



United States Highway (US) 377 Technical Reports

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Air Quality Technical Report

United States Highway (US) 377

From: North of Business (BUS) 377E

To: US 380

Denton County, Texas

Control-Section-Job (CSJ): 0081-06-040

Date: May 2020

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Acronyms

AADT	Annual Average Daily Traffic
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CFR	Code of Federal Regulations
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CMP	Congestion Management Process
CO	Carbon Monoxide
EPA	Environmental Protection Agency
ETC	Estimated Time of Completion
FHWA	Federal Highway Administration
FR	Federal Register
FTA	Federal Transit Administration
HEI	Health Effects Institute
IRIS	Integrated Risk Information System
MOVES	Motor Vehicle Emissions Simulator
MSAT	Mobile Source Air Toxics
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standards
NATA	National Air Toxics Assessment
NEPA	National Environmental Policy Act of 1969
NO ₂	Nitrogen Dioxide
PM	Particulate Matter
TAC	Texas Administrative Code
TAQA	Traffic Air Quality Analysis
TERP	Texas Emissions Reduction Plan
TIP	Transportation Improvement Program
TxDOT	Texas Department of Transportation
USC	United States Code
VMT	Vehicle-Miles Traveled

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1 PROJECT DESCRIPTION

The Texas Department of Transportation (TxDOT) is proposing improvements to United States Highway (US) 377 from north of Business (BUS) 377E to US 380 in Denton County, Texas; a distance of approximately 13.7 miles. The proposed project would require approximately 65 acres of additional right-of-way (ROW). Project location maps and a detailed project description are available in the TxDOT Environmental Compliance Oversight System (ECOS).

2 AIR QUALITY ASSESSMENT

2.1 Transportation Conformity

This project is located within an area that has been designated by the U.S. Environmental Protection Agency (EPA) as a serious and marginal nonattainment area for the 2008 and 2015 eight-hour ozone NAAQS, respectively; therefore, transportation conformity rules apply. Conformity for older standards is satisfied by conformity to the more stringent 2008 and 2015 NAAQS.

The proposed action is consistent with the North Central Texas Council of Government's (NCTCOG's) financially constrained *Mobility 2045* and the 2019-2022 Transportation Improvement Program (TIP), which were initially found to conform to the TCEQ State Implementation Plan (SIP) by FHWA and FTA on November 21, 2018. Copies of the MTP and TIP pages are included in **Appendix A**. All projects in the NCTCOG TIP that are proposed for federal or state funds were initiated in a manner consistent with federal guidelines in Section 450, of Title 23 CFR and Section 613.200, Subpart B, of Title 49 CFR.

2.2 CO Traffic Air Quality Analysis

Traffic data for the estimated time of completion (ETC) year 2028 and design year 2045 is 21,800 vehicles per day (VPD) and 28,500 VPD, respectively (**Appendix B**). 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 AADT projections for the project do not exceed 140,000 VPD; therefore, a Traffic Air Quality Analysis was not required.

2.3 Mobile Source Air Toxics (MSAT)

Background

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information

System (IRIS)¹. In addition, EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and non-cancer hazard contributors from the 2011 National Air Toxics Assessment (NATA)². These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

Motor Vehicle Emissions Simulator (MOVES)

According to EPA, MOVES2014 is a major revision to MOVES2010 and improves upon it in many respects. MOVES2014 includes new data, new emissions standards, and new functional improvements and features. It incorporates substantial new data for emissions, fleet, and activity developed since the release of MOVES2010. These new emissions data are for light- and heavy-duty vehicles, exhaust and evaporative emissions, and fuel effects. MOVES2014 also adds updated vehicle sales, population, age distribution, and vehicle miles travelled (VMT) data. MOVES2014 incorporates the effects of three new Federal emissions standard rules not included in MOVES2010. These new standards are all expected to impact MSAT emissions and include Tier 3 emissions and fuel standards starting in 2017 (79 FR 60344), heavy-duty greenhouse gas regulations that phase in during model years 2014-2018 (79 FR 60344), and the second phase of light duty greenhouse gas regulations that phase in during model years 2017-2025 (79 FR 60344). Since the release of MOVES2014, EPA has released MOVES2014a. In the November 2015 MOVES2014a Questions and Answers Guide³, EPA states that for on-road emissions, MOVES2014a adds new options requested by users for the input of local VMT, includes minor updates to the default fuel tables, and corrects an error in MOVES2014 brake wear emissions. The change in brake wear emissions results in small decreases in PM emissions, while emissions for other criteria pollutants remain essentially the same as MOVES2014.

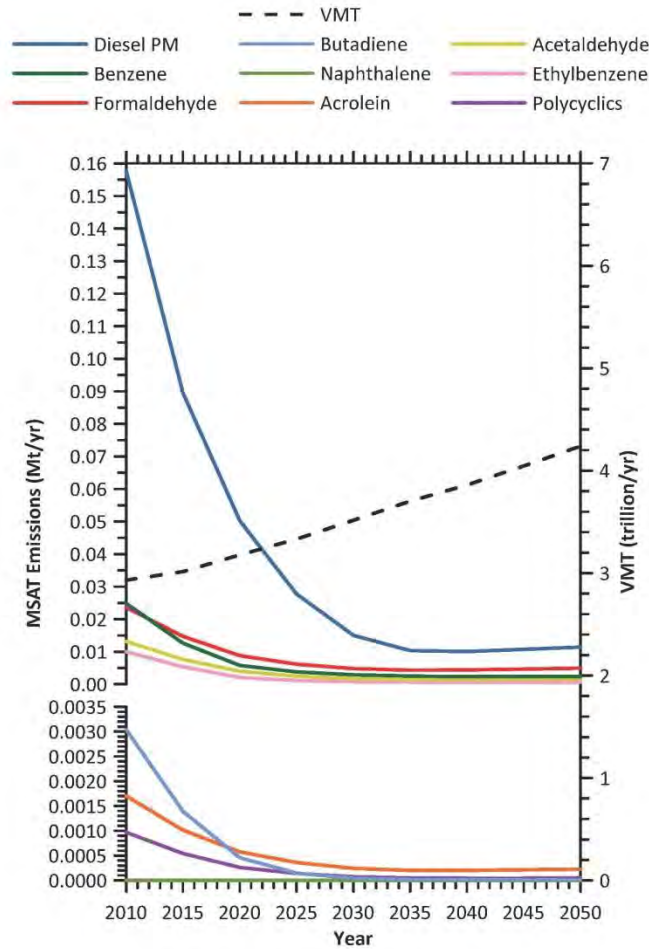
Using EPA's MOVES2014a model, as shown in **Figure 1**, FHWA estimates that even if VMT increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period.

¹ <http://www.epa.gov/iris/>

² <https://www.epa.gov/national-air-toxics-assessment>

³ <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100NNR0.txt>

**Figure 1:
FHWA PROJECTED NATIONAL MSAT EMISSION TRENDS 2010 – 2050
FOR VEHICLES OPERATING ON ROADWAYS
USING EPA'S MOVES2014a MODEL**



Source: EPA MOVES2014a model runs conducted by FHWA, September 2016.

Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorological, and other factors.

Diesel PM is the dominant component of MSAT emissions, making up 50 to 70 percent of all priority MSAT pollutants by mass, depending on calendar year. Users of MOVES2014a will notice some differences in emissions compared with MOVES2010b. MOVES2014a is based on updated data on some emissions and pollutant processes compared to MOVES2010b, and also reflects the latest Federal emissions standards in place at the time of its release. In addition, MOVES2014a emissions forecasts are based on lower VMT projections than MOVES2010b, consistent with recent trends suggesting reduced nationwide VMT growth compared to historical trends.

MSAT Research

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

Project Specific MSAT Information

The VMT estimated for the Build Alternative is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. The additional travel lanes contemplated as part of the project will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, 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 most pronounced along the expanded roadway sections that would be built from E. Northside Drive to E. Burks Street and from E. Liberty Street to Strittmatter Road in Pilot Point, and from Spring Hill Road to Sherry Lane/Industrial Park in Aubrey. 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. Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis

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 action. Consistent with 40 CFR 1502.22 (regarding incomplete and unavailable information) FHWA does not conduct MSAT health impacts for the reasons described below.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances

found in the environment and their potential to cause human health effects” (EPA, <http://www.epa.gov/iris/>). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). A number of HEI studies are summarized in Appendix D of FHWA’s Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents⁴. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations⁵ or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupported assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI⁶. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that with respect to diesel engine exhaust, “[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk⁷.”

⁴ http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm

⁵ HEI Special Report 16, <https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects>

⁶ Special Report 16, <https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects>

⁷ EPA IRIS database, Diesel Engine Exhaust, Section II.C.
https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0642_summary.pdf

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA’s approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable⁸.

2.4 Congestion Management Process (CMP)

The CMP is a systematic process for managing congestion that provides information on transportation system performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs. The project was developed from the NCTCOG’s CMP, which meets all requirements of 23 CFR 450.320 and 500.109, as applicable. The CMP was adopted by NCTCOG on January 2014.

The region commits to operational improvements and travel demand reduction strategies at two levels of implementation: program level and project level. Program level commitments are inventoried in the regional CMP, which was adopted by NCTCOG; they are included in the financially constrained MTP, and future resources are reserved for their implementation.

The CMP element of the plan carries an inventory of all project commitments (including those resulting from major investment studies) that details type of strategy, implementing responsibilities, schedules, and expected costs. At the project’s programming stage, travel demand reduction strategies and commitments will be added to the regional TIP or included in the construction plans. The regional TIP provides for programming of these projects at the appropriate time with respect to the single occupancy vehicle (SOV) facility implementation and project-specific elements.

Committed congestion reduction strategies and operational improvements within the study boundary will consist of addition of mainlanes, shared use lanes; sidewalks and the realignment of the BU 377 S. at US 377 and FM 424 at US 377 intersections. Individual projects are listed in **Table 1**.

⁸ [https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/\\$file/07-1053-1120274.pdf](https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/$file/07-1053-1120274.pdf)

Table 1: Congestion Process Management Strategies

Operational Improvements in Travel Corridor		
Location	Type	Implementation Date
US 377 from US 380 to north of BU 377E	Addition of Lanes	2045

Source: NCTCOG Transportation Improvement Program Information System (TIPINS). Accessed May 26, 2020.

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

Therefore, the proposed project is justified. The CMP analysis for added SOV capacity projects in the Transportation Management Area (TMA) is on file and available for review at NCTCOG and is in **Appendix C**.

2.5 Air Quality Construction Emissions Reduction Strategies

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 particulate matter from diesel powered construction equipment and vehicles.

The potential impacts of particulate matter emissions will be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. The Texas Emissions Reduction Plan (TERP) provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions. Information about the TERP program can be found on TCEQ's TERP website⁹.

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 will have any significant impact on air quality in the area.

⁹ <https://www.tceq.texas.gov/airquality/terp>

Appendix A: MTP and TIP Data

Mobility 2045
Regionally Significant Arterial Improvements

Revised January 8, 2020

RSA ID	Agency	County	Facility	From	To	2018*	2020*	2028	2037	2045	VOE Cost
2.150.375	TxDOT Dallas	Denton	Outer Loop Greenbelt Pkwy **	US 377	Legacy Drive	0	0	2	3/3	N/A	
2.205.425	TxDOT Dallas	Denton	SH 114 EB/SH 114 WB	County Line Road	West Of FM 156	2	2	2	2/2	2/2	\$33,817,800
2.205.450	TxDOT Dallas	Denton	SH 114	FM 156	FM 156	2/2	2/2	2/2	2/2	2/2	\$1,938,600
2.205.475	TxDOT Dallas	Denton	SH 114	FM 156	Double Eagle Blvd	2/2	2/2	N/A	N/A	N/A	
2.205.500	TxDOT Dallas	Denton	SH 114	Double Eagle Blvd	IH 35W	3/3	3/3	N/A	N/A	N/A	
2.205.600	TxDOT Dallas	Denton	SH 114	Labonte Drive	IH 35W	2/2	2/2	N/A	N/A	N/A	
2.205.625	TxDOT Dallas	Denton	SH 114	US 377	East Of US 377	2/2	2/2	N/A	N/A	N/A	
2.205.650	TxDOT Dallas	Denton	SH 114	East Of US 377	SH 170	2/2	2/2	N/A	N/A	N/A	
2.325.500	TxDOT Dallas	Denton	SH 170 **	US 377	Roanoke Road	2/2	2/2	N/A	N/A	N/A	
2.325.550	TxDOT Dallas	Denton	SH 170 **	Roanoke Road	Jt Ottinger Road	2/2	N/A	N/A	N/A	N/A	
2.325.560	TxDOT Dallas	Denton	SH 170 **	Jt Ottinger Road	East Of Jt Ottinger Road	3/3	N/A	N/A	N/A	N/A	
2.325.575	TxDOT Dallas	Denton	SH 170 **	East Of Jt Ottinger Road	SH 114	2/2	N/A	N/A	N/A	N/A	
1.430.200	TxDOT Dallas	Denton	SL 288/ FM 2449	John Paine Road	Vintage Parkway	2	2	2	2/2	2/2	\$5,898,590
1.523.110	TxDOT Dallas	Denton	US 377	North of E Northside Dr	S Washington Street	2	2	2	4	6	\$20,678,165
1.523.120	TxDOT Dallas	Denton	US 377	S Washington Street	FM 428	2	2	2	4	6	\$39,767,808
1.523.130	TxDOT Dallas	Denton	US 377	FM 428	US 380	2	2	2	4	6	\$34,399,687
1.540.210	TxDOT Dallas	Denton	US 377	IH 35E	South of FM 1830 Country Club Road	2	2	6	6	6	\$37,980,000
1.540.220	TxDOT Dallas	Denton	US 377	South of FM 1830	Crawford Road	2	2	2	6	6	\$80,000,000
1.540.230	TxDOT Dallas	Denton	US 377	Crawford Road	Marshall Creek Road	2	2	4	4	4	\$133,900,000
1.540.240	TxDOT Dallas	Denton	US 377	Marshall Creek Road	SH 114	4	4	4	4	4	\$2,536,000
1.540.250	TxDOT Dallas	Denton	US 377	SH 114	North Of Byron Nelson Blvd	4	4	4	4	4	\$1,040,000
1.540.260	TxDOT Dallas	Denton	US 377	North of Byron Nelson Blvd	Parish Lane	2	2	4	4	4	\$12,050,000
2.225.300	TxDOT Dallas	Denton	US 380 University Drive	Bonnie Brae Street	Malone Street	6	6	6	6	6	\$7,456,430
2.225.275	TxDOT Dallas	Denton	US 380	FM 156	IH 35	6	6	6	6	6	\$45,700,000
2.225.425	TxDOT Dallas	Denton	US 380	East of Fish Trap Road	US 377	2/2	2/2	3/3	3/3	3/3	\$3,340,000
2.225.440	TxDOT Dallas	Denton	US 380	US 377	Potter Shop Road	2/2	2/2	3/3	3/3	3/3	\$760,000
2.225.445	TxDOT Dallas	Denton	US 380	Potter Shop Road	FM 720	4	4	6	6	6	\$19,430,000
2.225.450	TxDOT Dallas	Denton	US 380	FM 720	FM 423	4	4	6	6	6	\$96,280,000
2.225.475	TxDOT Dallas	Denton	US 380	FM 423	CR 26	4	4	3/3	3/3	3/3	\$32,370,000
2.267.300	TxDOT Dallas	Denton	Valley Ridge Blvd	Mill Street	College Street	0	0	4	4	4	\$17,770,000
1.430.225	TxDOT Dallas	Denton	Vintage Parkway	IH 35W	US 377	2	2	4	4	4	\$11,344,400
2.787.250	TxDOT Dallas	Ellis	BU 287 BU 45	Paris Street	IH 45	2	2	4	4	4	\$7,610,800
1.563.200	TxDOT Dallas	Ellis	FM 664 Ovilla Road	OVilla Main Street	BU 287	2	2	4	4	6	\$100,000,000
2.710.225	TxDOT Dallas	Ellis	FM 664 Ovilla Road	Westmoreland Road	Ovilla Main Street	2	2	4	4	6	\$20,000,000
2.710.250	TxDOT Dallas	Ellis	FM 664	Westmoreland Road	IH 35E	2	2	6	6	6	\$45,100,000
2.710.300	TxDOT Dallas	Ellis	FM 664	IH 35E	SH 342	4	4	6	6	6	\$40,128,140
2.710.325	TxDOT Dallas	Ellis	FM 664	SH 342	IH 45	2	2	6	6	6	\$192,371,860
1.840.750	TxDOT Dallas	Ellis	SH 34 Lake Bardwell Drive	SP 437 Clay Street	IH 35E	2	2	2	4	4	\$141,087,000
1.840.650	TxDOT Dallas	Ellis	SH 34	FM 2451	Sunridge Drive	2	2	2	4	4	\$18,452,600
1.840.655	TxDOT Dallas	Ellis	SH 34	Sunridge Drive	Sonoma Trail	2	2	2	4	4	\$4,882,400
1.840.660	TxDOT Dallas	Ellis	SH 34	Sonoma Trail	IH 45	2	2	2	4	4	\$2,656,600
1.840.700	TxDOT Dallas	Ellis	SH 34	FM 1181	Kaufman Street	2	2	4	4	4	\$1,220,600
1.840.725	TxDOT Dallas	Ellis	SH 34	FM 1183	SP 437 Clay Street	2	2	2	4	4	\$4,810,600
1.595.390	TxDOT Dallas	Ellis	SH 342	Loop 9	FM 664	2	2	2	4	4	\$12,349,600
1.595.400	TxDOT Dallas	Ellis	SH 342	FM 664	US 77	2	2	2	4	4	\$12,032,995
1.220.875	TxDOT Dallas	Ellis	US 287	SH 34	IH 45	2	2	N/A	N/A	N/A	
1.580.300	TxDOT Dallas	Ellis	US 77 Elm Street	Ferris Avenue	FM 66	2	2	4	4	4	\$21,183,600
1.580.325	TxDOT Dallas	Ellis	US 77	FM 66	FM 877	2	2	4	4	4	\$502,600
2.745.240	TxDOT Fort Worth	Hood	FM 4 FM 167 Fall Creek	FM 4 Acton Hwy	North Gate Road	2	2	2	4	4	\$160,610
2.745.250	TxDOT Fort Worth	Hood	FM 4 FM 167 Fall Creek	North Gate Road	FM 167	2	2	2	4	4	\$6,000,000
1.205.275	TxDOT Fort Worth	Hood	SH 144	Pear Orchard Road	North of US 67	2	2	2	2	4	\$24,860,000
1.250.200	TxDOT Fort Worth	Hood	US 377 Bypass	North of SH 171	Old Granbury Road	0	0	2/2	2/2	2/2	\$77,500,000
1.540.520	TxDOT Fort Worth	Hood	US 377 NB/US 377 SB	East of SH 144	FM 51	2/2	2/2	3/3	3/3	3/3	\$13,900,000
1.540.455	TxDOT Fort Worth	Hood	US 377	BU 377	North of BU 377	2/2	2/2	4	4	4	\$5,169,600
1.540.470	TxDOT Fort Worth	Hood	US 377	FM 167 S (Fall Creek Hwy)	FM 167 N (Temple Hall Hwy)	2/2	2/2	3/3	3/3	3/3	\$53,800,000
1.540.480	TxDOT Fort Worth	Hood	US 377	FM 167 N (Temple Hall Hwy)	Mustang Trail	4	4	6	6	6	\$12,161,541
1.540.490	TxDOT Fort Worth	Hood	US 377	Mustang Trail	Harbor Lakes Drive	2/2	2/2	3/3	3/3	3/3	\$41,392,000
1.540.500	TxDOT Fort Worth	Hood	US 377	Harbor Lakes Drive	Old Cleburne Road	4	4	6	6	6	\$2,465,777
1.540.510	TxDOT Fort Worth	Hood	US 377	Old Cleburne Road	East Of SH 144	2/2	2/2	3/3	3/3	3/3	\$5,306,096
1.540.540	TxDOT Fort Worth	Hood	US 377	FM 51	BU 377	2/2	2/2	2/2	2/2	2/2	\$43,107,000
1.540.550	TxDOT Fort Worth	Hood	US 377	BU 377	Holmes Dr.	1/2	1/2	1/2	2/2	2/2	\$800,000
1.540.560	TxDOT Fort Worth	Hood	US 377	Holmes Dr.	Powell Cemetery Road	2	2	2	4	4	\$40,680,000

* Attainment Years

**Stage facilities reported as 'N/A' indicate project is no longer classified as an arterial and will be reported in Freeway/Tollway Recommendations listing instead.

Note: '2/2' indicates facility operates as couplet.

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	ELLIS	0048-04-090	IH 35E	E	WAXAHACHIE	TXDOT-DALLAS
LIMITS FROM:	US 77 SOUTH					REV DATE: 02/2019
LIMITS TO:	US 77 NORTH					MPO PROJECT ID: 55092
TIP	RECONSTRUCT 4 INTERCHANGES (BUS 287/US 287 BYPASS/LOFLAND/STERRET RD), 4 LN					
DESCRIPTION:	DISCON TO 4/6 LN CONTINUOUS FRTG RD & RAMP MODIFICATIONS					MTP REFERENCE: FT1-7.100.5, IN1-1.7.1, IN1-7.508.1, IN1-7.509.1, IN1-7.512.1, TSMO2-001
REMARKS:	REVISE SCOPE					
						Project History: PREVIOUS PLANNING CSJ 0048-04-912; ROW CSJ 0048-04-096
DALLAS	ELLIS	0048-04-092	IH 35E	E,R	WAXAHACHIE	TXDOT-DALLAS
LIMITS FROM:	AT FM 1446					REV DATE: 07/2018
LIMITS TO:						MPO PROJECT ID: 55227
TIP	RECONSTRUCT INTERCHANGE AT FM 1446 INCLUDING 4 TO 4/6 LANE FRONTAGE ROADS					
DESCRIPTION:	AND RAMP MODIFICATIONS					MTP REFERENCE: IN1-7.504.1, MO3-001
REMARKS:						
						Project History:
DALLAS	ELLIS	0048-04-093	IH 35E	E,R	WAXAHACHIE	TXDOT-DALLAS
LIMITS FROM:	AT FM 66					REV DATE: 07/2018
LIMITS TO:						MPO PROJECT ID: 55228
TIP	RECONSTRUCT INTERCHANGE AT FM 66 INCLUDING 4 TO 4/6 LANE FRONTAGE ROADS					
DESCRIPTION:	AND RAMP MODIFICATIONS					MTP REFERENCE: IN1-7.503.1, MO3-001
REMARKS:						
						Project History:
DALLAS	ELLIS	0048-04-096	IH 35E	R	WAXAHACHIE	TXDOT-DALLAS
LIMITS FROM:	US 77 SOUTH					REV DATE: 02/2019
LIMITS TO:	US 77 NORTH					MPO PROJECT ID: 55092
TIP	RECONSTRUCT 4 INTERCHANGES (BUS 287/US 287 BYPASS/LOFLAND/STERRET RD), 4 LN					
DESCRIPTION:	DISCON TO 4/6 LN CONTINUOUS FRTG RD & RAMP MODIFICATIONS					MTP REFERENCE: FT1-7.100.5, IN1-1.7.1, IN1-7.508.1, IN1-7.509.1, IN1-7.512.1, TSMO2-001
REMARKS:	REVISE SCOPE; CHANGE ROW CSJ FROM 0048-04-090 TO 0048-04-096					
						Project History: RELATED TO CSJ 0048-04-090
DALLAS	DENTON	0081-03-047	US 377	C	ARGYLE	DENTON CO
LIMITS FROM:	SOUTH OF FM 1171					REV DATE: 07/2018
LIMITS TO:	CRAWFORD ROAD					MPO PROJECT ID: 20115
TIP	RECONSTRUCT AND WIDEN ROADWAY FROM 2 LANE RURAL TO 4 LANE DIVIDED URBAN					
DESCRIPTION:						MTP REFERENCE: RSA1-1.540.230
REMARKS:	RTR 121-DE1					
						Project History:
DALLAS	DENTON	0081-03-054	US 377	E	VARIOUS	DENTON CO
LIMITS FROM:	CRAWFORD RD					REV DATE: 07/2018
LIMITS TO:	NORTH OF HICKORY CREEK					MPO PROJECT ID: 55002
TIP	RECONSTRUCT AND WIDEN 2 LANE RURAL HIGHWAY TO 6 LANE DIVIDED URBAN					
DESCRIPTION:						MTP REFERENCE: RSA1-1.540.220
REMARKS:						
						Project History:
DALLAS	DENTON	0081-04-038	US 377	E	VARIOUS	DENTON CO
LIMITS FROM:	NORTH OF HICKORY CREEK					REV DATE: 07/2018
LIMITS TO:	FM 1830					MPO PROJECT ID: 55004
TIP	RECONSTRUCT AND WIDEN 2 LANE RURAL HIGHWAY TO 6 LANE DIVIDED URBAN					
DESCRIPTION:						MTP REFERENCE: RSA1-1.540.220
REMARKS:						
						Project History:
DALLAS	DENTON	0081-06-040	US 377	E,R	VARIOUS	TXDOT-DALLAS
LIMITS FROM:	US 380					REV DATE: 07/2018
LIMITS TO:	NORTH OF BUS 377E					MPO PROJECT ID: 55229
TIP	RECONSTRUCT AND WIDEN 2 LANE UNDIVIDED ROADWAY TO 4 LANE DIVIDED FACILITY					
DESCRIPTION:	(ULTIMATE SIX LANE)					MTP REFERENCE: RSA1-1.523.110, RSA1-1.523.120, RSA1-1.523.130
REMARKS:						
						Project History:

Appendix B: Traffic Data

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

CSJ: 0081-06-040

US 377: From US 380 North to Grayson County Line (Denton County)

Project: Traffic Projections on US 377: From US 380 North to Grayson County Line (Denton County)

Dallas District

February 26, 2018

										Total Number of Equivalent 18K Single Axle Load Applications One Direction Expected for a 20 Year Period (2025-2045)			
Description of Location	Average Daily Traffic		Dir Dist %	K Factor	Base Year Percent Trucks		ATHWLD	Percent Tandem Axels in ATHWLD	Flexible Pavement	S N	Rigid pavement	SLAB	
	2025	2045			ADT	DHV							
<u>US 377</u>													
From US 380 to N. of FM 455 (Denton County)	20,600	28,500	55-45	9.8	16.0	9.6	0	0	0	3	0	8	
Data for Use in Air & Noise Analysis													
Vehicle Class	Base Year												
	% of ADT		% of DHV										
Light Duty	84.0		90.4										
Medium Duty	6.8		4.1										
Heavy Duty	9.2		5.5										
										Total Number of Equivalent 18K Single Axle Load Applications One Direction Expected for a 30 Year Period (2025-2055)			
Description of Location	Average Daily Traffic		Dir Dist %	K Factor	Base Year Percent Trucks		ATHWLD	Percent Tandem Axels in ATHWLD	Flexible Pavement	S N	Rigid pavement	SLAB	
	2025	2055			ADT	DHV							
<u>US 377</u>													
From US 380 to N. of FM 455 (Denton County)	20,600	32,400	55-45	9.8	16.0	9.6	0	0	0	3	0	8	

Appendix C: CMP Analysis

NCTCOG CMP PROJECT IMPLEMENTATION FORM



Submitter Name: Mohammed Shaikh
 Agency Name: Texas Department of Transportation
 Agency Address: 4777 E. Highway 80, Mesquite, TX 75150
 Email: Mohammed.Shaikh@txdot.gov
 Telephone Number: (214) 320-6148
 Date: 5/26/2020

Please answer the following questions

Project Name US 377
 Project Limits (From) North of Business (BUS) 377E
 Project Limits (To) US 380

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 377 from US 380 to north of BUS 377E	TIP Code	55,229.00	CSJ#	0081-06-040
Project Name		TIP Code		CSJ#	
Project Name		TIP Code		CSJ#	
Project Name		TIP Code		CSJ#	

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.

NO

Project Name	[Enter Here]	Implementing Agency	[Enter Here]
Project Name	[Enter Here]	Implementing Agency	[Enter Here]
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

YES

MTP Reference #	RSA1-1.523.110
MTP Reference #	RSA1-1.523.120
MTP Reference #	RSA1-1.523.130
MTP Reference #	[Enter Here]

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)

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

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

Reconstruct and wide 2-lane undivided roadway to a 4 lane divided roadway (ultimate 6-lane) with outside shared-use lanes for bicyclists. Construct sidewalks in each direction. Realign the BU 377 S. at US 377 and FM 424 at US 377 intersections

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

Not applicable.

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



ROADWAY NAME **US 377**

HIGHWAY	LIMITS	LENGTH	DIRECTION	MAINLANES
US 377	From north of BUS 377E to US 380	13.747	North-South	4

CORRIDOR FACTS (WITHIN 1 MILE)

Functional Class	Principal Arterial	Direct Connections	No
HOV Lanes	No	Truck Lane Restriction	No
Parrallel Freeways (within 5 miles)	No	Hazmat Route	No
Shoulders	Yes	Population	14,774
Frontage Roads	No	Number of Employees	3,301
Bike Options	No	FIM Training Participants	Yes
Available Transit	No	Crash Rate (Use Most Recent Year)	4.4
Park and Ride	No	Construction Status	Not Constructed

PARRALLEL ARTERIALS (ENTIRE LIMITS)

None within 2 miles

PARRALLEL ARTERIALS (PARTIAL LIMITS)

Six within 2 miles

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

ROADWAY	MODAL OPTIONS	SYSTEM DEMAND	SYSTEM RELIABILITY	SCORE
1	0	12	19	32

CONCLUSIONS/RECOMMENDATIONS

Reconstruct and wide 2-lane undivided roadway to a 4 lane divided roadway (ultimate 6-lane) with outside shared-use lanes for bicyclists.
Construct sidewalks in each direction.
Realign the BU 377 S. at US 377 and FM 424 at US 377 intersections

ADD PROJECT CORRIDOR SEGMENT MAP HERE.
SEE ATTACHMENT

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

Project Name:	US 377
Project Limits (From and To):	North of Business (BUS) 377E to US 380
Agency Name:	Texas Department of Transportation
Submitter Name:	Mohammed Shaikh
Telephone:	(214) 320-6148
Email:	Mohammed.Shaikh@txdot.gov
Date Submitted:	05/26/20

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?	Yes, partial limits	1
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 **1**

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?	Above the Average	3
2. Is the truck volume percentage along the corridor above or below the current average of 9%?	Above the Average	1
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)?	Below or Equal to the Average	3

Total Points Received in System Demand Category **12**

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

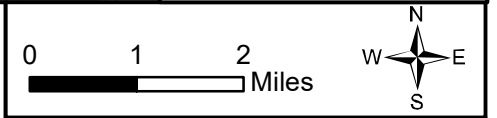
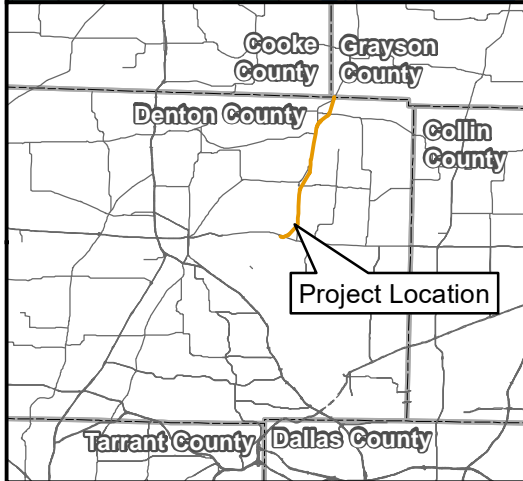
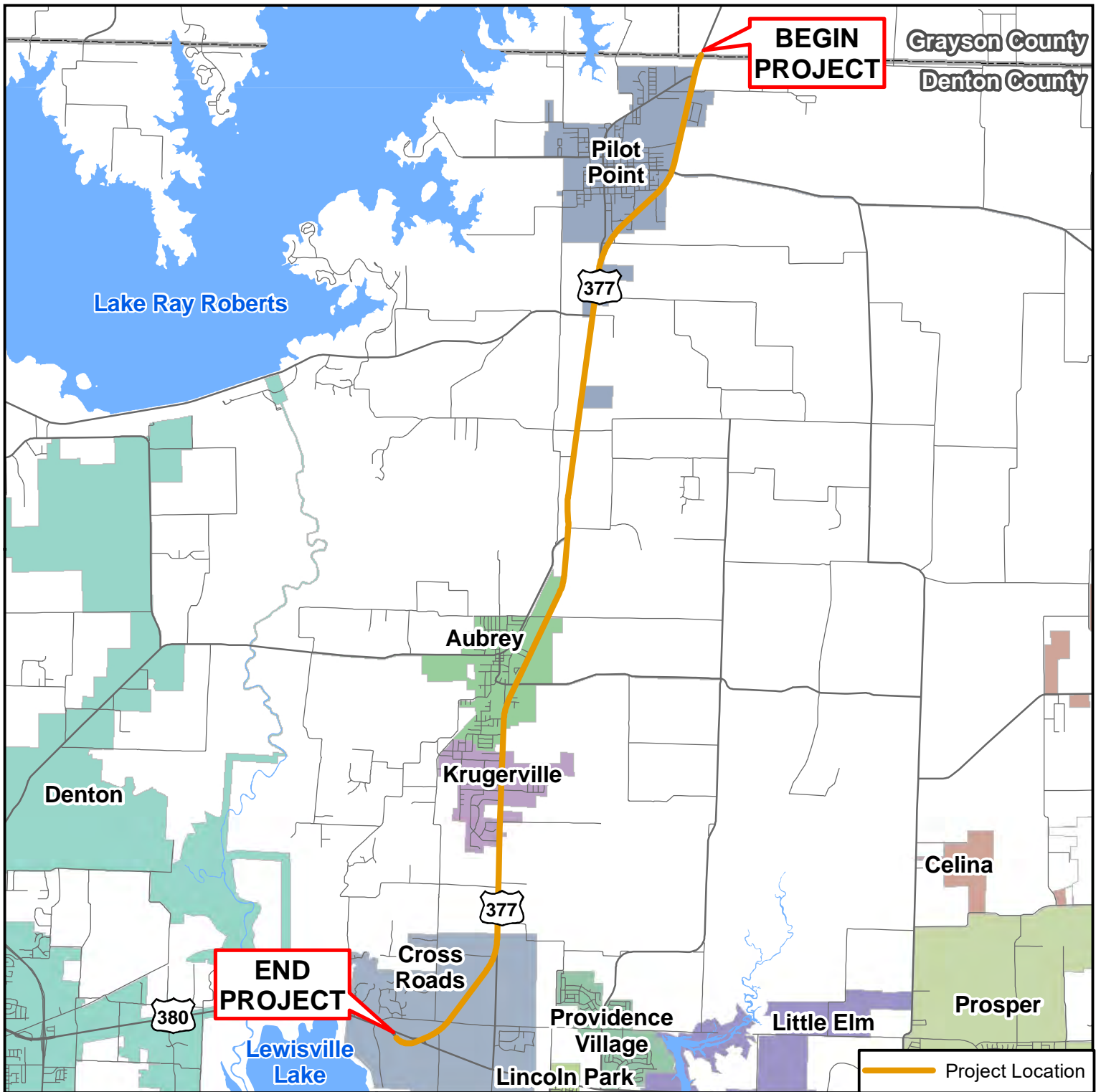


FIGURE 1
PROJECT LOCATION MAP
United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas

CSJ: 0081-06-040



Archeological Survey Report

Project Name: US 377 from North of BUS 377E to US 380

From: North of BUS 377E **To:** US 380

District(s): Dallas

County(s): Denton

CSJ Number: 0081-06-040

Principal Investigator and Firm/Organization: Aaron Norment, AmaTerra Environmental

Antiquities Permit No. 9421

Report Completion Date: September 21, 2020

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 12-09-19, and executed by FHWA and TxDOT.

Abstract

On behalf of the Texas Department of Transportation (TxDOT), AmaTerra Environmental, Inc. (AmaTerra) conducted an intensive archeological survey for the proposed reconstruction and widening of United States (US) 377 from North of BUS 377 to US 380 in Denton County, Texas. The survey APE for this project measured approximately 35.56 acres of proposed right of way (ROW). Work consisted of visual inspection of the entire project area and included the excavation of 64 shovel tests in proposed ROW recommended for survey where right of entry (ROE) was granted and in areas of existing ROW. Surveyed areas with ROE consisted of 7.22 acres, with denied ROE access to recommended survey areas totaling 28.84 acres. Several parcels denied ROE were visually assessed from existing ROW and from adjacent parcels where ROE was granted to determine that no survey was necessary (16.56 acres). Fieldwork was conducted between June 1–3, 2020. Shovel testing recovered artifacts at one location, resulting in a single newly recorded archeological site. Site 41DN622 is an early to mid-twentieth century house site which is recommended not eligible for listing in the National Register of Historic Places (NRHP) or designation as a State Antiquities Landmark (SAL).

This report recommends that no further archeological work is warranted for the any portion of the APE that was surveyed or fully evaluated during the survey. Evaluations from existing ROW and parcels granted ROE were sufficient to determine that 12.28 acres of the 28.84 acres of denied ROE are recommended for intensive archeological survey. No artifacts were collected as part of this project. All notes and field records will be curated at the Center for Archaeological Studies (CAS) at Texas State University in San Marcos, TX.

