900
379188	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.10980447484	TPW101.003	Urban	Cross Timbers	29	VEGETATION	260.55470273700	444.36294416200
379270	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.01226740483	TPW101.003	Urban	Cross Timbers	29	VEGETATION	510.21255403100	1899.62902899000
379271	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.10953920542	TPW101.003	Urban	Cross Timbers	29	VEGETATION	947.49721180300	10547.77562860000
379273	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.10010187572	TPW101.003	Urban	Cross Timbers	29	VEGETATION	246.65909733100	860.35893523000
379277	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.55516350068	TPW101.003	Urban	Cross Timbers	29	VEGETATION	410.86772858500	2360.71533876000
379278	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.70869731262	TPW101.003	Urban	Cross Timbers	29	VEGETATION	649.60119886200	8531.56700127000
379413	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00063727470	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	501.47988482300	5592.68464708000
379414	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.07174060394	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	1071.39350293000	25943.06858870000
379417	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.02809852334	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	251.99775026100	3211.54689399000
380061	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.10512072320	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	265.38622852500	1125.78395824000
380087	9600	Open Water	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	0.15915928035	TPW101.004	Open Water	Cross Timbers	29	VEGETATION	3589.66678563000	362972.51765600000
380088	9600	Open Water	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	0.06946342235	TPW101.004	Open Water	Cross Timbers	29	VEGETATION	2695.75946962000	57796.52254730000
380094	9410	Urban High Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.38829749794	TPW101.003	Urban	Cross Timbers	29	VEGETATION	970.16803308400	10610.57489330000
380096	9004	Swamp	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	0.05754178295	TPW101.009	Azonal Wetland	Cross Timbers	29	VEGETATION	417.99413372500	2439.68500000000
380214	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.36698054133	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	3541.40599909000	115999.76600300000
380269	1102	Edwards Plateau: Live Oak Motte and Woodland	R084CY194TX	SANDY LOAM PE 52-64	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.29527732156	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Cross Timbers	29	VEGETATION	260.00000000000	3600.00000000000
380365	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	2.89140034324	TPW101.003	Urban	Cross Timbers	29	VEGETATION	2878.87678652000	68349.25571770000
380443	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.06291749354	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	941.83966004300	12774.15210320000
380448	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00078858409	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	693.23248184700	18972.75743690000
380450	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00512973529	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	1170.79493903000	27352.47679030000
380596	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.35665078881	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	1971.12313083000	56614.67335220000
380599	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.03287317046	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	1302.78039404000	41061.64685980000
380718	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.37556814175	TPW101.003	Urban	Cross Timbers	29	VEGETATION	316.42574375600	2411.19936844000
380720	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.26194050339	TPW101.003	Urban	Cross Timbers	29	VEGETATION	2731.05544981000	46349.65416280000
380782	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.03101847910	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	227.14050934100	2254.25110837000
380785	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.01971278837	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	1742.01324822000	34545.05457110000
380924	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.20935937201	TPW101.003	Urban	Cross Timbers	29	VEGETATION	443.32960951900	1354.04023816000
380925	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.50835993913	TPW101.003	Urban	Cross Timbers	29	VEGETATION	492.86788958300	6539.28997326000
380926	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.16426733005	TPW101.003	Urban	Cross Timbers	29	VEGETATION	684.12201605500	6657.59473413000
380927	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.74047434582	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1305.80289989000	26273.71355200000
380929	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.68947402300	TPW101.003	Urban	Cross Timbers	29	VEGETATION	2061.77193688000	30749.76915350000
380936	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.32921181995	TPW101.003	Urban	Cross Timbers	29	VEGETATION	688.54514866200	9197.76843876000
380961	1104	Edwards Plateau: Oak / Hardwood Motte and Woodland	R085XY179TX	Clay Loam PE 40-54	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.19468891736	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Cross Timbers	29	VEGETATION	378.37337916000	4152.97838626000
380966	1104	Edwards Plateau: Oak / Hardwood Motte and Woodland	R085XY179TX	Clay Loam PE 40-54	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.04831276064	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Cross Timbers	29	VEGETATION	2075.29125128000	44558.77660810000
380990	1107	Edwards Plateau: Savanna Grassland	R085XY179TX	Clay Loam PE 40-54	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.33103425199	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Cross Timbers	29	VEGETATION	1239.57386440000	21966.34583810000
380991	1107	Edwards Plateau: Savanna Grassland	R085XY179TX	Clay Loam PE 40-54	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.00641440070	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Cross Timbers	29	VEGETATION	37.76452450850	25.95815868570
380992	1107	Edwards Plateau: Savanna Grassland	R085XY179TX	Clay Loam PE 40-54	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.26654900719	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Cross Timbers	29	VEGETATION	450.71843176400	3938.20968576000
381404	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.35949323926	TPW101.003	Urban	Cross Timbers	29	VEGETATION	586.72577816700	8754.91176289000
381422	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.12976780285	TPW101.003	Urban	Cross Timbers	29	VEGETATION	429.72983738700	3417.23505828000
381682	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.94621079562	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	5696.85010486000	275750.89966400000
381683	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	4.28860812171	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	8535.26041793000	655653.43564600000
381684	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.59111314853	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	707.47854367900	4874.23888961000
381685	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.12846071267	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	357.27192430100	5843.03159039000
381686	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.03391954725	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	1063.12946150000	12525.74064230000
381687	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.06984640477	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	1040.00000000000	25800.00000000000
381688	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.05744423617	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	3402.93579128000	181917.76197000000
381689	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.06609147180	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	3563.58376840000	151425.34446600000
381763	9600	Open Water	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	0.27878442048	TPW101.004	Open Water	Cross Timbers	29	VEGETATION	532.00585513700	3705.75336110000
381764	9600	Open Water	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	0.03109351362	TPW101.004	Open Water	Cross Timbers	29	VEGETATION	162.38934766800	1024.71751749000
381768	9410	Urban High Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.00234424351	TPW101.003	Urban	Cross Timbers	29	VEGETATION	74.36771911770	9.48681685784
381770	9410	Urban High Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	1.16036117585	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1517.04574281000	5614.17980100000
381772	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	1.55223753089	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1251.52314515000	14875.71619950000
381773	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.56829606219	TPW101.003	Urban	Cross Timbers	29	VEGETATION	459.04208239500	2299.81256963000
381774	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.07232569359	TPW101.003	Urban	Cross Timbers	29	VEGETATION	140.29835980800	427.60937277400
381775	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.96237725682	TPW101.003	Urban	Cross Timbers	29	VEGETATION	423.83477003400	3903.79060530000
381776	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.66026447080	TPW101.003	Urban	Cross Timbers	29	VEGETATION	915.07507568300	5523.98555650000
381789	9004	Swamp	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	0.19224382668	TPW101.009	Azonal Wetland	Cross Timbers	29	VEGETATION	1020.60559459000	22610.31581650000
381790	9004	Swamp	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	0.04031304170	TPW101.009	Azonal Wetland	Cross Timbers	29	VEGETATION	1140.00000000000	20800.00000000000
381792	9004	Swamp	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	1.45059076783	TPW101.009	Azonal Wetland	Cross Timbers	29	VEGETATION	12866.02459420000	946139.49272500000
382070	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.04666085917	TPW101.003	Urban	Cross Timbers	29	VEGETATION	698.91254643000	9812.98310305000
382985	504	Crosstimbers: Post Oak Woodland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Crosstimbers Woodland and Forest	1-North	0.00560550047	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	946.48564027800	7845.78229657000
383158	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.00582169769	TPW101.003	Urban	Cross Timbers	29	VEGETATION	388.65658136800	4313.21700407000
383160	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.05942130228	TPW101.003	Urban	Cross Timbers	29	VEGETATION	550.91467895300	8741.96981525000
383163	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.05987988903	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1150.79856281000	18695.15618860000
383276	507	Crosstimbers: Savanna Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Crosstimbers Woodland and Forest	1-North	0.00797373243	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	229.51481816700	2906.08318124000
383277	507	Crosstimbers: Savanna Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Crosstimbers Woodland and Forest	1-North	0.08048318153	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	1251.43539541000	39354.96584160000
383488	1804	Central Texas: Floodplain Hardwood Forest	Water	mu, Water	Floodplain	1-North	0.45156715132	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	839.06983763600	7055.36350581000
383489	1804	Central Texas: Floodplain Hardwood Forest	Water	mu, Water	Floodplain	1-North	0.16012392832	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	950.51429004800	12596.29559790000
383713	9004	Swamp	Water	mu, Water	Riparian	1-North	0.01605523650	TPW101.009	Azonal Wetland	Cross Timbers	29	VEGETATION	2130.17497448000	25385.90471600000
384711	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.04423290569	TPW101.003	Urban	Cross Timbers	29	VEGETATION	238.84363978700	1884.12472249000
384727	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.03815305628	TPW101.003	Urban	Cross Timbers	29	VEGETATION	663.77354085600	9893.20117670000
384801	504	Crosstimbers: Post Oak Woodland	R084CY192TX	SANDSTONE HILL PE 52-64	Crosstimbers Woodland and Forest	1-North	0.06236238673	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	758.57163409400	33341.18571950000
387289	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.07967602168	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	725.20961427300	12648.30253920000
387456	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.05847417941	TPW101.003	Urban	Cross Timbers	29	VEGETATION	166.42006278600	810.47389592800
387457	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.02738997951	TPW101.003	Urban	Cross Timbers	29	VEGETATION	409.23597358300	3618.21609635000
387559	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00975053956	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	623.50937956500	8448.62082116000
387608	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.09839982011	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1711.72232016000	18434.77119520000
387621	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00439029782	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	616.11519401300	14026.73541590000