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Management Summary and Introduction

- **Management Summary**

On behalf of the Texas Department of Transportation (TxDOT), at the request of Civil Associates, Inc., AmaTerra Environmental, Inc. (AmaTerra) conducted an intensive archeological survey of 35.56 acres for the reconstruction and widening of United States (US) 377 through the Cities of Cross Roads, Krugerville, Aubrey, and Pilot Point in Denton County, Texas (**Attachment 1**). The project extends for 13.747 miles through from US 380 to north of Business (BUS) 377E, in Denton County, Texas (**Attachment 2**). The project area encompasses approximately 324 acres, consisting of 245.81 acres of existing ROW, and 78.19 acres of proposed new ROW. The maximum depth of impacts would range between approximately two feet and 14 feet.

US 377 currently consists of a rural two-lane roadway with 12-foot driving lanes and 10-foot shoulders. The roadway consists of a rural two-lane roadway with a continuous two-way left turn lane in Pilot Point, Texas from BUS 377 N to FM 455 E, and in Aubrey, Texas / Krugerville, Texas from FM 428 to Sherry Lane/Industrial Park. This section consists of 12-foot driving lanes, a 14-foot continuous two-way left turn lane, and four-foot shoulders. Along US 377 from BUS 377 S to FM 3524, Union Pacific Railroad runs parallel to the roadway on the west side of the facility. Along this section of roadway, there are four at grade railroad crossings: FM 455 E, St. John Road, Belew Road, and a private driveway. There are ditches along both sides of the roadway that provide surface drainage as well as culverts crossing along the existing roadway at multiple locations. Stormwater runoff within the limits is conveyed through an open ditch drainage system. The facility is intersected by seven major collectors, including: BUS 377 N, BUS 377 S, FM 455, FM 3524, FM 428, FM 424, US 380 and other minor collectors and local roads. Existing speed limits are 60 miles per hour (mph) in rural areas, 55 mph in the urban areas of Pilot Point, Aubrey and Krugerville, Texas and 35 mph in school zones.

The proposed improvements include the reconstruction and widening of US 377. Improvements would include the expansion of the current two-lane rural roadway to a six-lane urban roadway with a raised median to provide additional capacity and improve safety. Improvements would consist of 12-foot-wide travel lanes, and 14-foot-wide outside shared-use lanes, five-foot sidewalks with American Disabilities Act (ADA) curb ramps in both directions. The exception would be no sidewalk on the west side of the road along the parallel section with the Union Pacific Railroad. Proposed drainage will be conveyed by curb and gutter, a storm sewer system and crossing culverts. Other improvements would include realigning the intersection BUS 377 S at US 377 and FM 424 at US 377 for safer operations. The existing ROW width will increase with the proposed project to the typical 140-foot ROW footprint. The proposed project is anticipated to require 63.2 acres of additional ROW and 1.8 acres of proposed permanent drainage easements to accommodate the proposed improvements.

The project is being funded with federal transportation dollars provided by FHWA and will take place on ROW owned or to be acquired by the State of Texas (TxDOT). Therefore, Section 106 of the National Historic Preservation Act (Section 106) and the Antiquities Code of Texas (ACT) apply. As such, an antiquities permit was obtained from the Texas Historical Commission (THC). The project will require permitting and/or oversight from a federal agency; therefore, it is subject to the guidelines of Section 106 of the National historic Preservation Act (Section 106) and will require federal-level cultural resources oversight.

- **Introduction**

The recommended archeological survey area for this project consist of approximately 35.56 acres of the overall APE and extends through the Cities of Cross Roads, Krugerville, Aubrey, and Pilot Point located in Denton County, Texas (**Attachment 1**). This survey was carried out by AmaTerra Environmental Inc, (AmaTerra) on behalf of TxDOT, at the request of Civil Associates, Inc. The survey for the proposed reconstruction and widening of US 377 took place on state lands and land to be acquired by TxDOT. The survey consisted of an intensive pedestrian survey supplemented with shovel testing throughout the APE. A total of 64 shovel tests were excavated within proposed ROW in the APE where ROE was granted, as well as within existing ROW. Typical shovel tests were excavated between 25 and 85 centimeters below surface (cmb) and terminated upon encountering compacted clay, sterile clay, or maximum shovel test depth. Modern trash was documented in the APE in several locations. One new archeological site, 41DN622, was documented within the APE. The site is an early to mid-twentieth century house site, which was demolished sometime in the late twentieth century. Site 41DN622 is not recommended as eligible for listing in the NRHP or designation as a SAL. This report recommends that additional archeological work is only warranted within 12.28 acres for which ROE was denied that could not be fully evaluated or assessed from existing ROW or adjacent parcels where ROE was granted. No further work is needed in the surveyed and assessed portions of the APE.

Archeological field investigations were conducted under the direction of the Principal Investigator, Aaron Norment, with field crew consisting of Robert Lassen and Garrett Wheaton. Fieldwork was conducted on June 1–3, 2020. Technical report write-up was completed by Katherine Seikel and Brittany S. McClain, and maps were created by Vanessa Cragle and Jeff Cragle. All notes and field records will be curated at the Center for Archaeological Studies in San Marcos, TX.

Project Information

- **This survey is:**
 - the initial survey for this project.
 - a continuation of previous survey(s) due to:
 - access issues and/or
 - design changes.Identify previous investigation(s):
- **Report Completion Date:** 09/21/2020
- **Date(s) of Survey:** 6/1/2020 to 6/3/2020
- **Archeological Survey Type:** Reconnaissance Intensive
- **Report Version:** Draft Final
- **Report Author(s) and Affiliation:** Katherine Seikel and Brittany S. McClain, AmaTerra Environmental, Inc.
- **Estimated Percentage of Time that the Principal Investigator was in the Field:** Aaron Norment in field 0% of the time.

Area of Potential Effects and Survey Area

- **Area of Potential Effects (APE)**

The APE is defined as encompassing the limits of the existing right of way; proposed, new project right of way; permanent and temporary easements; and any project-specific locations and utility relocations designated by TxDOT. Note: the APE encompasses the entirety of the project area, regardless of the extent of prior archeological investigations, the particular locations subject to field investigations, or the portion of a project added through a design change. If impacts are not known, worst-case impacts are assumed in defining the APE.

See **Attachment 1** for a map of the APE, which is based on the project information attached as **Attachment 2**.

- **No Survey Area**

The background study and permit application for this project coordinated recommended survey areas for the APE. A total of 35.56 acres of the total 324-acre APE were recommended for survey. All other areas within the APE were visually inspected from the existing ROW. Remaining acreage within the APE was coordinated as not needing intensive archeological survey.

- **Access Denied Area:**

Of the 35.56 acres of the APE was recommended for survey, 40 parcels totaling 28.84 acres were denied entry at the time of survey. These areas are depicted in **Figure 11**. After visual assessments of these parcels during fieldwork, 12.28 acres remain to be surveyed.

- **Survey Area:**

The survey area included 25 parcels of proposed new ROW and portions of the existing ROW totaling 7.22 acres, for which ROE was granted at the time of survey. These areas are depicted in **Figure 11**. The Access Denied areas were visually assessed from the existing ROW or adjacent parcels where ROE was granted as part of this survey. Acreage visually assessed and determined to not need survey measured approximately 16.56 acres.

- **Project Area Ownership:**

Property ownership within the project area was comprised of commercial owned establishments, private property, and portions owned by a political subdivision of the State of Texas. Of the 65 parcels overlapping the recommended survey areas for this project 40 were denied ROE.

Project Setting

- **Natural Setting**

- Topography:

The project setting falls within the Eastern Cross Timbers ecoregion (Omernik and Griffith 2009) (**Figures 1 and 2**). The Eastern Cross Timbers is characterized by gently rolling plains (Griffith et al. 2007). The average annual rainfall is approximately 32–38 inches (Griffith et al. 2007).

- Geology:

According to the Geologic Atlas of Texas (BEG 1976), the project area's underlying geology is made up of Late Cretaceous Woodbine Formation sandstone (**Figure 3**).

- Soils:

Within the APE, Holocene alluvium deposits are found located along an unnamed drainage at the intersection of US 377 and East Burks Road. Upland Pleistocene alluvium occurs in some locations and includes Justin fine sandy loam (1–3 percent slopes) and Wilson clay loam (0–1 percent slopes). Residuum soils include Crockett loam (1–3 percent slopes), Navo clay loam (1–3 percent slopes), Birome fine sandy loam (1–3 percent slopes), Gasil fine sandy loam (1–3 percent slopes), Callisburg fine sandy loam (1–3 percent slopes), Konsil fine sandy loam (1–3 percent slopes), and Silstid loamy fine sand (1–5 percent slopes) (USDA-NRCS 2020) (**Figure 4**). The average depth to bedrock or a restrictive feature is between 35 inches and deeper than 80 inches. Soil deposits along Wilson Creek and the East Fork of the Trinity River have the potential to contain deeply buried archeological deposits.

- Potential Archeological Liability Map:

The Dallas district Potential Archeological Liability Map (PALM) indicates that much of the APE has low potential for both shallow and deeply buried archeological deposits (**Figure 5**). However, there is some potential for shallowly buried cultural material in some areas, particularly along ephemeral drainages.

- Historic Land Use:

Historically, the land within and adjacent to the project area has been rural agricultural properties with patches of wooded areas. Farmsteads and residential structures have been present along or within the APE throughout the twentieth century. Historic aerial photograph and topographic maps from 1952 and 1962 depict portions of the APE in alignment with existing roadways and/or a railroad, however, several sections of the APE cross agricultural fields and properties (**Figures 6 and 7**). US 377, as it is currently aligned was not constructed until sometime after 1962. The communities of Aubrey and Pilot Point are established and present west of the APE by the 1950s. These communities and Krugerville have expanded since the mid-twentieth century and residential and commercial developments associated with these communities is present along the APE.

- Land Use:

The land adjacent to the APE includes commercial and residential developments, particularly in the central and northern portions. While much of the APE is within continually farmed and residential upland settings. Most of the remainder of the area is made up of tilled farmland and ranch land.

- Vegetation:

Vegetation observed within the APE is typically mid to tall grasses with patches of dropseed and maintained short grass lawns (**Figure 8**). Wooded areas are present along the APE in several places, but associated shrubby undergrowth is only present in undeveloped areas (e.g. along creeks or streams, in pastures; **Figure 9**).

- Estimated Ground Surface Visibility:

Visibility throughout the APE was between zero and 20 percent.

- **Regional Cultural History:**

The project area lies in the North Central Texas archeological region (Perttula 2004). Many archeological investigations within the region have been summarized by Lynott (1980), McCormick (1976), Perttula (2004), McGregor and Bruseth (1987), and Prikryl (1990). Even with these, the chronological framework of North Central Texas remains poorly lacking in data. For this report, chronological information presented is in accordance with the data available (Ferring and Yates 1997, 1998). The chronological sequence of the North Central Texas region reflects that of North America, spanning 12,000 years consisting of the Paleo-Indian, Archaic, Late Prehistoric and Historic Periods.

The Paleoindian Period in Texas is characterized by nomadic hunters who relied on a broad range of animal species based on available faunal data (Bousman et al 2004:75). Johnson (1977) reviewed reports on numerous Paleoindian sites that indicated a range of small and medium fauna were harvested in addition to big game. Investigations at the Wilson-Leonard site (41WM235), the Gault site (41BL323), and Lubbock Lake (41LU1) provide evidence of small and medium faunal remains (i.e., turtle, rabbit, squirrel, snakes, gopher, and deer) associated with megafaunal remains (i.e., bison and mammoth) (Collins 1998: 1505–1506). Clovis and Folsom points are the primary diagnostic artifacts associated with this period (Turner and Hester 1999; Collins 1995).

In the North Central Texas archeological region, the Paleoindian period spans roughly the period from 9950 to 6500 BC but lacks extensive archeological evidence. Although the Paleoindian period is poorly represented in the North Central Texas archeological region, surface collections of Paleoindian points such as Plainview and Dalton points (Meltzer 1987; Meltzer and Bever 1995; Prikryl 1990), in situ deposits of Paleoindian points at the Acton site (Blaine et al. 1969), and occurrences of megafauna and small game fauna at the Aubrey site (Ferring and Yates 1997) suggest the presence of a Paleoindian culture.

The Archaic Period spans nearly 7,000 years of prehistory. Generally, trends during the Archaic period suggest increasingly complex settlement systems which correspond with decreased

mobility, increased population size and density, and the development of distinct territories (Johnson and Goode 1994; Prikryl 1990). Projectile points also changed; lanceolate-shaped points gave way to dart points that were stemmed and barbed (Turner and Hester 1999). During the Archaic Period, the climate changed from wet and mild conditions seen in the Paleoindian period, to warmer and drier conditions. Researchers believe that the changes in climate influenced prehistoric subsistence strategies (Weir 1976). The Archaic period in North Central Texas dates from 6500 BC to AD 700, and is subdivided into the Early, Middle and Late Archaic periods.

The Early Archaic period (ca. 6500–4000 BC) is poorly known in the region and is based primarily on surface collections and sites with no isolable Early Archaic components (Prikryl 1990). Projectile points associated with the Early Archaic period include Early Split Stemmed and perhaps Angostura (Prikryl 1990). The period is characterized by small and widely distributed sites, which researchers have suggested is an indication of a generalized hunting and gathering subsistence strategy with high group mobility within large, poorly defined territories (Prikryl 1990).

The Middle Archaic period (4000–1500 BC) is even less well known than the Early Archaic and components from this period are the most poorly represented within the region. As with the Early Archaic, most Middle Archaic sites consist of surface collections. Projectile points associated with the Middle Archaic period include the Basal Notched group (Andice, Bell, Calf Creek), as well as Dawson, Carrollton, Wells, and Bulverde (Prikryl 1990). What evidence is available, (mostly from an intact Middle Archaic component at the Calvert site, 41DN102), has led Ferring and Yates (1997) to suggest the Middle Archaic in North Central Texas can generally be characterized by broad cultural interactions between people, a high degree of mobility, and a subsistence strategy based on small game and deer.

The Late Archaic period (ca. 1500 BC–AD 700) is characterized by an increase in the total number of sites and a greater distribution of sites over the landscape. Prikryl (1990) has suggested this settlement patterning is an indication of an increase in population density and decreased group mobility during the Late Archaic period in North Central Texas. Projectile points associated with the Late Archaic period include Marshall, Edgewood, Castroville, Ellis, Trinity, Dallas, Palmillas, Yarbrough, Godley, Gary and Elam (Prikryl 1990). Investigations at Late Archaic occupation sites in the region have led researchers to suggest that these were used seasonally by small bands pursuing a generalized hunting and foraging strategy (Peter and McGregor 1988; Ferring and Yates 1997).

The Late Prehistoric is marked by the replacement of the atlatl by the bow and arrow and by the production of small arrow points (Turner and Hester 1999). With this technological advancement an apparent increase in warfare is reported (Prewitt 1974; Johnson and Goode 1994). During this stage, several important technological innovations appeared including ceramics. The first evidence of horticulture appeared and resulted in significant changes to ecological and economic adaptations.

In North Central Texas, the Late Prehistoric dates from AD 700 to 1700. This period in North Central Texas can be further subdivided into an early and a late phase (Lynott 1977, Prikryl 1990). The early phase (AD 700–1200) is characterized by a continuation of the hunting and gathering

subsistence strategy of the Archaic period, ceramics tempered with sand and grog, and Scallorn, Catahoula, Alba and Steiner arrow points (Lynott 1977, Prikryl 1990). The late phase (AD 1200–700) is characterized by evidence of horticulture and bison procurement, shell-tempered Nocona Plain ceramics, and Maud, Fresno, Washita, Harrell, and Perdiz points (Harris and Harris 1970; Lynott 1977; Prikryl 1990).

The presence of domesticates at the Cobb-Pool (41DL148) site and other nearby locations has sparked debate surrounding the timing and extent of maize agriculture during the Late Prehistoric period in North Central Texas (Peter and McGregor 1988; Brown et al. 1987; Rohn 1998), although the lack of definitive evidence has left the issue unresolved. Huhnke and Wurtz (2004) suggest the stable carbon isotope value for a single disturbed burial dated to AD 1200 (41DL373; Peter and Clow 1999) is comparable to those of initial maize-consuming Caddo populations in Arkansas. Based on these findings, they suggest maize horticulture may have been introduced into North Central Texas around AD 1200; however, without additional samples this suggestion is speculative.

Historically, Euro-American settlement began in the 1840s with farmers settling along rivers and streams (Odom 2010). In 1841, William Peters and other settlers obtained a land grant from the Texas Congress and established the Texian Land and Immigration Company. Their grant included what is now Denton County. The area was settled slowly, primarily by settlers from other southern states, although a French and a German settlement were also established (Odom 2010). The town of Pilot Point was established by James Pierson along a prominent lookout in 1851 and quickly attracted settlers. It contributed a Confederate company of 101 men under Capt. N. Wilson during the Civil War (Maxwell 2020).

The population of Denton County grew quickly in the 1870s following the Civil War (Odom 2010). In 1881, the town of Aubrey was founded when the Texas and Pacific Railway constructed a section house at the townsite, which was previously named Onega (Fuller 2010). Railroad accessibility also contributed greatly to the agricultural production of the area, which was significantly impacted by the boll weevil and the Great Depression in the early twentieth century. The economy of the area was largely driven by agricultural pursuits into the latter half of the twentieth century.

The arrival of the automobile and the construction of IH-35 and the Dallas–Fort Worth International Airport contributed to the growth of Denton County through the twentieth century. Much of Denton County is now considered a suburb of Dallas-Fort Worth, particularly the southeastern portion (Odom 2010). The town of Krugerville was established in the 1970s as part of suburban expansion in Denton County (Jasinski 2010). Today, the APE is a mix of commercial, residential, and agricultural development.

- **Previous Investigations and Known Archeological Sites:**

Background research for this project consisted of an online-records search through the Texas Historical Commission's (THC) Archeological Sites Atlas (Atlas 2020) and a review of historical maps and aerial photographs. Research focused on the identification of archeological sites, sites

listed as State Antiquities Landmarks (SALs), Recorded Texas Historic Landmarks (RTHLs), sites listed on the National Register of Historic Places (NRHP), cemeteries, and previously conducted archeological surveys within 0.62 miles (one kilometer) of the APE (**Figures 10**). The search identified five previously conducted archeological surveys, one documented archeological site, and five cemeteries (**Tables 1 and 2**).

Of the five previous archeological surveys within a kilometer of the APE, four overlap portions of the APE. A 2017 Cox McLain survey on behalf of the Brazos Electric Power Cooperative, Inc. overlaps roughly one kilometer of the APE along FM 424 and its intersection with US 377. A 1982 EPA survey overlaps the APE for about one kilometer in Krugerville, and another intersects the APE at the northeastern end of Pilot Point. Finally, another EPA survey conducted in 1976 intersects the APE in Aubrey north of the intersection of US 377 and Spring Hill Road. No sites were recorded during these surveys. The remainder of the APE has not been previously surveyed.

Table 1. Previous archeological surveys within a kilometer of the APE.

Year	TAC Permit	Investigator	Sponsor	Overlap APE
1976		EPA	EPA	Yes
1978		EPA	EPA	No
1982		EPA	EPA	Yes
1982		EPA	EPA	Yes
2017		Cox-McLain	Brazos Electric Cooperative	Yes

No previously documented archeological sites overlap the APE, but one lies within one kilometer of it. Site 41DN585 is approximately one kilometer northwest of the APE at 106 West Division Street in Pilot Point. The site was documented in 2013 as part of the Texas Jail Survey. The Atlas site form identifies the site as a historic jail that was converted to a pump station, with the external walls intact. NRHP eligibility is unknown.

Table 2. Cemeteries within a kilometer of the APE.

Cemetery No.	Cemetery Name	Dates	No. of Graves	Overlap
DN-C013	Belew Cemetery	1848-Present	3,200+	Adjacent
DN-C075	Conway Cemetery			Adjacent
DN-C117	Craven Cemetery	1868-?		No
DN-C089	Pilot Point Memorial			No
DN-C016	Pilot Point Community	1854-Present	4,000	No
DN-C021	Skinner Cemetery	1858-1928	62	No

There are six cemeteries within a kilometer of the APE (**Table 2**). Two of those cemeteries are adjacent to the APE. Belew Cemetery is between the towns of Pilot Point and Aubrey. The ages of

the interments range from the late 19th century to the late 20th century. Although adjacent to the APE, it is separated from the APE by a railroad. Conway Cemetery was south of Krugerville at the intersection of US 377 and Liberty Road. It is fenced and located behind a more recent commercial development, which provides a barrier between the cemetery and the APE. Four additional cemeteries are located within one kilometer of the APE: Craven Cemetery, Pilot Point Memorial African Americans Cemetery, Pilot Point Community Cemetery, and Skinner Cemetery. All four are located within Pilot Point, with the earliest interments dating to the mid-nineteenth century. Pilot Point Community Cemetery is still in operation.

- **Evaluation of Project Setting:**

Current project setting characteristics affect the likelihood of identifying archeological sites due to prior and on-going disturbances. Portions of the APE have been previously disturbed due to on-going modern disturbances documented within the APE including artificially levelled and paved surfaces, excavated drainage ditches, new housing developments, utility poles, buried utilities, persistent farming, regular road construction and maintenance, and urban development which have likely destroyed most traces of surficial prehistoric archeological deposits in these shallow upland settings. As such, these disturbances greatly affect the overall likelihood, preservation, and/or integrity of any archeological sites that may have been present.

Survey Methods

- **Surveyors:**

Robert Lassen and Garrett Wheaton

- **Description of Methods:**

As part of the background study for the US 377 project, AmaTerra recommended 35.56 acres of proposed new ROW for intensive archeological survey, which was coordinated with and approved by TxDOT. Survey concentrated on these portions of the APE where subsurface investigation was considered necessary based on field conditions. Survey efforts involved 100 percent pedestrian survey of parcels granted ROE. Shovel testing was conducted to locate and identify, determine the nature, extent, and if possible, the significance of any archeological resources discovered in the APE. Shovel tests were distributed throughout the project area based on observed field conditions. In some instances, prior disturbances and/or impervious ground cover (pavement, concrete, etc.) negated the need for shovel tests in certain areas. Forty parcels were denied ROE; therefore, 28.84 acres of the recommended survey areas of proposed ROW were not shovel tested. These parcels were visually inspected from existing ROW, as well as from adjacent parcels where ROE was granted. Based on this visual assessment, 16.56 acres of proposed ROW could be written off as not requiring survey due to numerous disturbances stated prior. Similar disturbances and environmental conditions were observed within the denied ROE parcels. Shovel tests were excavated near the boundaries between parcels granted ROE and those denied ROE to better understand potential subsurface conditions in the parcels denied ROE (see **Figure 11**).

Shovel tests were excavated in 20 cm levels until sterile subsoil, compact clay, or until another reason presented itself for terminating the shovel test. All fill was screened through ¼-inch mesh hardware cloth. All shovel tests were mapped using a hand-held GPS unit and logged on digital and standardized forms that recorded profile characteristics, depth, and contents, if any. Investigators took photographs of the landscape and various disturbances to document the APE setting. A total of 64 shovel tests were excavated throughout the APE (**Figure 11; Attachment 4; Table 3**).

- **Subsurface Probes**

Table 3. Subsurface Probe Summary (**Figure 11; Attachment 4: Shovel Test Table**)

Method	Quantity in Existing ROW	Quantity in Proposed New ROW	Quantity in Proposed New Easements	Total Number per Acre
Shovel Test Pits	6	58	NA	8.86*
Power Auger Probes	NA	NA	NA	NA
Mechanical Trenches/Scrapes	NA	NA	NA	NA

*based on shovel testing the 7.22 acres where ROE was granted and survey of existing ROW.

- **Other Methods:**

None

- **Collection and Curation:** NO YES

Records will be curated at CAS.

- **Comments on Methods:**

The survey methods used met the Council of Texas Archeologist (CTA) standards, which call for one test every two acres for area surveys, or at least one shovel test every 100 meters for linear projects for every 30 meters of corridor width. For areas of the recommended survey areas granted ROE for survey, shovel test rates were 8.86 shovel tests per acre. This is based on the 64 shovel tests excavated in the 7.22 acres with ROE.

Backhoe trenching was recommended along a tributary of Pecan Creek; however, due to lack of ROE, trenching was not conducted at this location during survey.

Survey Results

- **Survey Area Description:**

The APE extends across a series of well drained stream terraces and floodplains associated with several creeks, streams, and associated drainages around and crossing the APE (**Figures 12–15**). Much of the APE is still rural in character with scatters of commercial and residential development along US 377, which becomes denser in proximity to Pilot Point, Aubrey and Krugerville (**Figures 16–18**). Shovel test spacing varied throughout the project due to the variable width of the ROW and the size of the recommended survey areas. The entirety of the existing ROW and the recommended survey areas with ROE were pedestrian surveyed and was supplemented with 64 shovel tests. Three of the shovel tests encountered modern rubbish between the surface and 55 cmbs, indicating disturbance to the soils in those areas. Investigators recorded one new archeological site. 41DN622, south of the intersection of US 377 and FM 424 (see below for description).

The typical shovel test soil profile within the APE consisted of a light to dark yellowish brown (10YR4/4, 10YR5/4, or 10YR6/4) sandy loam or sandy clay loam between zero and 35 cmbs, overlying a dark grayish brown (10YR4/2) or yellowish brown (10YR5/6) sandy clay or clay between 35 and 55 cmbs, and terminating at 5 YR 5/4 compacted or basal clay around 55 cmbs (**Attachment 4: Shovel Test Table**). Shovel test depths varied and were terminated between 30 and 90 centimeters below surface (cmbs) and upon encountering either sterile clay, compact soil, or 80–85 cmbs.

Approximately 28.84 acres were unable to be surveyed due to denied ROE and were evaluated visually from the existing ROW or adjacent parcels where ROE was granted. The result was 12.28 acres requiring intensive archeological survey and 16.56 acres not requiring additional survey. Disturbances throughout the project area were also documented.

- **Potential Buffer Zone Description:**

Conditions 50 feet beyond this APE is nearly identical to conditions observed within the APE.

- **Archeological Materials Identified and Archeological Site Description:**

One historic site (41DN622) was documented during the survey. The only other material encountered on the survey was modern trash.

Site 41DN622 is an early to mid-twentieth century homestead or farmstead located approximately 80–85 meters east of US 377 and approximately 10 meters west of FM 424 within proposed new ROW (**Figure 19**). The site area encompasses approximately 0.3 acres and was defined through shovel testing and the APE limits. However, a 1952 aerial photograph depicts an outbuilding west of the site (**Figure 20**), which may be associated with the site; no evidence of this structure was documented during the survey and its location may have been impacted by construction of the business west of the site. Site 41DN622 is located on flat topography between two low hills. Vegetation within the site mostly consisted of maintained short grasses with taller grasses and weeds growing along a dilapidated barbed

wire fence (**Figure 21**). The site area has been bladed or tilled in the past and the only evidence of past structural foundations on the site is a five by five meter area with a low rise in the dirt, which corresponds with the approximate location of the house depicted on the 1952 aerial photograph. The only other features documented at site 41DN622 are a 60 x 60-centimeter piece of sandstone, which appears to be a well capping stone, documented between shovel tests GW29 and GW30, and remnants of a dirt driveway to FM 424 at the northeast corner of the site.

Soils in the site are a mix of sandy and silty loams derived from loamy sandstone residuum. Soil profiles within the site consisted of a dark yellowish brown (10YR4/4) silty or sandy loam or a black (10YR2/1) sandy silty loam, underlain by a yellowish brown (10YR5/6) or dark yellowish brown (10YR4/4) compacted clay. Most shovel tests were terminated between 35 and 55 cmbs when compacted basal clays were encountered.

Artifacts were documented at the surface and to depths of 30 cmbs within 41DN622. Nine shovel tests were placed within the site, eight of which contained modern and historic cultural materials. Artifacts recorded at the site included shards of window glass (n=2), colorless vessel glass (n=26), aqua vessel glass (n=1), amber glass snuff bottle fragments (n=2), brown/amber vessel glass (n=2), milk glass (n=2), melted glass (n=1), a milk glass marble, glass light bulb fragments (n=2), porcelain and whiteware sherds (n=7), stoneware sherds (n=7), a metal hook, a metal latch fragment, brick fragments, and degraded asphalt fragments (**Figures 22-25**). One of the milk glass fragments was from a Boyd closure for a Mason jar (**Figure 26**) and several vessel glass fragments were from drinking glasses or tumblers. One whiteware base has a partial makers mark, but it could not be identified from the portion remaining (see **Figure 22**). None of the material is diagnostic to a specific period, however it is consistent with early to mid-twentieth century household materials.

At the time this site was documented, no structures or remnants of foundations were present in the area aside from the features mentioned above. A review of historic maps and aerial photographs (**Figures 20, 27-28**) determined that at least one structure present in the area where 41DN622 was recorded between 1918 and 1962. It is probable that the removal and/or demolition of the structure(s) depicted disturbed soil deposits at the site.

Deed research was conducted online on the Denton County Clerk's Official Records Search page (**Table 4**). Based on a review of historic maps and aerial photographs, a structure was present on the property between 1918 and 1962. The long duration of the presence of structures on the property means that the household could be affiliated with any of the identified landowners who owned the property prior to its acquisition by Mattie L. Martin. It is unclear as to whether Mrs. Martin occupied the property prior to or following her acquisition of it. The structure(s) could have been occupied or utilized until sometime prior to 1968 when the structures are no longer present on historic imagery.

This site contains shallowly buried deposits of historic glass, ceramics, and construction materials, the integrity of which have been impacted by mowing and possibly blading since the site structures were demolished sometime between 1962 and 1968.

Table 4. Deed Research

Grantor	Grantee	Date(s)	Reference
Thermacote Systems	TFA Specialists, Inc.	10/03/2006	Doc. 2006-122163
Nathalie E. Clauss	Thermacote Systems	10/17/2002	RP/5194/1558
Uni Tek, Inc.	Nathalie E. Clauss	05/26/2000	RP/4598/1501
Amon Family Partners	Uni Tek	05/03/1996	Doc. 1996-30450
Glenn C. Amon	Amon Family Partners	10/12/1991	Vol 3078, Pg. 682
Griffin Property, Inc	Glenn C. Amon	01/18/1985	RP/1558/419
Mattie L. Martin, Estate	Griffin Property	12/12/1984	RP/1537/156
Rossie L. Stafford et al.	Mattie L. Martin	01/10/1959	DR/443/90
Note: Mattie L. Martin's first husband was Bonnard F. Stafford, who was an heir to William J. Stafford			
A.A. and Pearl Epley	William J. Stafford	01/01/1917	DR/150/218
P.F. and T.M. Barnett	A.A. Epley	03/10/1914	DR/130/374
Note: Prior ownership could not be determined.			

Recommendations

- **Results Valid Within (check all that apply to define the buffer zone):**

- | No Survey Area (NSA) | Survey Area | Either |
|--|--|--|
| <input type="checkbox"/> 50 feet of NSA | <input checked="" type="checkbox"/> 50 feet of survey area | <input type="checkbox"/> Variable, see map |
| <input type="checkbox"/> <0.0> feet of NSA | <input type="checkbox"/> <0.0> feet of survey area | |

- **The Definition and Evaluation of this Horizontal Buffer Zone Is Based on One or More of the Following Considerations (check all that apply):**

- The integrity of the areas has been affected by prior development, modern land use practices, or other disturbances.
- The areas are unlikely locations for past human activity.
- The survey shows that archeological materials are unlikely to exist in this area.
- The survey shows that areas may contain intact archeological sites or the survey results cannot preclude the possibility of such sites.
- Other (specify)

- **Archeological Site Evaluations:**

Site 41DN622 was the only location where cultural material was encountered. The site is shallowly buried artifact scatter associated with an early to mid-twentieth century house site, which has been impacted by the demolition of the house and other structures on the property and subsequent land use practices. Additionally, individuals who may have occupied the site are not well known in the history of Denton County. This site lacks archeological integrity of location, association, and material within the accessible APE, and the portions surveyed are considered not eligible for listing in the NRHP (36 CFR 60.4) or for designation as a SAL (13 TAC 26.8).

- **Comments on Evaluations:**

None

- **Further Work:**

The proposed project would have no effect on archeological historic properties and/or State Antiquities Landmarks within the horizontal buffer zone, as specified in the previous subsections. Any design change within this area would not require additional review or investigation. Design changes that either extend beyond the buffer zone or result in potential impacts deeper than the impacts considered in this report would require additional review. In addition, the following recommendations apply to the APE.

Site 41DN622 was the only site recorded and it is recommended not eligible to the NRHP or as a SAL. It is also recommended that no further archeological work is warranted prior to construction at the site location.

Parcels denied ROE were visually inspected from existing ROW and from adjacent parcels where ROE was granted. Various manmade disturbances were observed throughout the APE. All 28.84 acres of the proposed survey areas where ROE was not granted were visually inspected from accessible portions of the APE. Based on the results of the field inspection and documentation of disturbances in these areas it is recommended that 16.56 acres denied ROE have a very low likelihood of containing intact, buried archeological deposits. As such, these areas were visually inspected and do not require additional survey. It is recommended that 12.28 acres from 21 parcels require additional survey work once ROE is granted. Amongst these parcels are the areas recommended for backhoe trenching along the tributary to Pecan Creek (see Figure 11).

Parcels recommended for additional work: 41347, 41476, 41591, 41768, 41792, 41021, 73631, 42974, 52137, 52141, 122344, 231213, 52296, 52210, 52218, 32202, 302203, 52556, 38311, 38316, and 699062. Reference Figure 11 for parcel locations. (Totaling 12.28 acres).

Justification:

One archeological site was documented within the APE, and there are locations for which ROE was not available at the time of survey which have potential to contain intact cultural deposits. The archeological survey conducted for this project either directly or indirectly inspected and evaluated all portions of the APE recommended for survey. Therefore, further work is recommended for 12.28 acres of the APE which could not be fully assessed through visual inspection from accessible portions of the APE (see parcel numbers above).

All work for this survey was conducted in compliance with Section 106 of the National Historic Preservation Act under the guidelines presented in 36 CFR 800, and in compliance with the Antiquities Code of Texas, whose guidelines are outlined under 12 TAC 26.

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2020 Geologic Database of Texas. Digital Dataset

Weir, F. A.

1976 The Central Texas Archaic. Unpublished PhD dissertation, Anthropology Department,
Washington State University.



12. Creek tributary in the northern part of the APE (facing south).



13. Terrace landform along a drainage in northern half of the APE (facing east).



14. Typical view of undeveloped landscape in the APE (facing south).



15. Overview of agricultural land along APE (facing east).



16. Development in Pilot Point (facing south).



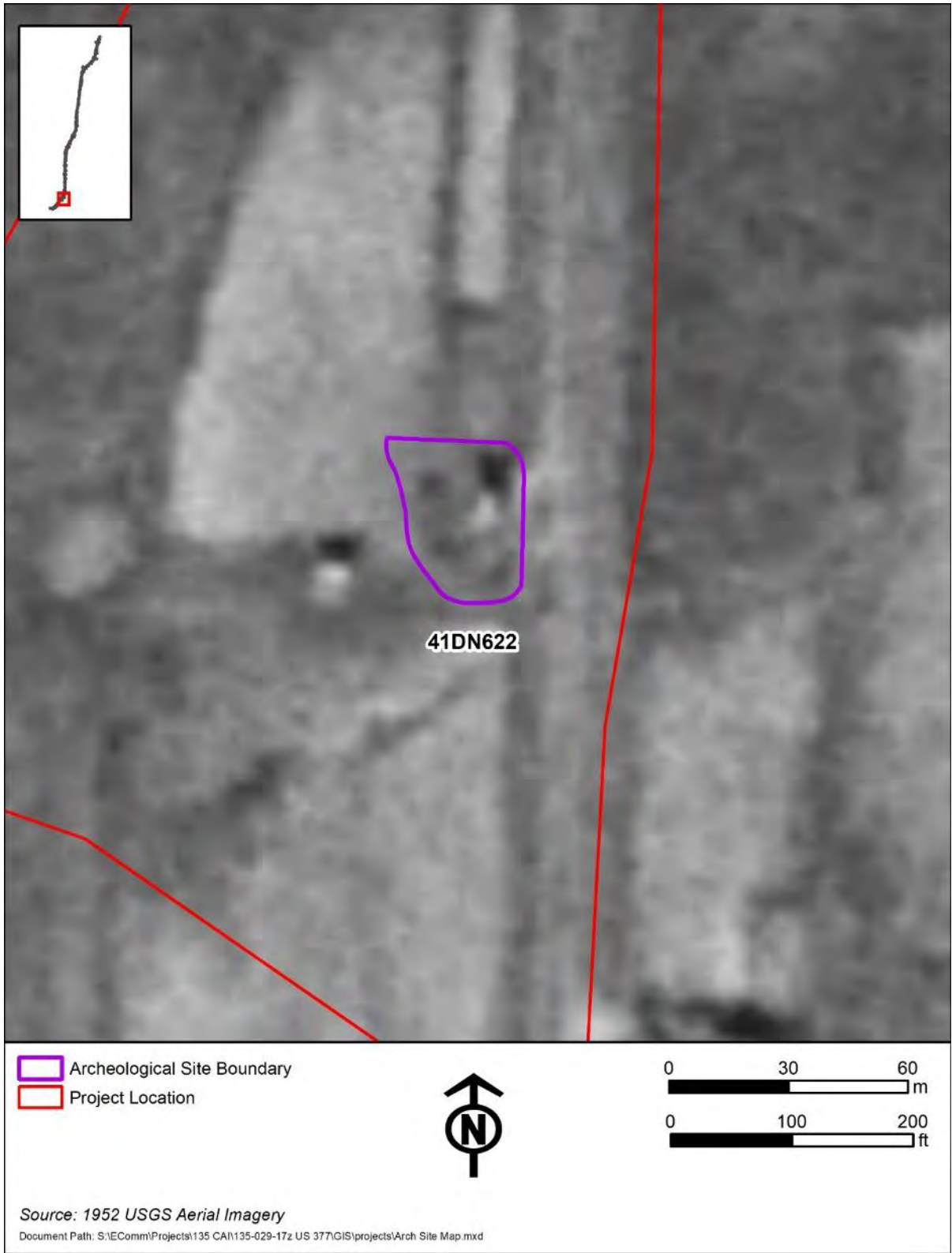
17. Development in Aubrey (facing north).



18. Gas line and utilities along the ROW (facing west).

This figure has been redacted due to site-sensitive material.

19. 41DN622 Site Map depicted on recent aerial imagery.



20. Site area depicted on a 1952 aerial photograph.



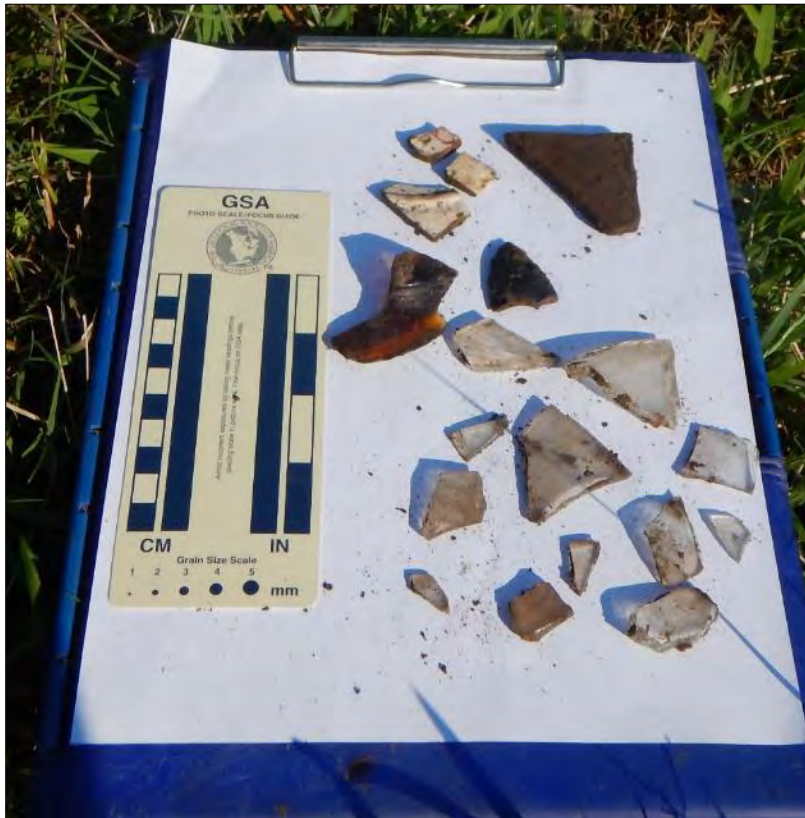
21. Overview of site (facing south).



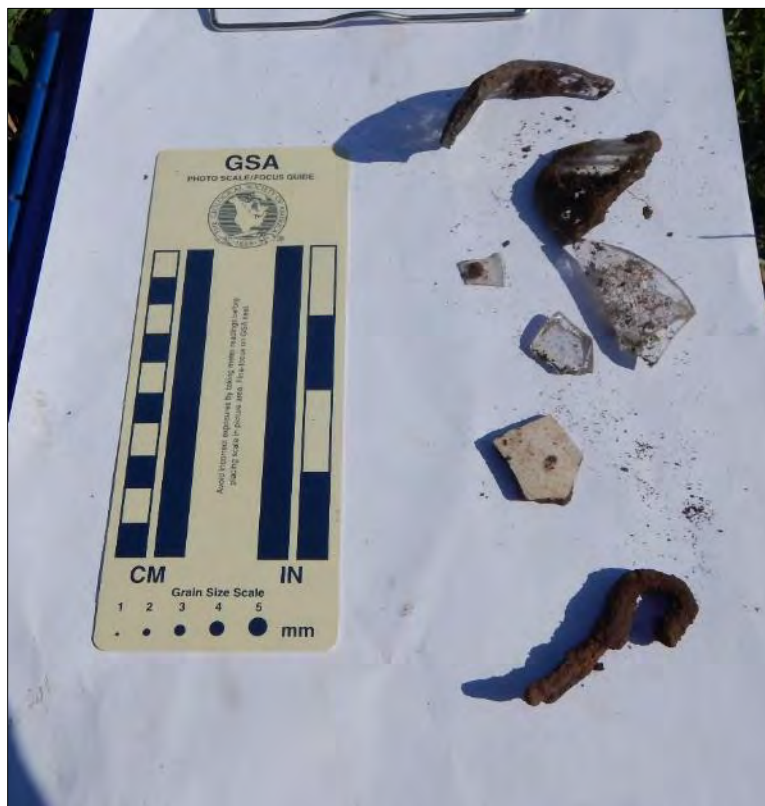
22. Artifacts recovered from shovel test GW-25 (note partial maker's mark on whiteware base sherd).



23. Snuff bottle fragment from GW-31.



24. Artifacts from GW-35.



25. Artifacts from GW-39.



26. Artifacts from GW-29 (note milkglass lid fragment).

This figure has been redacted due to site-sensitive material.

27. Site 41DN622 site area depicted on a 1918 USDA soil map.

This figure has been redacted due to site-sensitive material.

28. Site 41DN622 site area depicted on a 1962 USGS topographic map.



Species Analysis Form and Tier 1 Site Assessment

United States Highway (US) 377

From: North of Business (BUS) 377E

To: US 380

Denton County, Texas

Control-Section-Job (CSJ): 0081-06-040

Date: September 2020



Form Species Analysis

Project Name: **US 377**

CSJ(s): **0081-06-040**

County(ies): **Denton**

Date Analysis Completed: **May 20, 2020**

Prepared by: **Jonathan Stewart, Civil Associates, Inc.**

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

I. Endangered Species Act

Select the appropriate statement below based on the determinations recorded in the completed project-specific species analysis spreadsheet:

- This project does not require consultation with or authorization from the USFWS under the Endangered Species Act.
- This project requires consultation with or authorization from the USFWS under the Endangered Species Act.

For a project that requires federal authorization or approval, if the completed project-specific species analysis spreadsheet indicates, "May affect," for any species, then consultation with the USFWS is required under section 7 of the Endangered Species Act and the second checkbox above must be checked.

For more information regarding the Endangered Species Act, see **ENV's Endangered Species Act Handbook**.

II. TPWD Coordination

Select the appropriate statement below:

- This project consists solely of maintenance activities that are of a type or type(s) covered by the Maintenance Program Environmental Assessment, and therefore no coordination with TPWD is required. Do not fill out a separate Tier I Site Assessment Form.
- This project does not consist solely of maintenance activities that are of a type or type(s) covered by the Maintenance Program Environmental Assessment, and therefore a Tier I Site Assessment is required.

III. Bald and Golden Eagle Protection Act (BGEPA)



Select the appropriate statement below:

- This project is not within 660 feet of an active or inactive Bald or Golden Eagle nest. Therefore, no coordination with USFWS is required.
- This project is within 660 feet of an active or inactive Bald or Golden Eagle nest; however, construction activities within 660 feet will not occur during the nesting season, and the project will adhere to the National Bald Eagle Management Guidelines of 2007. Therefore, no coordination with USFWS is required.
- This project is within 660 feet of an active or inactive Bald or Golden Eagle nest, and construction within 660 feet will occur during the nesting season or the project will not adhere to the National Bald Eagle Management Guidelines of 2007. Therefore, coordination with USFWS to obtain a Non-Purposeful Take Permit is required.

For more information regarding BGEPA, see Section 7.0 of **ENV’s Ecological Resources Handbook**.

IV. Migratory Bird Protections

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

- use measures to prevent or discourage birds from building nests on man-made structures within portions of the project area planned for construction, and
- schedule construction activities outside the typical nesting season.

For more information regarding migratory bird protections, see **ENV’s Guidance: Avoiding Migratory Birds and Handling Potential Violations** and Section 3.0 of **ENV’s Ecological Resources Handbook**.

V. Resources Consulted

Indicate which resources were consulted/actions were taken to make the species analysis determinations recorded in this form (DO NOT ATTACH TO THIS FORM OR UPLOAD TO ECOS ANY RESOURCES CONSULTED – JUST CHECK THE APPROPRIATE BOX(ES)):

- Aerial Photography Topographic Map Natural Diversity Database (NDD)
- Karst Zone Maps Ecological Mapping System of Texas (EMST)
- Site Visit Species Expert Consulted Species Habitat or Presence/absence Survey
- Other: _____



Tier I Site Assessment

Main CSJ: 0081-06-040

Form Prepared By: Jonathan Stewart, Civil Associates, Inc.

Date of Evaluation: August 5, 2020

Proposed Letting Date: August 2023

Project not assigned to TxDOT under the NEPA Assignment MOU

District(s): Dallas

County(ies): Denton

Roadway Name: United States (US) 377

Limits From: North of BUS 377

Limits To: US 380

Project Description: Please see the project description available in ECOS in the Work Plan Development Section I.

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

1. No Is the project limited to a maintenance activity exempt from coordination?
<http://txdot.gov/inside-txdot/division/environmental/maintenance-program.html>
2. No Has the project previously completed coordination with TPWD?
3. Yes Is the project within range of a state threatened or endangered species or SGCN and suitable habitat is present?

***Explain:**

No state-listed species would be impacted by the project. SGCN were analyzed and only those included on the Tier 1 form may be impacted. All other SGCN will not be impacted by the project.

There is potential suitable habitat present within the proposed project area for the following SGCN species: Woodhouse's toad (*Anaxyrus woodhousii*), Strecker's chorus frog (*Pseudacris streckeri*), Western burrowing owl (*Athene cunicularia hypugaea*), thirteen-lined squirrel (*Ictidomys tridecemlineatus*), long-tailed weasel (*Mustela frenata*), Eastern spotted skunk (*Spilogale putorius*), Western hog-nosed skunk (*Conepatus leuconotus*), Eastern box turtle (*Terrapene carolina*), Western box turtle (*Terrapene ornata*), slender glass lizard (*Ophisaurus attenuatus*), Texas garter snake (*Thamnophis sirtalis annectens*), and Glen Rose yucca (*Yucca necopina*).

Suitable habitats for these species were present; however, no species were observed within the proposed project area.

Date [TPWD County List](#) Accessed: June 26, 2020

Date that the NDD was accessed: May 20, 2020

What agency performed the NDD search? TPWD



NDD Search Results for EOIDs and Tracked Managed Areas

EOID Number	Common Name	Scientific Name	Listing Status	Buffer Zone
615434	Bald Eagle	<i>Haliaeetus leucocephalus</i>	SGCN	1.5 Mile
4276	Bald Eagle	<i>Haliaeetus leucocephalus</i>	SGCN	10 Mile
9883	Texas heelsplitter	<i>Potamilus amphichaenus</i>	State-listed	10 Mile
3741	Little bluestem - indiangrass series	<i>Schizachyrium scoparium - Sorghastrum nutans series</i>		10 Mile
434	Texas garter snake	<i>Thamnophis sirtalis annectens</i>	SGCN	10 Mile

 No Does the BMP PA eliminate the requirement to coordinate for all species?

Comments:

Species-specific BMPs are present in the BMP PA for the following species: Western burrowing owl, eastern spotted skunk, (using plains spotted skunk BMPs by TPWD approval), and Texas garter snake. These are listed in full at the end of this form.

There are no species-specific BMPs for Woodhouse's toad, Strecker's chorus frog, thirteen-lined squirrel, western hog-nosed skunk, Eastern box turtle, Western box turtle, slender glass lizard, and Glen Rose yucca.

4. No NDD and TCAP review indicates adverse impacts to remnant vegetation?

Comments:

According to the MOU, important remnant vegetation includes 1) rare vegetation communities and 2) those that are suitable habitat for SGCN.

To address the first component, TxNDD data obtained from TPWD on May 20, 2020, was reviewed along with the TPWD RTEST list for Denton County, dated June 26, 2020. The TxNDD radii were 1.5 miles and 10 miles from the project area (see table above). The other specific species and plant community detections are located outside of the project area and would not be impacted by the proposed project.

To address important remnant vegetation's second component, general habitat types of those SGCNs that may be impacted by the proposed project include agriculture, grassland, woodland, riparian, and urban. These habitat types are located immediately adjacent to the existing US 377 corridor, and each includes an edge component. Developed habitat is located throughout the project area. Impacts to these habitats were quantified based on the MOU type that best fits vegetation present in the given habitat, by using EMST correcting for discrepancies using actual observed vegetation types as discussed below. None of these areas that include habitat for SGCNs are considered rare or remnant vegetation communities.

5. No Does the project require a NWP with PCN or IP by USACE?

6. No Does the project include more than 200 linear feet of stream channel for each single and complete crossing of one or more of the following that is not already channelized or otherwise maintained:

7. No Does the project contain known isolated wetlands outside the TxDOT ROW that will be directly impacted by the project?



8. Yes Would the project impact at least 0.10 acre of riparian vegetation?

*Explain:

The proposed project could impact approximately 2.4 acres of riparian vegetation.

9. Yes Does project disturb a habitat type in an area equal to or greater than the area of disturbance indicated in the Threshold Table Programmatic Agreement?

*Explain:

The approximately 20.21 acres of Disturbed Prairie MOU Type habitat disturbance exceeds the 3-acre area of threshold indicated in the Texas Cross Timbers Threshold Table PA for Disturbed Prairie.

The approximately 3.2 acres of Crosstimbers Woodland and Forest MOU Type habitat disturbance exceeds the 2-acre area of threshold indicated in the Texas Cross Timbers Threshold Table PA for Crosstimbers Woodland and Forest.

The approximately 2.4 acres of Riparian MOU Type habitat disturbance exceeds the 0.1-acre area of threshold indicated in the Texas Cross Timbers Threshold Table PA for Riparian.

*Attach associated file of EMST output (Mapper Report or other Excel File which includes MOU Type, Ecosystem Name, Common/Vegetation Type Name) in ECOS

Excel File Name:

8c - US 377 EMST Observed Vegetation Impacts Table (0081-06-040).xls

9.1. Yes Is there a discrepancy between actual habitat(s) and EMST mapped habitat(s)?

*Explain:

MOU Type	Actual Area (ac)	EMST Area (ac)
Agriculture	3.37	0.6
Crosstimbers Woodland & Forest	3.2	108.6
Disturbed Prairie	20.21	4.7
Riparian	2.4	4.3
Tallgrass Prairie, Grassland	0	1.1
Urban	277.5	187.3
Total	306.6	306.6

Attach file showing discrepancy between actual and EMST mapped habitat(s).

File Name:

8c - US 377 EMST Observed Vegetation Impacts Table (0081-06-040).xls

Is TPWD Coordination Required?



Yes

Early Coordination

Administrated Coordination - Must be conducted through ENV-NRM

BMPs Implemented or EPICs included (as necessary):

The implementation of the following BMPs by TxDOT eliminates the need for coordination for species impacts under section 2.206(i) of the MOU:

Water Quality BMPs - In addition to BMPs required for a TCEQ Storm Water Pollution Prevention Plan and/or 401 water quality permits:

- a) Minimize the use of equipment in streams and riparian areas during construction. When possible, equipment access should be from banks, bridge decks, or barges.
- b) When temporary stream crossings are unavoidable, remove stream crossings once they are no longer needed and stabilize banks and soils around the crossing.

Texas garter snake - Terrestrial Reptile BMPs:

- a) Apply hydro-mulching and/or hydroseeding in areas for soil stabilization and/or revegetation of disturbed areas where feasible. If hydro-mulching 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.
- b) 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.
- c) Inform contractors that if reptiles are found on project site allow species to safely leave the project area.
- d) Avoid or minimize disturbing or removing downed trees, rotting stumps, and leaf litter where feasible.
- e) Contractors will be advised of potential occurrence in the project area, and to avoid harming the species if encountered.

Western burrowing owl - Bird BMPs:

In addition to complying with the Migratory Bird Treaty Act perform the following BMPs:

- a) 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.
- b) Do not disturb, destroy, or remove active nests, including ground nesting birds, during the nesting season.
- c) Avoid the removal of unoccupied, inactive nests, as practicable.
- d) Prevent the establishment of active nests during the nesting season on TxDOT owned and operated facilities and structures proposed for replacement or repair.
- e) Do not collect, capture, relocate, or transport birds, eggs, young, or active nests without a permit.

DAL proposes to utilize eastern spotted skunk BMPs for western hog-nosed skunk.

DAL proposes to implement the Amphibian and Aquatic Reptile BMPs for Woodhouse's toad and Strecker's chorus frog.

TxDOT proposes implementing the following for species with no species-specific BMPs included in the BMP PA: Eastern box turtle, Western box turtle, and slender glass lizard - Terrestrial Reptile BMPs.

Thirteen-lined squirrel, long-tailed weasel, and Glen Rose Yucca - Contractors will be advised of potential occurrence in the project area and to avoid harming the species if encountered.



TxDOT Contact Information

Name: Leslie Mirise

Phone Number: (214) 320-6162

E-mail: Leslie.Mirise@txdot.gov



Suggested Attachments

Aerial Map (with delineated project boundaries)

USFWS T&E List

TPWD T&E List

Species Analysis Summary

NDD EOID List and Tracked Managed Areas (Required for TPWD Coordination)

EMST Project MOU Summary Table (Required for TPWD Coordination)

TPWD SGCN List

Photos (Required for TPWD Coordination)

Previous TPWD Coordination Documentation (if applicable)



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/arlingontexas/>

<http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>

In Reply Refer To:

May 14, 2020

Consultation Code: 02ETAR00-2019-SLI-1886

Event Code: 02ETAR00-2020-E-03985

Project Name: 2636 US 377

Subject: Updated 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: 02ETAR00-2019-SLI-1886

Event Code: 02ETAR00-2020-E-03985

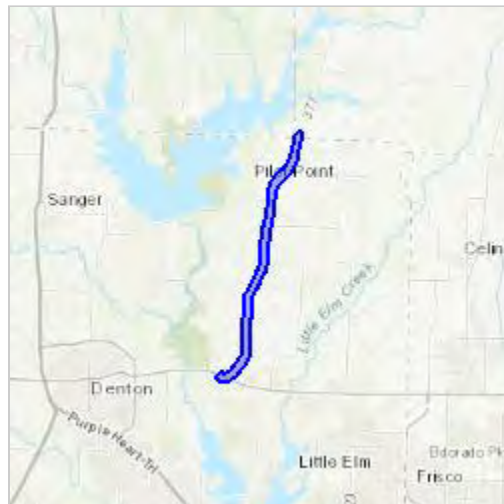
Project Name: 2636 US 377

Project Type: TRANSPORTATION

Project Description: Improvements and Widening

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/33.32414108900901N96.97099912120973W>



Counties: Denton, TX | Grayson, 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.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.
-

Birds

NAME	STATUS
<p>Least Tern <i>Sterna antillarum</i></p> <p>Population: interior pop. No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8505</p>	Endangered
<p>Piping Plover <i>Charadrius melodus</i></p> <p>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:</p> <ul style="list-style-type: none"> ▪ Wind Energy Projects <p>Species profile: https://ecos.fws.gov/ecp/species/6039</p>	Threatened
<p>Red Knot <i>Calidris canutus rufa</i></p> <p>No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ Wind Energy Projects <p>Species profile: https://ecos.fws.gov/ecp/species/1864</p>	Threatened
<p>Whooping Crane <i>Grus americana</i></p> <p>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</p>	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Last Update: 6/26/2020

DENTON COUNTY

AMPHIBIANS

Strecker's chorus frog *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

Woodhouse's toad *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: SU

BIRDS

bald eagle *Haliaeetus leucocephalus*

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

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3B,S3N

Black Rail *Laterallus jamaicensis*

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: PT State Status: T SGCN: Y
Endemic: N Global Rank: G3G4 State Rank: S2

Franklin's gull *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S2N

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: LE State Status: E SGCN: Y
Endemic: N Global Rank: G4T3Q State Rank: S1B

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

DENTON COUNTY

BIRDS

mountain plover *Charadrius montanus*

Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

Rufa Red Knot *Calidris canutus rufa*

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.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4T2	State Rank: SNRN

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

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S2

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

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DENTON COUNTY

BIRDS

whooping crane *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1N

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

No accepted common name *Arethaea ambulator*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GNR	State Rank: SNR

MAMMALS

American badger *Taxidea taxus*

Generalist. Prefers areas with soft soils that sustain ground squirrels for food. When inactive, occupies underground burrow. Young are born in underground burrows.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

big brown bat *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

big free-tailed bat *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G5	State Rank: S3

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DENTON COUNTY

MAMMALS

black-tailed prairie dog

Cynomys ludovicianus

Dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

eastern red bat

Lasiurus borealis

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G3G4	State Rank: S4

eastern spotted skunk

Spilogale putorius

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

hoary bat

Lasiurus cinereus

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G3G4	State Rank: S4

long-tailed weasel

Mustela frenata

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

Mexican free-tailed bat

Tadarida brasiliensis

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

mink

Neovison vison

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

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DENTON COUNTY

MAMMALS

mountain lion

Puma concolor

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S2S3

plains spotted skunk

Spilogale putorius interrupta

Generalist; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Federal Status:

State Status:

SGCN: N

Endemic: N

Global Rank: G4T4

State Rank: S1S3

southern short-tailed shrew

Blarina carolinensis

Found in East Texas pine forests and agricultural land. May favor areas with abundant leaf litter and fallen logs (Baumgardner et al. 1992). Nest sites are probably under logs, stumps and other debris.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S4

swamp rabbit

Sylvilagus aquaticus

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S5

thirteen-lined ground squirrel

Ictidomys tridecemlineatus

Prefers short grass prairies with deep soils for burrowing. Frequently found in grazed ranchland, mowed pastures, and golf courses.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S5

tricolored bat

Perimyotis subflavus

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G2G3

State Rank: S3S4

western hog-nosed skunk

Conepatus leuconotus

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. *telmalestes*

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G4

State Rank: S4

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DENTON COUNTY

MAMMALS

woodland vole *Microtus pinetorum*

Include grassy marshes, swamp edges, old-field/pine woodland ecotones, tallgrass fields; generally sandy soils.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

MOLLUSKS

Louisiana Pigtoe *Pleurobema riddellii*

Occurs in small streams to large rivers in slow to moderate currents in substrates of clay, mud, sand, and gravel. Not known from impoundments (Howells 2010f; Randklev et al. 2013b; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G1G2 State Rank: S1

Sandbank Pocketbook *Lampsilis satura*

Occurs in small streams to large rivers in slow to moderate current in sandy mud to sand and gravel substrate. Can occur in a variety of habitats but most common in littoral habitats such as banks or backwaters or in protected areas along point bars (Randklev et al. 2013b; Randklev et al. 2014a; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status: State Status: T SGCN: Y
Endemic: Global Rank: G2? State Rank: S1

Texas Heelsplitter *Potamilus amphichaenus*

Occurs in small streams to large rivers in standing to slow-flowing water; most common in banks, backwaters and quiet pools; adapts to some reservoirs. Often found in soft substrates such as mud, silt or sand (Howells et al. 1996; Randklev et al. 2017a). [Mussels of Texas 2019]

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G1G3 State Rank: S1

REPTILES

common garter snake *Thamnophis sirtalis*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status: State Status: SGCN: N
Endemic: Global Rank: G5 State Rank: S2

eastern box turtle *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

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DENTON COUNTY

REPTILES

slender glass lizard

Ophisaurus attenuatus

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

smooth softshell

Apalone mutica

Aquatic: Large rivers and streams; in some areas also found in lakes and impoundments (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Texas garter snake

Thamnophis sirtalis annectens

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G5T4	State Rank: S1

Texas horned lizard

Phrynosoma cornutum

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, 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. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

timber (canebrake) rattlesnake

Crotalus horridus

Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

western box turtle

Terrapene ornata

Terrestrial: Ornate or western box turtles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

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DENTON COUNTY

REPTILES

western rattlesnake *Crotalus viridis*

Terrestrial: Dry desert and prairie grasslands, shrub desert rocky hillsides; edges of arid and semi-arid river breaks.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

PLANTS

Glen Rose yucca *Yucca necopina*

Grasslands on sandy soils and limestone outcrops; flowering April-June

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S3

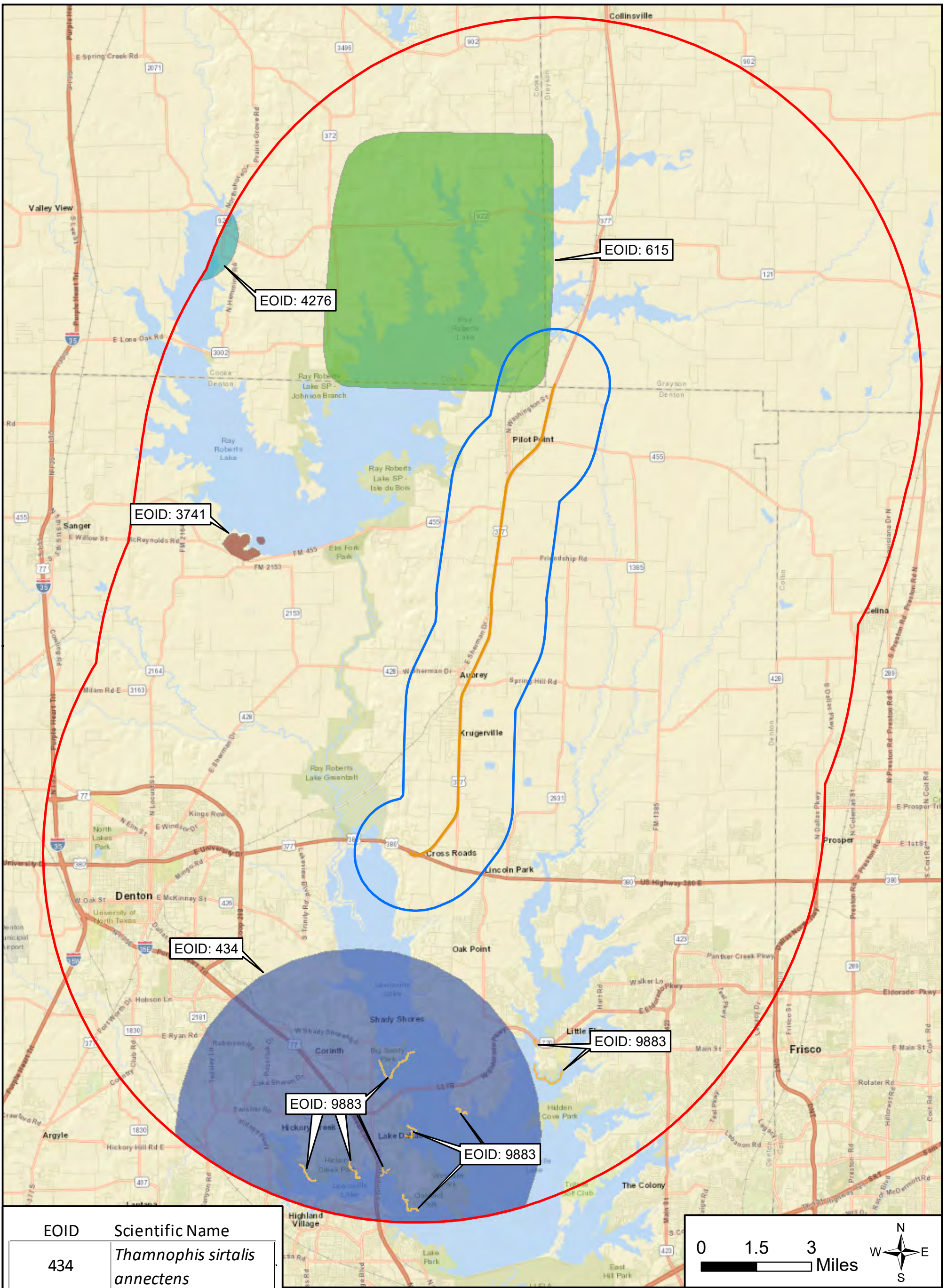
Topeka purple-coneflower *Echinacea atrorubens*

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

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

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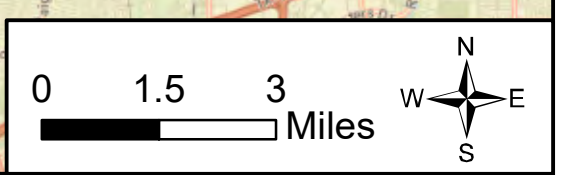


EOID	Scientific Name
434	<i>Thamnophis sirtalis annectens</i>
615	<i>Haliaeetus leucocephalus</i>
4276	<i>Schizachyrium scoparium-sorghastrum nutans series</i>
9883	<i>Potamilus amphichaenus</i>

Legend

- Project Location
- 1.5-mile NDD buffer
- 10-mile NDD buffer

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community; TPWD NDD (accessed 5/14/2020)



TXNDD Map
United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040

Element Occurrence Record

Scientific Name: Haliaeetus leucocephalus

Occurrence #: 42

Eo Id: 4276

Common Name: bald eagle

Track Status: Track all extant and selected historical EOs

Identification Confirmed: Y - Yes

TX Protection Status:

Global Rank: G5

State Rank: S3B,S3N

Federal Status:

Location Information:

Directions

FROM JUNCTION OF ROUTES 372 AND 922 AT MOUNTAIN SPRINGS, GO WEST 5.2 MILES ON 922, TURN LEFT AND GO SOUTH 0.7 MILES ON LIGHT DUTY ROAD, TURN LEFT AND GO EAST 0.4 AIR MILE TO ABANDONED BALD EAGLE NEST ON RAY ROBERTS RESERVOIR

Survey Information:

First Observation: 1993-03-18

Survey Date:

Last Observation: 1993-04-13

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments: A MAJOR COLD FRONT PASSED THROUGH COOKE AND DENTON COUNTIES ON NIGHT OF 13 APRIL AND EARLY MORNING OF 14 APRIL THAT PRODUCED HIGH WINDS, HEAVY RAIN, AND A DRAMATIC DROP IN TEMPERATURE; NO EAGLE ACTIVITY AT NEST SITE WAS VERIFIED SINCE THE STORM; ADDITIONALLY, BOATING ACTIVITY WAS OBSERVED WITHIN THE BUOYS BY A LANDOWNER AND VERBALLY REPORTED TO GAME WARDEN TWO OR THREE DAYS AFTER THE INCIDENT, REPORTING THAT A BOAT WAS DIRECTLY UNDER THE NEST

Protection

Comments:

Management

Comments:

Data:

EO Data: ABANDONED NEST; IN MID-MARCH 1993 TWO MATURE BIRDS APPEARED TO BE NESTING, BY EARLY APRIL 1993 BIRD WAS INCUBATING TWO EGGS, BY 10 APRIL BIRDS WERE OFF NEST MORE FREQUENTLY AND WERE LAST SEEN ON THE NEST ON 13 APRIL, BY 21 APRIL HERON ACTIVITY WAS NOTICED AT NEST SITE

Community Information:

Scientific Name:

Stratum:

Dominant:

Lifeform:

Composition Note:

Reference:

Element Occurrence Record

Citation:

REID, JEFFERY A. 1993. MEMO TO USFWS FIELD SUPERVISOR RE: ABANDONMENT OF BALD EAGLE NEST ON RAY ROBERTS RESERVOIR (INCLUDES MAPS FOR BALD EAGLE AND INTERIOR LEAST TERN NESTING LOCALITIES). MAY 3, 1993.

Specimen:

Element Occurrence Record

Scientific Name: Haliaeetus leucocephalus

Occurrence #: 53

Eo Id: 615

Common Name: bald eagle

Track Status: Track all extant and selected historical EOs

Identification Confirmed: Y - Yes

TX Protection Status:

Global Rank: G5

State Rank: S3B,S3N

Federal Status:

Location Information:

Directions

TERRITORY ON LAKE RAY ROBERTS BETWEEN MOUNTAIN SPRINGS AND TIEGA; INCLUDES ISLE DU BOIS CREEK, INDIAN CREEK, WOLF CREEK, AND WALNUT CREEK BRANCHES

Survey Information:

First Observation: 1992

Survey Date: 1999

Last Observation: 1992

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments: TPWD NEST # 049-1A

Protection

Comments:

Management

Comments:

Data:

EO Data: NEST # 049-1A: 1992 - NEST PRODUCED 2 YOUNG; 1993-1994 - NEST WAS INACTIVE; 1995 - NO DATA; 1996 - NEST WAS INACTIVE; 1997 - NO DATA; 1998-1999 - NEST WAS INACTIVE.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

MITCHELL, MARK. 1999. PROJECT NO. 30: BALD EAGLE NEST SURVEY AND MANAGEMENT. PERFORMANCE REPORT. AUGUST 31, 1999.

MITCHELL, MARK. 1997. MEMO TO SHANNON BRESLIN OF 30 JULY 1997 PROVIDING BALD EAGLE NESTING DATA, INCLUDING COUNTY MAPS WITH ESTIMATED TERRITORIES.

Element Occurrence Record

Specimen:

Element Occurrence Record

Scientific Name: Potamilus amphichaenus

Occurrence #: 1

Eo Id: 9883

Common Name: Texas heelsplitter

Track Status: Track all extant and selected historical EOs

Identification Confirmed: Y - Yes

TX Protection Status: T

Global Rank: G1G3

State Rank: S1

Federal Status:

Location Information:

Directions

Mussels were observed at multiple sites in Lewisville Lake. The directions are generalized as this record consists of multiple observations.

Survey Information:

First Observation: 1977-WI

Survey Date: 1999-09-22

Last Observation: 1999-09-22

Eo Type:

Eo Rank: E

Eo Rank Date: 1999-09-22

Observed Area:

Comments:

General

Description:

Comments: Winter 1977-Fall 1978: Sampling coincided with an extended drought which resulted in substantial lowering of the reservoir level. Shells were extremely abundant and readily counted. Survey transects were 4 meters wide along the water edge for varying distances. Length of transects varied from 50-70 meters, but some were extended beyond 70 meters in order to increase sample number. Representative specimens have been deposited in the Dallas Museum of Natural History. 31 August and 1, 7, and 22 September 1999: The data were unclear if the species was observed on all dates or a subset of dates.

Protection

Comments:

Management

Comments:

Data:

EO Data: Winter 1977-Fall 1978: At least 41 shells were observed at 10 sites. 31 Aug and 1, 7, and 22 Sep 1999: Living individuals were observed at one site.

Community Information:

Scientific Name:

Stratum:

Dominant:

Lifeform:

Composition Note:

Reference:

Citation:

Neck, Raymond W. 1990. Geological substrate and human impact as influences on bivalves of Lake Lewisville, Trinity River, Texas. The Nautilus 104(1):16-25.

Howells, Robert G. 2000. Distributional surveys of freshwater bivalves in Texas: progress report for 1999. Management Data Series No. 170. Texas Parks and Wildlife Dept., Inland Fisheries Division. 49 pp.

5/14/2020

Element Occurrence Record

Specimen:

Element Occurrence Record

Scientific Name: Potamilus amphichaenus

Occurrence #: 2

Eo Id: 9884

Common Name: Texas heelsplitter

Track Status: Track all extant and selected historical EOs

Identification Confirmed: Y - Yes

TX Protection Status: T

Global Rank: G1G3

State Rank: S1

Federal Status:

Location Information:

Directions

Mussels were collected from Lake Grapevine.

Survey Information:

First Observation: 1975-10-31

Survey Date: 1975-10-31

Last Observation: 1975-10-31

Eo Type:

Eo Rank: H

Eo Rank Date: 1995-10-31

Observed Area:

Comments:

General

Description:

Comments: 1975 specimen: The species identification was verified by Raymond W. Neck and Robert G. Howells. Originally the specimen was deposited at Texas Christian University, Fort Worth, TX. Randklev, et al., 2010 lists the specimen in the Joseph Britton Freshwater Mussel Collection, Elm Fork Natural Heritage Museum, University of North Texas.

Protection

Comments:

Management

Comments:

Data:

EO Data: 31 Oct 1975: Three specimens were collected; one was taken alive.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Neck, Raymond W. and R. G. Howells. 1995. Interim performance reports and final report for Project No. 47: Status survey for the Texas heelsplitter. TPWD contract no. 333-0208. Submitted to Texas Parks & Wildlife Dept. 30 November 1993, 30 November 1994, and October 1995.

Randklev, Charles R., B. Lundeen, J. H. Kennedy. 2010. Summary of unpublished records for candidate mussel species from four museums in north central Texas.

Element Occurrence Record

Specimen:

Joseph Britton Freshwater Mussel Collection, Elm Fork Natural Heritage Museum, University of North Texas, Denton, TX; K. O'Kane (# 1782), Catalog # unknown, 31 Oct 1975, JBFWMC; UNT.

Element Occurrence Record

Scientific Name: Schizachyrium scoparium - Andropogon gerardii - Sorghastrum nutans - Bifora americana Mollisol Grassland

Occurrence #: 8 **Eo Id:** 11567

Common Name: Mollisol Blackland Prairie

Track Status: Track all extant and selected historical EOs

Identification Confirmed: Y - Yes

TX Protection Status:

Global Rank: G1G2 **State Rank:** SNR

Federal Status:

Location Information:

Directions

These sites are located outside the northwestern city boundary of Denton, on the south side of County Road 1171/Cross Timbers Road, and on the west side of the Kansas City Southern railroad tracks and Marshall Road. The directions were created by database staff. The directions are generalized as this record consists of multiple observations.