US 380 - Denton
EMST

FID_Distri	Veg_ID	Common	EcoClass_I	EcoSystem	MOU_Habita	Phase	Acres	NS_Number	TPWD_Ecosy	EcoRegion	EcoRegion_	Feature_Ty	Shape_Leng	Shape_Area
389817	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.05055921019	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1488.37520247000	51907.78779230000
389826	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.00793299738	TPW101.003	Urban	Cross Timbers	29	VEGETATION	746.74300734500	19112.76887980000
389849	1804	Central Texas: Floodplain Hardwood Forest	R085XY181TX	Loamy Bottomland PE 40-54	Floodplain	1-North	0.23897921574	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	VEGETATION	4040.93452312000	131656.46778200000
389890	9410	Urban High Intensity	R085XY181TX	Loamy Bottomland PE 40-54	Urban	1-North	0.19617759814	TPW101.003	Urban	Cross Timbers	29	VEGETATION	392.73339461200	2704.58125248000
389903	9411	Urban Low Intensity	R085XY181TX	Loamy Bottomland PE 40-54	Urban	1-North	0.28551060584	TPW101.003	Urban	Cross Timbers	29	VEGETATION	415.00800617400	2538.88165130000
389904	9411	Urban Low Intensity	R085XY181TX	Loamy Bottomland PE 40-54	Urban	1-North	0.01563014182	TPW101.003	Urban	Cross Timbers	29	VEGETATION	562.71042788300	8083.54191686000
390691	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.12939196890	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	535.41037432500	3957.99468061000
390692	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.06753675312	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	970.54275194100	20999.90034910000
390706	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.17077349836	TPW101.003	Urban	Cross Timbers	29	VEGETATION	543.96746761000	8844.66680507000
390707	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.00581648264	TPW101.003	Urban	Cross Timbers	29	VEGETATION	734.36783631900	11554.36883200000
390711	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.37593859282	TPW101.003	Urban	Cross Timbers	29	VEGETATION	3876.38992315000	53893.35802900000
390732	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.15483914278	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	3877.30483311000	115217.03186800000
393999	9104	Native Invasive: Deciduous Woodland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Disturbed Prairie	1-North	0.00772100072	TPW101.001	Native Invasive Shrub and Woodland	Cross Timbers	29	VEGETATION	420.14126913200	5440.56729302000
394002	9104	Native Invasive: Deciduous Woodland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Disturbed Prairie	1-North	0.02135096449	TPW101.001	Native Invasive Shrub and Woodland	Cross Timbers	29	VEGETATION	1363.18956052000	28771.18957210000
394125	2007	Grand Prairie: Tallgrass Prairie	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.00238574159	CES205.685	Southeastern Great Plains Tallgrass Prairie	Cross Timbers	29	VEGETATION	669.37841354300	15662.18700410000
394127	2007	Grand Prairie: Tallgrass Prairie	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.06968447431	CES205.685	Southeastern Great Plains Tallgrass Prairie	Cross Timbers	29	VEGETATION	739.08197527500	19796.65201910000
394131	2007	Grand Prairie: Tallgrass Prairie	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.00194473985	CES205.685	Southeastern Great Plains Tallgrass Prairie	Cross Timbers	29	VEGETATION	2238.73418268000	79532.84476840000
394344	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.09380580790	TPW101.003	Urban	Cross Timbers	29	VEGETATION	253.53464709700	1119.85061360000
394365	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.18740597269	TPW101.003	Urban	Cross Timbers	29	VEGETATION	3990.67314090000	50898.16422160000
394783	9410	Urban High Intensity		mu, Navo-Urban land complex, 0 to 3 percent slopes	Urban	1-North	0.31599174503	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1557.20094464000	12608.12059700000
394816	9411	Urban Low Intensity		mu, Navo-Urban land complex, 0 to 3 percent slopes	Urban	1-North	0.09683956738	TPW101.003	Urban	Cross Timbers	29	VEGETATION	576.94145871400	7623.50654728000
394818	9411	Urban Low Intensity		mu, Navo-Urban land complex, 0 to 3 percent slopes	Urban	1-North	0.02771380568	TPW101.003	Urban	Cross Timbers	29	VEGETATION	184.37870470300	1170.24204340000
394821	9411	Urban Low Intensity		mu, Navo-Urban land complex, 0 to 3 percent slopes	Urban	1-North	0.45836218385	TPW101.003	Urban	Cross Timbers	29	VEGETATION	2911.54297868000	49515.79745050000
405241	9104	Native Invasive: Deciduous Woodland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Disturbed Prairie	1-North	0.01152129481	TPW101.001	Native Invasive Shrub and Woodland	Cross Timbers	29	VEGETATION	593.11481592100	10498.15631400000
405339	2007	Grand Prairie: Tallgrass Prairie	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.04838357716	CES205.685	Southeastern Great Plains Tallgrass Prairie	Cross Timbers	29	VEGETATION	1692.50965474000	58119.45678830000
405559	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.08660944484	TPW101.003	Urban	Cross Timbers	29	VEGETATION	273.49901684900	1398.36108346000
405560	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.18528337042	TPW101.003	Urban	Cross Timbers	29	VEGETATION	843.10153818900	19593.19007210000
405613	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.06383588662	TPW101.003	Urban	Cross Timbers	29	VEGETATION	522.48339105100	5314.05446541000
405772	9410	Urban High Intensity		mu, Wilson-Urban land complex, 0 to 2 percent slopes	Urban	1-North	0.04638557714	TPW101.003	Urban	Cross Timbers	29	VEGETATION	163.36647944900	806.42740177800
405773	9410	Urban High Intensity		mu, Wilson-Urban land complex, 0 to 2 percent slopes	Urban	1-North	0.00331256141	TPW101.003	Urban	Cross Timbers	29	VEGETATION	316.98997466100	2269.65505062000
405882	9411	Urban Low Intensity		mu, Wilson-Urban land complex, 0 to 2 percent slopes	Urban	1-North	0.29994735658	TPW101.003	Urban	Cross Timbers	29	VEGETATION	969.21125315000	8003.35498651000
405885	9411	Urban Low Intensity		mu, Wilson-Urban land complex, 0 to 2 percent slopes	Urban	1-North	0.05403735678	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1967.60319921000	56300.05981070000
407074	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.04837420264	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	468.83967687500	3253.69686369000
407075	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.19066701959	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	VEGETATION	446.09214802900	5625.08677228000
407107	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.36084012433	TPW101.003	Urban	Cross Timbers	29	VEGETATION	1644.37955458000	13555.77060010000
407108	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.12641452101	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	452.99882542100	1713.35965414000
407452	9104	Native Invasive: Deciduous Woodland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Disturbed Prairie	1-North	0.19317512513	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	VEGETATION	478.93938367900	5410.57826631000
407470	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.18442226825	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	664.66428718400	13994.74179920000
407472	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.18903896367	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	1791.71106257000	97427.74682620000
408129	524	Crosstimbers: Oak / Hardwood Slope Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Crosstimbers Woodland and Forest	1-North	0.11351553601	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	VEGETATION	196.23169231700	459.38107584000
408133	9410	Urban High Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.41866469221	TPW101.003	Urban	Cross Timbers	29	VEGETATION	558.72696232400	1694.27589876000
408134	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.24992118275	TPW101.003	Urban	Cross Timbers	29	VEGETATION	315.36463498400	1011.39514342000
416013	9307	Row Crops	R086AY553TX	BLACKLAND PE 64+	Agriculture	1-North	0.00076013361	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	11186.79323550000	925063.67420600000
423010	1904	Central Texas: Riparian Hardwood Forest	R084CY194TX	SANDY LOAM PE 52-64	Riparian	1-North	0.00180424831	CES205.709	Southeastern Great Plains Riparian Forest	Texas Blackland Prairies	32	VEGETATION	170.06619170000	1545.98697742000
423016	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.01035004701	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	VEGETATION	338.47467979700	3284.66900000000
423042	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.20852682230	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	674.94643166100	4179.25520190000
423043	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.02139267090	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	280.39093137100	2913.93855848000
423051	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.01308370448	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	256.66276050400	1270.47017657000
423059	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.04999064575	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	VEGETATION	1015.52045862000	28637.86284870000
423060	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.06557920884	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	VEGETATION	441.00862965600	2841.22138769000
423145	9307	Row Crops	R085XY177TX	Blackland PE 40-54	Agriculture	1-North	1.03373299344	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	1428.61049699000	65039.69944890000
423146	9307	Row Crops	R085XY177TX	Blackland PE 40-54	Agriculture	1-North	0.73382786048	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	8795.06568461000	1385428.15812000000
423148	9307	Row Crops	R085XY177TX	Blackland PE 40-54	Agriculture	1-North	0.35359235530	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	535.77559572400	17739.26011110000
423149	9307	Row Crops	R085XY177TX	Blackland PE 40-54	Agriculture	1-North	2.28835900201	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	3391.30426194000	265209.35121200000
423210	9104	Native Invasive: Deciduous Woodland	R085XY177TX	Blackland PE 40-54	Disturbed Prairie	1-North	0.10573405709	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	VEGETATION	540.00000000000	10400.00000000000
423313	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.01771493105	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	778.39433593600	22264.37058100000
423314	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.35816096526	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	3813.73202049000	132879.51865600000
423315	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.78489458118	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	3380.11026486000	242008.89329500000
423316	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.64133841309	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	1319.12499821000	37059.13529070000
423317	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.87157387052	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	736.03634730800	14458.10900000000
423319	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	1.04447225043	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	4161.90311180000	222061.95978100000
423385	9410	Urban High Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	1.12074880755	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	1529.97192658000	8537.50981431000
423386	9410	Urban High Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	1.91490241324	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	4530.47094476000	14595.30815230000
423387	9410	Urban High Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	0.24914291536	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	321.17195316300	1219.85575020000
423447	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	4.17526940607	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	4237.84779667000	40647.94157390000
423448	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	7.66128490180	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	9181.38355722000	132493.00250400000
423458	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	0.00888522627	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	143.32958042800	951.35565787700
423564	9307	Row Crops	R085XY177TX	Blackland PE 40-54	Agriculture	1-North	0.23678548840	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	1563.20113873000	72658.24594300000
423565	9307	Row Crops	R085XY177TX	Blackland PE 40-54	Agriculture	1-North	0.01228186066	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	942.04418980100	26081.06596330000
423567	9307	Row Crops	R085XY177TX	Blackland PE 40-54	Agriculture	1-North	0.01442021415	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	1256.86016867000	52338.09442620000
423576	9307	Row Crops	R085XY177TX	Blackland PE 40-54	Agriculture	1-North	0.00017687173	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	1871.09941550000	107111.05327700000
423715	9104	Native Invasive: Deciduous Woodland	R085XY177TX	Blackland PE 40-54	Disturbed Prairie	1-North	0.01659616934	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	VEGETATION	356.47661372800	928.75570872200
423716	9104	Native Invasive: Deciduous Woodland	R085XY177TX	Blackland PE 40-54	Disturbed Prairie	1-North	0.00733367258	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	VEGETATION	199.20475800600	2097.55244348000
423937	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.04969734715	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	186.33089837000	1412.89137521000
423938	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.26365849162	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	1210.72264062000	31226.74031250000
423941	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.39310155189	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	2348.76363857000	74833.13438630000
423945	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.12256097275	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	3145.64631261000	129430.92773400000
423947	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.16031640361	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	3214.73201438000	76365.70566400000
424147	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	0.51030920236	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	773.51491532900	6075.56036406000
424148	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	0.12528203261	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	617.52191298800	3521.37451828000
424149	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	0.76787466897	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	2496.60007136000	19004.50743290000