Survey Information:

First Observation: 2009-10-15 **Survey Date:** 2009-10-15 **Last Observation:** 2009-10-15

Eo Type: **Eo Rank:** E **Eo Rank Date:** 2009-10-15

Observed Area:

Comments:

General Description: 15 October 2009: There is a pond on one of the sites; See the Composition Tab for other species within the area.

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: 15 October 2009: One plant community of high quality grass species consisting of 100 percent and one plant community of low quality grass species consisting of 100 percent low quality; Forb species are poor to low quality; Exotic species are present; Woody cover ranges from less than 1 percent to greater than 75 percent.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>
Andropogon gerardii	Herb (field)	Y	Graminoid	SFID: 23572
Bifora americana	Herb (field)	Y	Forb	SFID: 23572
Bothriochloa laguroides	Herb (field)	N	Graminoid	SFID: 23572
Prosopis glandulosa	Tree (canopy & subcanopy)	N	Small-leaved tree	SFID: 23572
Schizachyrium scoparium	Herb (field)	Y	Graminoid	SFID: 23572
Sorghastrum nutans	Herb (field)	Y	Graminoid	SFID: 23572

Element Occurrence Record

Reference:

Citation:

Native Prairies Association of Texas. 2011. Tallgrass prairie survey project that includes shapefiles, excel files, documents, images, and protocol for multiple counties in Texas (2000-2013).

Specimen:

Element Occurrence Record

Scientific Name: Schizachyrium scoparium - Andropogon gerardii - Sorghastrum nutans - Bifora americana Mollisol Grassland
Occurrence #: 9 **Eo Id:** 11568
Common Name: Mollisol Blackland Prairie **Track Status:** Track all extant and selected historical EOs
Identification Confirmed: Y - Yes **TX Protection Status:**
Global Rank: G1G2 **State Rank:** SNR **Federal Status:**

Location Information:

Directions

These sites are located approximately 1.0 air mile northwest of Double Oak and 2.0 air miles southeast of Lantana, on the east side of Copper Canyon Road, and the north side of FM 407/Justin Road. The directions were created by database staff. The directions are generalized as this record consists of multiple observations.

Survey Information:

First Observation: 2009-10-15 **Survey Date:** 2009-10-15 **Last Observation:** 2009-10-15
Eo Type: **Eo Rank:** E **Eo Rank Date:** 2009-10-15

Observed Area:

Comments:

General See the Composition Tab for other species within the area.
Description:

Comments:

Protection
Comments:

Management
Comments:

Data:

EO Data: 15 October 2009: One plant community of low quality consisting of grass species that are 25 percent high quality natives; Forb species are 100 percent low quality; Exotic species are present; Woody cover is 26-50 percent.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>
Andropogon gerardii	Herb (field)	Y	Graminoid	SFID: 23566
Bifora americana	Herb (field)	Y	Forb	SFID: 23566
Prosopis glandulosa	Tree (canopy & subcanopy)	N	Small-leaved tree	SFID: 23566
Schizachyrium scoparium	Herb (field)	Y	Graminoid	SFID: 23566
Sorghastrum nutans	Herb (field)	Y	Graminoid	SFID: 23566

Element Occurrence Record

Reference:

Citation:

Native Prairies Association of Texas. 2011. Tallgrass prairie survey project that includes shapefiles, excel files, documents, images, and protocol for multiple counties in Texas (2000-2013).

Specimen:

Element Occurrence Record

Scientific Name: Schizachyrium scoparium - Andropogon gerardii - Sorghastrum nutans - Bifora americana Mollisol Grassland
Occurrence #: 10 **Eo Id:** 11569
Common Name: Mollisol Blackland Prairie **Track Status:** Track all extant and selected historical EOs
Identification Confirmed: Y - Yes **TX Protection Status:**
Global Rank: G1G2 **State Rank:** SNR **Federal Status:**

Location Information:

Directions

These sites are located approximately 3.7 air miles southwest of Flower Mound, on the east side of Deer Path, and the north side of Prince Lane. The directions were created by database staff. The directions are generalized as this record consists of multiple observations.

Survey Information:

First Observation: 2009-10-15 **Survey Date:** 2009-10-15 **Last Observation:** 2009-10-15
Eo Type: **Eo Rank:** E **Eo Rank Date:** 2009-10-15

Observed Area:

Comments:

General See the Composition Tab for other species within the area.
Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: 15 October 2009: One plant community of 90 percent high quality grass species; Forb species are low quality consisting of 95 percent low quality and 5 percent high quality; Exotic species are present; Woody cover is 26-50 percent.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>
Andropogon gerardii	Herb (field)	Y	Graminoid	SFID: 23563
Bifora americana	Herb (field)	Y	Forb	SFID: 23563
Schizachyrium scoparium	Herb (field)	Y	Graminoid	SFID: 23563
Sorghastrum nutans	Herb (field)	Y	Graminoid	SFID: 23563
Symphotrichum novae-angliae	Herb (field)	N	Forb	SFID: 23563

Element Occurrence Record

Reference:

Citation:

Native Prairies Association of Texas. 2011. Tallgrass prairie survey project that includes shapefiles, excel files, documents, images, and protocol for multiple counties in Texas (2000-2013).

Specimen:

Element Occurrence Record

Scientific Name: Schizachyrium scoparium - Andropogon gerardii - Sorghastrum nutans - Bifora americana Mollisol Grassland

Occurrence #: 11 **Eo Id:** 11570

Common Name: Mollisol Blackland Prairie

Track Status: Track all extant and selected historical EOs

Identification Confirmed: Y - Yes

TX Protection Status:

Global Rank: G1G2 **State Rank:** SNR

Federal Status:

Location Information:

Directions

The site is located outside the northeastern boundary of the Northwest Regional Airport, on the north side of Hampton Road, just to the east of IH-35. The directions were created by database staff.

Survey Information:

First Observation: 2009-10-15 **Survey Date:** 2009-10-15 **Last Observation:** 2009-10-15

Eo Type: **Eo Rank:** E **Eo Rank Date:** 2009-10-15

Observed Area:

Comments:

General See the Composition Tab for other species within the area.

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: 15 October 2009: One plant community of medium quality grass species that are 75 percent high quality and 25 percent low quality; Forb species are 100 percent low quality; Exotic species are present; Woody cover is 6-25 percent.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>
Andropogon gerardii	Herb (field)	Y	Graminoid	SFID: 23569
Bifora americana	Herb (field)	Y	Forb	SFID: 23569
Prosopis glandulosa	Tree (canopy & subcanopy)	N	Small-leaved tree	SFID: 23569
Schizachyrium scoparium	Herb (field)	Y	Graminoid	SFID: 23569
Sorghastrum nutans	Herb (field)	Y	Graminoid	SFID: 23569

Element Occurrence Record

Reference:

Citation:

Native Prairies Association of Texas. 2011. Tallgrass prairie survey project that includes shapefiles, excel files, documents, images, and protocol for multiple counties in Texas (2000-2013).

Specimen:

Element Occurrence Record

Scientific Name: Schizachyrium scoparium-sorghastrum nutans series

Occurrence #: 78

Eo Id: 3741

Common Name: Little Bluestem-indiangrass Series

Track Status: Track all extant and selected historical EOs

Identification Confirmed: Y - Yes

TX Protection Status:

Global Rank: G2

State Rank: S2

Federal Status:

Location Information:

Directions

NORTH SIDE ROUTE 455, 0.1 TO 1.1 ROAD MILES WEST OF WEST END OF LAKE RAY ROBERTS DAM

Survey Information:

First Observation:

Survey Date:

Last Observation: 1991

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area: 420.00

Comments:

General

Description:

Comments: DIAMOND WILL SURVEY IN SEPTEMBER 1991

Protection

Comments:

Management

Comments:

Data:

EO Data:

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

DILLARD, J. 1991. MEMO TO DAVID DIAMOND DATED 17 JULY 1991. INTERNAL MEMO, TPWD.

Specimen:

Element Occurrence Record

Scientific Name: Schizachyrium scoparium-sorghastrum nutans series

Occurrence #: 105

Eo Id: 2293

Common Name: Little Bluestem-indiangrass Series

Track Status: Track all extant and selected historical EOs

Identification Confirmed: Y - Yes

TX Protection Status:

Global Rank: G2

State Rank: S2

Federal Status:

Location Information:

Directions

FROM INTERSECTION OF IH-35 AND HIGHWAY 1171, TRAVEL WEST ALONG 1171 CA. 4 MILES TO JUNCTION OF HIGHWAYS 1171 AND 2499; FROM THAT INTERSECTION, TRAVEL SOUTH ALONG 2499 CA. 1.75 MILES TO JUNCTION OF HIGHWAYS 2499 AND 3040; FLOWER MOUND PRAIRIE IS IN NORTHEAST QUADRANT OF THAT INTERSECTION

Survey Information:

First Observation:

Survey Date: 1995-02

Last Observation: 1995-02

Eo Type:

Eo Rank: C

Eo Rank Date: 1995-02-01

Observed Area: 12.00

Comments:

General Description: ALLUVIAL GRAVEL DEPOSIT CREATES MARKED TOPOGRAPHIC CHANGE WITHIN PRAIRIE

Comments: LAND USES TO THE NORTH AND EAST ARE URBAN; LANDS SOUTH AND WEST ARE VACANT (BUT SOON TO BE DEVELOPED)

Protection Comments:

Management Comments:

Data:

EO Data: COMMUNITY APPEARS TO BE LITTLE BLUESTEM-BIG BLUESTEM-INDIANGRASS ASSOCIATION

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

EIDSON, JIM. NORTH TEXAS LAND STEWARD, TEXAS NATURE CONSERVANCY, 1942 SOUTH LAKESHORE, ROCKWALL, TEXAS 75087; PHONE: 903/568-4139.

Specimen:

Element Occurrence Record

Scientific Name: Spilogale putorius **Occurrence #:** 39 **Eo Id:** 12819
Common Name: eastern spotted skunk **Track Status:** Track all extant and selected historical EOs
Identification Confirmed: Y - Yes **TX Protection Status:**
Global Rank: G4 **State Rank:** S1S3 **Federal Status:**

Location Information:

Directions

The specimen label states that it was collected 8.0 miles west of Sherman, Grayson County, TX.

Survey Information:

First Observation: 1978 **Survey Date:** 1978 **Last Observation:** 1978
Eo Type: **Eo Rank:** H **Eo Rank Date:** 1978

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: 1978: One preserved specimen, of unknown sex, age, and preservation type.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

McCarley, Howard. 1995. Letter of 14 April to Peggy Horner, Texas Parks and Wildlife Department, Conservation Scientist, regarding *Vulpes velox*, and *Spilogale putorius* from Austin College, Sherman, TX.

Specimen:

Element Occurrence Record

Scientific Name: Thamnophis sirtalis annectens

Occurrence #: 20

Eo Id: 434

Common Name: Texas garter snake

Track Status: Track all extant and selected historical EOs

Identification Confirmed: Y - Yes

TX Protection Status:

Global Rank: G5T4

State Rank: S1

Federal Status:

Location Information:

Directions

LAKE DALLAS

Survey Information:

First Observation:

Survey Date:

Last Observation:

Eo Type:

Eo Rank: U

Eo Rank Date: 2006-12-12

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Kirby, H. (s.n.). No date. Specimen No. 4644 BCB.

Specimen:

Baylor University, Bryce C. Brown Collection at Strecker Museum. No Date. H. Kirby, Catalog # 4644 BCB, SM.

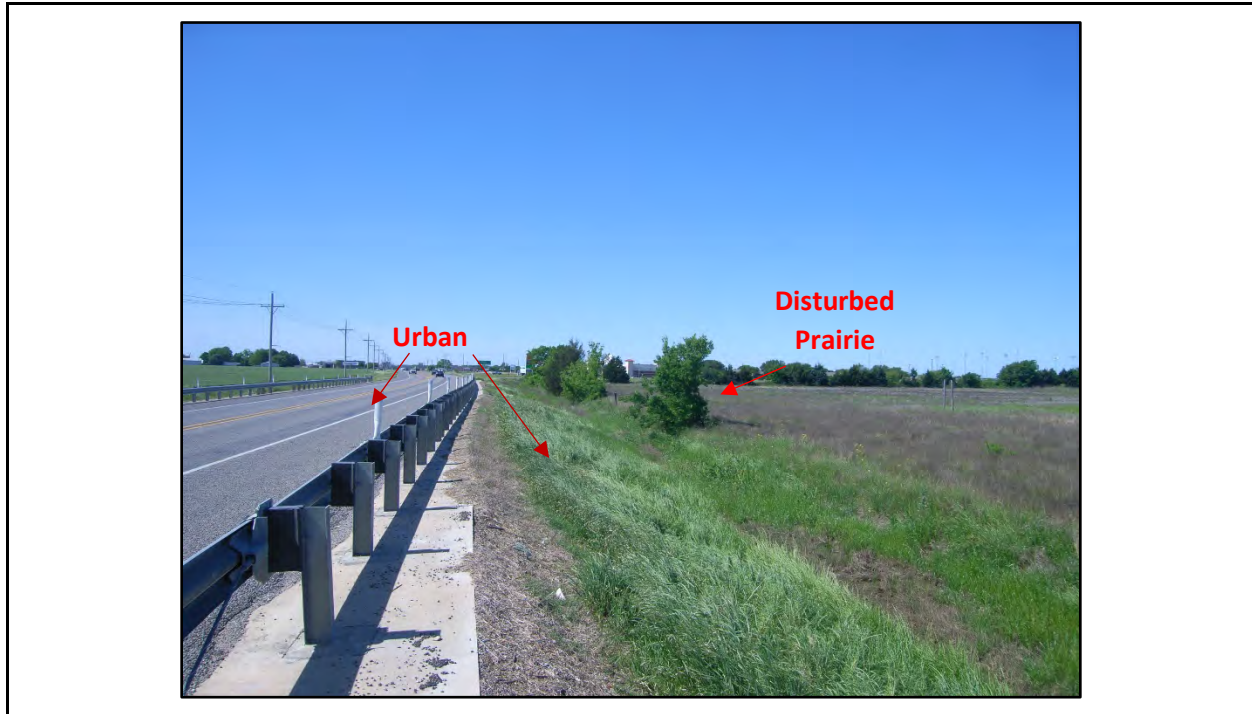
Kirby, H. (s.n.). No date. Specimen No. 4644 BCB. (S??KIRXXTXUS)



Photograph 1: View looking south along the US 377 east ROW from near STA. 96+00. The TESCP/EMST Mapper classifies the roadway and vegetation as Disturbed Prairie and Tallgrass Prairie, Grassland; however, the roadway better fits the Urban classification. The unmaintained vegetation fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



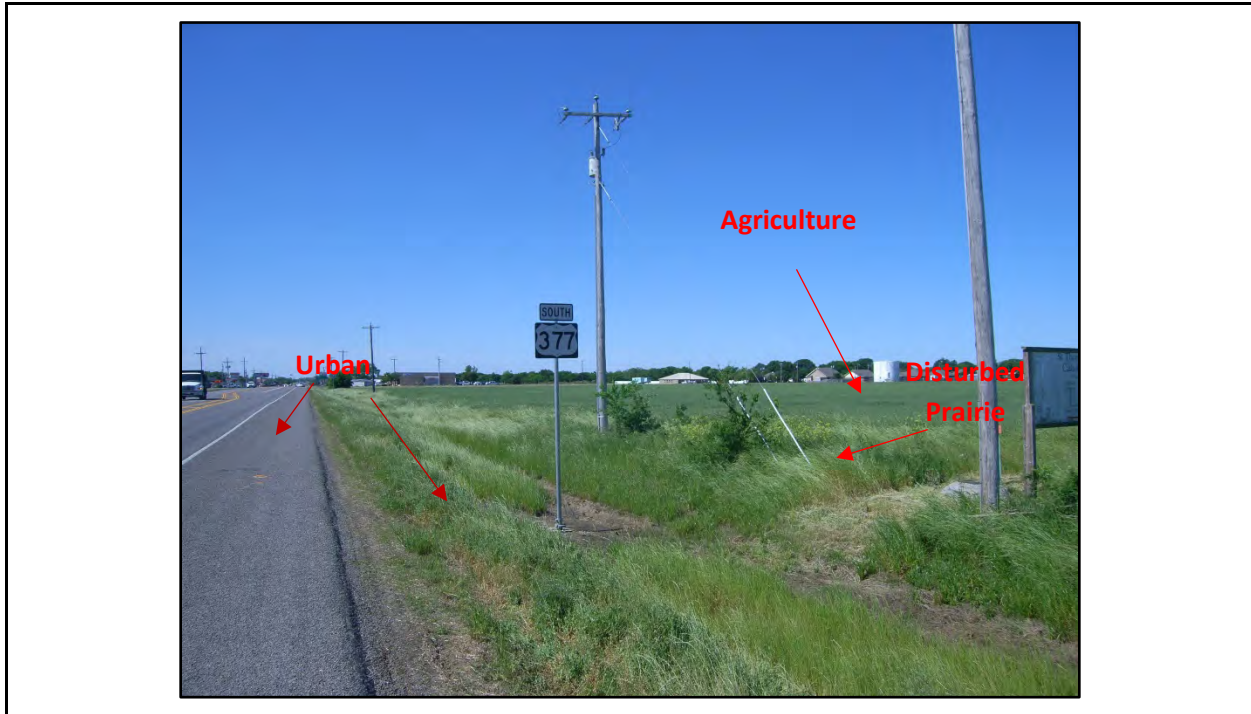
Photograph 2: View looking east along the US 377 east ROW from near STA. 103+00. The TESCP/EMST Mapper classifies the roadway and vegetation as Disturbed Prairie, Tallgrass Prairie, Grassland and Crosstimbers Woodland and Forest; however, the roadway better fits the Urban classification. The unmaintained vegetation within the depression better fits the Riparian classification. The unmaintained vegetation the north and south of the depression within proposed ROW better fits the Disturbed Prairie classification. Date of photograph: 5/13/2020



Photograph 3: View looking southwest along the US 377 west ROW near STA. 102+00. The TESCP/EMST Mapper classifies portions of the roadway and adjacent vegetation as Disturbed Prairie, Crosstimbers Woodland and Forest, and Tallgrass Prairie, Grassland; however, the roadway and the vegetation within the ROW that would typically be mowed, better fits the Urban classification. The unmaintained vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 4: View looking southwest along the US 377 west ROW near STA. 108+00. The TESCP/EMST Mapper classifies portions of the roadway and adjacent vegetation as Crosstimbers Woodland and Forest, Disturbed Prairie and Tallgrass Prairie, Grassland; however, the roadway and the vegetation within the ROW that would typically be mowed, better fits the Urban classification. Date of photograph: 4/29/2020



Photograph 5: View looking southwest along the US 377 west ROW near STA. 115+00. The TESCP/EMST Mapper classifies portions of the roadway and adjacent vegetation as Disturbed Prairie and Crosstimbers Woodland and Forest; however, the roadway and the vegetation within the ROW that would typically be mowed, better fits the Urban classification. The unmaintained vegetation with shrubs better fits the Disturbed Prairie classification. The hayed-monoculture vegetation within the proposed ROW better fits the Agriculture classification. Date of photograph: 4/29/2020



Photograph 6: View looking northeast from the US 377 east ROW near STA. 148+00. The TESCP/EMST Mapper classifies the roadway and unmaintained and woody vegetation as Urban; however, the unmaintained vegetation within the ditch better fits the Riparian classification. The woody vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 7: View looking east from the US 377 east ROW near STA. 148+00. The TESCP/EMST Mapper classifies the unmaintained and woody vegetation and water as Urban; however, the unmaintained and woody vegetation within the ditch and channel better fits the Riparian classification. Date of photograph: 5/13/2020



Photograph 8: View looking southeast from the US 377 east ROW near STA. 148+00. The TESCP/EMST Mapper classifies the roadway and unmaintained and woody vegetation as Urban; however, the unmaintained vegetation within the ditch better fits the Riparian classification. The woody vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 9: View looking northeast from the US 377 east ROW near STA. 161+00. The TESC/EMST Mapper classifies the roadway, unmaintained and woody vegetation and water as Riparian; however, the roadway better fits the Urban classification. The unmaintained and woody vegetation and water fits the Riparian classification. Date of photograph: 5/13/2020



Photograph 10: View looking east along US 377 west ROW near STA. 161+00. The TESC/EMST Mapper classifies portions of the vegetation, roadway and water as Urban; however, roadways better fit the Urban classification. The vegetation and water better fit the Riparian classification. Date of photograph: 5/13/2020



Photograph 11: View looking south along US 377 west ROW from STA. 166+00. The TЕСP/EMST Mapper classifies portions of the roadway and maintained vegetation as Crosstimbers Woodland and Forest. The roadway and vegetation better fit the Urban classification. Date of photograph: 4/29/2020



Photograph 12: View looking southwest from the FM 455 east ROW line near STA. 180+00. The TЕСP/EMST Mapper classifies the unmaintained vegetation as Urban; however, the unmaintained vegetation between the roadway and the powerlines better fits the Disturbed Prairie classification. The hayed-monoculture vegetation beyond the powerlines better fits the Agriculture classification. Date of photograph: 4/29/2020



Photograph 13: View looking east from the FM 455 east ROW line near STA. 180+00. The TESCP/EMST Mapper classifies the roadway and vegetation as Urban and Crosstimbers Woodland and Forest. The roadway better fits the Urban classification. The vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 14: View looking east along US 377 east ROW near STA. 195+00. The TESCP/EMST Mapper classifies portions of the roadway, and the mowed-maintained and other vegetation as Crosstimbers Woodland and Forest. The roadway and mowed-maintained vegetation better fit the Urban classification. The other vegetation that appears to be a turf farm better fits the Agriculture classification. Date of photograph: 4/29/2020



Photograph 15: View looking southwest along US 377 west ROW near STA. 200+00. The TESCP/EMST Mapper classifies portions of the roadway, and the mowed-maintained vegetation as Agriculture. The roadway and mowed-maintained vegetation better fit the Urban classification. Date of photograph: 4/29/2020



Photograph 16: View looking northeast along US 377 east ROW near STA. 217+00. The TESCP/EMST Mapper classifies portions of the roadway, mowed-maintained vegetation and other vegetation as Crosstimbers Woodland and Forest. The roadway and mowed-maintained vegetation better fit the Urban classification. The vegetation in the ditch better fits the Riparian classification. Date of photograph: 4/29/2020



Photograph 17: View looking southeast along US 377 east ROW near STA. 217+00. The TESCP/EMST Mapper classifies the woody and unmaintained vegetation and water as Urban. The woody and unmaintained vegetation and water better fits the Riparian classification. Date of photograph: 5/13/2020



Photograph 18: View looking east along US 377 west ROW near STA. 217+00. The TESCP/EMST Mapper classifies unmaintained vegetation and water as Urban. The unmaintained vegetation and water better fit the Riparian classification. Date of photograph: 5/13/2020



Photograph 19: View looking northeast along US 377 west ROW near STA. 217+00. The TESCP/EMST Mapper classifies unmaintained vegetation as Urban. The unmaintained vegetation better fits the Riparian classification. Date of photograph: 4/29/2020



Photograph 20: View looking east along US 377 east ROW near STA. 235+00. The TESCP/EMST Mapper classifies the maintained and unmaintained vegetation, and water as Urban. The maintained vegetation fits the Urban classification. The unmaintained vegetation and water better fit the Riparian classification. Date of photograph: 5/13/2020



Photograph 21: View looking northeast along US 377 west ROW near STA. 235+00. The TESCP/EMST Mapper classifies the unmaintained vegetation as Urban. The unmaintained vegetation better fits the Riparian classification. Date of photograph: 5/13/2020



Photograph 22: View looking southwest along US 377 east ROW near STA. 235+00. The TESCP/EMST Mapper classifies the woody and unmaintained vegetation as Urban. The unmaintained and woody vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 23: View looking west along S Jefferson St near STA. 238+00. The TESCP/EMST Mapper classifies the maintained, woody and unmaintained vegetation as Disturbed Prairie and Riparian. The maintained vegetation better fits the Urban classification. The unmaintained and woody vegetation better fits the Riparian classification. Date of photograph: 4/29/2020



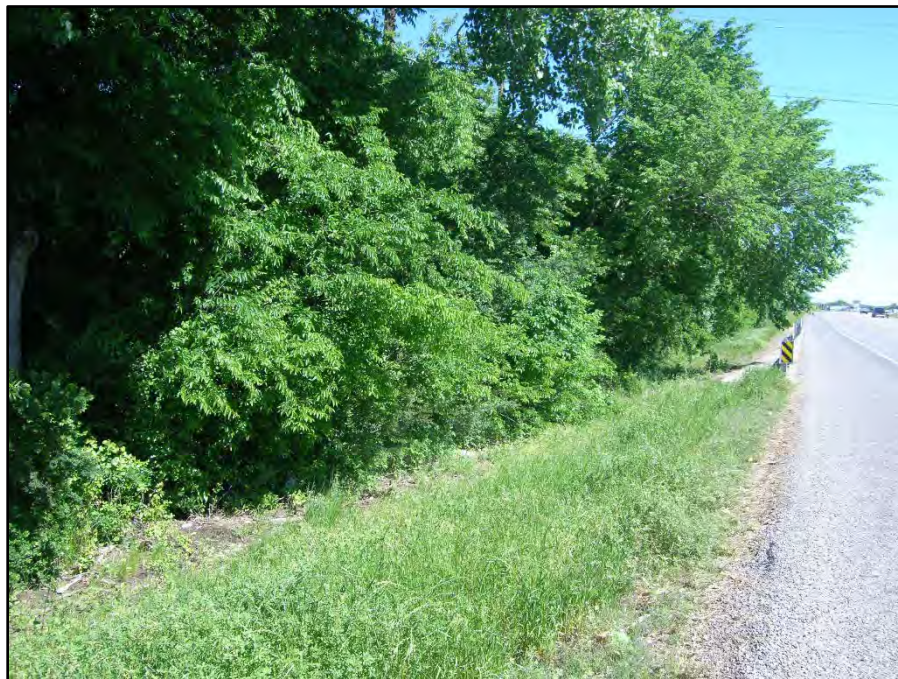
Photograph 24: View looking west along S Jefferson St near STA. 237+00. The TESCP/EMST Mapper classifies the woody and unmaintained vegetation as Disturbed Prairie and Riparian. The unmaintained vegetation better fits the Riparian classification. The woody vegetation fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 25: View looking northeast along the US 377 west ROW near STA. 258+00. The TESCP/EMST Mapper classifies portions of roadway and maintained vegetation as Crosstimbers Woodland and Forest. The roadway and vegetation better fit the Urban classification. Date of photograph: 4/29/2020



Photograph 26: View looking south along the US 377 west ROW near STA. 265+00. The TESCP/EMST Mapper classifies portions of roadway and unmaintained vegetation as Crosstimbers Woodland and Forest and Urban. The roadway and typically maintained vegetation better fit the Urban classification. The woody vegetation fits the Crosstimbers Woodland and Forest classification. Date of photograph: 4/29/2020



Photograph 27: View looking northwest along the US 377 west ROW near STA. 272+00. The TESCP/EMST Mapper classifies portions of unmaintained vegetation as Crosstimbers Woodland and Forest and Urban. The unmaintained vegetation within the ROW fits the Crosstimbers Woodland and Forest classification. Date of photograph: 4/29/2020



Photograph 28: View looking east along US 377 east ROW near STA. 271+50. The TESCP/EMST Mapper classifies portions of the roadway, mowed-maintained and woody vegetation and water as Crosstimbers Woodland and Forest, and Riparian. The mowed-maintained vegetation and roadway better fit the Urban classification. The woody vegetation fits the Crosstimbers Woodland and Forest classification. The water and channel vegetation fit the Riparian classification. Date of photograph: 5/13/2020



Photograph 29: View looking southeast along US 377 east ROW near STA. 272+00. The TESCP/EMST Mapper classifies the unmaintained and woody vegetation beyond the fence as Urban and Crosstimbers Woodland and Forest. The woody vegetation fits the Crosstimbers Woodland and Forest classification. The unmaintained vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 30: View looking northeast from US 377 east ROW near STA. 293+00. The TESCP/EMST Mapper classifies the roadway, mowed-maintained and row-crop vegetation as Urban and Crosstimbers Woodland and Forest. The roadway and mowed-maintained vegetation fit the Urban classification. The other row-crop vegetation fits the Agriculture classification. Date of photograph: 4/29/2020



Photograph 31: View looking south from US 377 west ROW near STA. 307+00. The TESCP/EMST Mapper classifies portions of roadway and maintained vegetation as Crosstimbers Woodland and Forest, and Riparian. The roadway and typically maintained vegetation within the ROW better fit the Urban classification. Date of photograph: 4/29/2020



Photograph 32: View looking north from US 377 east ROW near STA. 307+00. The TESCP/EMST Mapper classifies the woody and unmaintained vegetation as Urban, and the roadway and maintained vegetation as Crosstimbers Woodland and Forest. The woody vegetation better fits the Crosstimbers Woodland and Forest classification. The roadway and maintained vegetation better fit Urban classification. Date of photograph: 4/29/2020



Photograph 33: View looking east along US 377 east ROW near STA. 307+00. The TESCP/EMST Mapper classifies portions of the roadway, and maintained and woody vegetation as Riparian. The roadway and maintained vegetation better fit the Urban classification. The woody vegetation fits the Riparian classification. Date of photograph: 5/13/2020



Photograph 34: View looking north along US 377 near STA. 307+50. The TESCP/EMST Mapper classifies portions of the roadway, unmaintained and woody vegetation and water as Crosstimbers Woodland and Forest. The roadway better fits the Urban classification. The woody and unmaintained vegetation and water in the foreground better fits the Riparian classification. The vegetation beyond the power pole better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 35: View looking northeast along US 377 east ROW near STA. 338+00. The TESCP/EMST Mapper classifies portions of the roadway, and maintained vegetation as Crosstimbers Woodland and Forest. The roadway and typically maintained vegetation within the ROW better fit the Urban classification. The hayed-monoculture beyond the fence better fits the Agriculture classification. Date of photograph: 4/29/2020



Photograph 36: View looking south along US 377 east ROW near STA. 355+00. The TESCP/EMST Mapper classifies the roadway, mowed-maintained unmaintained vegetation, as Crosstimbers Woodland and Forest. The roadway and typically mowed-maintained vegetation within the ROW better fit the Urban classification. The unmaintained vegetation beyond the fence better fit the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 37: View looking south along US 377 east ROW near STA. 378+50. The TESCP/EMST Mapper classifies the roadway, maintained vegetation and water as Urban and Riparian. The roadway, maintained vegetation and water better fit the Urban classification. Date of photograph: 5/13/2020



Photograph 38: View looking north along US 377 west ROW near STA. 379+00. The TESCP/EMST Mapper classifies the roadway, maintained and unmaintained vegetation and water as Urban and Riparian. The roadway and maintained vegetation better fit the Urban classification. The unmaintained vegetation and water in the ditch better fits the Riparian classification. Date of photograph: 5/13/2020



Photograph 39: View looking south from US 377 west ROW near STA. 385+00. The TESCP/EMST Mapper classifies portions of the roadway and maintained vegetation as Crosstimbers Woodland and Forest. The roadway and typically maintained vegetation better fit the Urban classification. Date of photograph: 4/29/2020



Photograph 40: View looking northeast from US 377 east ROW near STA. 413+50. The TESCP/EMST Mapper classifies portions of the roadway, maintained and unmaintained vegetation as Crosstimbers Woodland and Forest, Riparian and Urban. The roadway and typically maintained vegetation better fit the Urban classification. The unmaintained vegetation beyond the fence better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 41: View looking northeast from US 377 east ROW near STA. 432+50. The TESCP/EMST Mapper classifies portions of the roadway, maintained and unmaintained vegetation as Crosstimbers Woodland and Forest and Urban. The roadway and typically maintained vegetation better fit the Urban classification. The unmaintained vegetation beyond the fence better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 42: View looking east along US 377 east ROW near STA. 444+50. The TESCP/EMST Mapper classifies portions of the unmaintained vegetation as Urban. The unmaintained vegetation beyond the fence better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 43: View looking west along US 377 west ROW near STA. 445+00. The TESCP/EMST Mapper classifies portions of the roadway, maintained, unmaintained and woody vegetation, and water as Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. The woody and unmaintained vegetation and water better fit the Riparian classification. Date of photograph: 4/29/2020



Photograph 44: View looking northwest along US 377 west ROW near STA. 455+50. The TESCP/EMST Mapper classifies portions of the maintained and woody vegetation as Urban and Crosstimbers Woodland and Forest. The maintained vegetation better fits the Urban. The woody vegetation and water better fit the Riparian classification. Date of photograph: 5/13/2020



Photograph 45: View looking northeast along US 377 east ROW near STA. 455+50. The TESCP/EMST Mapper classifies portions of the maintained vegetation as Riparian and Crosstimbers Woodland and Forest. The maintained vegetation better fits the Urban classification. Date of photograph: 5/13/2020



Photograph 46: View looking north along US 377 west ROW near STA. 466+00. The TESCP/EMST Mapper classifies portions of the roadway and maintained vegetation as Crosstimbers Woodland and Forest. The roadway and vegetation better fit the Urban classification. Date of photograph: 4/29/2020



Photograph 47: View looking northeast along US 377 east ROW near STA. 470+00. The TESCP/EMST Mapper classifies portions of the roadway, maintained, unmaintained and woody vegetation, and water as Riparian and Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. The woody and unmaintained vegetation and water within the channel better fits the Riparian classification. Date of photograph: 5/13/2020



Photograph 48: View looking north along US 377 west ROW near STA. 471+00. The TESCP/EMST Mapper classifies portions of the maintained and woody vegetation, and water as Riparian and Crosstimbers Woodland and Forest. The woody vegetation fits the Crosstimbers Woodland and Forest classification. The maintained vegetation and water better fit the Urban classification. Date of photograph: 4/29/2020



Photograph 49: View looking north along US 377 west ROW near STA. 473+00. The TESCP/EMST Mapper classifies portions of the roadway and maintained vegetation as Crosstimbers Woodland and Forest. The roadway and vegetation better fit the Urban classification. Date of photograph: 4/29/2020



Photograph 50: View looking north along US 377 west ROW near STA. 486+00. The TESCP/EMST Mapper classifies portions of the roadway and vegetation as Crosstimbers Woodland and Forest. The roadway and vegetation better fit the Urban classification. Date of photograph: 4/29/2020



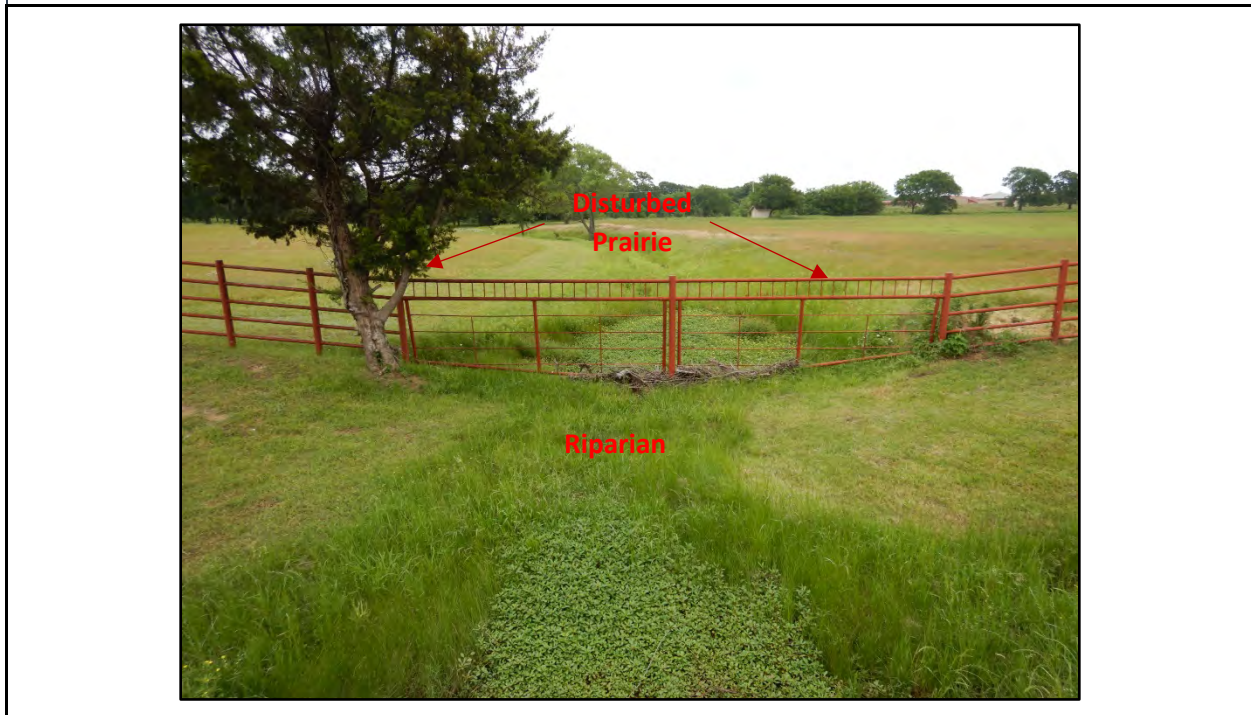
Photograph 51: View looking southeast along US 377 east ROW near STA. 490+00. The TESCP/EMST Mapper classifies portions of the roadway, and maintained, unmaintained and woody vegetation as Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. The woody vegetation fits the Crosstimbers Woodland and Forest classification. The unmaintained vegetation just beyond the fence better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 52: View looking west along US 377 west ROW near STA. 498+50. The TESCP/EMST Mapper classifies portions of the maintained and unmaintained vegetation as Urban. The unmaintained vegetation within the depression better fits the Riparian classification. The vegetation between the fence and depression that would typically be mowed fits the Urban classification. Date of photograph: 5/13/2020