US 380 - Denton
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FID_Distri	Veg_ID	Common	EcoClass_I	EcoSystem	MOU_Habita	Phase	Acres	NS_Number	TPWD_Ecosy	EcoRegion	EcoRegion_	Feature_Ty	Shape_Leng	Shape_Area
424223	1907	Central Texas: Riparian Herbaceous Vegetation	R085XY177TX	Blackland PE 40-54	Riparian	1-North	0.00050552418	CES205.709	Southeastern Great Plains Riparian Forest	Texas Blackland Prairies	32	VEGETATION	1077.32120405000	15989.50656440000
424290	9104	Native Invasive: Deciduous Woodland	R086AY199TX	CLAY LOAM PE 44-64	Disturbed Prairie	1-North	0.00011324161	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	VEGETATION	1049.82193544000	24560.30976030000
424402	9411	Urban Low Intensity	R086AY199TX	CLAY LOAM PE 44-64	Urban	1-North	0.61114372499	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	626.02914951700	2864.35345141000
424497	9307	Row Crops	R086AY196TX	BLACKLAND PE 44-64	Agriculture	1-North	0.20510188290	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	838.56964216600	15815.79863160000
424498	9307	Row Crops	R086AY196TX	BLACKLAND PE 44-64	Agriculture	1-North	0.29660677240	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	795.60411262200	28154.71467380000
424499	9307	Row Crops	R086AY196TX	BLACKLAND PE 44-64	Agriculture	1-North	0.70593810713	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	642.36040032100	6251.22186786000
424502	9307	Row Crops	R086AY196TX	BLACKLAND PE 44-64	Agriculture	1-North	0.35116882985	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	9218.48454839000	1296901.38977000000
424573	9104	Native Invasive: Deciduous Woodland	R086AY196TX	BLACKLAND PE 44-64	Disturbed Prairie	1-North	1.09438871838	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	VEGETATION	870.77996219400	7328.41795879000
424619	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.37050766167	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	2222.55273987000	107559.62947000000
424739	9410	Urban High Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.31757672965	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	625.14307831500	1369.08246144000
424748	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.00383689742	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	62.71322691240	15.52737299360
424749	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	2.30947461644	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	3340.76193265000	142525.12156500000
424809	9307	Row Crops	R086AY196TX	BLACKLAND PE 44-64	Agriculture	1-North	0.00238211421	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	981.56065188500	46765.75607610000
424958	9104	Native Invasive: Deciduous Woodland	R086AY196TX	BLACKLAND PE 44-64	Disturbed Prairie	1-North	0.20977851580	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	VEGETATION	286.06551771900	2319.27001058000
425046	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.14491354245	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	837.73771425800	11721.60740200000
425275	9410	Urban High Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.01864875626	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	171.43877534100	1714.10313967000
425276	9410	Urban High Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.11422444519	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	325.68839765800	1355.83804033000
425287	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.67718728201	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	2068.06152569000	56059.65824810000
425329	9105	Native Invasive: Juniper Shrubland	R086AY196TX	BLACKLAND PE 44-64	Disturbed Prairie	1-North	0.12980059927	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	VEGETATION	257.69660962200	888.15458494100
425537	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.95481209288	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	630.35684597700	7639.86656006000
425579	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.09673388291	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	VEGETATION	309.58562933400	3503.92498248000
425738	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.07491621455	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	VEGETATION	520.48296035900	11680.12769980000
425739	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.01212472741	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	VEGETATION	650.16649277900	7433.83332711000
425849	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.64643127925	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	905.97295656100	13008.71888170000
425864	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.08035277409	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	VEGETATION	196.31045850600	325.17613994000
426001	9600	Open Water	R084CY194TX	SANDY LOAM PE 52-64	Riparian	1-North	0.14909522886	TPW101.004	Open Water	Texas Blackland Prairies	32	VEGETATION	420.21704305600	2008.69507984000
426006	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.41334598008	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	270.26057949200	1672.75183399000
426281	9104	Native Invasive: Deciduous Woodland	R086AY199TX	CLAY LOAM PE 44-64	Disturbed Prairie	1-North	0.21236061863	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	VEGETATION	4227.41496483000	98682.06889150000
426714	1102	Edwards Plateau: Live Oak Motte and Woodland	R086AY196TX	BLACKLAND PE 44-64	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.07909218439	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Texas Blackland Prairies	32	VEGETATION	715.96441606300	8570.54848638000
426880	9104	Native Invasive: Deciduous Woodland	R086AY196TX	BLACKLAND PE 44-64	Disturbed Prairie	1-North	0.14877339108	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	VEGETATION	412.32638581800	1792.44579467000
427100	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.11613083491	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	1796.55602203000	75852.34826400000
427376	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.05573252809	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	342.32251347800	1449.08355126000
427377	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.04757337601	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	199.41235477900	768.02682199900
427378	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.63868750001	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	1264.76567004000	9938.86587104000
427449	9105	Native Invasive: Juniper Shrubland	R086AY196TX	BLACKLAND PE 44-64	Disturbed Prairie	1-North	0.11763617055	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	VEGETATION	285.78075298400	2669.00566986000
428321	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.14328538379	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	1574.45311595000	88810.28130170000
428598	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.08557039403	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	840.10485816200	6266.53754488000
428757	1102	Edwards Plateau: Live Oak Motte and Woodland	R086AY196TX	BLACKLAND PE 44-64	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.13266527595	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Texas Blackland Prairies	32	VEGETATION	253.72965322400	2784.99252512000
429096	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.00121799204	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	2483.87402362000	106417.12414700000
429098	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.14894154959	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	916.91232500700	25818.42648770000
429327	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.17790544870	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	1192.36585842000	13120.51304680000
429416	1907	Central Texas: Riparian Herbaceous Vegetation	R086AY196TX	BLACKLAND PE 44-64	Riparian	1-North	0.06915421049	CES205.709	Southeastern Great Plains Riparian Forest	Texas Blackland Prairies	32	VEGETATION	727.60150636800	10149.29723090000
430375	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.05948187223	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	937.44438875000	24430.66470780000
430524	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.19641042769	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	161.29311082400	1078.58942678000
430525	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.04384315772	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	100.02035803900	300.19986288200
430540	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	1.06277603491	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	1035.85316499000	12838.73165720000
430541	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.58217141074	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	617.07145238500	5792.88734545000
430542	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.04700941902	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	352.73871456600	4614.93611405000
430624	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.04059363156	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	252.87085950800	2364.34750000000
430625	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.11713102562	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	1329.54351141000	47065.90771060000
431242	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.69769689172	CES205.710	Southeastern Great Plains Floodplain Forest	Texas Blackland Prairies	32	VEGETATION	15850.28258080000	1163289.10561000000
431248	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.30800873035	CES205.710	Southeastern Great Plains Floodplain Forest	Texas Blackland Prairies	32	VEGETATION	6435.81130615000	403782.78187700000
431408	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.09922907303	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	166.25278426000	1138.32157656000
431409	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.03534458694	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	553.58183871100	3785.42519465000
431447	1802	Central Texas: Floodplain Live Oak Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.09459883360	CES205.710	Southeastern Great Plains Floodplain Forest	Texas Blackland Prairies	32	VEGETATION	586.14724623000	3081.64757715000
431514	1805	Central Texas: Floodplain Evergreen Shrubland	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.01620741374	CES205.710	Southeastern Great Plains Floodplain Forest	Texas Blackland Prairies	32	VEGETATION	790.97863518000	8921.35604424000
432777	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.00104105527	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	578.30187467500	19952.70311400000
432913	9104	Native Invasive: Deciduous Woodland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Disturbed Prairie	1-North	0.05210062697	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	VEGETATION	935.13145221400	16758.01515990000
433057	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.29405325545	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	921.72995545400	32406.30926590000
433058	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.04481561116	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	839.37023923500	32051.68591270000
433059	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.28627366664	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	690.73820727300	9183.48942560000
433063	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	1.29523529348	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	5418.64881531000	588904.49597500000
433193	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.03175717933	TPW101.005	Agriculture	Texas Blackland Prairies	32	VEGETATION	1019.96401320000	16379.80523460000
433243	9600	Open Water	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Riparian	1-North	0.15782688481	TPW101.004	Open Water	Texas Blackland Prairies	32	VEGETATION	326.40751177800	2877.44191644000
433253	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.28960169542	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	1402.66564783000	15157.10468160000
433254	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.15665234798	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	1023.46216953000	9235.05951359000
433255	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.00143702691	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	370.39057534400	6185.89686033000
433256	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.62545656955	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	1068.51183336000	3237.09289436000
433277	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.12953868878	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	3329.73407068000	105921.11950900000
433278	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.11368879465	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	417.60993216400	925.41981551200
433279	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.07393038727	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	318.13055170100	2511.30444041000
433280	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	1.27999320140	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	3262.63420510000	63203.84903970000
433282	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.81635391385	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	348.79708978300	3682.60463569000
433283	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.22640040210	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	1073.37152702000	19183.33484860000
433288	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	2.79432262215	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	4584.81302461000	236799.07336400000
433343	1102	Edwards Plateau: Live Oak Motte and Woodland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.03921251636	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Texas Blackland Prairies	32	VEGETATION	368.95163987400	2000.45021948000
433393	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.05918347541	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	7178.54784266000	531423.49762100000
433394	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.00480334800	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	128.25639626200	764.45863217200
433398	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.42204309215	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	648.81294632200	2425.17809387000
433404	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.12885331317	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	VEGETATION	1459.06849436000	52971.08810290000
433837	9600	Open Water	Water	mu, Water	Riparian	1-North	0.39278530150	TPW101.004	Open Water	Texas Blackland Prairies	32	VEGETATION	9587.74504232000	379186.64366200000

US 380 - Denton
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433914	9411	Urban Low Intensity	Water	mu, Water	Urban	1-North	0.01324502507	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	291.74336809200	3095.62718348000
434201	9411	Urban Low Intensity	R086AY199TX	CLAY LOAM PE 44-64	Urban	1-North	0.21223524162	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	172.56482049700	868.66123724700
434350	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.81420063287	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	2630.60179722000	54153.53377690000
434351	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	1.08085106146	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	VEGETATION	7460.77883907000	303467.06735800000
434473	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	3.70732666119	TPW101.003	Urban	Texas Blackland Prairies	32	VEGETATION	10029.44809920000	291882.87183600000
371239	1904	Central Texas: Riparian Hardwood Forest	R084CY194TX	SANDY LOAM PE 52-64	Riparian	1-North	0.05802930777	CES205.709	Southeastern Great Plains Riparian Forest	Cross Timbers	29	ROADWAY	69.90931057760	234.83627680700
371751	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	2.53106654815	TPW101.003	Urban	Cross Timbers	29	ROADWAY	1097.57771146000	10242.86291620000
371752	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.60656917990	TPW101.003	Urban	Cross Timbers	29	ROADWAY	769.71440003800	6501.55480373000
371753	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.55098168721	TPW101.003	Urban	Cross Timbers	29	ROADWAY	254.72862005100	2229.74377936000
371884	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.01415751499	TPW101.003	Urban	Cross Timbers	29	ROADWAY	424.15388371300	4104.14985303000
371888	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.02570640984	TPW101.003	Urban	Cross Timbers	29	ROADWAY	70.99014794460	104.03014976200
371889	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	2.49876782424	TPW101.003	Urban	Cross Timbers	29	ROADWAY	2327.28179967000	10112.15461780000
371890	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.07979742030	TPW101.003	Urban	Cross Timbers	29	ROADWAY	194.93254941900	322.92870290100
371952	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.18099080808	TPW101.003	Urban	Cross Timbers	29	ROADWAY	174.01539917300	732.44381403600
372083	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.04892433893	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	79.80964955870	197.98977517800
372089	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00359639174	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	37.62362791920	14.55408100610
373051	9410	Urban High Intensity	R084CY192TX	SANDSTONE HILL PE 52-64	Urban	1-North	1.70577979046	TPW101.003	Urban	Cross Timbers	29	ROADWAY	1009.95863360000	6903.04590010000
373302	9411	Urban Low Intensity	R084CY192TX	SANDSTONE HILL PE 52-64	Urban	1-North	0.06862788624	TPW101.003	Urban	Cross Timbers	29	ROADWAY	196.24484926400	277.72720217500
373303	9411	Urban Low Intensity	R084CY192TX	SANDSTONE HILL PE 52-64	Urban	1-North	0.28770609688	TPW101.003	Urban	Cross Timbers	29	ROADWAY	333.57099766800	1164.30526617000
374369	9410	Urban High Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	3.18480355863	TPW101.003	Urban	Cross Timbers	29	ROADWAY	999.05333197200	12888.44273510000
374391	9411	Urban Low Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.41714096486	TPW101.003	Urban	Cross Timbers	29	ROADWAY	183.13165399000	1688.10959266000
374392	9411	Urban Low Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.03140400832	TPW101.003	Urban	Cross Timbers	29	ROADWAY	168.26715745800	127.08751269900
374393	9411	Urban Low Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.05210084397	TPW101.003	Urban	Cross Timbers	29	ROADWAY	164.68462200800	210.84463501900
374394	9411	Urban Low Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.28447282316	TPW101.003	Urban	Cross Timbers	29	ROADWAY	490.35591117300	1151.22067146000
374510	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	1.47603345616	TPW101.003	Urban	Cross Timbers	29	ROADWAY	462.57647013600	5973.29547190000
374517	507	Crosstimbers: Savanna Grassland	R086AY196TX	BLACKLAND PE 44-64	Crosstimbers Woodland and Forest	1-North	0.01052040538	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	46.14206258950	42.57457007290
374543	9410	Urban High Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.97119262616	TPW101.003	Urban	Cross Timbers	29	ROADWAY	504.93268395500	3930.27711685000
374548	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.10984496674	TPW101.003	Urban	Cross Timbers	29	ROADWAY	148.56051972700	444.52680898100
374551	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	1.84383744592	TPW101.003	Urban	Cross Timbers	29	ROADWAY	1038.85021244000	7461.74540948000
374891	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00658502070	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	28.87835882280	26.64863332450
374892	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.01950085762	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	88.73828328330	78.91717088880
375267	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.23260094998	TPW101.003	Urban	Cross Timbers	29	ROADWAY	286.67135484100	941.30264828800
375269	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.44915433517	TPW101.003	Urban	Cross Timbers	29	ROADWAY	268.46521102400	1817.66310594000
375478	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.74399049017	TPW101.003	Urban	Cross Timbers	29	ROADWAY	432.76645633700	3010.82269330000
375479	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.68825573151	TPW101.003	Urban	Cross Timbers	29	ROADWAY	974.71530945600	7174.30417967000
375483	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	2.65011230589	TPW101.003	Urban	Cross Timbers	29	ROADWAY	965.11223254400	10724.62400510000
375484	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.42829847406	TPW101.003	Urban	Cross Timbers	29	ROADWAY	319.36873773600	1733.26243052000
375488	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	2.86029851395	TPW101.003	Urban	Cross Timbers	29	ROADWAY	1578.70580045000	13389.49255560000
375603	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.00357371748	TPW101.003	Urban	Cross Timbers	29	ROADWAY	19.68106449110	14.46232154680
375797	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.41044873380	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	335.61291579400	1661.02709442000
375804	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.08847184842	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	181.66804965800	358.03286801800
375813	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.10605624472	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	385.38734937300	531.92244314900
375817	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.05945129809	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	1751.32764859000	6433.54572046000
375819	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.03431393999	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	158.99790374000	138.86358837400
377254	9410	Urban High Intensity	R085XY181TX	Loamy Bottomland PE 40-54	Urban	1-North	0.65684549609	TPW101.003	Urban	Cross Timbers	29	ROADWAY	282.77990875800	2658.15941441000
377279	9411	Urban Low Intensity	R085XY181TX	Loamy Bottomland PE 40-54	Urban	1-North	0.83094032702	TPW101.003	Urban	Cross Timbers	29	ROADWAY	479.79966211200	3362.69619888000
377988	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.58053325413	TPW101.003	Urban	Cross Timbers	29	ROADWAY	819.42128098600	6396.19115030000
377989	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.07503236280	TPW101.003	Urban	Cross Timbers	29	ROADWAY	717.55304898300	4350.50162180000
378170	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.22751123124	TPW101.003	Urban	Cross Timbers	29	ROADWAY	443.57612260500	920.70528736400
378171	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.16730535695	TPW101.003	Urban	Cross Timbers	29	ROADWAY	447.33264762800	677.06075813600
378174	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.04323870592	TPW101.003	Urban	Cross Timbers	29	ROADWAY	454.37793570100	4221.83725724000
378175	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.85125423006	TPW101.003	Urban	Cross Timbers	29	ROADWAY	356.91097397000	3444.90364796000
378177	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.05226921291	TPW101.003	Urban	Cross Timbers	29	ROADWAY	90.60714254830	211.52599997800
378181	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.00963976461	TPW101.003	Urban	Cross Timbers	29	ROADWAY	767.46711621900	4085.86716557000
378182	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.00616153821	TPW101.003	Urban	Cross Timbers	29	ROADWAY	36.38521829970	24.93486048220
378183	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.46926615446	TPW101.003	Urban	Cross Timbers	29	ROADWAY	612.67408102400	1899.05275080000
378328	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.04782868769	TPW101.003	Urban	Cross Timbers	29	ROADWAY	56.30481826310	193.55583194100
378514	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.12750210810	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	237.91370894800	515.98272508200
378516	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.01172817935	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	1246.52379222000	3240.49193684000
378525	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.18635960110	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	305.07137744500	754.17054871300
378536	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.17460908418	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	1231.66922300000	3405.09265369000
378957	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00633171011	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	21.43322963840	25.62352172480
379187	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.17112868129	TPW101.003	Urban	Cross Timbers	29	ROADWAY	193.81191850600	692.53320288600
379188	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.26130908419	TPW101.003	Urban	Cross Timbers	29	ROADWAY	472.89919251500	5104.33676805000
379270	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.84861246651	TPW101.003	Urban	Cross Timbers	29	ROADWAY	324.99306051000	3434.21281024000
379271	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.75874349213	TPW101.003	Urban	Cross Timbers	29	ROADWAY	627.66626187500	7117.38239690000
379273	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.34874953191	TPW101.003	Urban	Cross Timbers	29	ROADWAY	233.52098277300	1411.33928314000
379277	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.20320214050	TPW101.003	Urban	Cross Timbers	29	ROADWAY	374.74851477600	822.32988737600
379278	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.03968918815	TPW101.003	Urban	Cross Timbers	29	ROADWAY	101.20897031300	160.61644592400
379412	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.03762803898	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	97.49911518550	152.27527122700
379413	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00231446964	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	23.05495658140	9.36632635238
380094	9410	Urban High Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	1.08197149624	TPW101.003	Urban	Cross Timbers	29	ROADWAY	349.65194706900	4378.58329822000
380365	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.95575982582	TPW101.003	Urban	Cross Timbers	29	ROADWAY	1152.37318541000	9129.66281881000
380448	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.15852418445	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	214.73552946800	641.52461392800
380718	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.91103269254	TPW101.003	Urban	Cross Timbers	29	ROADWAY	362.11042696200	3686.81850276000
380720	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.39342013607	TPW101.003	Urban	Cross Timbers	29	ROADWAY	1008.35995050000	6109.30202953000
380778	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.06000459031	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	145.89607231000	242.82996169300
380914	9410	Urban High Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.61954601940	TPW101.003	Urban	Cross Timbers	29	ROADWAY	294.82172227200	2507.21378780000
380924	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.74069309660	TPW101.003	Urban	Cross Timbers	29	ROADWAY	255.34764695900	2997.47861493000
380925	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.06042012941	TPW101.003	Urban	Cross Timbers	29	ROADWAY	188.71676404600	244.51158861500
380927	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.58937330716	TPW101.003	Urban	Cross Timbers	29	ROADWAY	328.87763117500	2385.10915330000

US 380 - Denton
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FID_Distri	Veg_ID	Common	EcoClass_I	EcoSystem	MOU_Habita	Phase	Acres	NS_Number	TPWD_Ecosy	EcoRegion	EcoRegion_	Feature_Ty	Shape_Leng	Shape_Area
380929	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.35256610623	TPW101.003	Urban	Cross Timbers	29	ROADWAY	292.96071505700	1426.78441104000
380936	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.37665314671	TPW101.003	Urban	Cross Timbers	29	ROADWAY	165.52083065900	1524.26120582000
380990	1107	Edwards Plateau: Savanna Grassland	R085XY179TX	Clay Loam PE 40-54	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.00473756788	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Cross Timbers	29	ROADWAY	32.45507101700	19.17225700300
380991	1107	Edwards Plateau: Savanna Grassland	R085XY179TX	Clay Loam PE 40-54	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.35598649073	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Cross Timbers	29	ROADWAY	167.83128978800	1440.62621625000
380992	1107	Edwards Plateau: Savanna Grassland	R085XY179TX	Clay Loam PE 40-54	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.00081755024	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Cross Timbers	29	ROADWAY	17.36804300360	3.30850844933
381404	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.50999150925	TPW101.003	Urban	Cross Timbers	29	ROADWAY	216.60553543300	2063.86241459000
381422	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.24952670980	TPW101.003	Urban	Cross Timbers	29	ROADWAY	133.57566083900	1009.79876810000
381684	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.50600906824	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	ROADWAY	613.67680305700	2047.74604741000
381768	9410	Urban High Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	1.09687811066	TPW101.003	Urban	Cross Timbers	29	ROADWAY	404.29558592700	4438.90822629000
381769	9410	Urban High Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.01504550980	TPW101.003	Urban	Cross Timbers	29	ROADWAY	199.42031987900	60.88701797650
381770	9410	Urban High Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	7.34577624072	TPW101.003	Urban	Cross Timbers	29	ROADWAY	2456.95198988000	29727.30175760000
381773	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.02331001528	TPW101.003	Urban	Cross Timbers	29	ROADWAY	108.62825646400	94.33228501790
381774	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.52110587536	TPW101.003	Urban	Cross Timbers	29	ROADWAY	715.70776502700	2108.84065869000
381775	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.31964783068	TPW101.003	Urban	Cross Timbers	29	ROADWAY	396.40390777400	1293.56887695000
381776	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	1.34535208573	TPW101.003	Urban	Cross Timbers	29	ROADWAY	960.27938232000	5444.44672743000
382070	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.01606887667	TPW101.003	Urban	Cross Timbers	29	ROADWAY	66.80608684440	65.02843677700
383160	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.00846391385	TPW101.003	Urban	Cross Timbers	29	ROADWAY	32.84387741120	34.25224413010
383163	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	1.54095874516	TPW101.003	Urban	Cross Timbers	29	ROADWAY	554.08197032300	6236.03879427000
383276	507	Crosstimbers: Savanna Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Crosstimbers Woodland and Forest	1-North	0.01225665567	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	52.35781944930	49.60092571730
383277	507	Crosstimbers: Savanna Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Crosstimbers Woodland and Forest	1-North	0.07948358799	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	249.53789568600	321.65866852900
383488	1804	Central Texas: Floodplain Hardwood Forest	Water	mu, Water	Floodplain	1-North	0.14353898291	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	ROADWAY	114.88750548100	580.88165486400
387289	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.02090112945	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	68.38358770130	84.58386991580
387456	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.36130285824	TPW101.003	Urban	Cross Timbers	29	ROADWAY	174.30172858900	1462.14079241000
387608	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.70101631714	TPW101.003	Urban	Cross Timbers	29	ROADWAY	264.41839521500	2836.91238526000
389890	9410	Urban High Intensity	R085XY181TX	Loamy Bottomland PE 40-54	Urban	1-North	0.02969175702	TPW101.003	Urban	Cross Timbers	29	ROADWAY	448.35830457900	1353.27633663000
389903	9411	Urban Low Intensity	R085XY181TX	Loamy Bottomland PE 40-54	Urban	1-North	0.65469815503	TPW101.003	Urban	Cross Timbers	29	ROADWAY	272.50526447400	2649.46943344000
390691	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00226556347	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	22.51623573210	9.16841007073
390706	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.17604443006	TPW101.003	Urban	Cross Timbers	29	ROADWAY	198.84664563800	712.42653246800
390711	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	5.50546293802	TPW101.003	Urban	Cross Timbers	29	ROADWAY	1881.57806775000	22279.81804840000
390732	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.06102662434	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROADWAY	220.42475890800	246.96598663300
393999	9104	Native Invasive: Deciduous Woodland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Disturbed Prairie	1-North	0.01581691056	TPW101.001	Native Invasive Shrub and Woodland	Cross Timbers	29	ROADWAY	57.63765043050	64.00876604510
394127	2007	Grand Prairie: Tallgrass Prairie	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.14971071935	CES205.685	Southeastern Great Plains Tallgrass Prairie	Cross Timbers	29	ROADWAY	305.00285964600	605.85778605100
394344	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.03447956153	TPW101.003	Urban	Cross Timbers	29	ROADWAY	108.74270181500	139.53383499400
394365	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	3.19293569849	TPW101.003	Urban	Cross Timbers	29	ROADWAY	1365.96700402000	13676.84815470000
394783	9410	Urban High Intensity		mu, Navo-Urban land complex, 0 to 3 percent slopes	Urban	1-North	1.18560319084	TPW101.003	Urban	Cross Timbers	29	ROADWAY	950.44859103200	5134.35520436000
394816	9411	Urban Low Intensity		mu, Navo-Urban land complex, 0 to 3 percent slopes	Urban	1-North	0.11094394874	TPW101.003	Urban	Cross Timbers	29	ROADWAY	242.00460174100	693.29370012800
394821	9411	Urban Low Intensity		mu, Navo-Urban land complex, 0 to 3 percent slopes	Urban	1-North	2.68408504864	TPW101.003	Urban	Cross Timbers	29	ROADWAY	1101.43466909000	10862.10681740000
405339	2007	Grand Prairie: Tallgrass Prairie	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.02875891249	CES205.685	Southeastern Great Plains Tallgrass Prairie	Cross Timbers	29	ROADWAY	80.20921932860	116.38318966200
405559	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.29838678124	TPW101.003	Urban	Cross Timbers	29	ROADWAY	143.25245042900	1207.52846190000
405560	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	1.05529755105	TPW101.003	Urban	Cross Timbers	29	ROADWAY	380.16119954700	4270.63767220000
405613	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.21656088193	TPW101.003	Urban	Cross Timbers	29	ROADWAY	122.55535039100	876.39079585200
405882	9411	Urban Low Intensity		mu, Wilson-Urban land complex, 0 to 2 percent slopes	Urban	1-North	0.20497953712	TPW101.003	Urban	Cross Timbers	29	ROADWAY	1052.82033872000	6837.61560882000
405885	9411	Urban Low Intensity		mu, Wilson-Urban land complex, 0 to 2 percent slopes	Urban	1-North	0.23007284240	TPW101.003	Urban	Cross Timbers	29	ROADWAY	354.78476481500	931.07175992900
407107	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	2.79028060560	TPW101.003	Urban	Cross Timbers	29	ROADWAY	1106.66867046000	11291.86498900000
407108	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.64477592531	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	261.61409048500	2609.31559442000
407907	9411	Urban Low Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.21297865251	TPW101.003	Urban	Cross Timbers	29	ROADWAY	257.96921957800	861.89402755600
416686	9104	Native Invasive: Deciduous Woodland	R086AY553TX	BLACKLAND PE 64+	Disturbed Prairie	1-North	0.00376901871	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	ROADWAY	678.25092069300	6938.12112635000
418353	9410	Urban High Intensity	R086AY553TX	BLACKLAND PE 64+	Urban	1-North	0.04717287426	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	173.66662763800	839.06176842600
423042	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.60662226539	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	561.42141801700	6501.76963363000
423059	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00003884489	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	ROADWAY	8.99583322661	0.15719967902
423319	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.04647760001	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROADWAY	218.26767318100	188.08817403600
423385	9410	Urban High Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	0.15010414701	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	584.86960235500	607.44993112400
423386	9410	Urban High Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	8.10136720629	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	3678.81285794000	32785.06990770000
423387	9410	Urban High Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	1.44662273346	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	1246.61945944000	5854.27449925000
423447	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	4.65961027526	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	2449.09809802000	19190.85736920000
423448	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	8.33434113062	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	4919.70602618000	33856.92723970000
423458	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	0.01740146172	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	49.30144140160	70.42121708950
423716	9104	Native Invasive: Deciduous Woodland	R085XY177TX	Blackland PE 40-54	Disturbed Prairie	1-North	0.40318357376	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	ROADWAY	179.09919959000	1631.62603501000
423938	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.09057088760	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROADWAY	320.37077181800	366.52737800600
423945	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.00049800753	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROADWAY	554.03696716200	1221.30530647000
424145	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	0.03129352891	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	65.38336247770	126.64041847400
424147	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	1.07289694110	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	452.31521094700	4341.85987687000
424149	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	3.38267077297	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	1514.24654143000	14356.86166060000
424402	9411	Urban Low Intensity	R086AY199TX	CLAY LOAM PE 44-64	Urban	1-North	0.93941148156	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	348.87282452500	3801.66338748000
424497	9307	Row Crops	R086AY196TX	BLACKLAND PE 44-64	Agriculture	1-North	0.04163035758	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROADWAY	178.31365718300	168.47207997700
424498	9307	Row Crops	R086AY196TX	BLACKLAND PE 44-64	Agriculture	1-North	0.20626834326	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROADWAY	369.21620784300	834.73836974400
424573	9104	Native Invasive: Deciduous Woodland	R086AY196TX	BLACKLAND PE 44-64	Disturbed Prairie	1-North	0.06838471314	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	ROADWAY	271.14918457300	276.74311559200
424739	9410	Urban High Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.62427796532	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	708.84016085900	2526.36329349000
424748	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	1.75435112306	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	861.42692973200	7099.60710986000
424749	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	1.68987371214	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	671.60277791300	6838.67628460000
424958	9104	Native Invasive: Deciduous Woodland	R086AY196TX	BLACKLAND PE 44-64	Disturbed Prairie	1-North	0.08318769670	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	ROADWAY	267.08011822000	336.64866496000
425045	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.06481648288	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROADWAY	152.40068637200	262.30299985000
425276	9410	Urban High Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.13367056513	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	335.02704205400	540.94558485600
425286	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.70528670862	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	338.32561885700	2854.19404611000
425287	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	2.36344713881	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	875.58645011200	9564.53123285000
425537	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.51145456085	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	567.91476861100	6116.63959684000
425849	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.82871106284	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	366.64811942200	3353.67468694000
425864	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.16174254983	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	ROADWAY	261.57142514400	654.54887652900
427097	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.02812241188	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROADWAY	149.62997533000	113.80736298000
427098	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.15573878564	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROADWAY	174.68661681300	630.25250493700
427374	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.08993033537	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	111.89060529700	363.93515520700