Photograph 53: View looking east along US 377 east ROW near STA. 498+50. The TESCP/EMST Mapper classifies the unmaintained vegetation as Urban. The vegetation within the depression better fits the Riparian classification. The vegetation to the north and south of the depression better fits the Disturbed Prairie classification. Date of photograph: 5/13/2020



Photograph 54: View looking east along US 377 east ROW near STA. 513+50. The TESCP/EMST Mapper classifies portions of the unmaintained vegetation and water as Riparian and Crosstimbers Woodland and Forest. The unmaintained vegetation and water within the depression fits the Riparian classification. The unmaintained vegetation to the north and south of the depression better fits the Disturbed Prairie classification. Date of photograph: 5/13/2020



Photograph 55: View looking west along US 377 west ROW near STA. 513+50. The TESCP/EMST Mapper classifies portions of the woody vegetation and water as Urban and Crosstimbers Woodland and Forest. The woody vegetation surrounding the channel better fits the Riparian classification. The woody vegetation beyond the channel fits the Crosstimbers Woodland and Forest classification. Date of photograph: 5/13/2020



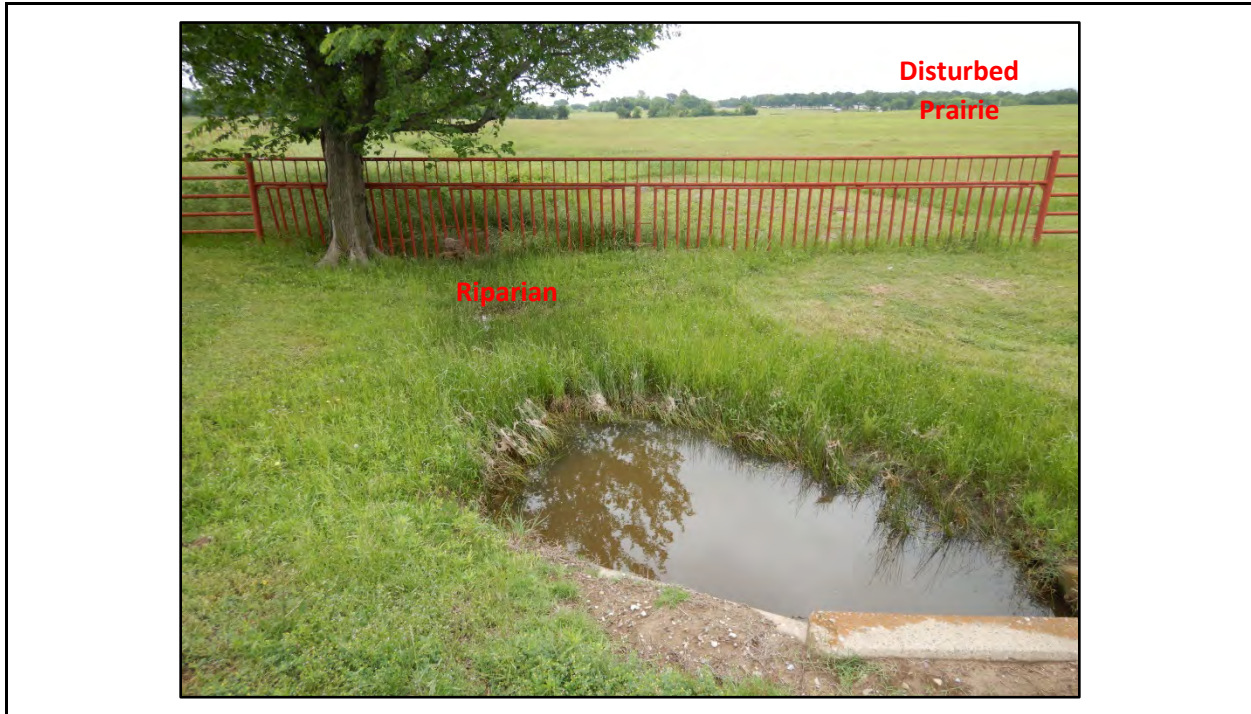
Photograph 56: View looking west along US 377 west ROW near STA. 544+00. The TESCP/EMST Mapper classifies the woody and unmaintained vegetation and water as Urban. The woody and unmaintained vegetation and water better fit the Riparian classification. Date of photograph: 5/13/2020



Photograph 57: View looking southwest along US 377 west ROW near STA. 545+00. The TЕСP/EMST Mapper classifies the unmaintained vegetation and water as Urban. The unmaintained vegetation and water better fit the Riparian classification. Date of photograph: 5/13/2020



Photograph 58: View looking east along US 377 east ROW near STA. 544+00. The TЕСP/EMST Mapper classifies portions of the unmaintained vegetation as Crosstimbers Woodland and Forest, and Riparian. The unmaintained vegetation within the channel fits the Riparian classification. The unmaintained vegetation beyond the fence north of the channel better fits the Disturbed Prairie classification. Date of photograph: 5/13/2020



Photograph 59: View looking southeast along US 377 east ROW near STA. 545+00. The TESCP/EMST Mapper classifies portions of the unmaintained vegetation and water as Crosstimbers Woodland and Forest, and Riparian. The unmaintained vegetation and water within the channel fit the Riparian classification. The unmaintained vegetation beyond the fence south of the channel better fits the Disturbed Prairie classification. Date of photograph: 5/13/2020



Photograph 60: View looking northeast along Chestnut St near STA. 573+00. The TESCP/EMST Mapper classifies portions of the maintained vegetation as Crosstimbers Woodland and Forest. The vegetation better fits the Urban classification. Date of photograph: 4/29/2020



Photograph 61: View looking south along US 377 west ROW near STA. 580+00. The TESCP/EMST Mapper classifies portions of the roadway and vegetation as Crosstimbers Woodland and Forest. The roadway and vegetation better fit the Urban classification. Date of photograph: 4/29/2020



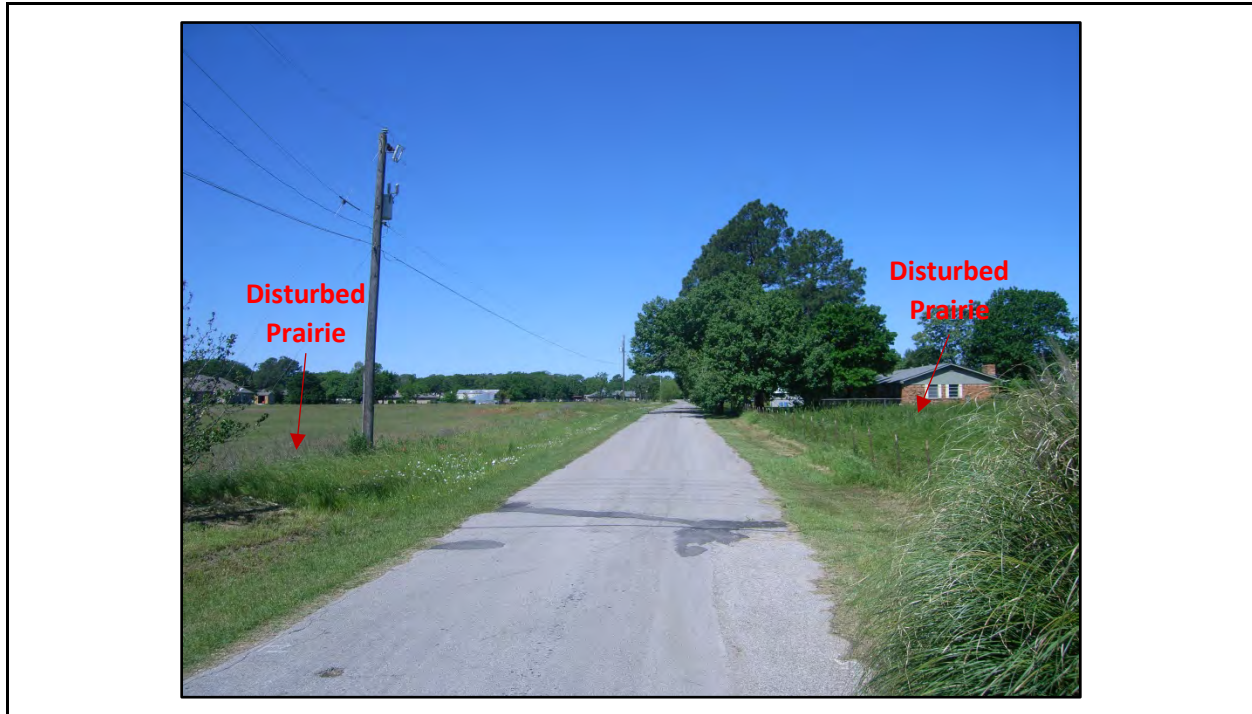
Photograph 62: View looking southeast along US 377 west ROW near STA. 591+00. The TESCP/EMST Mapper classifies portions of the roadway, maintained vegetation and water as Urban and Crosstimbers Woodland and Forest. The roadway, vegetation and water better fit the Urban classification. Date of photograph: 5/13/2020



Photograph 63: View looking east along US 377 east ROW near STA. 534+00. The TESCP/EMST Mapper classifies portions of the woody vegetation and water as Urban and Crosstimbers Woodland and Forest. The woody vegetation and water better fit the Riparian classification. Date of photograph: 5/13/2020



Photograph 64: View looking south from a parking lot adjacent to US 377 west ROW near STA. 604+00. The TESCP/EMST Mapper classifies portions of the roadway and maintained vegetation as Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. Date of photograph: 4/29/2020



Photograph 65: View looking west along US 377 west ROW at Brumley Rd near STA. 608+00. The TESC/EMST Mapper classifies portions of the roadway and vegetation as Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. The unmaintained vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 66: View looking north along US 377 east ROW near STA. 620+50. The TESC/EMST Mapper classifies portions of the roadway, and maintained and woody vegetation as Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. The woody vegetation fits the Crosstimbers Woodland and Forest classification. Date of photograph: 4/29/2020



Photograph 67: View looking south along US 377 east ROW near STA. 620+50. The TESCP/EMST Mapper classifies portions of the roadway, and maintained and woody vegetation as Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. The woody vegetation fits the Crosstimbers Woodland and Forest classification. Date of photograph: 4/29/2020



Photograph 68: View looking south along US 377 east ROW near STA. 632+00. The TESCP/EMST Mapper classifies portions of the roadway, and maintained and woody vegetation as Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. The woody vegetation fits the Crosstimbers Woodland and Forest classification. Date of photograph: 4/29/2020



Photograph 69: View looking northwest at Ike Byrom Rd adjacent to US 377 east ROW near STA. 654+00. The TESCP/EMST Mapper classifies portions of the roadway, and maintained and woody vegetation as Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. The woody vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 70: View looking northwest along Ike Byrom Rd near STA. 654+50. The TESCP/EMST Mapper classifies portions of the roadway, and maintained and woody vegetation as Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. The woody vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 71: View looking north along US 377 west ROW near STA. 667+00. The TESCP/EMST Mapper classifies portions of the roadway, and maintained vegetation as Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. Date of photograph: 4/29/2020



Photograph 72: View looking north along US 377 west ROW near STA. 680+00. The TESCP/EMST Mapper classifies portions of the roadway, maintained and woody vegetation as Crosstimbers Woodland and Forest. The woody vegetation fits the Crosstimbers Woodland and Forest classification. The roadway and maintained vegetation better fit the Urban classification. Date of photograph: 4/29/2020



Photograph 73: View looking north along US 377 west ROW near STA. 680+00. The TESCP/EMST Mapper classifies portions of the roadway, maintained and unmaintained vegetation as Crosstimbers Woodland and Forest, and Riparian. The roadway and maintained vegetation better fit the Urban classification. The unmaintained vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 74: View looking north along US 377 west ROW near STA. 684+00. The TESCP/EMST Mapper classifies portions of the roadway, maintained, unmaintained and woody vegetation, and water as Crosstimbers Woodland and Forest, and Riparian. The roadway and maintained vegetation better fit the Urban classification. The woody vegetation and water near the channel fit the Riparian classification. The woody vegetation away from the channel fits the Crosstimbers Woodland and Forest classification. Date of photograph: 5/13/2020



Photograph 75: The TЕСP/EMST Mapper classifies the unmaintained and woody vegetation, and water as Crosstimbers Woodland and Forest, and Riparian. The woody vegetation fits the Riparian classification. The unmaintained vegetation better fits the Disturbed Prairie classification. The typically maintained vegetation within the right-of-way better fits the Urban classification. Date of photograph: 4/29/2020



Photograph 76: View looking southeast along US 377 east ROW near STA. 684+00. The TЕСP/EMST Mapper classifies maintained, unmaintained and woody vegetation, and water as Urban and Riparian. The woody vegetation and water near the channel fit the Riparian classification. The woody vegetation away from the channel better fits the Disturbed Prairie classification. The maintained vegetation fits the Urban classification. Date of photograph: 5/13/2020



Photograph 77: View looking north along US 377 east ROW near STA. 700+00. The TESCP/EMST Mapper classifies portions of the roadway, and maintained and woody vegetation as Urban and Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. The woody vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 78: View looking east along US 377 east ROW near STA. 700+00. The TESCP/EMST Mapper classifies portions of the maintained and woody vegetation and water as Urban and Crosstimbers Woodland and Forest. The woody vegetation better fits the Disturbed Prairie classification. The typically maintained vegetation and water fit the Urban classification. Date of photograph: 5/13/2020



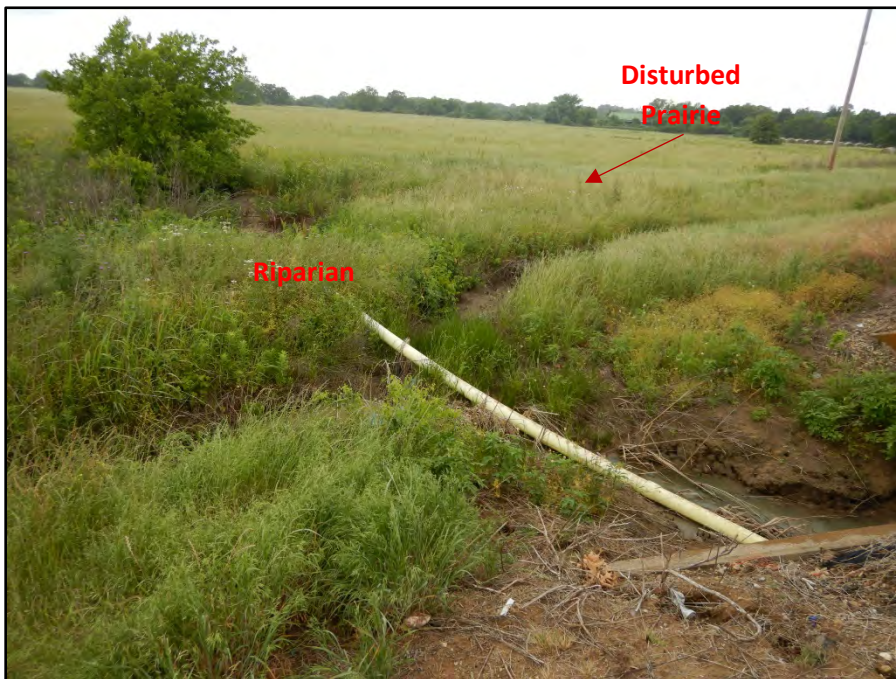
Photograph 79: View looking south along US 377 west ROW near STA. 702+50. The TESCP/EMST Mapper classifies portions of the roadway and maintained vegetation as Crosstimbers Woodland and Forest. The roadway and vegetation better fit the Urban classification. Date of photograph: 4/29/2020



Photograph 80: View looking north along US 377 east ROW near STA. 715+50. The TESCP/EMST Mapper classifies portions of the roadway, and maintained and woody vegetation as Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. The woody vegetation fits the Crosstimbers Woodland and Forest classification. Date of photograph: 4/29/2020



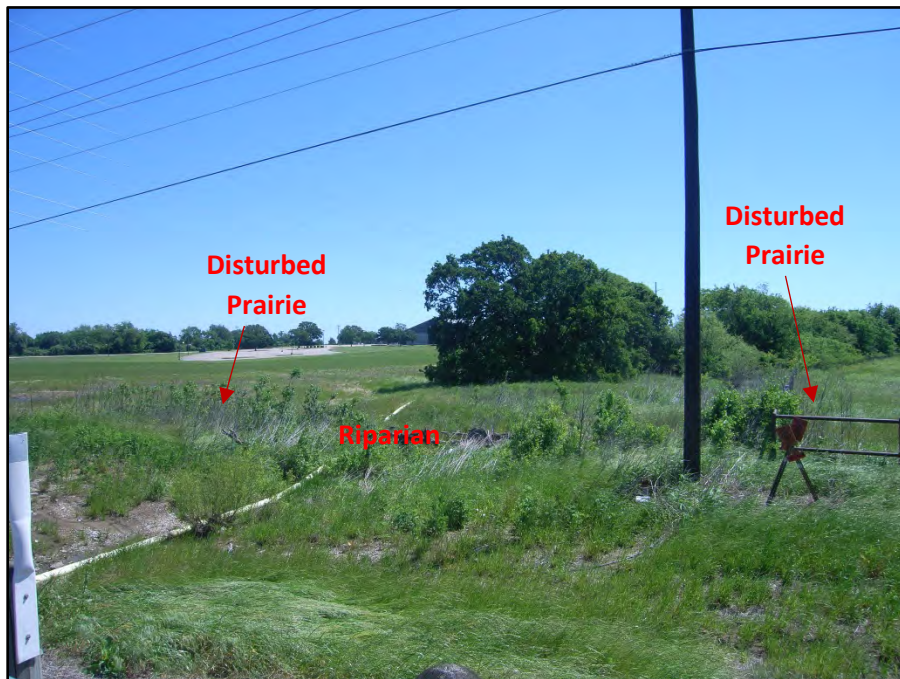
Photograph 81: View looking north along US 377 west ROW near STA. 730+00. The TESCP/EMST Mapper classifies portions of the maintained and unmaintained vegetation as Crosstimbers Woodland and Forest. The maintained vegetation better fits the Urban classification. The unmaintained vegetation fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 82: View looking northwest along US 377 west ROW near STA. 732+50. The TESCP/EMST Mapper classifies portions of the unmaintained and woody vegetation and water as Urban and Riparian. The woody and unmaintained vegetation and water along the channel fits the Riparian classification. The unmaintained vegetation further from the channel better fits the Disturbed Prairie classification. Date of photograph: 5/13/2020



Photograph 83: View looking southwest along US 377 west ROW near STA. 732+50. The TESCP/EMST Mapper classifies the unmaintained vegetation as Crosstimbers Woodland and Forest. The unmaintained vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 84: View looking northeast along US 377 east ROW near STA. 733+00. The TESCP/EMST Mapper classifies portions of the unmaintained vegetation as Urban, Riparian and Crosstimbers Woodland and Forest. The unmaintained vegetation within the channel fits the Riparian classification. The unmaintained vegetation around the channel better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 85: View looking southeast along US 377 east ROW near STA. 733+00. The TESCP/EMST Mapper classifies portions of the unmaintained vegetation as Riparian and Crosstimbers Woodland and Forest. The unmaintained vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 86: View looking south along FM 424 west ROW near STA. 746+00. The TESCP/EMST Mapper classifies portions of the roadway, and maintained vegetation as Urban and Crosstimbers Woodland and Forest. The roadway and typically maintained vegetation fit the Urban classification. Date of photograph: 4/29/2020



Photograph 87: View looking southwest along US 377 west ROW near STA. 754+00. The TESCP/EMST Mapper classifies portions of the roadway and vegetation as Crosstimbers Woodland and Forest. The roadway and vegetation better fit the Urban classification. Date of photograph: 4/29/2020



Photograph 88: View looking east along US 377 east ROW near STA. 760+00. The TESCP/EMST Mapper classifies portions of the roadway, and maintained and unmaintained vegetation as Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. The unmaintained vegetation beyond the right-of-way fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 89: View looking north along US 377 west ROW near STA. 769+00. The TESCP/EMST Mapper classifies portions of the roadway, and maintained, unmaintained and woody vegetation as Crosstimbers Woodland and Forest. The roadway and typically maintained vegetation better fit the Urban classification. The woody vegetation better fits the Disturbed Prairie classification. The unmaintained vegetation in the depression better fits the Riparian classification. Date of photograph: 5/13/2020



Photograph 90: View looking east along US 377 east ROW near STA. 768+00. The TESCP/EMST Mapper classifies portions of the unmaintained and woody vegetation, and water as Crosstimbers Woodland and Forest. The water and woody and unmaintained vegetation within the depression better fits the Riparian classification. The unmaintained vegetation away from the channel better fits the Disturbed Prairie classification. Date of photograph: 5/13/2020



Photograph 91: View looking north along US 377 east ROW near STA. 769+00. The TESCP/EMST Mapper classifies portions of the roadway, and woody, maintained and unmaintained vegetation as Crosstimbers Woodland and Forest. The roadway and typically maintained vegetation within the right-of-way better fit the Urban classification. The woody and unmaintained vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 92: View looking north along US 377 east ROW near STA. 771+00. The TESCP/EMST Mapper classifies portions of the woody vegetation as Urban and Crosstimbers Woodland and Forest. The woody vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 93: View looking south along US 377 east ROW near STA. 799+00. The TESCP/EMST Mapper classifies portions of the woody vegetation as Urban. The woody vegetation better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



Photograph 94: View looking northwest along US 377 west ROW near STA. 802+00. The TESCP/EMST Mapper classifies portions of the woody and maintained vegetation as Urban and Crosstimbers Woodland and Forest. The woody vegetation better fits the Riparian classification. The maintained vegetation fits the Urban classification. Date of photograph: 5/13/2020



Photograph 95: View looking south along US 377 west ROW near STA. 802+50. The TЕСP/EMST Mapper classifies portions of the roadway, and maintained vegetation as Crosstimbers Woodland and Forest. The roadway and maintained vegetation better fit the Urban classification. Date of photograph: 4/29/2020

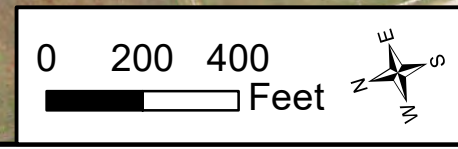
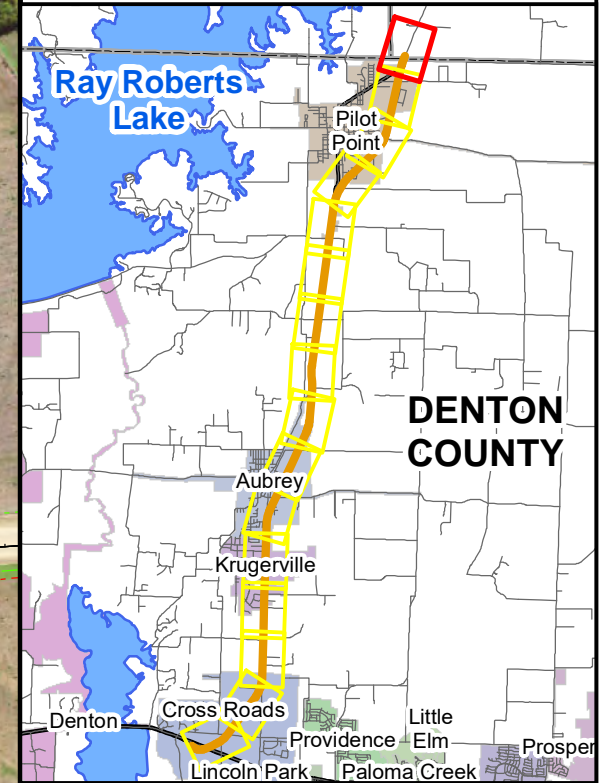
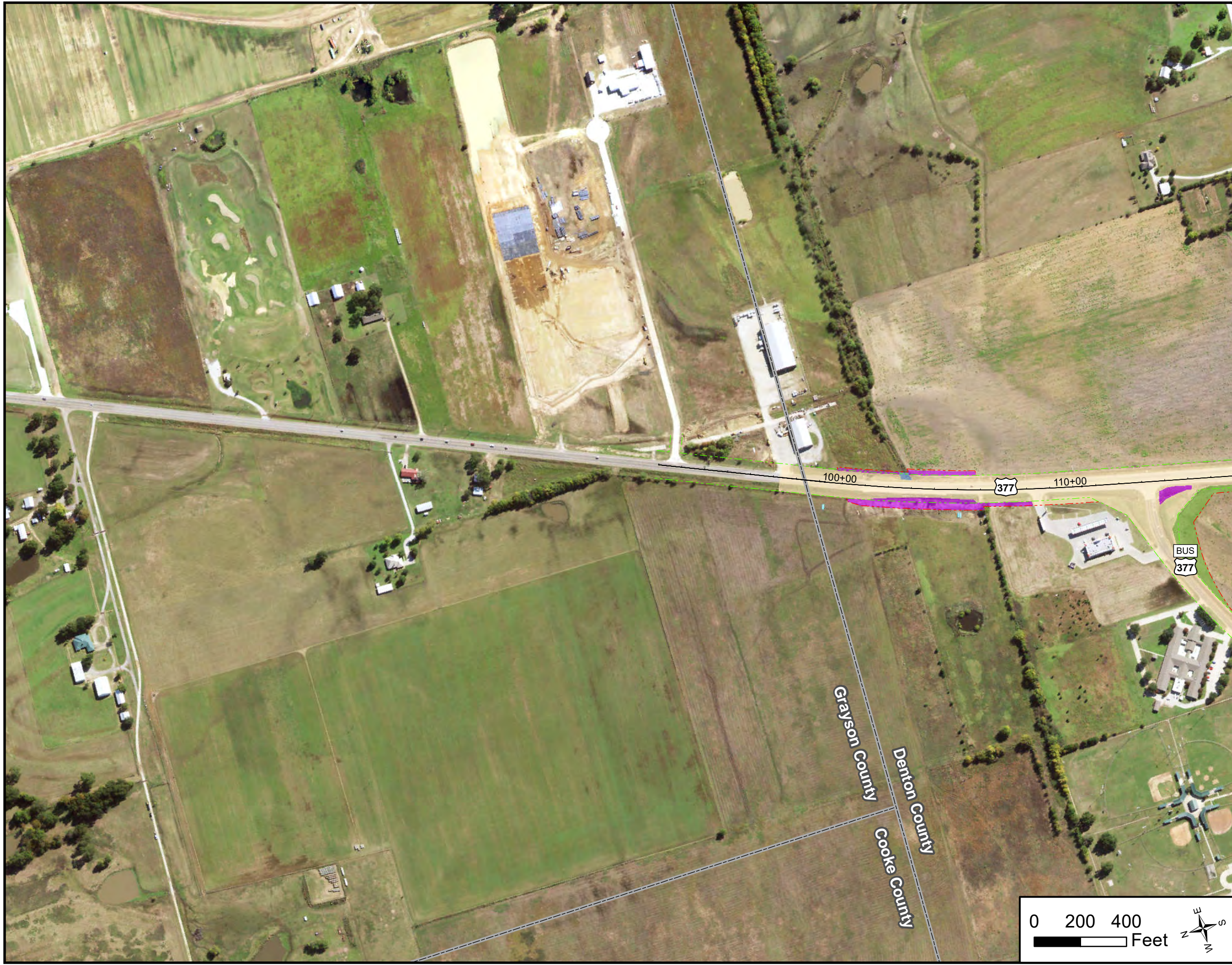


Photograph 96: View looking south along US 377 east ROW near STA. 802+50. The TЕСP/EMST Mapper classifies portions of the woody and unmaintained vegetation and water as Urban. The woody and unmaintained vegetation adjacent to the water better fits the Riparian classification. The woody vegetation further from the water better fits the Disturbed Prairie classification. Date of photograph: 4/29/2020



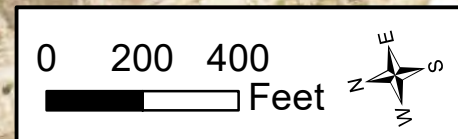
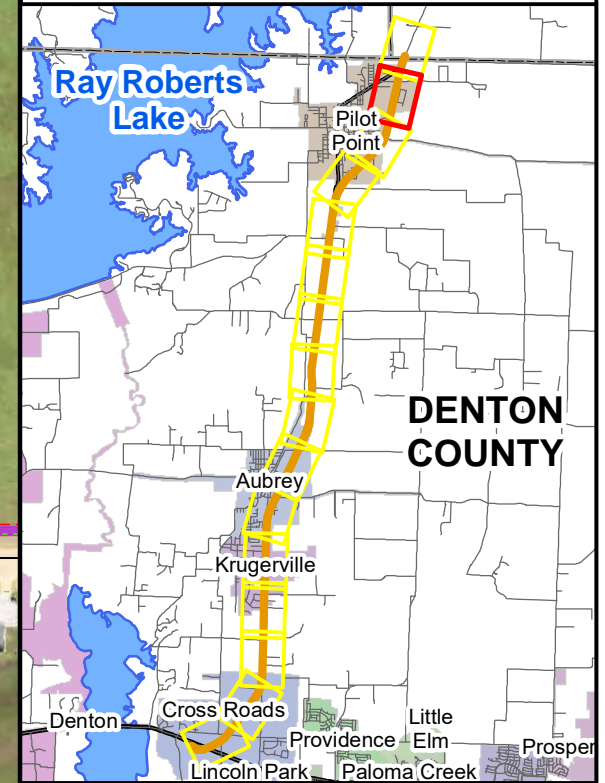
Photograph 97: View looking northeast along US 377 northbound ramp near STA. 822+50. The TЕСP/EMST Mapper classifies the vegetation as Crosstimbers Woodland and Forest. The typically maintained vegetation better fits the Urban classification. Date of photograph: 4/29/2020

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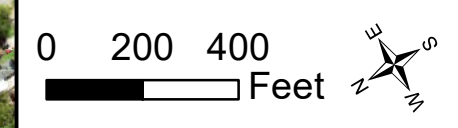
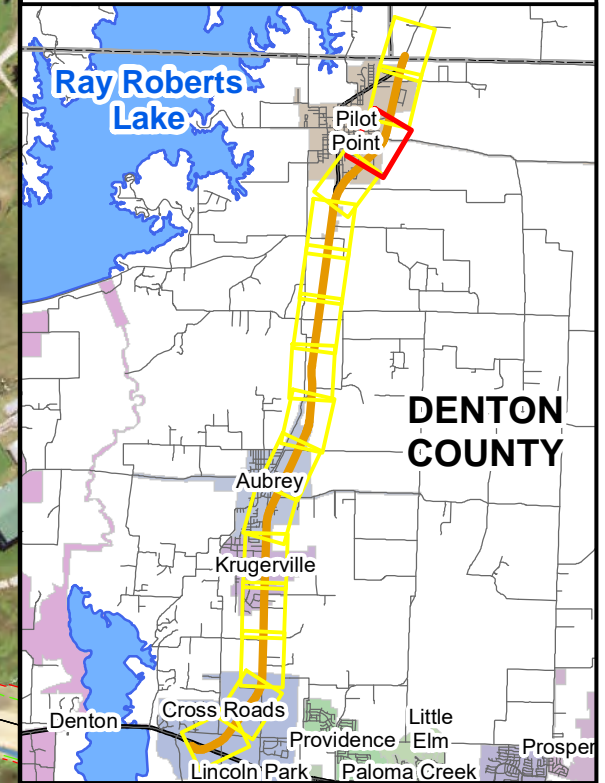
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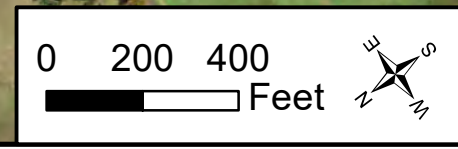
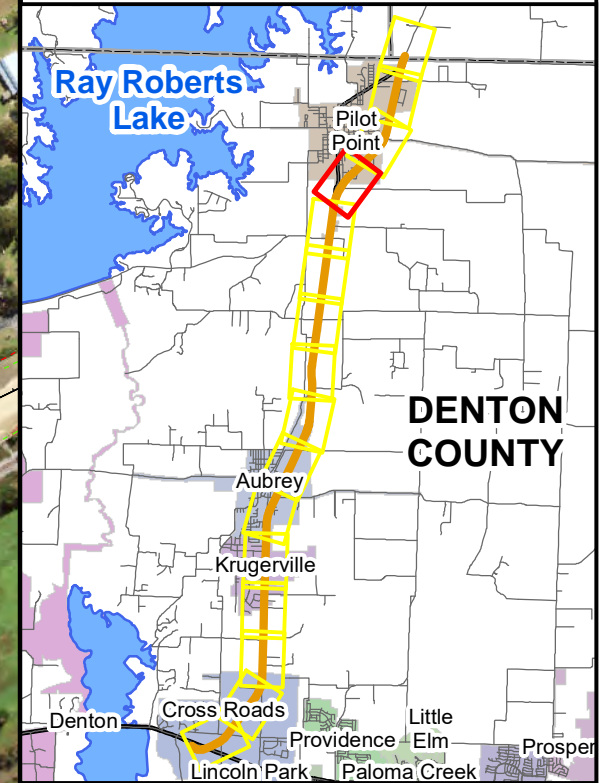
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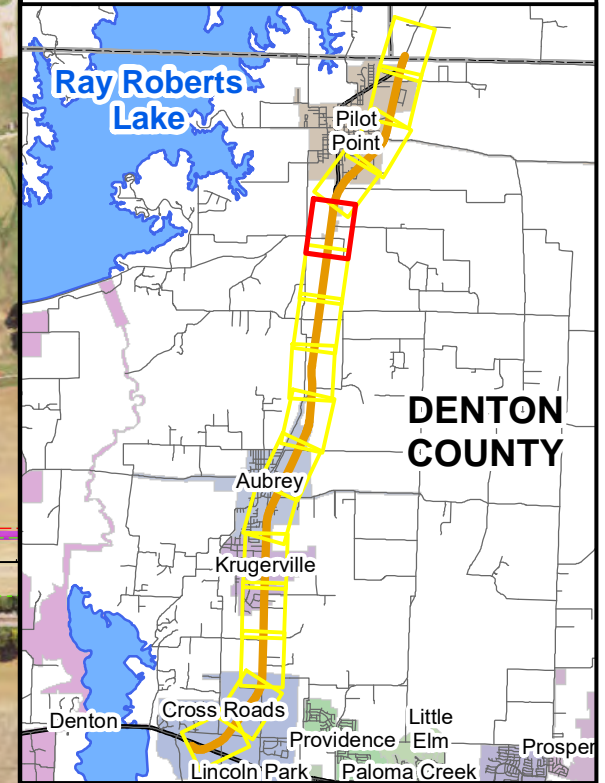
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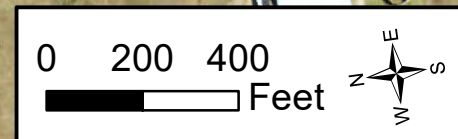
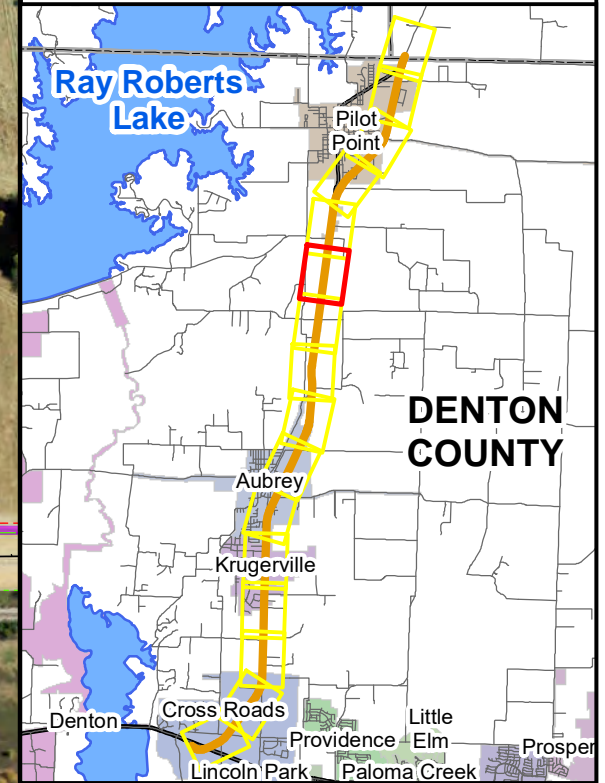


Legend

- - - Existing Right-of-Way
- - - Proposed Right-of-Way
- Agriculture
- Crosstimbers Woodland and Forest
- Disturbed Prairie
- Riparian
- Urban

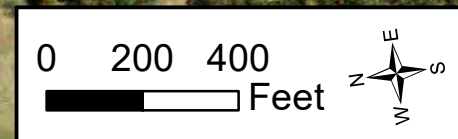
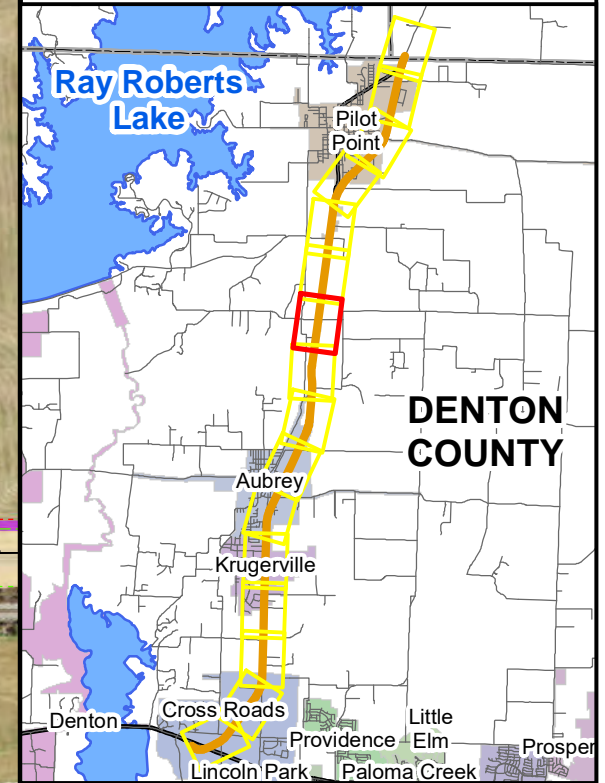
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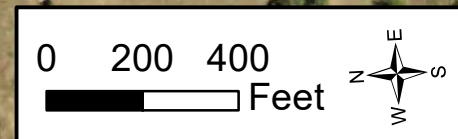
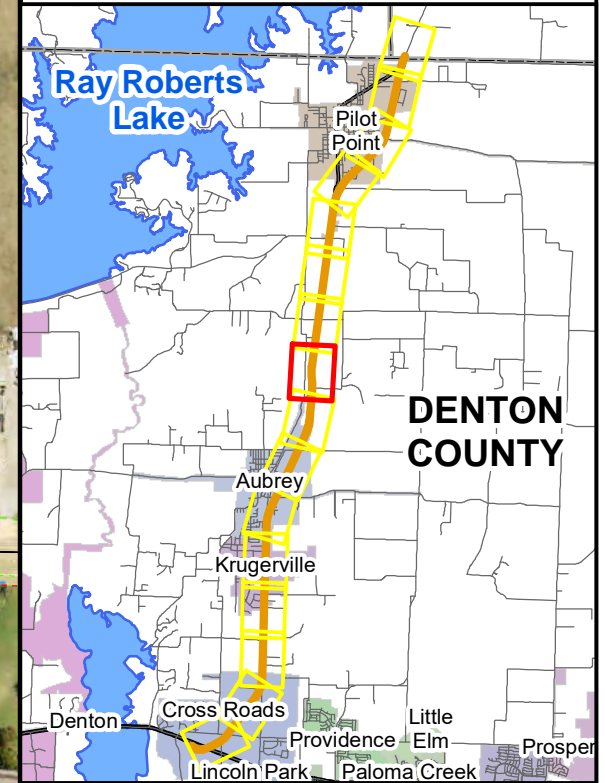
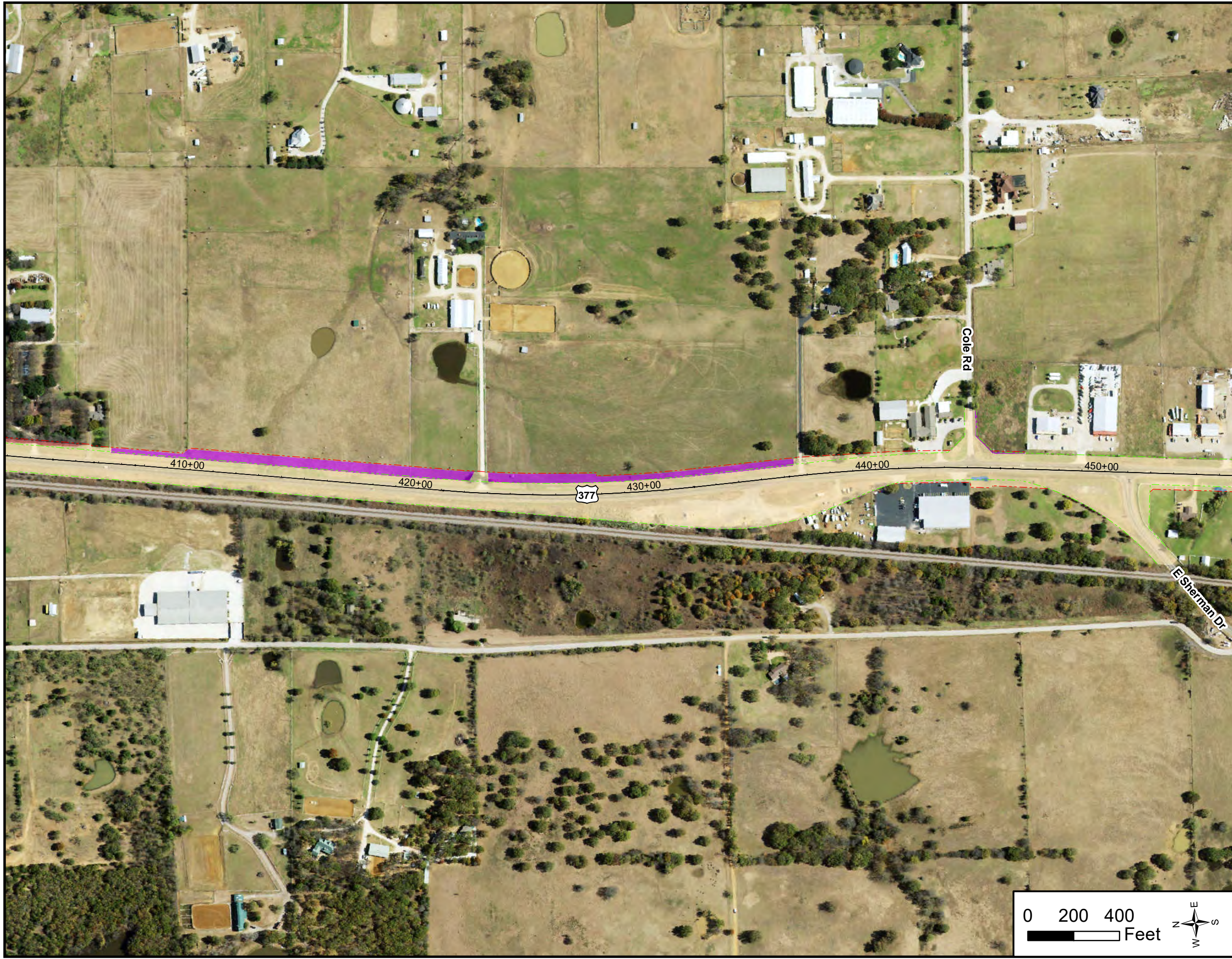
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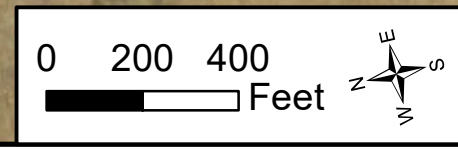
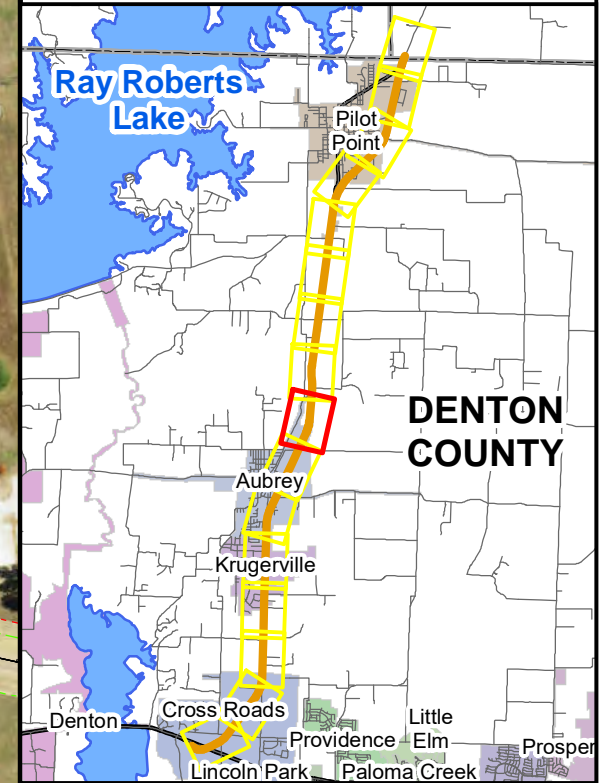
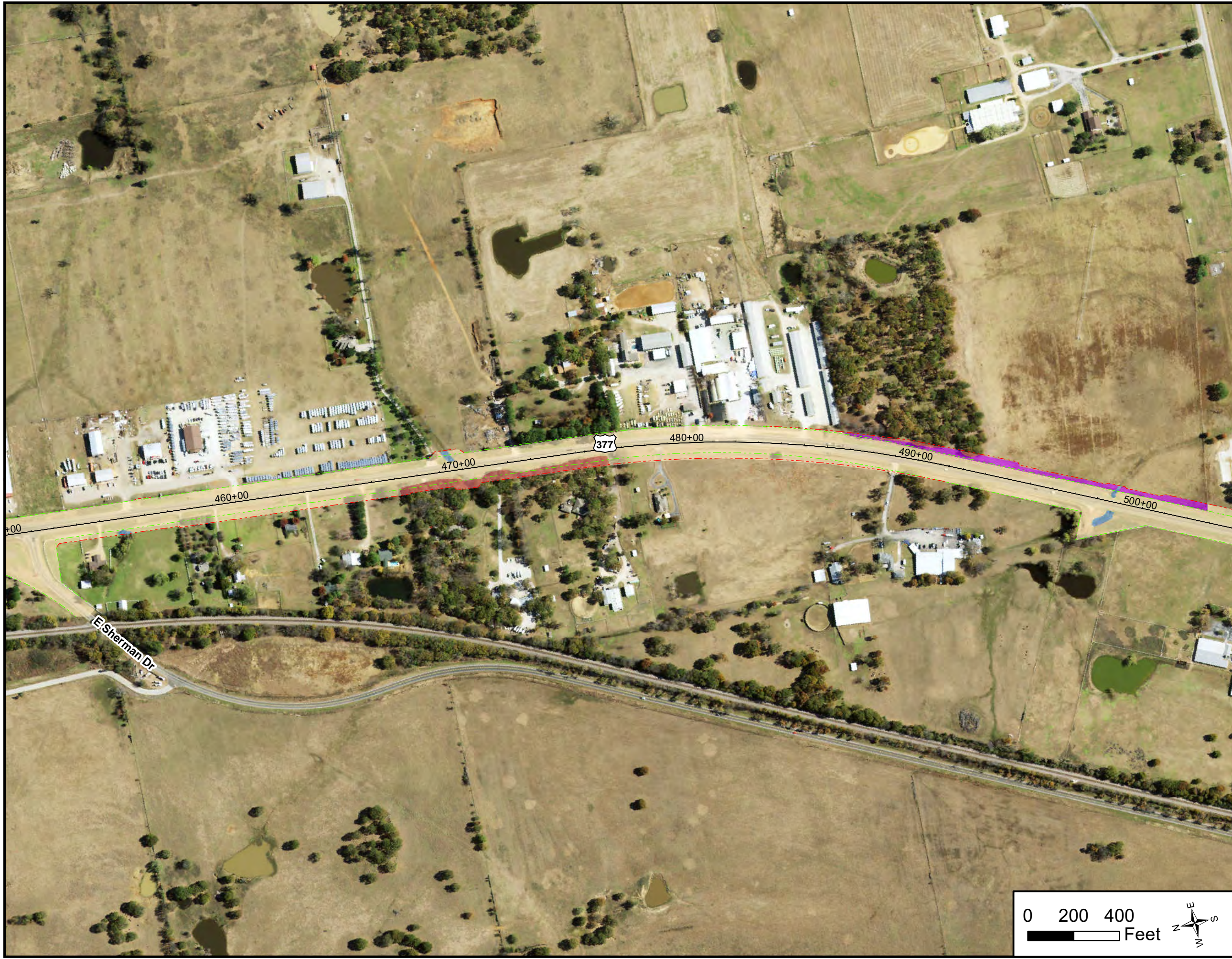
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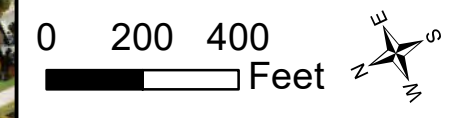
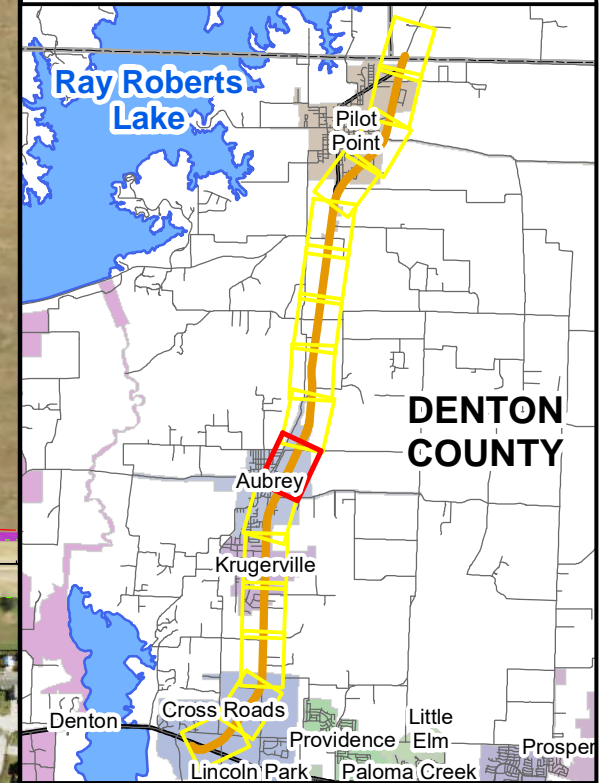
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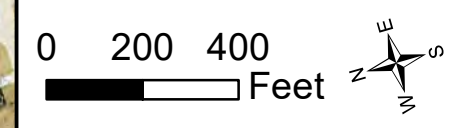
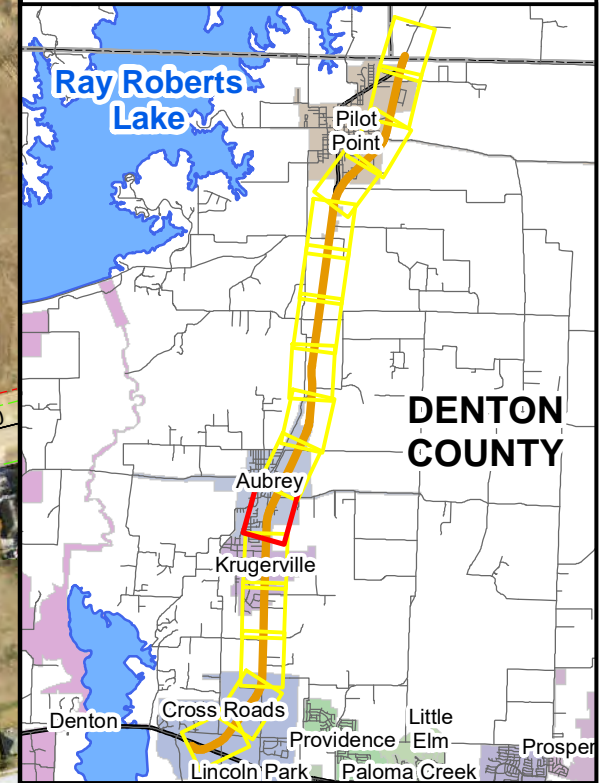
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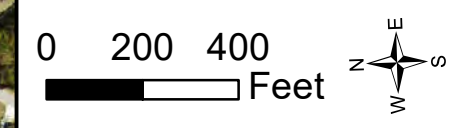
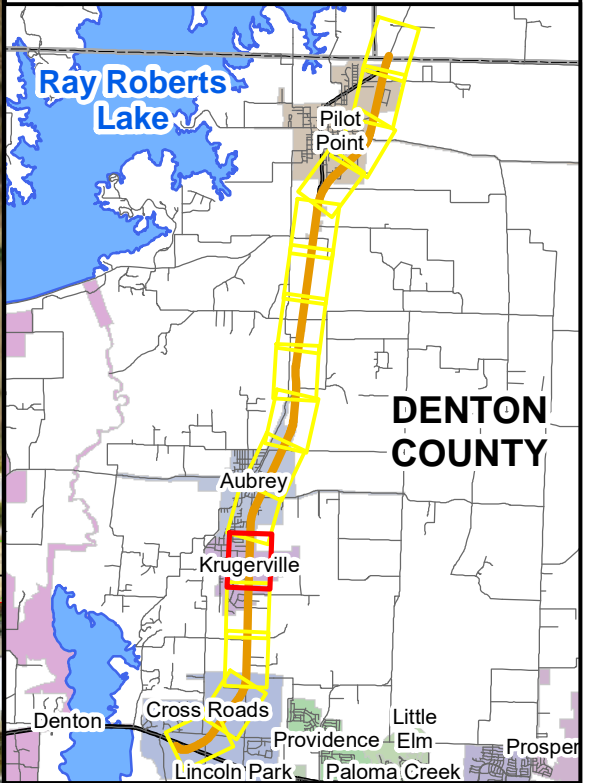
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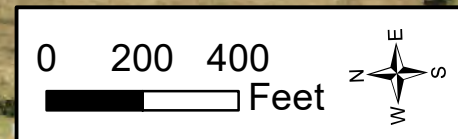
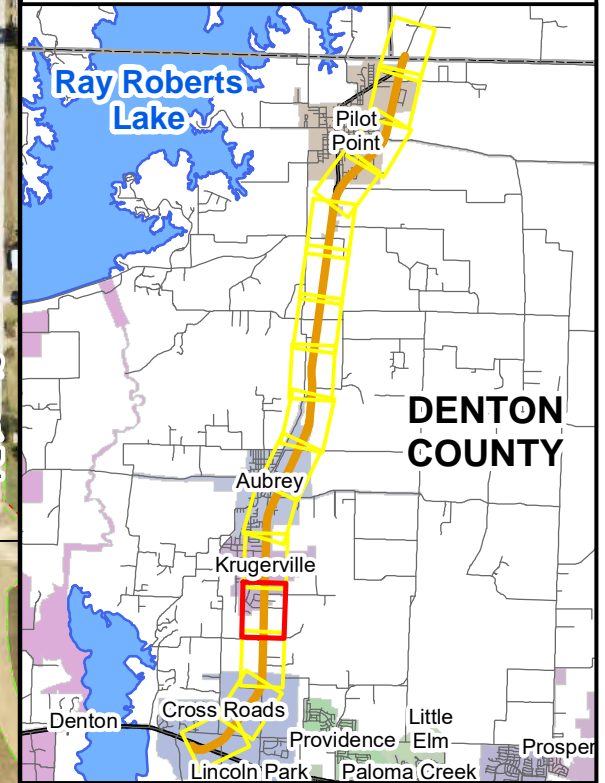
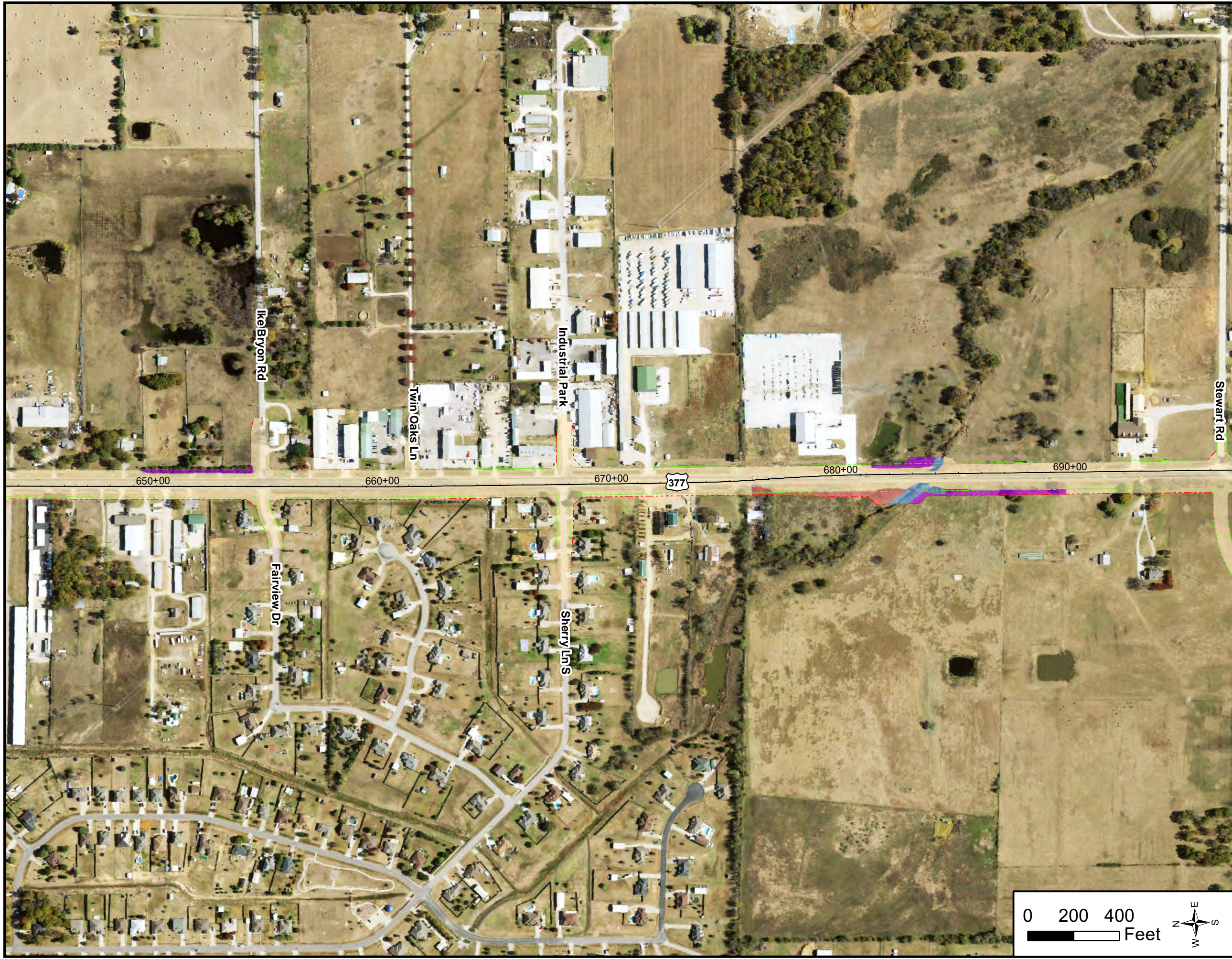
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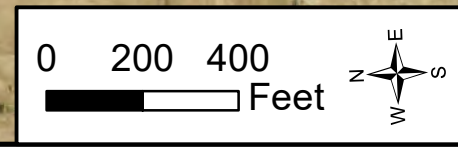
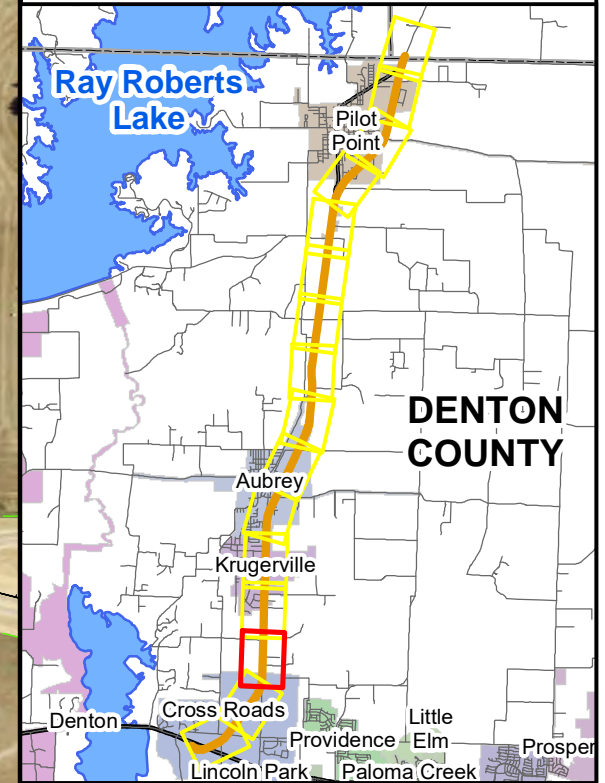
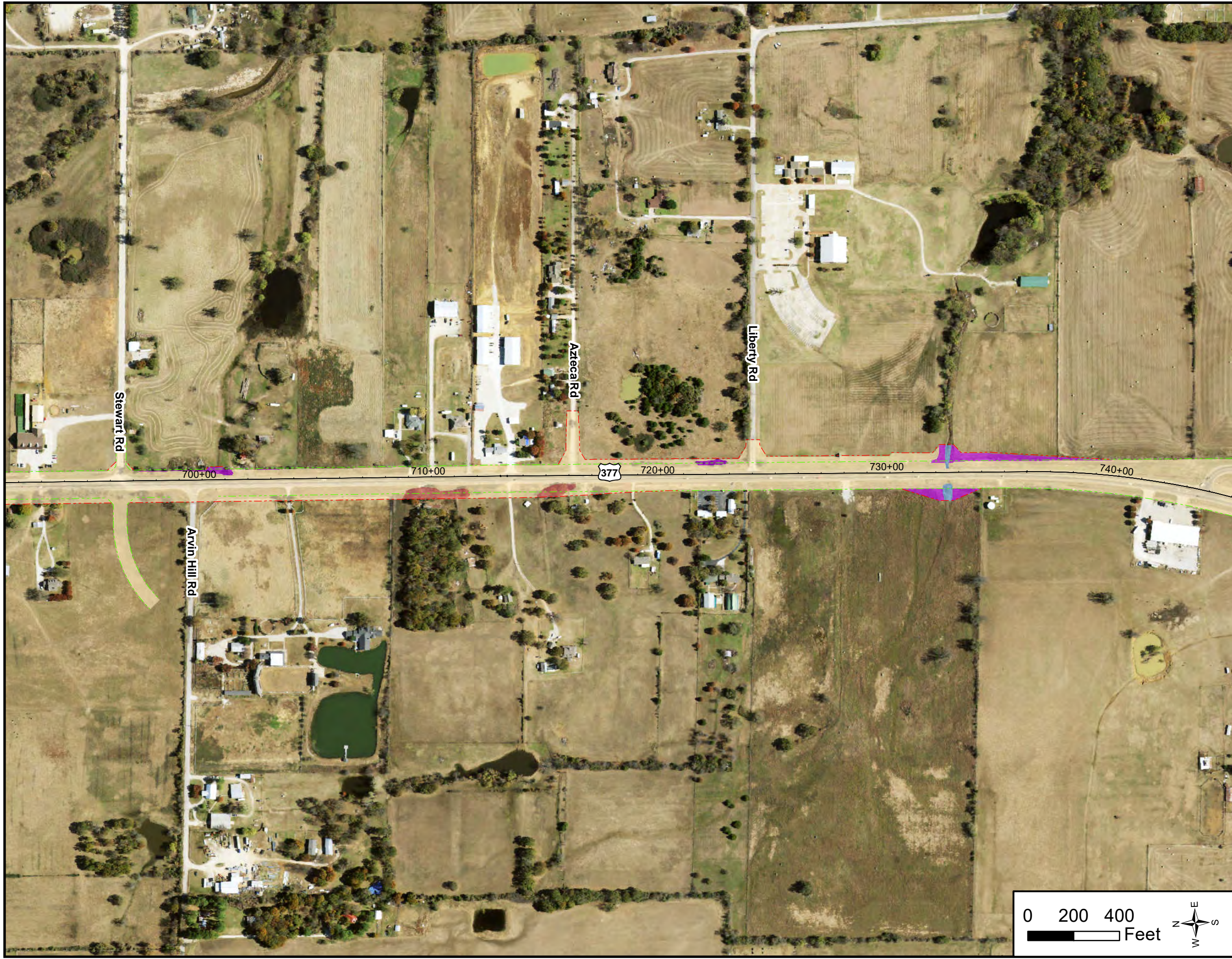
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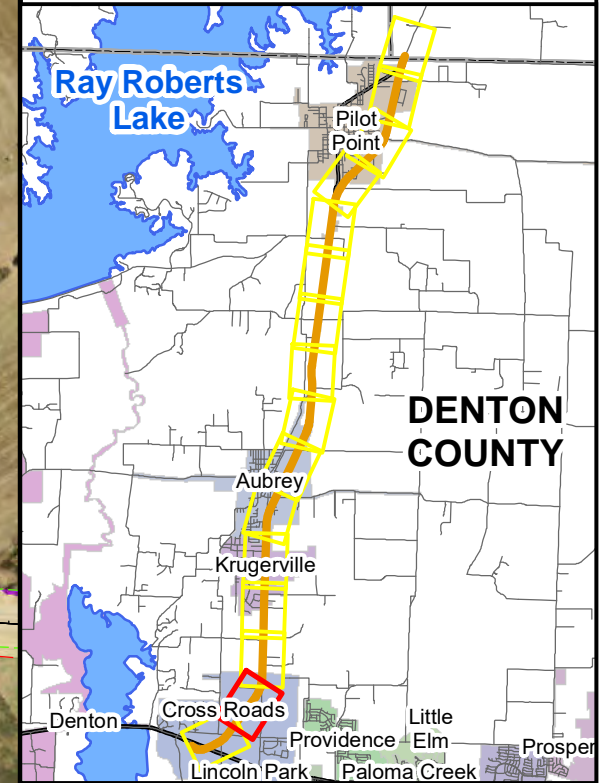
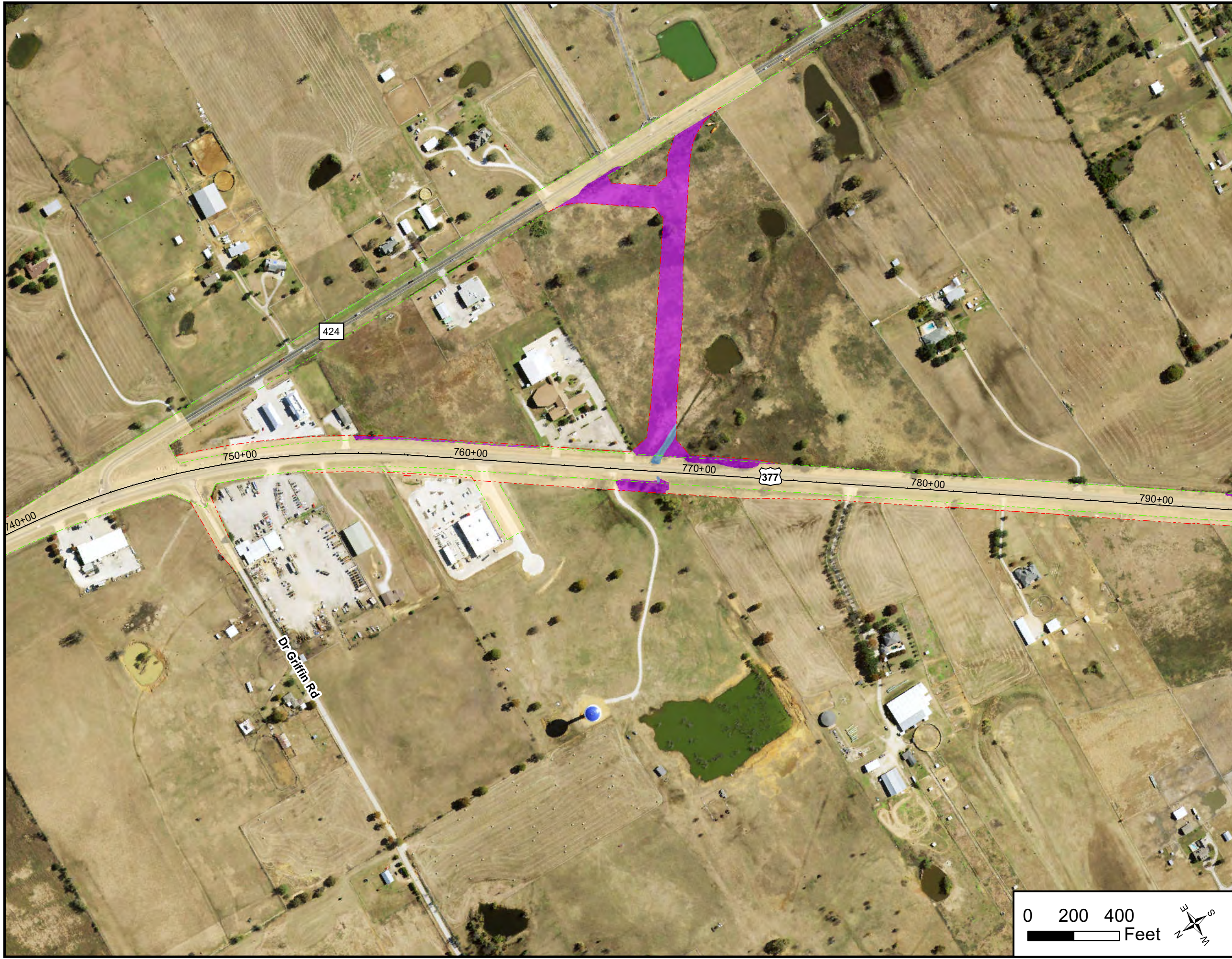
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Basemap Source: TNRIS (2018)

**Actual
Vegetation Map**
United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
Page 15 of 16

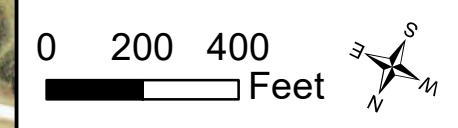
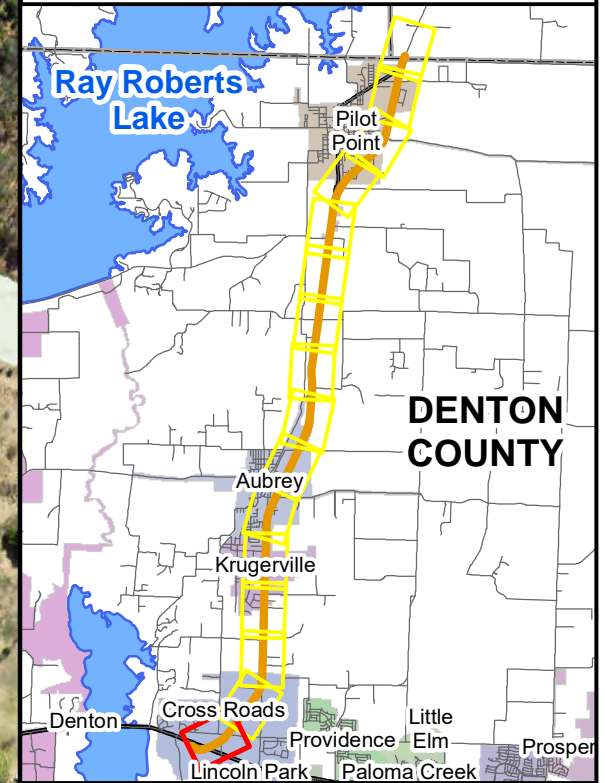


Legend

- - - Existing Right-of-Way
- - - Proposed Right-of-Way
- Agriculture
- Crosstimbers
Woodland and Forest
- Disturbed Prairie
- Riparian
- Urban

Basemap Source: TNRIS (2018)

**Actual
Vegetation Map**
United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
Page 16 of 16



Basemap Source: TNRIS (2018)

**FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS**

PART I (To be completed by Federal Agency)	3. Date of Land Evaluation Request	4. Sheet 1 of _____
---	------------------------------------	---------------------

1. Name of Project	5. Federal Agency Involved
--------------------	----------------------------

2. Type of Project	6. County and State
--------------------	---------------------

PART II (To be completed by NRCS)	1. Date Request Received by NRCS	2. Person Completing Form
--	----------------------------------	---------------------------

3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input type="checkbox"/> NO <input type="checkbox"/>	4. Acres Irrigated Average Farm Size
---	--

5. Major Crop(s)	6. Farmable Land in Government Jurisdiction Acres: _____ % _____	7. Amount of Farmland As Defined in FPPA Acres: _____ % _____
------------------	---	--

8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS
--	---	---

PART III (To be completed by Federal Agency)	Alternative Corridor For Segment			
---	---	--	--	--

	Corridor A	Corridor B	Corridor C	Corridor D
--	------------	------------	------------	------------

A. Total Acres To Be Converted Directly				
---	--	--	--	--

B. Total Acres To Be Converted Indirectly, Or To Receive Services				
---	--	--	--	--

C. Total Acres In Corridor				
----------------------------	--	--	--	--

PART IV (To be completed by NRCS) Land Evaluation Information				
--	--	--	--	--

A. Total Acres Prime And Unique Farmland				
--	--	--	--	--

B. Total Acres Statewide And Local Important Farmland				
---	--	--	--	--

C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted				
---	--	--	--	--

D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value				
--	--	--	--	--

PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)				
--	--	--	--	--

PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points			
--	----------------	--	--	--

1. Area in Nonurban Use	15			
-------------------------	----	--	--	--

2. Perimeter in Nonurban Use	10			
------------------------------	----	--	--	--

3. Percent Of Corridor Being Farmed	20			
-------------------------------------	----	--	--	--

4. Protection Provided By State And Local Government	20			
--	----	--	--	--

5. Size of Present Farm Unit Compared To Average	10			
--	----	--	--	--

6. Creation Of Nonfarmable Farmland	25			
-------------------------------------	----	--	--	--

7. Availability Of Farm Support Services	5			
--	---	--	--	--

8. On-Farm Investments	20			
------------------------	----	--	--	--

9. Effects Of Conversion On Farm Support Services	25			
---	----	--	--	--

10. Compatibility With Existing Agricultural Use	10			
--	----	--	--	--

TOTAL CORRIDOR ASSESSMENT POINTS	160			
----------------------------------	-----	--	--	--

PART VII (To be completed by Federal Agency)				
---	--	--	--	--

Relative Value Of Farmland (From Part V)	100			
--	-----	--	--	--

Total Corridor Assessment (From Part VI above or a local site assessment)	160			
---	-----	--	--	--

TOTAL POINTS (Total of above 2 lines)	260			
--	------------	--	--	--

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>
-----------------------	---	-----------------------	--

5. Reason For Selection:

Signature of Person Completing this Part: 	DATE
---	------

NOTE: Complete a form for each segment with more than one Alternate Corridor

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor - type site or design alternative for protection as farmland along with the land evaluation information.