US 380 - Denton
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427375	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.18100019931	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	121.92545873000	732.48181897700
427376	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.55803010221	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	227.76102554800	2258.26770327000
427377	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.33179861022	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	195.72563092700	1342.74133673000
427378	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	1.27249563533	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	481.45113862700	5149.60713458000
427411	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.18551814095	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	115.68469609700	750.76528017700
428598	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	1.23480674925	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	484.41990420200	4997.08562340000
429098	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.09478081080	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROADWAY	253.80861439100	383.56433260000
429324	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.08093948501	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	150.08217623100	327.55047463000
429325	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.47693142808	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	201.34678410100	1930.07301281000
429327	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.76940041259	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	295.71557575900	3113.65300120000
430525	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.71592080328	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	552.35526594400	2897.22870091000
430540	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.05559079135	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	333.13195264900	224.96795086000
430541	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.86753793347	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	538.66465166200	3510.80145787000
431243	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.06729687152	CES205.710	Southeastern Great Plains Floodplain Forest	Texas Blackland Prairies	32	ROADWAY	114.44348625700	272.34077667900
431406	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	2.57188475720	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	899.56816064500	10408.04834790000
431407	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.47632060864	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	206.89391390300	1927.60111430000
431408	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.26976318663	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	151.89148847800	1091.69288441000
433057	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.01104271356	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROADWAY	148.60473756400	44.68827633580
433058	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.27306570793	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROADWAY	314.86267444400	1105.05771404000
433063	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.02405232018	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROADWAY	172.91352450600	97.33628645070
433253	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	1.19650414907	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	1334.49804289000	4842.08050010000
433254	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	1.58629639743	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	1132.48991147000	6419.51376446000
433256	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.13446968588	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	424.31180445800	544.17951164200
433278	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	1.09062969158	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	482.21973832600	4413.62177201000
433280	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	4.50463306617	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	1971.54851021000	18229.60325400000
433282	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	3.13626395323	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	1669.64602751000	12692.00992200000
433283	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.68977590841	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	279.25724699300	2791.42406502000
433288	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	2.87701726276	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	972.77035785500	11642.87578750000
433394	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.01621226798	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROADWAY	122.55197532200	65.60872067280
433395	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.14714706165	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROADWAY	427.80491829400	595.48303145700
433396	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.23352700334	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROADWAY	247.07644484800	945.05025314300
433398	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.00655047802	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROADWAY	90.37775356990	26.50884412080
433622	1907	Central Texas: Riparian Herbaceous Vegetation	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Riparian	1-North	0.22493603326	CES205.709	Southeastern Great Plains Riparian Forest	Texas Blackland Prairies	32	ROADWAY	123.17252911800	910.28383086100
433914	9411	Urban Low Intensity	Water	mu, Water	Urban	1-North	0.88169229365	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	331.66851349400	3568.08212123000
434201	9411	Urban Low Intensity	R086AY199TX	CLAY LOAM PE 44-64	Urban	1-North	0.24538577257	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	127.80221006600	993.04098972900
434350	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	3.08750632771	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	1095.66285964000	12494.69481170000
434351	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.33479698158	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	ROADWAY	1137.47214985000	1354.87531478000
434473	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	5.10155427908	TPW101.003	Urban	Texas Blackland Prairies	32	ROADWAY	2155.61832042000	21669.14589390000
294460	9600	Open Water	Water	mu, Water	Riparian	1-North	0.37785365038	TPW101.004	Open Water	Texas Blackland Prairies	32	ROW	2934.27217373000	13153.28427200000
371239	1904	Central Texas: Riparian Hardwood Forest	R084CY194TX	SANDY LOAM PE 52-64	Riparian	1-North	0.03315569777	CES205.709	Southeastern Great Plains Riparian Forest	Cross Timbers	29	ROW	60.01741670340	134.17634848800
371468	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00121824416	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	12.52743617640	4.93005919823
371746	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.00130285464	TPW101.003	Urban	Cross Timbers	29	ROW	53.83280987680	65.32340747510
371751	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.93667049818	TPW101.003	Urban	Cross Timbers	29	ROW	1579.77426587000	3790.57102121000
371752	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.34238076937	TPW101.003	Urban	Cross Timbers	29	ROW	752.29376702400	1385.56581560000
371753	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.12508349517	TPW101.003	Urban	Cross Timbers	29	ROW	243.87952657300	506.19494586700
371884	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.71131604548	TPW101.003	Urban	Cross Timbers	29	ROW	589.06030806800	3278.26641033000
371888	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.05739523648	TPW101.003	Urban	Cross Timbers	29	ROW	107.82872231900	232.27028134400
371889	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	3.81467476438	TPW101.003	Urban	Cross Timbers	29	ROW	4192.97973657000	15437.44106910000
371890	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.25331703532	TPW101.003	Urban	Cross Timbers	29	ROW	245.83329537300	1028.81423419000
371891	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.00627547474	TPW101.003	Urban	Cross Timbers	29	ROW	28.77285810660	25.39594525200
371952	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.18008843515	TPW101.003	Urban	Cross Timbers	29	ROW	210.30394452600	728.79204046400
372083	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.11944350410	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	138.85753821400	585.76878774400
372086	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00177686388	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	15.07093727120	7.19071302076
372088	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.08997708217	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	259.59180415500	364.12433287900
372089	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.24637686390	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	523.83185879500	997.05179408200
372091	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00062266256	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	12.77856051250	2.51982597431
373051	9410	Urban High Intensity	R084CY192TX	SANDSTONE HILL PE 52-64	Urban	1-North	1.65612910555	TPW101.003	Urban	Cross Timbers	29	ROW	1508.06905236000	6702.11670731000
373302	9411	Urban Low Intensity	R084CY192TX	SANDSTONE HILL PE 52-64	Urban	1-North	0.08170592580	TPW101.003	Urban	Cross Timbers	29	ROW	371.52821490100	330.65215053700
373303	9411	Urban Low Intensity	R084CY192TX	SANDSTONE HILL PE 52-64	Urban	1-North	0.31376600222	TPW101.003	Urban	Cross Timbers	29	ROW	620.64454930500	1269.76596125000
374291	1804	Central Texas: Floodplain Hardwood Forest	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Floodplain	1-North	0.08875256846	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	ROW	142.71553986400	359.16890158500
374293	1804	Central Texas: Floodplain Hardwood Forest	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Floodplain	1-North	0.27338600583	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	ROW	292.66733076800	1106.35391373000
374294	1804	Central Texas: Floodplain Hardwood Forest	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Floodplain	1-North	0.08139362159	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	ROW	152.42172022300	329.43216550300
374360	9600	Open Water	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Riparian	1-North	0.20868225964	TPW101.004	Open Water	Cross Timbers	29	ROW	265.36622073200	844.50714271600
374369	9410	Urban High Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.82274210991	TPW101.003	Urban	Cross Timbers	29	ROW	893.88251488400	3329.51919128000
374370	9410	Urban High Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.35799885504	TPW101.003	Urban	Cross Timbers	29	ROW	313.91190262700	1448.76996541000
374391	9411	Urban Low Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.41175555434	TPW101.003	Urban	Cross Timbers	29	ROW	316.07709129500	1666.31560964000
374392	9411	Urban Low Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.05878693737	TPW101.003	Urban	Cross Timbers	29	ROW	297.81192635100	237.90229532000
374393	9411	Urban Low Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.03760561507	TPW101.003	Urban	Cross Timbers	29	ROW	174.92668763600	152.18452486200
374394	9411	Urban Low Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.16306368655	TPW101.003	Urban	Cross Timbers	29	ROW	507.29024684400	659.89532722800
374510	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.24226846714	TPW101.003	Urban	Cross Timbers	29	ROW	749.54311914300	980.67710309800
374517	507	Crosstimbers: Savanna Grassland	R086AY196TX	BLACKLAND PE 44-64	Crosstimbers Woodland and Forest	1-North	0.02464704363	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	65.23807005110	99.74304677200
374543	9410	Urban High Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.01052473704	TPW101.003	Urban	Cross Timbers	29	ROW	65.45562859590	42.59209970910
374548	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.03042314059	TPW101.003	Urban	Cross Timbers	29	ROW	138.48196606400	123.11808196500
374551	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.28239981144	TPW101.003	Urban	Cross Timbers	29	ROW	1267.85212138000	1142.83149110000
374630	1904	Central Texas: Riparian Hardwood Forest	R084CY194TX	SANDY LOAM PE 52-64	Riparian	1-North	0.00516758058	CES205.709	Southeastern Great Plains Riparian Forest	Cross Timbers	29	ROW	25.66328660090	20.91245664030
374891	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.03095873745	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	91.14926156420	125.28556552200
374892	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.13418122572	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	376.28189759400	543.01215510400
375267	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.14680705166	TPW101.003	Urban	Cross Timbers	29	ROW	321.49523371500	780.96402143200
375269	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.09480083492	TPW101.003	Urban	Cross Timbers	29	ROW	218.19101670200	383.64536757200
375478	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.21119624409	TPW101.003	Urban	Cross Timbers	29	ROW	346.54504289000	855.05403656900
375479	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.28670651334	TPW101.003	Urban	Cross Timbers	29	ROW	1582.05195811000	6262.22156650000

US 380 - Denton
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FID_Distri	Veg_ID	Common	EcoClass_I	EcoSystem	MOU_Habita	Phase	Acres	NS_Number	TPWD_Ecosy	EcoRegion	EcoRegion_	Feature_Ty	Shape_Leng	Shape_Area
375483	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.86985565478	TPW101.003	Urban	Cross Timbers	29	ROW	1551.45015689000	3520.18094319000
375484	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.23507367010	TPW101.003	Urban	Cross Timbers	29	ROW	412.17585819300	951.30939162100
375488	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.64582639083	TPW101.003	Urban	Cross Timbers	29	ROW	2567.59503464000	4133.69346210000
375603	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.00684592946	TPW101.003	Urban	Cross Timbers	29	ROW	21.38518371300	27.70449358340
375794	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.04045388662	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	137.29124940300	493.77774150500
375797	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.29630447983	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	419.66551540100	1230.55813306000
375799	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00414314458	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	25.68781498670	28.22814474970
375804	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.11362773567	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	193.67913032400	459.83513199100
375813	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.11697675725	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	774.00758951900	950.54877621600
375815	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00899469251	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	36.39109021110	36.40022912010
375817	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.15205702858	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	3466.44139111000	13958.64786070000
375819	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.13248676191	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	388.29142457200	536.15490332000
377254	9410	Urban High Intensity	R085XY181TX	Loamy Bottomland PE 40-54	Urban	1-North	0.05050166446	TPW101.003	Urban	Cross Timbers	29	ROW	227.18302089000	204.37298514900
377279	9411	Urban Low Intensity	R085XY181TX	Loamy Bottomland PE 40-54	Urban	1-North	0.12727455695	TPW101.003	Urban	Cross Timbers	29	ROW	631.41381681600	515.06185798600
377639	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00021073692	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	6.02208124397	0.85282207514
377988	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.36673848561	TPW101.003	Urban	Cross Timbers	29	ROW	710.04759296800	1484.13799606000
377989	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.60352394712	TPW101.003	Urban	Cross Timbers	29	ROW	1334.62354712000	6489.23118393000
378170	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.36690496475	TPW101.003	Urban	Cross Timbers	29	ROW	676.84605028800	1484.81171370000
378171	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.39077504843	TPW101.003	Urban	Cross Timbers	29	ROW	740.03333109800	1581.41051448000
378174	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.36415590555	TPW101.003	Urban	Cross Timbers	29	ROW	676.12196407200	1473.68666508000
378175	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.55855891178	TPW101.003	Urban	Cross Timbers	29	ROW	433.53221848000	2260.40771953000
378177	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.18422800463	TPW101.003	Urban	Cross Timbers	29	ROW	271.67077020700	745.54428353800
378181	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.66985768653	TPW101.003	Urban	Cross Timbers	29	ROW	1403.39001265000	6971.05125187000
378182	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.10686716657	TPW101.003	Urban	Cross Timbers	29	ROW	139.70186153900	432.47607936700
378183	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.30429942104	TPW101.003	Urban	Cross Timbers	29	ROW	550.53759686500	1231.45606631000
378186	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.00592269131	TPW101.003	Urban	Cross Timbers	29	ROW	54.00996816990	23.96828134460
378328	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.07881419844	TPW101.003	Urban	Cross Timbers	29	ROW	103.06788247600	318.94974513800
378514	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.56654987378	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	365.49544841300	2318.55859972000
378515	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.04816398921	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	113.42117617300	458.61553821600
378516	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.13213222948	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	2387.46755583000	4242.39584441000
378525	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	1.05392992614	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	1105.51363181000	4621.92841824000
378536	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.25183666452	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	2661.66178783000	3835.71602012000
378735	1907	Central Texas: Riparian Herbaceous Vegetation	R084CY194TX	SANDY LOAM PE 52-64	Riparian	1-North	0.01322307443	CES205.709	Southeastern Great Plains Riparian Forest	Cross Timbers	29	ROW	61.18907555050	158.44709833800
378954	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.10735899035	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	181.99050990700	434.90800000700
378957	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.02268518460	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	79.60163400210	93.61328118430
379187	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.08505636357	TPW101.003	Urban	Cross Timbers	29	ROW	175.36420900500	371.42311021000
379188	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.05856534294	TPW101.003	Urban	Cross Timbers	29	ROW	312.56098418800	237.00553415000
379270	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.79032343474	TPW101.003	Urban	Cross Timbers	29	ROW	613.44805850100	3220.27077195000
379271	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.32742409653	TPW101.003	Urban	Cross Timbers	29	ROW	1127.94190509000	5399.78649586000
379273	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.10753359863	TPW101.003	Urban	Cross Timbers	29	ROW	170.48274126500	435.17303429900
379277	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.07813670310	TPW101.003	Urban	Cross Timbers	29	ROW	350.32380363900	316.20801872700
379278	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.02757645459	TPW101.003	Urban	Cross Timbers	29	ROW	156.16894306300	111.59795240200
379412	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.41864279220	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	356.72266956000	1822.24897372000
379413	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.23196611346	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	163.24821172800	938.73355604000
379414	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.21053650750	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	371.56802460500	990.37801933300
379417	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00001668377	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	1.45819318014	0.06751682988
380061	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.17333729748	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	ROW	194.80206245500	701.47115559400
380087	9600	Open Water	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	0.14327057908	TPW101.004	Open Water	Cross Timbers	29	ROW	106.74176615600	579.79546311000
380088	9600	Open Water	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	0.00144399168	TPW101.004	Open Water	Cross Timbers	29	ROW	11.22878689610	5.84362700019
380094	9410	Urban High Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	1.03125696362	TPW101.003	Urban	Cross Timbers	29	ROW	696.60213048700	4173.34886626000
380096	9004	Swamp	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	0.16830359883	TPW101.009	Azonal Wetland	Cross Timbers	29	ROW	146.81599575800	681.10049999300
380214	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.02641495941	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	91.91948427210	111.21598624400
380365	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.64104429445	TPW101.003	Urban	Cross Timbers	29	ROW	2248.73599120000	10355.77985370000
380448	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.26233150445	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	277.10950645300	1275.41403840000
380596	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.14249712974	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	168.78231088300	576.66542458500
380599	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.06151534547	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	109.04030522700	253.05672054500
380718	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.65449746394	TPW101.003	Urban	Cross Timbers	29	ROW	561.70683069300	2648.65726555000
380720	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.63223989709	TPW101.003	Urban	Cross Timbers	29	ROW	1872.17998365000	8721.87651265000
380778	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.45450363275	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	351.93689513600	1858.98945636000
380782	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.04404465046	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	96.96730682370	178.24237657600
380914	9410	Urban High Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.00652466911	TPW101.003	Urban	Cross Timbers	29	ROW	61.84233751010	26.40439912710
380924	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.06606378486	TPW101.003	Urban	Cross Timbers	29	ROW	331.94252140100	267.35065195400
380925	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.04758848197	TPW101.003	Urban	Cross Timbers	29	ROW	241.80159761700	192.58375413200
380927	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.09297135981	TPW101.003	Urban	Cross Timbers	29	ROW	435.72131128700	376.24174472500
380929	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.06214079483	TPW101.003	Urban	Cross Timbers	29	ROW	280.83964562600	251.47487489400
380936	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.04179741620	TPW101.003	Urban	Cross Timbers	29	ROW	193.17332536300	169.14814225300
380990	1107	Edwards Plateau: Savanna Grassland	R085XY179TX	Clay Loam PE 40-54	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.00859648562	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Cross Timbers	29	ROW	43.33551044950	34.78874300180
380991	1107	Edwards Plateau: Savanna Grassland	R085XY179TX	Clay Loam PE 40-54	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.01127281054	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Cross Timbers	29	ROW	72.81156234400	45.61944570900
380992	1107	Edwards Plateau: Savanna Grassland	R085XY179TX	Clay Loam PE 40-54	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.00805497427	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Cross Timbers	29	ROW	60.81212532450	32.59732434900
381404	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.21682202857	TPW101.003	Urban	Cross Timbers	29	ROW	348.42193877000	877.44761880700
381422	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.10909375746	TPW101.003	Urban	Cross Timbers	29	ROW	182.61398500900	441.48677301200
381683	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.95228826445	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	ROW	1094.77637326000	3853.77387943000
381684	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.24167278527	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	ROW	627.36594673300	978.01506298500
381686	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.47055660025	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	ROW	400.43059122100	1904.27499999000
381688	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.35400823650	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	ROW	451.15846737400	1789.12064382000
381763	9600	Open Water	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	0.25795429590	TPW101.004	Open Water	Cross Timbers	29	ROW	172.86926603200	1043.90399918000
381764	9600	Open Water	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	0.01555502184	TPW101.004	Open Water	Cross Timbers	29	ROW	78.33149184270	62.94894004700
381768	9410	Urban High Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.03665188331	TPW101.003	Urban	Cross Timbers	29	ROW	228.06750430100	148.32490944800
381769	9410	Urban High Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.28535284227	TPW101.003	Urban	Cross Timbers	29	ROW	262.55624766700	1154.78198202000
381770	9410	Urban High Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	1.95103034992	TPW101.003	Urban	Cross Timbers	29	ROW	2658.99343216000	7895.53970130000
381772	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.07476177190	TPW101.003	Urban	Cross Timbers	29	ROW	90.63214919760	302.55015686700

US 380 - Denton
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381773	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.02956201305	TPW101.003	Urban	Cross Timbers	29	ROW	159.40272630200	119.63322238100
381774	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.59435700322	TPW101.003	Urban	Cross Timbers	29	ROW	614.99181331500	2405.27745504000
381775	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.07989658184	TPW101.003	Urban	Cross Timbers	29	ROW	358.32640860800	323.32999539400
381776	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.54258776978	TPW101.003	Urban	Cross Timbers	29	ROW	996.34559501500	2195.77480102000
381789	9004	Swamp	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	0.49143872812	TPW101.009	Azonal Wetland	Cross Timbers	29	ROW	546.24165443200	1988.78197343000
381792	9004	Swamp	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Riparian	1-North	0.66320728320	TPW101.009	Azonal Wetland	Cross Timbers	29	ROW	752.96774375000	2683.90465373000
382070	9411	Urban Low Intensity	R085XY179TX	Clay Loam PE 40-54	Urban	1-North	0.07212126468	TPW101.003	Urban	Cross Timbers	29	ROW	162.62646372400	291.86440316000
382985	504	Crosstimbers: Post Oak Woodland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Crosstimbers Woodland and Forest	1-North	0.00040517955	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	9.51962158163	1.63970344968
383160	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.03059320054	TPW101.003	Urban	Cross Timbers	29	ROW	66.38202338950	123.80629006200
383163	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.28772230252	TPW101.003	Urban	Cross Timbers	29	ROW	698.95312533200	1164.37084813000
383276	507	Crosstimbers: Savanna Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Crosstimbers Woodland and Forest	1-North	0.03791088775	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	98.74978737970	153.41991960400
383277	507	Crosstimbers: Savanna Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Crosstimbers Woodland and Forest	1-North	0.16841595482	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	433.90661895300	681.55518834700
383488	1804	Central Texas: Floodplain Hardwood Forest	Water	mu, Water	Floodplain	1-North	0.01662252003	CES205.710	Southeastern Great Plains Floodplain Forest	Cross Timbers	29	ROW	78.07239739910	67.26895192840
384711	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.01757271380	TPW101.003	Urban	Cross Timbers	29	ROW	61.21364798720	71.11424963910
384727	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.00006921319	TPW101.003	Urban	Cross Timbers	29	ROW	5.66494739619	0.28009586045
387289	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.04404511230	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	89.47707021430	178.24424555100
387456	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.07551952183	TPW101.003	Urban	Cross Timbers	29	ROW	159.33965016600	305.61666193100
387457	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.00449934645	TPW101.003	Urban	Cross Timbers	29	ROW	40.62445192280	18.20820906650
387559	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00082301185	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	13.56875269520	3.33061080861
387608	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.25642657662	TPW101.003	Urban	Cross Timbers	29	ROW	436.82998388600	1178.80604599000
387621	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00262378517	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	22.05432660210	10.61808184110
389817	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.00059921246	TPW101.003	Urban	Cross Timbers	29	ROW	12.67534730400	2.42492679535
389890	9410	Urban High Intensity	R085XY181TX	Loamy Bottomland PE 40-54	Urban	1-North	0.07232929855	TPW101.003	Urban	Cross Timbers	29	ROW	350.35254097000	681.97925488300
389903	9411	Urban Low Intensity	R085XY181TX	Loamy Bottomland PE 40-54	Urban	1-North	0.12877293814	TPW101.003	Urban	Cross Timbers	29	ROW	320.68227700300	521.12559184600
390691	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.04406523550	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	147.80784543500	178.32568128000
390692	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00029099607	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	8.01164626782	1.17761932416
390706	9410	Urban High Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.06796125130	TPW101.003	Urban	Cross Timbers	29	ROW	110.55459351200	275.02942634300
390711	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.86804035679	TPW101.003	Urban	Cross Timbers	29	ROW	3081.24329082000	7646.34057942000
390732	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.21493338511	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	464.60099992200	869.80455003200
393999	9104	Native Invasive: Deciduous Woodland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Disturbed Prairie	1-North	0.04333344591	TPW101.001	Native Invasive Shrub and Woodland	Cross Timbers	29	ROW	72.03777070510	175.36423395800
394002	9104	Native Invasive: Deciduous Woodland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Disturbed Prairie	1-North	0.02046027767	TPW101.001	Native Invasive Shrub and Woodland	Cross Timbers	29	ROW	91.55527871130	82.79980608630
394125	2007	Grand Prairie: Tallgrass Prairie	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.00127922780	CES205.685	Southeastern Great Plains Tallgrass Prairie	Cross Timbers	29	ROW	16.39149847690	5.17685123895
394127	2007	Grand Prairie: Tallgrass Prairie	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.22743263361	CES205.685	Southeastern Great Plains Tallgrass Prairie	Cross Timbers	29	ROW	364.52861158100	920.38721390200
394131	2007	Grand Prairie: Tallgrass Prairie	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.00001602625	CES205.685	Southeastern Great Plains Tallgrass Prairie	Cross Timbers	29	ROW	1.87217263183	0.06485591982
394344	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.09522862663	TPW101.003	Urban	Cross Timbers	29	ROW	206.53235711900	385.37657927600
394365	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.96053814705	TPW101.003	Urban	Cross Timbers	29	ROW	2345.22426215000	4914.64716514000
394783	9410	Urban High Intensity		mu, Navo-Urban land complex, 0 to 3 percent slopes	Urban	1-North	0.51759538813	TPW101.003	Urban	Cross Timbers	29	ROW	1132.46668107000	2479.60643245000
394816	9411	Urban Low Intensity		mu, Navo-Urban land complex, 0 to 3 percent slopes	Urban	1-North	0.09404256336	TPW101.003	Urban	Cross Timbers	29	ROW	373.97591594300	639.34558627100
394818	9411	Urban Low Intensity		mu, Navo-Urban land complex, 0 to 3 percent slopes	Urban	1-North	0.00776739326	TPW101.003	Urban	Cross Timbers	29	ROW	38.23590020940	31.43352528280
394821	9411	Urban Low Intensity		mu, Navo-Urban land complex, 0 to 3 percent slopes	Urban	1-North	0.69858545154	TPW101.003	Urban	Cross Timbers	29	ROW	1317.17219194000	3069.81289477000
405339	2007	Grand Prairie: Tallgrass Prairie	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.05260470480	CES205.685	Southeastern Great Plains Tallgrass Prairie	Cross Timbers	29	ROW	129.10886096400	212.88368743400
405559	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.09359395797	TPW101.003	Urban	Cross Timbers	29	ROW	189.55512628000	378.76130996900
405560	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.27600992720	TPW101.003	Urban	Cross Timbers	29	ROW	570.61123001100	1116.97254662000
405613	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.06868690619	TPW101.003	Urban	Cross Timbers	29	ROW	147.12363760100	277.96604746500
405772	9410	Urban High Intensity		mu, Wilson-Urban land complex, 0 to 2 percent slopes	Urban	1-North	0.00298393119	TPW101.003	Urban	Cross Timbers	29	ROW	171.05754598400	457.82460066300
405773	9410	Urban High Intensity		mu, Wilson-Urban land complex, 0 to 2 percent slopes	Urban	1-North	0.00683391885	TPW101.003	Urban	Cross Timbers	29	ROW	39.28439788720	27.65588838100
405882	9411	Urban Low Intensity		mu, Wilson-Urban land complex, 0 to 2 percent slopes	Urban	1-North	0.05940074649	TPW101.003	Urban	Cross Timbers	29	ROW	1016.74700775000	3106.12016464000
405885	9411	Urban Low Intensity		mu, Wilson-Urban land complex, 0 to 2 percent slopes	Urban	1-North	0.22867783826	TPW101.003	Urban	Cross Timbers	29	ROW	524.69782867700	1183.30056292000
407075	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00238519680	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	ROW	32.06560248300	9.65254897383
407107	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.60901907768	TPW101.003	Urban	Cross Timbers	29	ROW	1253.73225092000	2464.61276614000
407108	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.27722913976	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	438.50168005000	1121.90652471000
407452	9104	Native Invasive: Deciduous Woodland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Disturbed Prairie	1-North	0.00024353440	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	ROW	7.36191500911	0.98554874986
407470	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.07684952187	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	219.38271090800	310.99898120400
407907	9411	Urban Low Intensity	R084CY191TX	LOAMY BOTTOMLAND PE 52-64	Urban	1-North	0.07166033342	TPW101.003	Urban	Cross Timbers	29	ROW	210.04344492900	289.99908073400
408129	524	Crosstimbers: Oak / Hardwood Slope Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Crosstimbers Woodland and Forest	1-North	0.15993216917	CES205.682	Crosstimbers Oak Forest and Woodland	Cross Timbers	29	ROW	204.51860036500	647.22252588600
408133	9410	Urban High Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.29354543510	TPW101.003	Urban	Cross Timbers	29	ROW	446.48260364800	1187.93622969000
408134	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.30568860755	TPW101.003	Urban	Cross Timbers	29	ROW	258.60566482300	1237.07790456000
415984	9307	Row Crops	R086AY553TX	BLACKLAND PE 64+	Agriculture	1-North	0.01027106993	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	38.73736307030	78.60779219310
416013	9307	Row Crops	R086AY553TX	BLACKLAND PE 64+	Agriculture	1-North	0.01339712776	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	695.23004934600	886.12375792000
416686	9104	Native Invasive: Deciduous Woodland	R086AY553TX	BLACKLAND PE 64+	Disturbed Prairie	1-North	0.01622274909	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	ROW	1188.41922947000	7688.82599542000
417476	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY553TX	BLACKLAND PE 64+	Tallgrass Prairie, Grassland	1-North	0.00208144046	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	36.39626683750	81.94765902790
418353	9410	Urban High Intensity	R086AY553TX	BLACKLAND PE 64+	Urban	1-North	0.01465753008	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	153.53054960600	633.93208735900
423016	504	Crosstimbers: Post Oak Woodland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.00378837261	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	ROW	41.54087979680	15.33099999650
423042	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.78705986078	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	1064.44575648000	3185.11825181000
423059	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.50867732673	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	ROW	506.79821672900	2065.40585204000
423060	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.15558125471	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	ROW	158.01621116800	629.61500000200
423146	9307	Row Crops	R085XY177TX	Blackland PE 40-54	Agriculture	1-North	0.00801650082	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	874.90861256100	1165.43309958000
423149	9307	Row Crops	R085XY177TX	Blackland PE 40-54	Agriculture	1-North	0.07783565141	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	442.86778203000	314.98970610100
423313	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.00880422117	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	88.75933593950	35.62941902560
423319	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.25456495569	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	486.83319981400	1030.18782599000
423385	9410	Urban High Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	0.63136419689	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	1311.87112895000	2555.04025457000
423386	9410	Urban High Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	2.94540311926	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	4702.69850271000	11919.62352970000
423387	9410	Urban High Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	0.29890163811	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	759.35974478000	1209.61201362000
423447	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	1.95105474002	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	3690.56236520000	8856.64774100000
423448	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	3.79191622534	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	6722.95398236000	15424.81838320000
423458	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	0.03714205635	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	68.27595989530	150.30856930000
423565	9307	Row Crops	R085XY177TX	Blackland PE 40-54	Agriculture	1-North	0.05502735052	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	290.89064763000	1136.36987349000
423576	9307	Row Crops	R085XY177TX	Blackland PE 40-54	Agriculture	1-North	0.00064342833	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	6.53812959912	2.60386208214
423715	9104	Native Invasive: Deciduous Woodland	R085XY177TX	Blackland PE 40-54	Disturbed Prairie	1-North	0.48726881189	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	ROW	436.34791994300	2279.62397127000
423716	9104	Native Invasive: Deciduous Woodland	R085XY177TX	Blackland PE 40-54	Disturbed Prairie	1-North	0.35608583835	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	ROW	305.70815747500	1544.84253102000
423937	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.04403519824	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	57.81150095550	178.20412479600