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?

- More than 90 percent - 15 points
- 90 to 20 percent - 14 to 1 point(s)
- Less than 20 percent - 0 points

(2) How much of the perimeter of the site borders on land in nonurban use?

- More than 90 percent - 10 points
- 90 to 20 percent - 9 to 1 point(s)
- Less than 20 percent - 0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?

- More than 90 percent - 20 points
- 90 to 20 percent - 19 to 1 point(s)
- Less than 20 percent - 0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

- Site is protected - 20 points
- Site is not protected - 0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County ?

- (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage or Farm Units in Operation with \$1,000 or more in sales.)
- As large or larger - 10 points
 - Below average - deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average - 9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

- Acreage equal to more than 25 percent of acres directly converted by the project - 25 points
- Acreage equal to between 25 and 5 percent of the acres directly converted by the project - 1 to 24 point(s)
- Acreage equal to less than 5 percent of the acres directly converted by the project - 0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

- All required services are available - 5 points
- Some required services are available - 4 to 1 point(s)
- No required services are available - 0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

- High amount of on-farm investment - 20 points
- Moderate amount of on-farm investment - 19 to 1 point(s)
- No on-farm investment - 0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

- Substantial reduction in demand for support services if the site is converted - 25 points
- Some reduction in demand for support services if the site is converted - 1 to 24 point(s)
- No significant reduction in demand for support services if the site is converted - 0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?

- Proposed project is incompatible to existing agricultural use of surrounding farmland - 10 points
 - Proposed project is tolerable to existing agricultural use of surrounding farmland - 9 to 1 point(s)
 - Proposed project is fully compatible with existing agricultural use of surrounding farmland - 0 points
-



Form Community Impacts Assessment Technical Report

Project Name: United States (US) 377

Control Section Job Number (CSJ): 0081-06-040

Report Date: 05/13/2020

District: Dallas

County(ies): Denton

Let Date: 08/2030

Project Classification: Environmental Assessment

Report Version

Draft

Revised

Final

Please refer to the italicized instructions throughout this form, for guidance in determining which section should be completed. More detailed information on filling out this form is available in the Community Impacts Assessment Technical Report Instructions document in the CIA Toolkit. Additional guidance can be found in the Environmental Handbook - Community Impacts, Environmental Justice, Limited English Proficiency and Title VI and Frequently Asked Questions page in the [Community Impacts Assessment Toolkit](#) available on TxDOT.gov. For further assistance in developing this report or to discuss review comments on previous analyses, please contact the Environmental Affairs Division (ENV).

A. Applicable Projects

Would the proposed project involve ANY of the following conditions?

- Displacements of any kind
- Permanent increase in travel times to community facilities, businesses, or homes (except for projects that construct a new or extend an existing raised median or median barrier – see question below)
- Permanent elimination of driveway connections to/from community facilities, businesses, or homes
- Permanent impediment to use of non-automobile modes of travel
- Construction of a highway on new location
- Creation of a new bypass or reliever route
- Upgrading a non-freeway facility to a freeway facility
- Adding toll lanes

Yes *Completion of this Community Impact Assessment Technical Report form is required. Proceed to **Section B**. Do not answer the remaining questions in this **Section A**.*

No *Proceed to the following question*



Would the proposed project involve ANY of the following conditions?

- Expansion of the roadway pavement by the width of one vehicle lane or more
 - Creation of a new grade separation
 - Construction of a new or extends an existing raised median or median barrier in front of a school OR with a section longer than 3 miles without a break or crossover
- Yes *Proceed to the following question*
- No *Completion of this Community Impact Assessment Technical Report form is not required (unless there is a reason to believe that the project would, nevertheless, have the potential to result in adverse temporary or permanent impacts to community resources, in which case proceed to **Section B.**) Do not answer the remaining questions in this **Section A.***

Are all of the following statements correct (to the extent they are applicable to the specific project)?

- For a project that involves expansion of a roadway by the width of one vehicle lane or more, the expansion is limited to an area that is rural or undeveloped.
 - For a project that creates a new grade separation, the grade separation is limited to only one level (i.e. creating an overpass where one roadway will pass over another roadway), and is not a multi-level interchange.
 - For a project that constructs a new or extends an existing raised median or median barrier in front of a school OR with a section longer than 3 miles without a break or crossover, the new or extended raised median or median barrier will not change access to any driveways or cross streets.
- Yes *Provide a brief summary of why there would not be any community impacts in the text box below. This will conclude the analysis and completion of the remainder of this Community Impact Assessment Technical Report form is not required (unless there is a reason to believe that the project would, nevertheless, have the potential to result in adverse temporary or permanent impacts to community resources, in which case proceed to **Section B.**).*
- No *Completion of this Community Impact Assessment Technical Report form is required. Proceed to **Section B.***

B. Community Study Area

Please answer all of the following questions in full sentences and proceed to **Section C.**

1. **Describe the overall objective of the improvements (e.g., to reduce congestion at an intersection, to improve operational efficiency, etc.).**

The purpose of the proposed project is to: provide infrastructure options; reduce traffic congestion on the existing roadway; improve operations of the roadway; provide a safer, more convenient

route for traveling through the area; increase mobility (including pedestrian and bicycle accommodations); and, provide improved connectivity to the area. Roadway improvements would increase the capacity and driver delay would decrease. Safety for pedestrians (with the addition of shared use lanes and sidewalks) and drivers (designated left turn lanes) should also improve with the proposed project.

- 2. Describe the boundaries of the community study area and the reasoning behind why these boundaries were selected for this analysis. State the county, distance to major city, and nearby major roadways for the community that may be impacted. Attach a map showing the community study area as well as the locations of all community facilities within the study area (e.g., schools, places of worship, health care facilities, recreation centers, social services, libraries, emergency services, etc.).**

The community study area is primarily within Denton County; however, small portions are also within Grayson and Cooke counties. Cities/towns within the study area include Aubrey, Cross Roads, Denton, Krugerville, Lincoln Park, Oak Point, Pilot Point, and Providence Village. Major roadways within the study area include US 380, FM 424, FM 428 and FM 255.

Census Block Groups were initially used as a starting point for the boundary of the community study area; however, the size of the adjacent Census Block Group boundary far exceeded necessary limits. To narrow down the study area, Census Blocks were used and areas were trimmed away. The southern portion of the study area was mostly unchanged; however, some Census Blocks with no population fully within Lewisville Lake were removed. The western side of the study area follows the Elm Fork Trinity River. The northwestern side of the study area follows Lake Ray Roberts. The north-most side of the study area follows Buck Creek. The central eastern side was trimmed along Pecan Creek, and the northeastern portion was trimmed to follow Pelzel Rd in Denton County and Maier Rd in Grayson County. The northeastern portion follows these roads to reduce the size of the study area while retaining the census block shapes and a relatively normal study area shape.

Refer to the various Census Geography Maps to compare the Census Block Groups and Census Blocks to the study area.

- 3. Describe the current land use patterns within the community study area (e.g., scattered rural development and agricultural use, planned suburban residential development, high-density urban development, mixed use, etc.).**

Land use within the study area is primarily rural/agricultural; however, areas of urban/suburban development can be found within the various cities/town in the study area, primarily adjacent to US 377 and US 380. Urban areas can mostly be seen in Pilot Point, Aubrey, and along US 380 in the towns of Lincoln Park and Providence Village. Even within the urban areas, the majority of residential land use is single-family, with the only areas of multi-family found along US 380 and US 377 in Krugerville. Areas of suburban development can be found in all cities/towns. Areas outside of these cities and towns are primarily rural agricultural land use with sparse populations.

Refer to Attachment 1: CIA Study Area and Attachment 6: Census Geography Map - Population Density.



Form Community Impacts Assessment Technical Report

4. List and describe the community facilities within the community study area in the table below and show these facilities on an attached map.

#	Name of Facility	Type of Facility (ex.: school, park, place of worship, etc.)	Public or Private?	Serves a Specific Population?	Adjacent to the Project?	Additional Details/Comments
1	Christie's Golf Ranch, Inc	Recreational	Private	No	No	
2	Pilot Point High School Baseball Fields	Recreational	Public	Children	No	
3	Countryside Nursing & Rehabilitation	Assited Living	Private	Elderly	No	
4	Pilot Point High School	Educational	Public	Children	No	
5	Saint Thomas School	Educational	Private	Children	No	
6	St. Thomas Aquinas Catholic Church	Place of Worship	Public	No	No	
7	St. James Baptist Church	Place of Worship	Public	No	No	
8	Place of Worship	Cemetery	Public	No	No	
9	Pilot Point Intermediate School	Educational	Public	Children	No	
10	United States Postal Service	Government	Public	No	No	
11	Iglesia Jesucristo Rey De Reyes	Place of Worship	Public	Spanish Speakers	No	
12	Knights of Columbus	Place of Worship	Public	No	No	
13	Pilot Point Care Center	Assisted Living	Private	Children	No	
14	County Line Baptist Church	Place of Worship	Public	No	No	



#	Name of Facility	Type of Facility (ex.: school, park, place of worship, etc.)	Public or Private?	Serves a Specific Population?	Adjacent to the Project?	Additional Details/Comments
15	New Testament Church Of Jesus Christ	Place of Worship	Public	No	No	
16	Calvary Baptist Church	Place of Worship	Public	No	No	
17	Pilot Point Police	Government	Public	No	No	
18	Pilot Point Community Opera House	Recreational	Public	No	No	
19	Pilot Point High School Baseball Field	Recreational	Public	Children	No	
20	Pilot Point Fire Department	Government	Public	No	No	
21	Pilot Point City Park	Recreational	Public	No	No	
22	Pilot Point First United Methodist Church	Place of Worship	Public	No	No	
23	Pilot Point Church of the Nazarene	Place of Worship	Public	No	No	
24	Pilot Point Senior Citizen Center	Assisted Living	Private	Elderly	No	
25	Pilot Point Community Library	Government	Public	No	No	
26	Pilot Point Church of Christ	Place of Worship	Public	No	No	
27	Cowboy Country Chapel	Place of Worship	Public	No	No	
28	Pilot Point Elementary School	Educational	Public	Children	No	
29	Pilot Point Middle School	Educational	Public	Children	Yes	
30	Pilot Point I.S.D.	Educational	Public	No	Yes	
31	Skinner Cemetery	Cemetery	Public	No	No	



#	Name of Facility	Type of Facility (ex.: school, park, place of worship, etc.)	Public or Private?	Serves a Specific Population?	Adjacent to the Project?	Additional Details/Comments
32	Sharkarosa Wildlife Ranch	Recreational	Private	No	No	
33	Denton First Seventh-day Adventist Church	Place of Worship	Public	No	Yes	
34	Tell My People - TMP	Place of Worship	Public	No	No	
35	Belew Cemetery	Cemetery	Public	No	Yes	
36	Midway Church	Place of Worship	Public	No	Yes	
	Refer to attached Facilities List for complete list.					



Form Community Impacts Assessment Technical Report

C. Demographics

Attach tables to this Community Impact Assessment Technical Report form detailing race/ethnicity (including Hispanic or Latino persons), language, income, employment, disability, and age data for the community study area. Include other demographic data as appropriate. A template demographics table is provided as Appendix A to this form. Following completion of this section, proceed to Section D.

1. What data sources were used?

- U.S. Census Bureau
- American Community Survey (ACS)
- Texas Demographics Center
- Texas Education Agency – “Texas Academic Performance Reports”
- Site Visit – The Date of Site Visit: 4/29/2020, 5/6/2020
- Current and/or historic aerial photographs
- Other
 - www.apartments.com
 - www.realtor.com
 - www.zillow.com

2. How many of the census geographies within the community study area indicate half or more of the population as minorities (e.g., 2 out of 10 census blocks within the community study area indicate half or more of their populations to be minorities)? Also consider whether any of the census geographies indicate an appreciably greater percentage of minorities compared to the next largest census geography (e.g., one block indicates a 45-percent minority population, while its parent block group indicates a five-percent minority population). What is the racial makeup of the minority census geographies? Minority data should be evaluated at the block level in most circumstances.

The community study area is encompassed by 6 census tracts, 12 census block groups, and 758 census blocks. Out of the 758 census blocks, 329 (43.4%) have zero population, and 61 (8%) have minority populations of 50% or greater. No census tracts or block groups indicate minority

populations of 50% or greater.

Most of the minority census blocks are within the City of Pilot Point, with only a few spread out across the rest of the study area. Of the 61 minority census blocks, only 6 are adjacent to the project.

The total approximate population of the study area is 17,675 across the 758 census blocks based on the U.S. Census Bureau 2010 Census. Of the 17,675; 13,572 (76.8%) are white alone; 2,836 (16.1%) are Hispanic or Latino; 712 (4%) are Black or African American alone; 282 (1.6%) are Two or More Races; 134 (0.8%) are Asian alone; 113 (0.6%) are American Indian and Alaska Native alone; 17 (0.1%) are Native Hawaiian and Other Pacific Islander alone; and 9 (0.05%) are Some Other Race alone. The total minority population within the study area is 4,103 (23.2%).

The total approximate population of the 61 minority census blocks is 1,742. Of the 1,742; 791 (45.4%) are Hispanic or Latino; 665 (38.2%) are White alone; 192 (11%) are Black or African American alone; 69 (4%) are Two or More Races; 13 (0.7%) are Asian alone; and 12 (0.7%) are American Indian and Alaska Native alone. The total minority population of the 61 minority census blocks is 1,077 (61.8%).

Refer to Attachment 4: Summary of Census Data, Attachment 5: Census Geography Map - Minority Populations, and Attachment 6: Census Geography Map - Population Density.

3. What is the current U.S. Department of Health and Human Services (DHHS) poverty level for a family of four, and what year is this based on?

The current 2020 U.S. DHHS poverty level for a family of four is \$26,200.

4. How many of the census geographies show a median household income below the DHHS poverty level? What are the median incomes of each those census geographies? If there are more than four block groups in the study area, list the range of incomes (e.g., Median income in the study area ranges from \$32,415 to \$47,651). Median household income should be evaluated at the block group level if available.

No census tracts or block groups encompassing the study area have median household incomes below the poverty threshold. Median incomes for census tracts range from \$67,472 to \$105,539, and for block groups, range from \$30,213 to \$109,345. There are an estimated 17,835 households within 6 census tracts encompassing the study area, with 856 (4.8%) being below the poverty threshold. There are an estimated 10,977 households within the 12 block groups encompassing the study area, with 507 (4.6%) being below the poverty threshold.

Block Group 6 of Census Tract 201.03 has the highest level of poverty with 24.8% of households being below the poverty threshold, far above any other census geography. This block group makes up the northeast part of the City of Pilot Point and is adjacent to the project.

Refer to Attachment 4: Summary of Census Data, and Attachment 7: Census Geography Map - Median Household Income.

5. **Do any of the census geographies show the presence of persons who speak English “less than very well?” Which languages are spoken by those with limited English proficiency? Language spoken should be evaluated at the block group level if available.**

All census tracts and 11 of 12 block groups encompassing the study area have LEP populations. None of these geographies have LEP populations higher than 10%. The estimated population of 5 years and older across the 12 census block groups is 28,281 based on the 2014-2018 American Community Survey 5-Year Estimates. The LEP population is estimated to be 1,754 (3.7%). Of the 1,754 LEP persons; 1,518 (3.2%) are Spanish Speakers; 127 (0.3%) are Other Indo-European Language Speakers; 61 (0.1%) are Asian and Pacific Island Language Speakers; and 48 (0.1%) are Other Language Speakers.

Refer to Attachment 4: Summary of Census Data, and Attachment 8: Census Geography Map - LEP Populations.

D. Site Visit

*Following completion of this section, proceed to **Section E**.*

1. **Was a site visit conducted? If so, indicate when the site visit was conducted, attach documentation (including notes and photographs) from the field visit, and complete the rest of Section D. A site visit should be conducted for most projects. If not, explain why site visit was not conducted.**

A site visit was conducted on April 29, 2020 and May 6, 2020.

2. **Were there signs observed in languages other than English? Describe the language(s) observed as well as the frequency and general location of signs in other languages (e.g., throughout the community study area, concentrated in a particular vicinity, etc.).**

One Spanish church was found (ID 11, Iglesia Jesucristo Rey De Reyes), and a business adjacent to US 377, Now You're Talkin' Vamos Hablar, a speech therapy office, also indicated Spanish language accommodation (Photo 33). No other signs of languages other than English were observed.

Refer to Attachment 9: CIA Project Area Photographs for representative photos.

3. **Were there places of worship, businesses, services, or other community facilities that target or primarily serve specific minority groups?**

One Spanish church (ID 11, Iglesia Jesucristo Rey De Reyes) was identified.

4. Were there observable signs of persons with disabilities, such as ramps on homes or public transportation vehicles, or stops specifically designed for persons with disabilities?

Some homes with ramps as well as an outdoor wheelchair lift were identified near the project in Pilot Point and Aubrey (Photos 31 & 32).

Refer to Attachment 9: CIA Project Area Photographs for representative photos.

5. Were there signs of other vulnerable populations (including children and elderly persons), such as the presence of daycares, elementary schools, or assisted living facilities?

There are multiple schools, daycares, and assisted living facilities found within the study area, with many adjacent to the project.

Refer to Attachment 2: Facilities List, Attachment 3: Facilities Maps, and Attachment 9: CIA Project Area Photographs.

6. Were there signs of low-income populations or neighborhoods, such as government-subsidized housing, homes in disrepair, and low-cost health care facilities?

No government housing was identified. However, there did appear to be some homes in disrepair near the project limits in Pilot Point (Photos 29 & 30).

Refer to Attachment 9: CIA Project Area Photographs for representative photos.

7. Were there signs of other modes of transportation, such as bus stops, train stations, or designated bicycle lanes or bicycle lane signage? Did you observe cyclists in the area? Are there sidewalks or trails? Did you observe “goat paths” or dirt pathways adjacent to the proposed facility? If any of these signs are present, please describe their location and extent and show on a map, if necessary.

No other modes of transportation were identified. There is a railroad adjacent to the project. However, there are no public train stops within the study area and the railroad appears to be for freight transport only.

8. Based on the observations made during the site visit and the data provided in Sections B and C, summarize the general character of the community study area. Consider the present condition as well as the overall development trends within the community study area.

The study area tends toward rural development, with cities spread out along the project corridor. Development has been relatively slow along the project corridor, with more activity present along US 380 to the southeast of the study area. Pilot Point has the largest concentration of minority



populations, LEP populations, and households below the poverty level.

E. Public Involvement

Following completion of this section, proceed to **Section F**.

1. **Please describe the public involvement efforts planned or previously carried out for the proposed project.**

Stakeholder Meetings with the cities of Aubrey, Cross Roads, Pilot Point, and Krugerville took place on December 17, 2017 and March 31, 2020. A virtual Public Meeting was conducted on April 28, 2020. The purpose of which was to present the proposed improvements and solicit public comments. The virtual Public Meeting consisted of a video presentation explaining the project which included audio and visual components. It included other materials such as the design and typical sections. Options to submit formal comments comprised mail, e-mail, or voice mail. All comments are to be received by May 13, 2020.

2. **If public involvement has already occurred or is ongoing, what type of feedback has been received from the public regarding the proposed project or other community-related issues (i.e., what is the general sentiment of the public regarding the proposed project.**

Stakeholders mentioned above are in support of the project. The public comment period for the virtual Public meeting ends May 13, 2020.

3. **If public involvement has already occurred or is ongoing, and if feedback has been received from the public, how has this feedback been incorporated into the proposed project? Have attempts been made to address specific concerns of the public?**

Comments will be reviewed following the May 13, 2020 deadline. Each comment will be addressed and submitted in the form of a Summary and Analysis. Design changes if required will follow.

F. Displacements

Would the proposed project result in any displacements?

No Proceed to **Section G**, Access and Travel Patterns.

Yes Answer the questions in all applicable sections.

- *If residential displacements would occur, answer all questions in **Section F.a**.*
- *If commercial displacements would occur, answer all questions in **Section F.b**.*
- *If commercial displacements would occur, (such as places of worship, community*

centers, or schools), answer all questions in **Section F.c.**

1. Residential Displacements

If residential displacements would occur, answer all the questions in this section and proceed to **Section G.**

- a. **How many residences would be displaced (including those that would be impacted in a manner that would prevent them from being occupied because of loss of parking or access, etc.)? What types of residences would be displaced (e.g., single-family homes, apartments, duplexes, etc.)?**

Two residences would be displaced as a result of the proposed project and are listed below:

- Property No 5; Single-family home (Photo 23) at 809 Chestnut St, Aubrey, TX 76227-9116 (building impacts)
- Property No. 9; Apartment Complex (Photo 26) at 5408 US 377 S, Aubrey, TX 76227-6211 (building impacts)

Only a small portion of the apartment complex would be impacted, so it's possible only the unit nearest the project would be displaced while the rest of the building could remain intact.

Two residential properties would have impacts to buildings other than homes, listed below:

- Property No. 3; Single-family home (Photo 21) at 1311 S US 377, Pilot Point, TX 76258 (barn/shed impacts)
- Property No. 11; Single-family home (Photo 28) at 855 Sherry Ln S, Krugerville, TX 76227 (three buildings/storage sheds)

- b. **Is there an adequate number of available replacement homes of comparable type, size, and cost? How was this determined?**

Homes and apartments were researched on various real estate websites. The single-family home (ID 5) potentially being displaced is appraised at \$131,474. Upon searching the surrounding area of Aubrey, there are no available single-family homes around that price range. There are a number of single-family homes in the area ranging in prices from \$205k to \$595k. Further south in Krugerville, there are homes ranging from \$226k to \$424k.

The appraised value of the apartment complex (ID 9) is \$417,784. However the monthly price of the individual units is unknown. There are very few apartments in the area and none were identified using online rental resources. However, during the site reconnaissance, multiple apartments with signs indicating available units were sited (Photos 43 and 35). There are also some single-family homes available for rent. The monthly rental price of homes in the area range from \$1,695 per month to \$1,895 per month, potentially higher than the current monthly price of the apartment complex being displaced.

Refer to Attachment 9: CIA Project Area Photographs for photos of the apartments sited.

2. Commercial Displacements

*If the number of employees at businesses that would be displaced represents less than five percent of the workforce in the community study area, then only questions i through vii should be answered below. If the number of employees at businesses that would be displaced represents more than five percent of the workforce in the community study area, then answer all of the questions in this section and refer to **Appendix B** for guidance on how to further analyze economic impacts (unless there is reason to believe that the overall economic impact of the displacements on the community would nevertheless be minor, in which case discuss with an ENV SME before completing all of the questions in this section). Upon completion of this section, proceed to **Section G**.*

a. What types of businesses exist in the study area (e.g., commercial, retail, industrial, medical, etc.)?

Businesses in the study area include convenience stores/gas stations, grocery stores, automotive shops and dealerships, banks, restaurants, and various retail and industrial services.

b. Which businesses would be displaced (including those that are impacted in a manner that would prevent them from continuing to operate because of loss of parking, removal of access, etc.)?

Seven businesses would be partially or fully displaced and are listed as follows:

- Property No. 1; Corner Cafe (Photo 19) at 1280 S US 377, Pilot Point, TX 76258 (parking impacts and removal of access)
- Property No. 2; Sunny Mart (Photo 20) at 1293 S US 377, Pilot Point, TX 76258 (tank hold, gasoline pumps and awning impacts)
- Property No. 4; ATX Auction House (Photo 22) at 556 E Blackjack Rd, Pilot Point, TX 76258 (parking impacts and removal of access)
- Property No. 6; Keller Williams Realty (Photo 24) at 806 US 377, Aubrey, TX 76227 (building and parking impacts)
- Property No. 7; Betty's Flowers & Gifts (Photo 25) at 903 US 377, Aubrey, TX 76227 (parking impacts and removal of access)
- Property No. 8; B. Ellen's House of Brows (Photo 25) at 901 US 377, Aubrey, TX 76227 (parking impacts and removal of access)
- Property No. 10; Tejas Storage (Photo 27) at 5055 S US 377, Aubrey, TX 76227 (partial storage unit impacts)

c. Are these businesses unique to the area? How far would a person have to travel to find a business offering similar services?

The only business unique to the area is the ATX Auction House. The nearest auction house is found in Denton, approximately 15 minutes from the current business. All other businesses are not unique to the study area, with various options besides the potentially displaced.

d. Do these businesses serve a specific population such as persons with disabilities, children, the elderly, a specific ethnic group, low-income families, or a specific religious group?

None of these businesses serve specific populations.

e. Have any business owners indicated that they would or would not relocate if the proposed project is implemented? (base your answer on any information that is already available, there is no need to poll business owners for the sole purpose of answering this question)

That is unknown; however, there is numerous available undeveloped property adjacent to the project, where one could choose to develop.

f. Do customers generally access these businesses by car, mass transit, walking, or bicycling?

Accessing these businesses is only safe by car, as sidewalks and bike lanes are nonexistent along the existing US 377. Mass transit is also not available along the project.

g. Are there replacement properties available for relocation of the businesses? Are there parcels available of comparable size, zoning, or special access needs (e.g., adjacent to a railroad)?

There is available land adjacent to the project across its entire length, with much of the land already zoned commercial in a variety of lot sizes.

3. Other Displacements

Other displacements could include but are not limited to places of worship, community centers, or schools. If other displacements would occur, answer all of the questions in this section and



proceed to **Section G**.

- a. What non-residential and non-commercial displacements would occur? Where are these facilities located?

N/A

- b. Do the displaced facilities serve a specific population such as persons with disabilities, children, the elderly, a specific ethnic group, low-income families, or a specific religious group?

N/A

- c. Are there replacement properties available for relocation of comparable size or zoning?

N/A

- d. How far would a person have to travel to find similar facilities or services?

N/A

- e. Is there any opportunity to mitigate the impact to the facilities?

N/A

G. Access and Travel Patterns

Would the project potentially result in permanent changes to access (i.e., driveway closures), permanent removal of bike or pedestrian facilities, or permanent changes to travel patterns? Project elements that could result in changes in access and/or travel patterns include but are not limited to: introduction or modification of raised medians; dividing a previously undivided facility; reconfiguration of intersections; construction of a highway on new location; and construction of frontage roads along a highway.

- No Proceed to **Section H**, Community Cohesion
- Yes Answer questions in the applicable sections

- If the project would improve an existing facility (including construction of new frontage roads along an existing highway), complete Section G.a. only and proceed to **Section H**.
- If the project would be constructed on new location but would not create a new bypass or reliever route, complete Section G.b. only and proceed to **Section H**.
- If the project would create a new bypass or reliever route, complete Sections G.b. and G.c. and proceed to **Section H**.

1. Changes in Access and Travel Patterns for Projects on Existing Facilities

a. What modes do people currently use to access destinations in the community study area (car, walking, cycling, and/or mass transit)?

The most common form of transportation people use to access the adjacent parcels is by automobile followed by walking. Narrow shoulders within city limits and no sidewalk access makes pedestrian movement hazardous. Along the study area, sidewalks are typically only found in newer residential neighborhoods. Mass transit is not available within the study area.

b. Describe the current travel patterns along the existing facility and within the community study area. Consider the travel patterns observed during the site visit as well as the potential origins and destinations of trips for people in the community study area. Consider all modes if multiple modes are used in the community study area.

Under existing conditions, motorists can enter northbound and southbound US 377 within the project limits from adjacent driveways, side streets, and cross streets. There are no sidewalks or bike paths along the length of the project. There are wider shoulders in the more rural sections of the roadway and narrow shoulders within city limits.

c. Describe how the proposed project would permanently change access and travel patterns along the facility and within the community study area compared to the existing condition, including beneficial and adverse impacts. Please include estimated travel time changes, as appropriate.

As part of the proposed improvements, a 10 to 20-foot wide raised median would be introduced, and access to/from north and south-bound US 377 to/from adjacent driveways, side streets, and cross streets would be limited to select locations.

Median openings would be provided at the following existing cross/side streets:
Bus 377
E. Burks Street



FM 455
Reconfigured Debbie Lane
S.Harrison Street
Reconfigured S. Jefferson Street
Zipper Road
Friendship Road/St. John Road
Belew Road
E. Sheramn Raod
Black Jack Road
Tisdell Lane
Meadow lane
Spring Hill Road
Pine Ridge Street/Reconfigured Chestnut Street
High Meadow Drive
Stanley Drive
Surveyors RoadPerkins Road/Woodland Drive
Fairview Drive/Ike Bryon Road
Sherry Lane/Industrial Park
Liberyt Road
Dr. Griffin Road/Reconfigured FM 424
Fishtrap Road

Left turn openings will be provided at:

E. Northside Drive intersection
Production Road
E. McDonald Drive
Hengerson Street
Four commercial establishments

For motorists seeking a destination on the opposite side of the roadway, left turn lanes are provided at the median openings to allow them to perform a U-turn and continue back to their destination. This may potentially cause an increase in travel time because the motorists cannot directly access their destination or residence on the opposite side of the road. They might have to pass their destination, and continue until they reach a median opening, and then conduct a U-turn to reach their final destination. Proposed median break locations are subject to change during the Plans, Specifications & Estimates (PS&E) phase of the project. All properties currently having access to US 377 would continue to do so following implementation of the proposed project.

The proposed bike/pedestrian facilities along US 377 within the project limits (14-foot wide outside shared use lane and 5-foot wide sidewalks) may influence a change in travel patterns as people utilize non-motorized transportation.

- d. Describe the specific areas that would be affected by these changes, such as residences or businesses. Which community facilities listed in Section B.g. would be affected? Do any of the community facilities provide “essential services,” such as clinics, schools, or emergency response?**

Within each of the cities, various community facilities would be impacted by the raised medians requiring them to make U-turns at available median breaks rather than left turns (IDs 33, 56, 57, 63, 66, 68, & 71). Proposed median break locations may impact locations along the project corridor, but these median breaks are subject to change during the PS&E phase of the project.

- e. How would the proposed project affect emergency response times? Please calculate added distance and/or estimated travel times for any potential response time increases.**

The proposed project would increase roadway capacity and improve mobility and safety in the proposed project area. Median openings would be provided at existing cross/side streets as previously listed above, but not adjacent driveways. For emergency response vehicles seeking destinations on the opposite side of the roadway, left-turn lanes are provided at the median openings and other cross-street and commercial locations to allow them to perform U-turns and continue back to their destinations. While access may be less direct in some locations for emergency response vehicles, the proposed project would be expected to result in an overall improvement in response times throughout the project area.

- f. Are there active farms or ranches in the community study area? If so, would the project affect the movement of farm equipment or livestock trailers across the highway?**

Rural areas found along the length of the project in the eastern end of the project would have median breaks at roadways, allowing access for farm equipment or livestock trailers to gain access to the highway in either direction. Regardless, this would still impede movement of farm equipment and livestock trailers compared to the existing rural roadways with no raised medians.

- g. Are any design elements proposed to mitigate adverse impacts to access and/or travel patterns?**

The raised median was a major concern and one that was dealt with during design.

Some examples include:

- Coordinated median openings for various businesses along the route as much as possible to provide dual access from both traveling directions.
- Maintained access to all private property via driveways and provided median openings at as many locations as allowed by design standards.
- All possible cross-street intersections maintained accessibility via median openings as allowed by design standards.



2. Changes in Access and Travel Patterns for Construction of Highway on New Locations

- a. What modes do people currently use to access destinations in the community study area (car, walking, cycling, and/or mass transit)?**

N/A

- b. Describe the current travel patterns within the community study area. Consider the travel patterns observed during the site visit as well as the potential origins and destinations of trips for people in the community study area. Consider all modes if multiple modes are used in the community study area.**

N/A

- c. Describe the changes in access and travel patterns that would result from the proposed project, including any beneficial and adverse impacts. For new location projects, consider whether access to previously inaccessible areas would be created, as well as how the introduction of the project to the area could change previously established travel patterns on other facilities in the community study area.**

N/A

- d. Describe the specific areas that would be affected by these changes. What residences or businesses are located near the proposed new-location facility? Which community facilities listed in Section B.d. would be affected? Do any of the community facilities provide “essential services,” such as clinics, schools, or emergency response?**

N/A

- e. How would the new highway affect emergency response times?**

N/A

- f. Is land adjacent to the new-location highway available for development?**

N/A

- g. Are there active farms or ranches in the community study area? If so, would the project affect the movement of farm equipment, livestock, or trailers across the highway?**

N/A

- h. Are any design elements proposed to mitigate adverse impacts to access and/or travel patterns?**

N/A

3. Changes in Access and Travel Patterns for New Bypass or Reliever Route Projects

- a. What businesses are located along the existing corridor for which the bypass or reliever route would be created? Which of these businesses are primarily dependent on passing traffic for business (e.g., gas stations, restaurants, hotels, etc.)?**

N/A

- b. Are frontage roads proposed as part of the project? If so, describe the type and location of the frontage roads.**

N/A

- c. Describe any mitigation or design element, such as new signage, proposed to address adverse impacts to existing traffic-dependent businesses.**

N/A

H. Community Cohesion

Does the project involve one or more of the following elements?

- Construction of a highway on new location
- Construction of a new grade separation of more than one level
- Construction of a new interchange
- Expansion of an existing facility or interchange by a width equal to or greater than an existing travel lane.



- Upgrade of a non-freeway facility to a free-way facility
- Addition of tolled or managed lanes
- Construction of a new raised median or extension of an existing raised median that will prevent access to a least one driveway or cross street.
- Introduction of a new median along a previously undivided facility

- No Proceed to **Section I, Environmental Justice**.
- Yes Answer all questions in this section and proceed to **Section I**.

1. Briefly characterize the existing level of community cohesion. Ideally, this information should be based on feedback from members of the affected community or communities. If no such information is available, rely on geographic characteristics, development patterns, and observations made during the site visit.

The existing US 377 roadway has been a central part of the study area for decades, with the various cities along it being directly dependant on the provided connectivity to US 380, giving the area access to the greater region. The study area however, is spread across large areas of unincorporated land dominated by farm and cropland. These different rural and urban areas all have their own community cohesion. The more recent residential subdivisions are primarily developed south of US 377 along US 380 and further south. The additional travel lanes should not further divide the community cohesion of existing neighborhoods and cities.

2. Describe whether construction of the proposed project would change the existing level(s) of separation experienced near the project area. Changes in separation could include but are not limited to introduction of a new physical barrier; expansion of an existing physical barrier; or contribution to a perceived sense of separation by constructing a new grade separation. Consider all modes if multiple modes are used in the community study area.

While the increased width of the project and raised medians across the entire proposed project limits would add to existing levels of physical separation, improved travel times due to added travel lanes and turn lanes, along with shared-use lanes and continous sidewalks would overall reduce the levels of separation through greater ease of travel across the project area. These improvements coupled with safer traffic conditions resulting from raised medians would help to reduce the perceived sense of separation for motorists, pedestrians, and cyclists.

US 377 has existed in some form longer than most towns/cities within the study area. As such, development of communities and their cohesion has expanded along and around US 377. Subdivisions along US 377 would not be further divided by the additional travel lanes as they are already built up around US 377.

3. Describe whether the changes associated with the proposed project (including impacts to access and travel patterns) would directly or indirectly result in separation or isolation of any



geographic areas or groups of people. Consider all modes if multiple modes are used in the community study area.

The changes associated with the proposed project are not anticipated to separate or isolate geographic areas or groups of people. The changes would not remove access to cross streets connecting neighborhoods to the proposed project, and regular median breaks would maintain consistent north/south access along US 377, ensuring no areas or groups of people are isolated. It is unlikely that having to conduct an occasional U-turn and the associated slight increase in travel time would influence people to change how they access the community/local activities. Continuous shared use lanes and sidewalks along the project would reduce separation for those without the means to travel by vehicle.

- 4. Describe whether the changes associated with the proposed project would affect use of local services and community facilities. Would the project make access to these services and facilities more or less convenient? Would the frequency with which people access other parts of the community change? Consider all modes if multiple modes are used in the community study area.**

The introduction of bike/pedestrian facilities may encourage people to pursue alternative modes of transportation. With improved access to bike/pedestrian facilities people may desire to visit or use local services and facilities more frequently. Raised medians are not anticipated to impact use of local facilities or services. It may be less convenient to access community facilities from the additional travel times resulting from the proposed raised median; however, access to these facilities would not be eliminated, and unlikely to change the frequency in which people access these facilities.

- 5. Are any design elements proposed to mitigate adverse impacts to community cohesion?**

Many of the border widths and ROW widths along the project, especially in the highly residential areas, were minimized or isolated to one side of the proposed project to reduce the impact to established communities. Every effort to reduce displacements was made to avoid impacting community cohesion.

I. Environmental Justice

Based on the data provided in Sections C.b. and C.d., does the community study area include any minority or low-income census geographies (i.e., “EJ census geographies”)?

- No Proceed to **Section J, Limited English Proficiency.**
- Yes Answer all questions in this section and proceed to **Section J.**

1. If the project would result in displacements, how many of these displacements would be located in EJ census geographies versus non-EJ census geographies?

Two potential displacements (IDs 5 & 6) would result in an EJ census geography. However, ID 6 is a commercial displacement.

2. Would there be impacts related to access and/or travel patterns? If yes, what types of impacts would occur in EJ census geographies versus non-EJ census geographies?