US 380 - Denton
EMST

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423938	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.38705418642	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	382.66906407000	1650.45893874000
423945	207	Blackland Prairie: Disturbance or Tame Grassland	R085XY177TX	Blackland PE 40-54	Tallgrass Prairie, Grassland	1-North	0.08388071235	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	1262.94313669000	3655.90349387000
424145	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	0.22041483994	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	229.28373326100	1556.43394413000
424147	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	0.29142891743	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	462.92900972100	1179.37098637000
424149	9411	Urban Low Intensity	R085XY177TX	Blackland PE 40-54	Urban	1-North	2.79162379890	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	3018.05803849000	14349.99991520000
424329	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY199TX	CLAY LOAM PE 44-64	Tallgrass Prairie, Grassland	1-North	0.09288641387	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	140.07926711200	542.04760396200
424401	9411	Urban Low Intensity	R086AY199TX	CLAY LOAM PE 44-64	Urban	1-North	0.02882540359	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	89.62539632170	222.25484345700
424402	9411	Urban Low Intensity	R086AY199TX	CLAY LOAM PE 44-64	Urban	1-North	0.39598342306	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	610.94637892400	1602.48805873000
424497	9307	Row Crops	R086AY196TX	BLACKLAND PE 44-64	Agriculture	1-North	0.11446912635	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	181.38797441200	463.24011917800
424498	9307	Row Crops	R086AY196TX	BLACKLAND PE 44-64	Agriculture	1-North	0.24446762587	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	371.63822593700	989.32538206900
424499	9307	Row Crops	R086AY196TX	BLACKLAND PE 44-64	Agriculture	1-North	0.00449764844	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	62.06861835740	18.20133746910
424573	9104	Native Invasive: Deciduous Woodland	R086AY196TX	BLACKLAND PE 44-64	Disturbed Prairie	1-North	0.35094695287	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	ROW	765.16295227400	1420.23192981000
424619	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.01453576465	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	33.63980989260	58.82415252810
424739	9410	Urban High Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.44764156317	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	700.83593566700	1811.54113454000
424748	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.21779260700	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	610.20429874200	881.37541035200
424749	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.46058445576	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	723.13638132400	1863.91916264000
424809	9307	Row Crops	R086AY196TX	BLACKLAND PE 44-64	Agriculture	1-North	0.00038354856	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	89.82490651910	231.33977238700
424958	9104	Native Invasive: Deciduous Woodland	R086AY196TX	BLACKLAND PE 44-64	Disturbed Prairie	1-North	0.23947709823	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	ROW	284.46120353700	969.12943307100
425045	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.10229243988	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	144.19706103700	597.08371131900
425046	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.04150966255	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	74.71586573640	167.98364451300
425276	9410	Urban High Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.25995870653	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	370.95717081600	1067.76920422000
425287	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	1.38650672524	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	1174.18136608000	5969.11268414000
425329	9105	Native Invasive: Juniper Shrubland	R086AY196TX	BLACKLAND PE 44-64	Disturbed Prairie	1-North	0.19134173022	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	ROW	259.21354460200	774.33250989800
425537	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.72904839129	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	533.34214238100	2950.35416510000
425579	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.05544661746	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	ROW	171.17980001400	224.38450000200
425849	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	0.79479402992	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	533.50649136200	3322.97789903000
425864	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	0.30221430088	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	ROW	273.02038398100	1223.01788424000
426281	9104	Native Invasive: Deciduous Woodland	R086AY199TX	CLAY LOAM PE 44-64	Disturbed Prairie	1-North	0.02202726951	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	ROW	76.12783256600	89.14119706400
426714	1102	Edwards Plateau: Live Oak Motte and Woodland	R086AY196TX	BLACKLAND PE 44-64	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.07259082832	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Texas Blackland Prairies	32	ROW	82.16953558900	293.76465980700
426751	9307	Row Crops	R086AY196TX	BLACKLAND PE 44-64	Agriculture	1-North	0.02052603362	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	55.65042002340	121.89999972700
427097	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.24798411410	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	167.23307945800	1071.15017026000
427098	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.37376815918	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	267.78262062600	1700.18649163000
427100	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.40209577470	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	293.69770656300	1627.22386814000
427374	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.16557545943	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	229.88573803600	1171.47018667000
427375	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.17349202640	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	207.14624835200	903.45686433500
427376	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.68113172120	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	422.26736050400	2976.12327583000
427377	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.32715192261	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	188.70117041500	1323.93685910000
427378	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	1.00025763448	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	776.54577251500	4363.17310082000
427411	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.09762017570	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	147.82155861200	395.05483497700
427449	9105	Native Invasive: Juniper Shrubland	R086AY196TX	BLACKLAND PE 44-64	Disturbed Prairie	1-North	0.17559444234	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	ROW	150.23736373300	710.60549676900
427457	1906	Central Texas: Riparian Deciduous Shrubland	R086AY196TX	BLACKLAND PE 44-64	Riparian	1-North	0.05827460614	CES205.709	Southeastern Great Plains Riparian Forest	Texas Blackland Prairies	32	ROW	95.49375988580	481.99633470000
428598	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.93509418535	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	798.94408539000	3784.19191001000
428757	1102	Edwards Plateau: Live Oak Motte and Woodland	R086AY196TX	BLACKLAND PE 44-64	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.16749725353	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Texas Blackland Prairies	32	ROW	158.96538771800	677.83733635000
429097	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.10843923493	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	172.63104144800	878.91499999900
429098	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY196TX	BLACKLAND PE 44-64	Tallgrass Prairie, Grassland	1-North	0.30252987616	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	334.78184038100	1672.91317103000
429324	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.19540608394	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	192.76799974000	1176.21870954000
429325	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.38033982570	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	352.47860816900	1593.17992699000
429327	9411	Urban Low Intensity	R086AY196TX	BLACKLAND PE 44-64	Urban	1-North	0.83893534593	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	555.16138737300	3832.74315701000
429374	9105	Native Invasive: Juniper Shrubland	R086AY196TX	BLACKLAND PE 44-64	Disturbed Prairie	1-North	0.06918246841	TPW101.001	Native Invasive Shrub and Woodland	Texas Blackland Prairies	32	ROW	74.58498062450	345.84800000300
430375	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.00840244784	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	26.80205950860	34.00350000240
430525	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.15258278697	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	234.30292373500	617.48063150300
430540	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.60352057423	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	560.09979974500	2448.58587680000
430541	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.71096066168	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	523.26720077900	2877.15571927000
430624	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.00880992461	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	27.13185950800	35.65249999990
431241	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.06005298896	CES205.710	Southeastern Great Plains Floodplain Forest	Texas Blackland Prairies	32	ROW	95.17986082400	303.59000001100
431242	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.73808401081	CES205.710	Southeastern Great Plains Floodplain Forest	Texas Blackland Prairies	32	ROW	856.25581431500	3512.42413898000
431243	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.21092465782	CES205.710	Southeastern Great Plains Floodplain Forest	Texas Blackland Prairies	32	ROW	179.07925001600	1335.82970114000
431248	1804	Central Texas: Floodplain Hardwood Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.54947443319	CES205.710	Southeastern Great Plains Floodplain Forest	Texas Blackland Prairies	32	ROW	856.79088221700	2223.64413938000
431406	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	1.33815141361	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	1688.51087888000	5415.30664177000
431407	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.53728399682	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	390.31985229700	2244.79880023000
431408	9411	Urban Low Intensity	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Urban	1-North	0.22194286372	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	199.24572898700	898.17090332400
431447	1802	Central Texas: Floodplain Live Oak Forest	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.16366335855	CES205.710	Southeastern Great Plains Floodplain Forest	Texas Blackland Prairies	32	ROW	158.79355778300	662.32211375000
431514	1805	Central Texas: Floodplain Evergreen Shrubland	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.07251807594	CES205.710	Southeastern Great Plains Floodplain Forest	Texas Blackland Prairies	32	ROW	79.04642812090	293.47024141900
431592	1807	Central Texas: Floodplain Herbaceous Vegetation	R086AY198TX	CLAYEY BOTTOMLAND PE 44-64	Floodplain	1-North	0.85392109658	CES205.710	Southeastern Great Plains Floodplain Forest	Texas Blackland Prairies	32	ROW	714.32528142500	3455.69607295000
433056	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.20416818005	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	613.35275797000	1986.81000005000
433057	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.19805289417	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	322.38716808600	801.49162693400
433058	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.37414507178	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	450.01781008900	2167.33052518000
433059	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.33071395759	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	352.56771610900	1338.35190318000
433063	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.42522065495	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	693.81534145700	1720.80693851000
433193	9307	Row Crops	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Agriculture	1-North	0.08830118392	TPW101.005	Agriculture	Texas Blackland Prairies	32	ROW	86.99659196620	357.34221324800
433253	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.74109030042	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	1202.40491333000	2999.08604202000
433254	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.96337250103	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	1094.21683571000	4226.51842895000
433256	9410	Urban High Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	1.38841782556	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	1184.60223782000	5618.72759400000
433278	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.56078533957	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	576.84540909300	2269.41775262000
433279	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.00010927904	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	28.91863021300	0.44223659122
433280	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	1.43359796460	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	2517.63491498000	6284.75406880000
433282	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.50462747946	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	1139.08644201000	2042.15495622000
433283	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	0.73867564396	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	484.93734642700	3287.50679243000
433288	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	1.04273375416	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	1700.57912887000	4219.79378920000
433343	1102	Edwards Plateau: Live Oak Motte and Woodland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Edwards Plateau Savannah, Woodland, and Shrubland	1-North	0.12000304332	CES303.660	Edwards Plateau Limestone Savanna and Woodland	Texas Blackland Prairies	32	ROW	117.29298013300	485.63508668100
433393	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.04486545098	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	236.52629079300	181.56403838400

US 380 - Denton
EMST

FID_Distri	Veg_ID	Common	EcoClass_I	EcoSystem	MOU_Habita	Phase	Acres	NS_Number	TPWD_Ecosy	EcoRegion	EcoRegion_	Feature_Ty	Shape_Leng	Shape_Area
433394	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.08323568658	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	137.36510362800	460.92620831200
433395	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.46325266225	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	511.86895431000	2817.66351644000
433396	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.05138748434	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	235.24139392900	207.95777083400
433398	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.22853656643	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	553.05226618900	924.85467241900
433404	207	Blackland Prairie: Disturbance or Tame Grassland	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Tallgrass Prairie, Grassland	1-North	0.00115166556	CES205.684	Texas Blackland Tallgrass Prairie	Texas Blackland Prairies	32	ROW	47.94618567470	4.66062519948
433622	1907	Central Texas: Riparian Herbaceous Vegetation	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Riparian	1-North	0.07884101384	CES205.709	Southeastern Great Plains Riparian Forest	Texas Blackland Prairies	32	ROW	166.63695347100	463.63293414200
433837	9600	Open Water	Water	mu, Water	Riparian	1-North	0.42648161126	TPW101.004	Open Water	Texas Blackland Prairies	32	ROW	331.65435557500	1725.90984753000
433914	9411	Urban Low Intensity	Water	mu, Water	Urban	1-North	0.77878710791	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	730.80845197400	3570.12482116000
434201	9411	Urban Low Intensity	R086AY199TX	CLAY LOAM PE 44-64	Urban	1-North	0.08344268214	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	170.36578208500	337.68055411900
434350	9411	Urban Low Intensity	R084CY194TX	SANDY LOAM PE 52-64	Urban	1-North	1.27534599126	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	1671.72479361000	5703.95713325000
434351	507	Crosstimbers: Savanna Grassland	R084CY194TX	SANDY LOAM PE 52-64	Crosstimbers Woodland and Forest	1-North	1.39803448282	CES205.682	Crosstimbers Oak Forest and Woodland	Texas Blackland Prairies	32	ROW	1449.32081930000	5712.49940900000
434473	9411	Urban Low Intensity	R086AY200TX	CLAYPAN PRAIRIE PE 44-64	Urban	1-North	2.48839651684	TPW101.003	Urban	Texas Blackland Prairies	32	ROW	4112.68615941000	12896.74552230000

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arlington Ecological Services Field Office
2005 Ne Green Oaks Blvd
Suite 140
Arlington, TX 76006-6247
Phone: (817) 277-1100 Fax: (817) 277-1129
http://www.fws.gov/southwest/es/arlingtontexas/
http://www.fws.gov/southwest/es/EndangeredSpecies/lists/

In Reply Refer To: December 19, 2017
Consultation Code: 02ETAR00-2018-SLI-0332
Event Code: 02ETAR00-2018-E-00729
Project Name: US 380

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, which may occur within the boundary of your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under section 7(a)(1) of the Act, Federal agencies are directed to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Under and 7(a)(2) and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether their actions may affect threatened and endangered species and/or designated critical habitat. A Federal action is an activity or program authorized, funded, or carried out, in whole or in part, by a Federal agency (50 CFR 402.02).

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For Federal actions other than major construction activities, the Service suggests that a biological evaluation (similar to a Biological Assessment) be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

After evaluating the potential effects of a proposed action on federally listed species, one of the

following determinations should be made by the Federal agency:

1. No effect - the appropriate determination when a project, as proposed, is anticipated to have no effects to listed species or critical habitat. A "no effect" determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, the action agency should maintain a complete record of their evaluation, including the steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information.
2. May affect, but is not likely to adversely affect - the appropriate determination when a proposed action's anticipated effects are insignificant, discountable, or completely beneficial. Insignificant effects relate to the size of the impact and should never reach the scale where "take" of a listed species occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects, or expect discountable effects to occur. This determination requires written concurrence from the Service. A biological evaluation or other supporting information justifying this determination should be submitted with a request for written concurrence.
3. May affect, is likely to adversely affect - the appropriate determination if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action, and the effect is not discountable or insignificant. This determination requires formal section 7 consultation.

The Service recommends that candidate species, proposed species, and proposed critical habitat be addressed should consultation be necessary. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:
http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (

http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

For additional information concerning migratory birds and eagle conservation plans, please contact the Service's Migratory Bird Office at 505-248-7882.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arlington Ecological Services Field Office
2005 Ne Green Oaks Blvd
Suite 140
Arlington, TX 76006-6247
(817) 277-1100

Project Summary

Consultation Code: 02ETAR00-2018-SLI-0332

Event Code: 02ETAR00-2018-E-00729

Project Name: US 380

Project Type: TRANSPORTATION

Project Description: Transportation

Project Location:

Approximate location of the project can be viewed in Google Maps:
https://www.google.com/maps/place/33.22888721595139N96.997165374117W

Counties: Denton, TX

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Birds

NAME	STATUS
Least Tern *Sterna antillarum* Population: interior pop. No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8505	Endangered
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location is outside the critical habitat. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

DENTON COUNTY

BIRDS

		Federal Status	State Status
American Peregrine Falcon	*Falco peregrinus anatum*	DL	T

year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Arctic Peregrine Falcon	*Falco peregrinus tundrius*	DL	

migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Bald Eagle	*Haliaeetus leucocephalus*	DL	T

found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Henslow's Sparrow	*Ammodramus henslowii*		

wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking

Peregrine Falcon	*Falco peregrinus*	DL	T

both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.

Red Knot	*Calidris canutus rufa*	T	

Red knots migrate long distances in flocks northward through the contiguous United States mainly April-June, southward July-October. A small plump-bodied, short-necked shorebird that in breeding plumage, typically held from May through August, is a distinctive and unique pottery orange color. Its bill is dark, straight and, relative to other shorebirds, short-to-medium in length. After molting in late summer, this species is in a drab gray-and-white non-breeding plumage, typically held from September through April. In the non-breeding plumage, the knot might be confused with the omnipresent Sanderling. During this plumage, look for the knot's prominent pale eyebrow and whitish flanks with dark barring. The Red Knot prefers the shoreline of coast and bays and also uses mudflats during rare inland encounters. Primary prey items include coquina clam (Donax spp.) on beaches and dwarf surf clam (Mulinia lateralis) in bays, at least in the Laguna Madre. Wintering Range includes- Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kennedy, Kleberg, Matagorda, Nueces, San Patricio, and Willacy. Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore.

DENTON COUNTY

BIRDS

		Federal Status	State Status
Sprague's Pipit	*Anthus spragueii*		

only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.

Western Burrowing Owl	*Athene cunicularia hypugaea*		

open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

White-faced Ibis	*Plegadis chihi*		T

prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats

Whooping Crane	*Grus americana*	LE	E

potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties

Wood Stork	*Mycteria americana*		T

forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

MAMMALS

		Federal Status	State Status
Plains spotted skunk	*Spilogale putorius interrupta*		

catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Red wolf	*Canis rufus*	LE	E

extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies

MOLLUSKS

		Federal Status	State Status
Louisiana pigtoe	*Pleurobema riddellii*		T

streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments; Sabine, Neches, and Trinity (historic) River basins

Sandbank pocketbook	*Lampsilis satura*		T

small to large rivers with moderate flows and swift current on gravel, gravel-sand, and sand bottoms; east Texas, Sulfur south through San Jacinto River basins; Neches River

Texas heelsplitter	*Potamilus amphichaenus*		T

quiet waters in mud or sand and also in reservoirs. Sabine, Neches, and Trinity River basins

DENTON COUNTY

MOLLUSKS

		Federal Status	State Status
Texas pigtoe	*Fusconaia askewi*		T

rivers with mixed mud, sand, and fine gravel in protected areas associated with fallen trees or other structures; east Texas River basins, Sulphur River, Cypress Creek, Sabine through Trinity rivers as well as San Jacinto River

REPTILES

		Federal Status	State Status
Texas garter snake	*Thamnophis sirtalis annectens*		

wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August

Texas horned lizard	*Phrynosoma cornutum*		T

open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September

Timber rattlesnake	*Crotalus horridus*		T

swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto

PLANTS

		Federal Status	State Status
Glen Rose yucca	*Yucca necopina*		

Texas endemic; grasslands on sandy soils and limestone outcrops; flowering April-June

Topeka purple-coneflower *Echinacea atrorubens*

GLOBAL RANK: G3; Occurring mostly in tallgrass prairie of the southern Great Plains, in blackland prairies but also in a variety of other sites like limestone hillsides; Perennial; Flowering Jan-June; Fruiting Jan-May

From: NEPA
To: Michelle Lueck
Subject: RE: EA Review - US 380 - Denton County (CSJ 0135-10-050)
Date: Monday, January 29, 2018 8:58:03 AM

Re: Response to Request for TCEQ Environmental Review

The Texas Commission on Environmental Quality (TCEQ) received a request from the Texas Department of Transportation (TxDOT) regarding the following project: EA Review - US 380 - Denton County (CSJ 0135-10-050).

In accordance with the Memorandum of Understanding between TxDOT and TCEQ addressing environmental reviews, which is codified in Chapter 43, Subchapter I of the Texas Administrative Code (TAC) and 30 TAC § 7.119, TCEQ is responding to your request for review by providing the below comments.

This project is in an area of Texas classified by the United States Environmental Protection Agency as moderate nonattainment for the 2008 ozone National Ambient Air Quality Standard. Air Quality staff has reviewed the document in accordance with transportation and general conformity regulations codified in 40 Code of Federal Regulations Part 93 Subparts A and B. We concur with TxDOT's assessment.

TxDOT will still need to follow all other applicable laws related to this project, including applying for applicable permits.

If you have any questions, please feel free to contact the NEPA Coordinator at (512) 239-3500 or NEPA@tceq.texas.gov.

Violet Mendoza
NEPA Coordinator
TCEQ, MC-119
NEPA@tceq.texas.gov
512-239-3500

From: Michelle Lueck [mailto:Michelle.Lueck@txdot.gov]
Sent: Friday, January 26, 2018 12:51 PM
To: NEPA <NEPA@tceq.texas.gov>
Subject: EA Review - US 380 - Denton County (CSJ 0135-10-050)

TxDOT requests the TCEQ review the Conflans Road project per 43 TAC 2.305. The proposed project would include reconstruction and widening of existing US 380 from a four-lane undivided to a six-lane divided roadway in Denton County, Texas. We are requesting TCEQ review since the project meets MOU triggers related to **air quality**.

An electronic version of the Draft Environmental Assessment will be transmitted to your office using our FTP system. Let me know if you have any questions.

Michelle Lueck
TxDOT-Environmental Affairs Division
Project Delivery Section
512-416-2644