There are no access and travel pattern impacts that would occur only in EJ census blocks. Of the 61 minority EJ census blocks out of 758 total, there are only 6 EJ census blocks that are adjacent to the project. In general, the raised medians discussed in the Access and Travel Patterns section would have regular median breaks at cross streets and at regular intervals. This would ensure greater safety while allowing for north/south movement along US 377 with minimal disruption, regardless of whether adjacent census blocks are EJ or not.

3. Would there be impacts related to community cohesion? If yes, what types of impacts would occur in EJ census geographies versus non-EJ census geographies?

There are no community cohesion impacts that would occur only in EJ census blocks. As discussed in the Community Cohesion section, while raised medians and ROW acquisition would increase physical separation, improved traffic flow with increased lane capacity along with shared-use lanes and the addition of sidewalks across the entirety of the project would overall reduce the perception of separation.

4. Do any of the displaced businesses, community facilities, or services specifically cater to minority or low-income populations? Would the services provided cease, be reduced, or be forced to temporarily stop if displaced? If so, where is the nearest comparable service provided? Consider the effects to EJ populations that reside within the community study area as well as EJ populations that may reside elsewhere but still rely on the services being provided by these establishments.

No potentially displaced businesses serve minority or low-income populations. The only business unique to the area is the ATX Auction House. The nearest auction house is found in Denton, approximately 15 minutes from the current business. All other businesses are not unique to the study area, with various options besides the potentially displaced.

5. Based on the other technical documentation prepared for the proposed project, would there be any impacts to the human environment (e.g., noise, air quality, etc.) that could affect the community study area? If yes, would these impacts occur in EJ census geographies or non-

EJ census geographies?

No, noise and air quality impacts are not expected.

- 6. Has the community experienced substantial impacts from past transportation projects such as a new roadway causing a large number of displacements or introducing a barrier and separating parts of the community? Describe any recurring community impacts that may be perpetuated by the proposed project.**

No.

- 7. Have there been any major infrastructure projects, industrial facilities, or other large-scale developments constructed in or adjacent to the community area?**

The areas in the southeast of the study area along US 380 have seen substantial development in the last five years, with a number of new apartment complexes and retail locations being constructed or under construction.

Refer to Attachment 1: CIA Study Area Map

- 8. Are there any minimization or mitigation efforts proposed specifically to lessen impacts to EJ populations?**

No, as there are not expected to be disproportionate impacts to EJ populations within the study area.

- 9. In consideration of all the impacts to EJ populations described above and any mitigation proposed, would impacts to EJ populations be disproportionately high and adverse when compared to impacts to and mitigation for impacts to non-EJ populations? Describe why or why not.**

EJ populations are limited within the study area, and impacts are not limited to these areas. Based on this information, disproportionately high and adverse impacts to EJ populations are not anticipated.

J. Limited English Proficiency

Based on the data provided in Sections C.e. and observations made during the site visit, are LEP persons likely to be present in the community study area?



- No Proceed to **Section K, Conclusions.**
- Yes Answer all questions in this section and proceed to **Section K.**

1. What languages do the LEP persons likely to be present in the community study area speak?

The LEP population is estimated to be 1,754 (3.7%). Of the 1,754 LEP persons; 1,518 (3.2%) are Spanish Speakers; 127 (0.3%) are Other Indo-European Language Speakers; 61 (0.1%) are Asian and Pacific Island Language Speakers; and 48 (0.1%) are Other Language Speakers.

Refer to Attachment 4: Summary of Census Data, and Attachment 8: Census Geography Map - LEP Populations.

2. If public involvement events have occurred or are ongoing, then describe the accommodations that have been made for LEP persons during the public involvement process. Was assistance in a language other than English requested or is it anticipated to be requested? Were notices for public involvement opportunities provided in languages other than English? Were services such as translation or interpretation provided during public involvement events?

Accommodations for LEP persons during public involvement have included, and would continue to include, providing bilingual (English/Spanish) public notices, placing public notice display ads in English and Spanish newspapers, and having Spanish-speaking staff present at public involvement events. In addition, the public involvement notices state that accommodations for other non-English languages would be provided if requested ahead of the meeting.

3. Are more public involvement efforts planned? If yes, has the plan to accommodate LEP persons changed based on past public involvement feedback?

Yes, there is a planned Public Hearing, which would also provide accommodation for non-English speaking LEP populations should they be necessary.

K. Conclusions

Following approval of the Community Impact Assessment Technical Report form by TxDOT ENV, this summary must be included in the draft EA or draft EIS, if one is being prepared.

In the text box provided below, provide a summary of the analysis conducted above and include the following information:

- Whether EJ populations occur within the community study area
- Summary of impacts related to displacements
- Summary of impacts related to access and travel patterns
- Summary of impacts related to community cohesion
- Summary of impacts to EJ populations
- Summary of LEP issues and accommodations

If some of the above components of the analysis do not apply to a particular project, please indicate this in the conclusion statements (i.e., “The proposed project would not result in any displacements; therefore, a displacements analysis was not required.”).

EJ populations occur within the CIA study area. There are 61 out of 758 census blocks within the CIA study area that contain 50% or more minorities. Only six EJ census blocks are adjacent to the project. There are no EJ census block groups encompassing the CIA study area.

The proposed project may result in 11 displacements, four residential properties, and seven commercial properties with two of the residential properties having impacts only to storage sheds or barns. There is available undeveloped residential and commercial property within a reasonable distance of the displacements, though there are not available existing residential or commercial developments of comparable value. Alternatively, some of these would be able to rebuild on their remaining land after ROW acquisition.

The proposed project is anticipated to reduce travel times through added travel lanes by widening the project to four lanes with added turn lanes at median breaks. The inclusion of raised medians would require motorists to make U-turns at median breaks to access certain locations where median breaks are not available, potentially reducing travel times, though general improvements are anticipated to offset these delays. Access would be improved for non-motorists, through the inclusion of shared use paths and sidewalks across the entire project. Raised medians and shared use paths would improve safety for motorists, bicyclists and pedestrians.

Minimal adverse impacts to community cohesion would occur as the proposed project is on an existing roadway, and displacements are not widespread. Proposed median break locations may impact the cohesion of homes and retail along the project corridor, but these median breaks are subject to change during the PS&E phase of the project. The safety provided by raised medians would help to offset potential impacts of median break locations, overall improving community cohesion and access. Congestion for regional travelers and local workers in the area would be improved as would the delivery of goods to the various economic centers along this corridor.

No adverse impacts to EJ populations are anticipated. There are six EJ census blocks adjacent to the project out of 758 and two of eleven displacements occur in them. Any impacts would be equally shared between EJ populations and non-EJ populations.

LEP populations are sparsely across the study area and are not expected to have adverse impacts. Accommodations have and will continue for Spanish language speakers for all public involvement.

ATTACHMENTS

The following have been attached to this report:

Attachment 1: CIA Study Area Map (1 sheet)

Attachment 2: Facilities List (2 sheets)

Attachment 3: Facilities Maps (2 sheet)

Attachment 4: Displacements Map (1 sheet)

Attachment 5: Displacements List (1 sheet)

Attachment 6: Summary of Census Data (11 sheets)

Attachment 7: Census Geography Map – Minority Populations (1 sheet)

Attachment 8: Census Geography Map – Population Density (1 sheet)

Attachment 9: Census Geography Map – Median Household Income (1 sheet)

Attachment 10: Census Geography Map – LEP Populations (1 sheet)

Attachment 11: CIA Project Area Photographs (18 sheets)

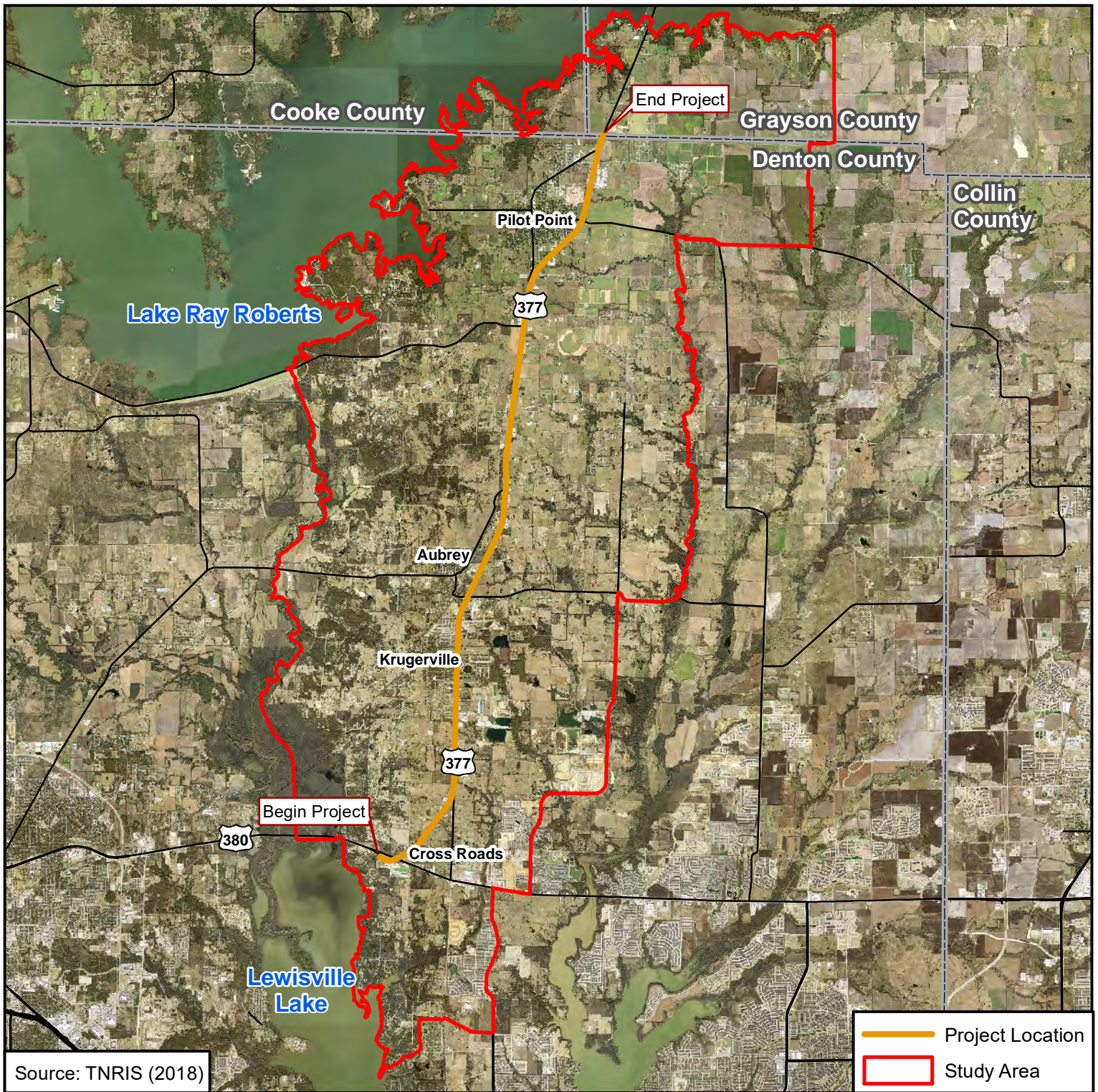
The following are available in the TXECOS file for the project:

Project Description

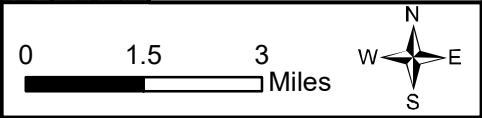
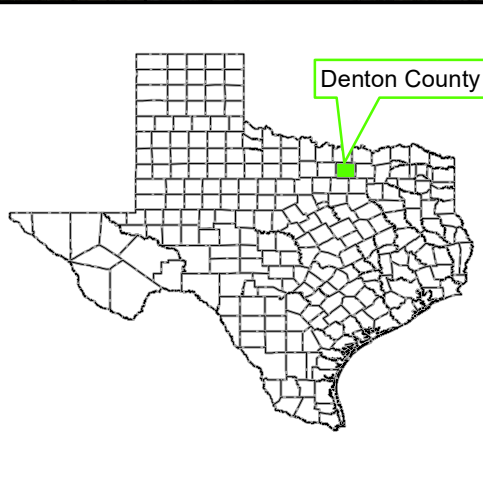
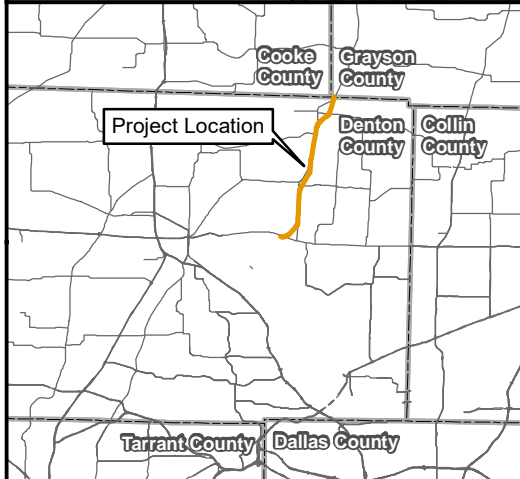
Project Location Map

USGS Topographic Map

Attachment 1
CIA Study Area Map



Source: TNRIS (2018)



CIA Study Area Map
United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040

Attachment 2
Facilities List

#	Name of Facility	Type of Facility	Public or Private?	Serves a Specific Population?	Adjacent to the Project?
1	Christie's Golf Ranch, Inc	Recreational	Private	No	No
2	Pilot Point High School Baseball Fields	Recreational	Public	Children	No
3	Countryside Nursing & Rehabilitation	Assisted Living	Private	Elderly	No
4	Pilot Point High School	Educational	Public	Children	No
5	Saint Thomas School	Educational	Private	Children	No
6	St Thomas Aquinas Catholic Church	Place of Worship	Public	No	No
7	St. James Baptist Church	Place of Worship	Public	No	No
8	Pilot Point Community Cemetery	Cemetery	Public	No	No
9	Pilot Point Intermediate School	Educational	Public	Children	No
10	United States Postal Service	Government	Public	No	No
11	Iglesia Jesucristo Rey De Reyes	Place of Worship	Public	Spanish Speakers	No
12	Knights of Columbus	Place of Worship	Public	No	No
13	Pilot Point Care Center	Assisted Living	Private	Elderly	No
14	County Line Baptist Church	Place of Worship	Public	No	No
15	New Testament Church Of Jesus Christ	Place of Worship	Public	No	No
16	Calvary Baptist Church	Place of Worship	Public	No	No
17	Pilot Point Police	Government	Public	No	No
18	Pilot Point Community Opera House	Recreational	Public	No	No
19	Pilot Point High School Baseball Field	Recreational	Public	Children	No
20	Pilot Point Fire Department	Government	Public	No	No
21	Pilot Point City Park	Recreational	Public	No	No
22	Pilot Point First United Methodist Church	Place of Worship	Public	No	No
23	Pilot Point Church of the Nazarene	Place of Worship	Public	No	No
24	Pilot Point Senior Citizen Center	Assisted Living	Private	Elderly	No
25	Pilot Point Community Library	Government	Public	No	No
26	Pilot Point Church of Christ	Place of Worship	Public	No	No
27	Cowboy Country Chapel	Place of Worship	Public	No	No
28	Pilot Point Elementary School	Educational	Public	Children	No
29	Pilot Point Middle School	Educational	Public	Children	Yes
30	Pilot Point I.S.D.	Educational	Public	No	Yes
31	Skinner Cemetery	Cemetery	Public	No	No
32	Sharkarosa Wildlife Ranch	Recreational	Private	No	No
33	Denton First Seventh-day Adventist Church	Place of Worship	Public	No	Yes
34	Tell My People - TMP	Place of Worship	Public	No	No
35	Belew Cemetery	Cemetery	Public	No	Yes
36	Midway Church	Place of Worship	Public	No	Yes
37	Wilson Cemetery	Cemetery	Private	No	No
38	Faith Assembly Church	Place of Worship	Public	No	No

#	Name of Facility	Type of Facility	Public or Private?	Serves a Specific Population?	Adjacent to the Project?
39	First Christian Church	Place of Worship	Public	No	No
40	Harvest Mission Baptist Church	Place of Worship	Public	No	No
41	Early Bird Learning Center	Educational	Public	Children	Yes
42	Aubrey ISD DAEP	Educational	Public	Children	No
43	First Rock Fellowship	Place of Worship	Public	No	No
44	North Central Texas Christian Academy	Educational	Private	Children	No
45	Hilltop Church	Place of Worship	Public	No	No
46	Aubrey Middle School	Educational	Public	Children	No
47	Aubrey City Hall	Government	Public	No	No
48	Aubrey Police Department	Government	Public	No	No
49	Aubrey Fire Department	Government	Public	No	No
50	Aubrey City Park	Recreational	Public	No	No
51	Aubrey First United Methodist	Place of Worship	Public	No	No
52	Matthew's Park	Recreational	Public	No	No
53	Cornerstone Church of Aubrey, TX	Place of Worship	Public	No	No
54	Aubrey High School	Educational	Public	Children	No
55	HL Brockett Elementary School	Educational	Public	Children	Yes
56	Dreams Music Academy	Educational	Private	Children	Yes
57	The Summit Church	Place of Worship	Public	No	Yes
58	Chaparral Softball Field	Recreational	Public	Children	No
59	The Bridge Enrichment Learning Center	Educational	Private	Children	No
60	Leslie Park	Recreational	Public	No	No
61	Aubrey Area Library	Government	Public	No	No
62	United States Postal Service	Government	Public	No	No
63	Wild Hearts Nature Preschool	Educational	Private	Children	Yes
64	Unity Spiritual Center of Denton	Place of Worship	Public	No	No
65	Northeast Police Department	Government	Public	No	Yes
66	Krugerville City Hall	Government	Public	No	No
67	Cowboy Church of Cooper Creek	Place of Worship	Public	No	No
68	First Baptist Church of Krugerville	Place of Worship	Public	No	Yes
69	Fairview Park	Recreational	Public	No	No
70	Covenant Church	Place of Worship	Public	No	No
71	New Hope Baptist Church	Place of Worship	Public	No	Yes
72	Stallings Park	Recreational	Public	No	No
73	Dr. Sanders Park	Recreational	Public	No	No
74	Admiration Park	Recreational	Public	No	No
75	Valor Park	Recreational	Public	No	No
76	Providence HOA Community Center	Recreational	Private	No	No
77	Eagle Field	Recreational	Public	No	No
78	Monaco Elementary School	Educational	Public	Children	No
79	Central Bark Park	Recreational	Public	No	No
80	Tea Party Park	Recreational	Public	No	No

#	Name of Facility	Type of Facility	Public or Private?	Serves a Specific Population?	Adjacent to the Project?
81	Providence Village Town Hall & Court	Government	Public	No	No
82	The Kid's Corral	Educational	Private	Children	No
83	Crossroads Montessori	Educational	Private	Children	No
84	Town of Cross Roads	Government	Public	No	No
85	Steven E. Copeland Government Center	Government	Public	No	No
86	RELATE Church	Place of Worship	Public	No	No
87	Music Academy of Crossroads	Educational	Private	No	No
88	Remington Park	Recreational	Public	No	No
89	Trilogy Community Church	Place of Worship	Public	No	No
90	Cross Oak Ranch Pool #1	Recreational	Private	No	No
91	Cross Oak Ranch Pool #2	Recreational	Private	No	No
92	Alexandrite Park	Recreational	Public	No	No
93	The Church of Jesus Christ of Latter-day Saints	Place of Worship	Public	No	No
94	Rodriguez Middle School	Educational	Public	Children	No
95	Jake's Place Park	Recreational	Public	No	No
96	Oak Point Police Department	Government	Public	No	No
97	Coral Cove Park	Recreational	Private	No	No

Attachment 3
Facilities Map










CIA Facilities Map United States (US) 377

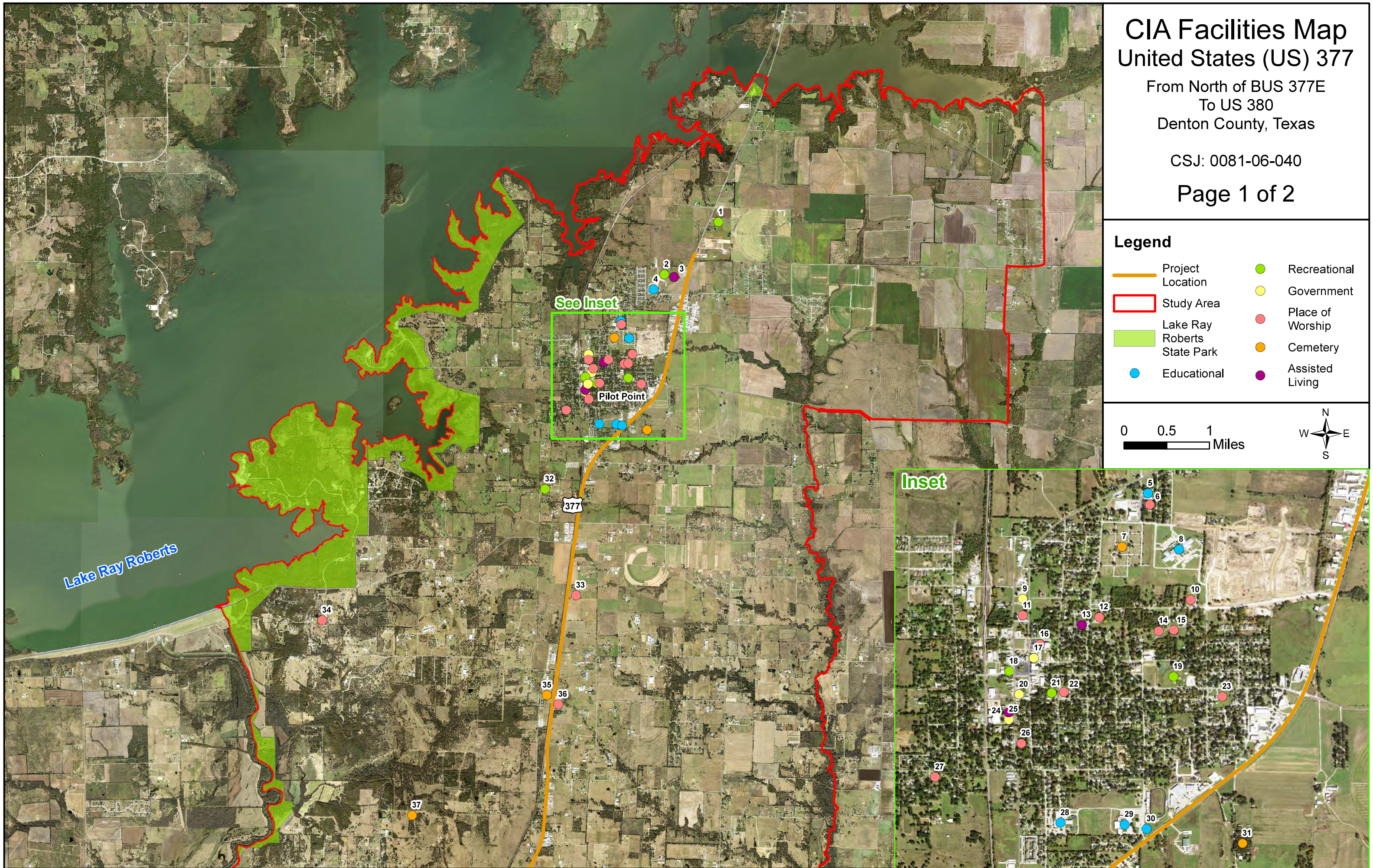
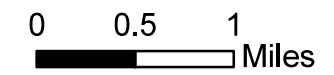
From North of BUS 377E
To US 380
Denton County, Texas

CSJ: 0081-06-040

Page 1 of 2

Legend

- | | |
|---|--|
|  Project Location |  Recreational |
|  Study Area |  Government |
|  Lake Ray Roberts State Park |  Place of Worship |
|  Educational |  Cemetery |
| |  Assisted Living |











CIA Facilities Map United States (US) 377

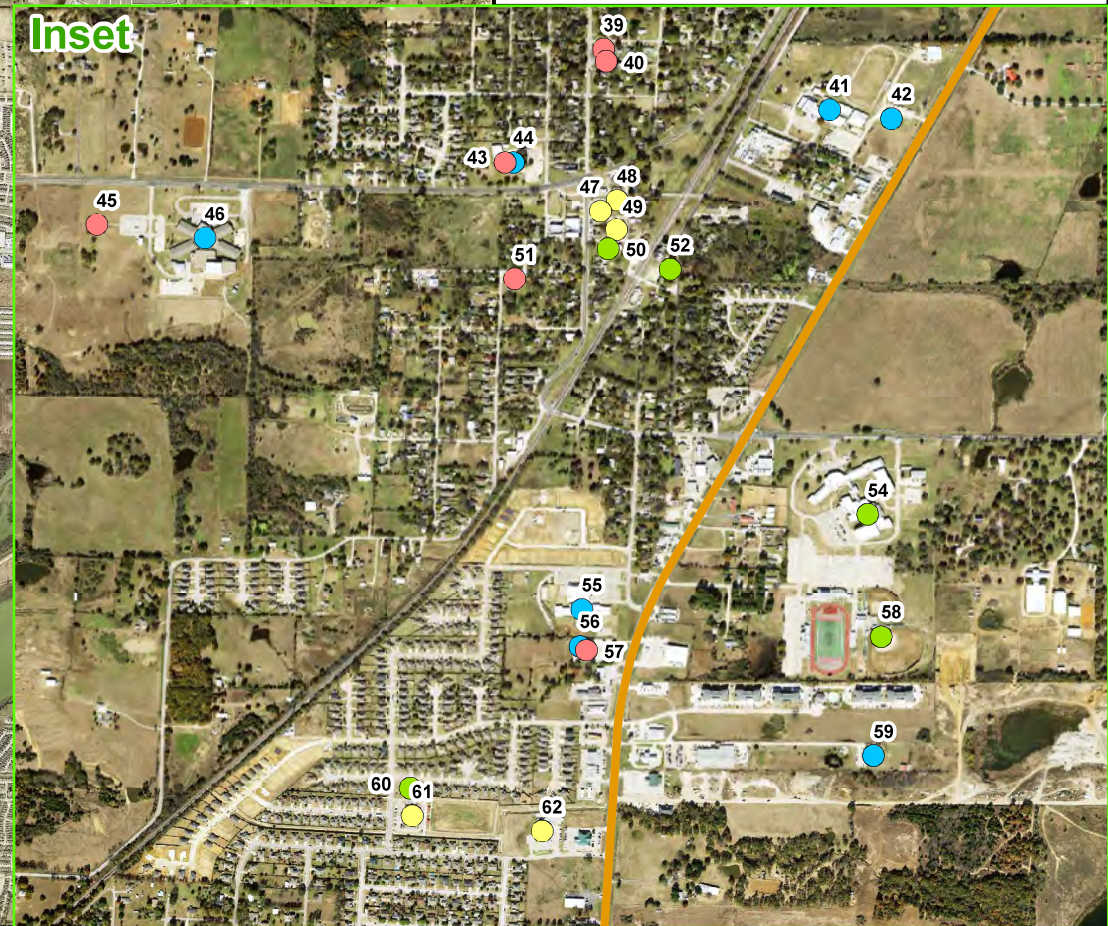
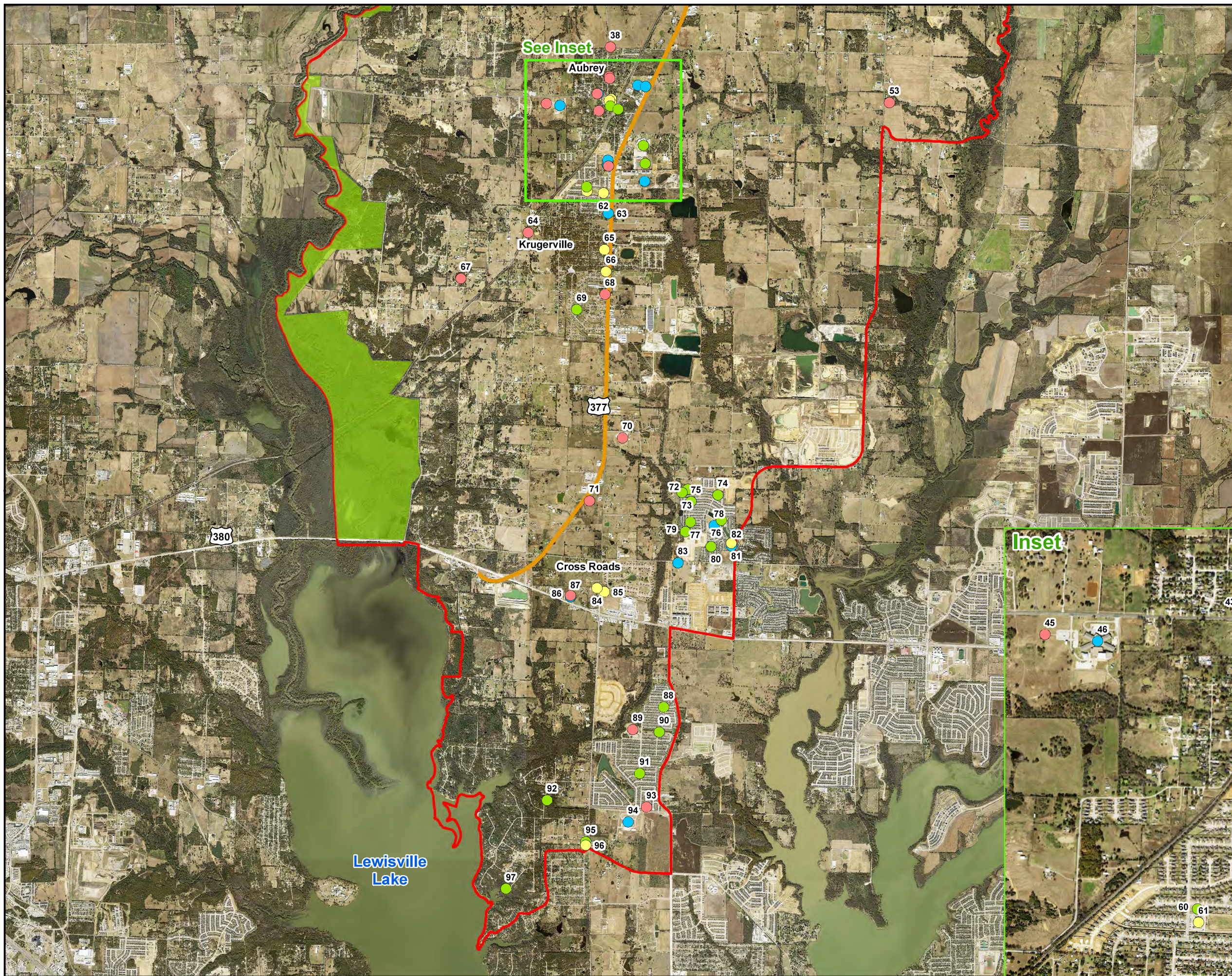
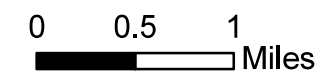
From North of BUS 377E
To US 380
Denton County, Texas

CSJ: 0081-06-040

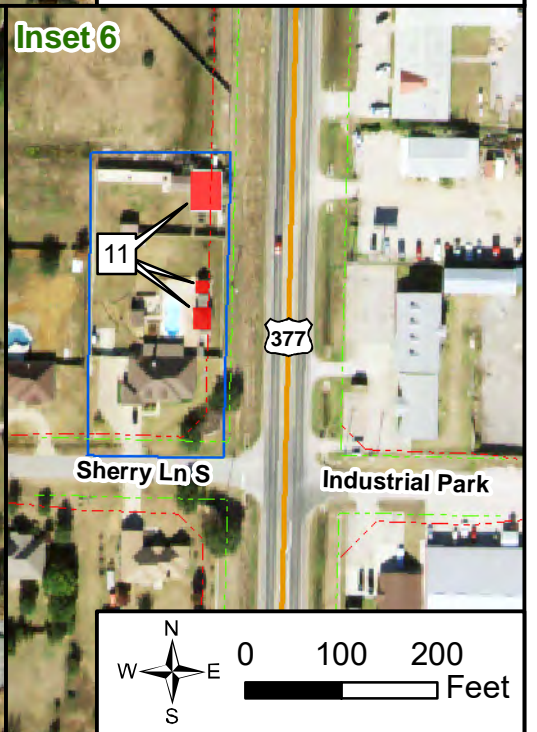
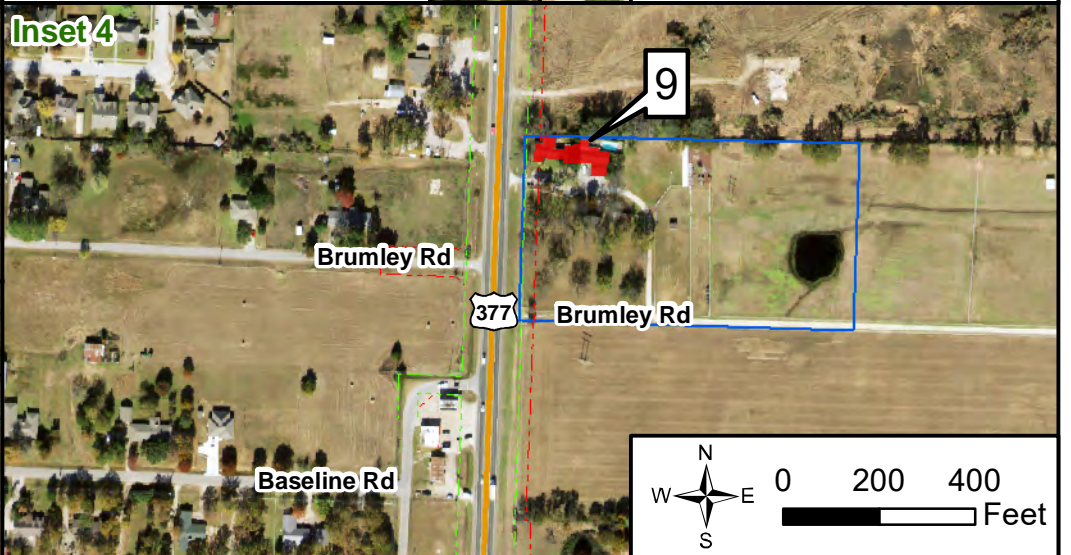
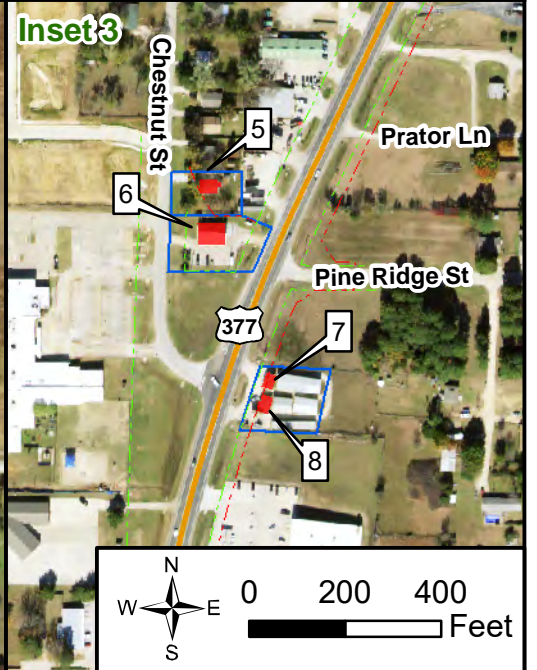
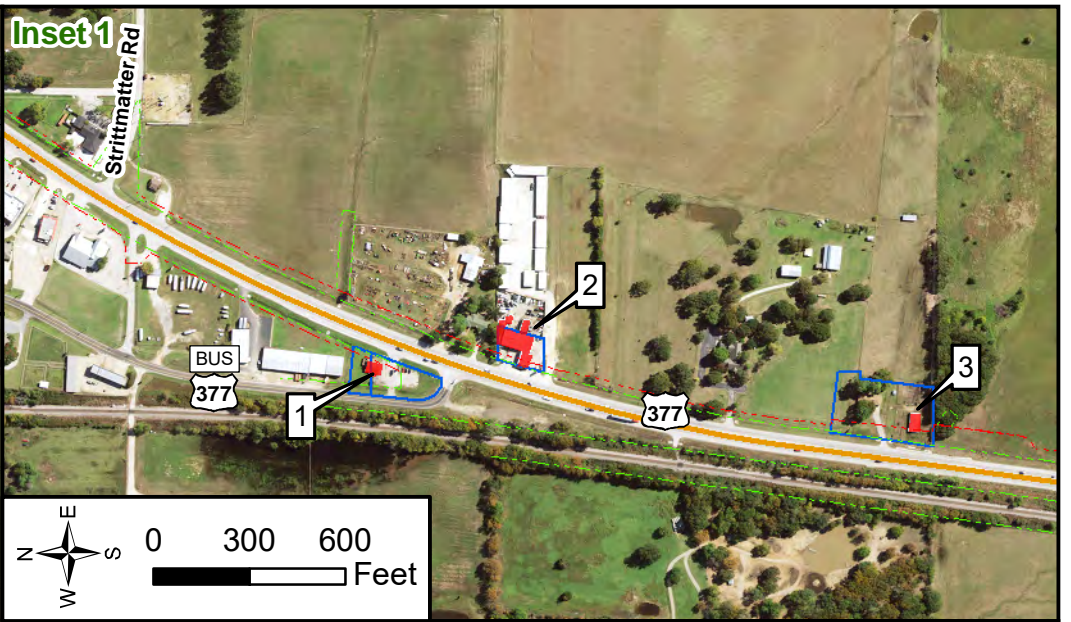
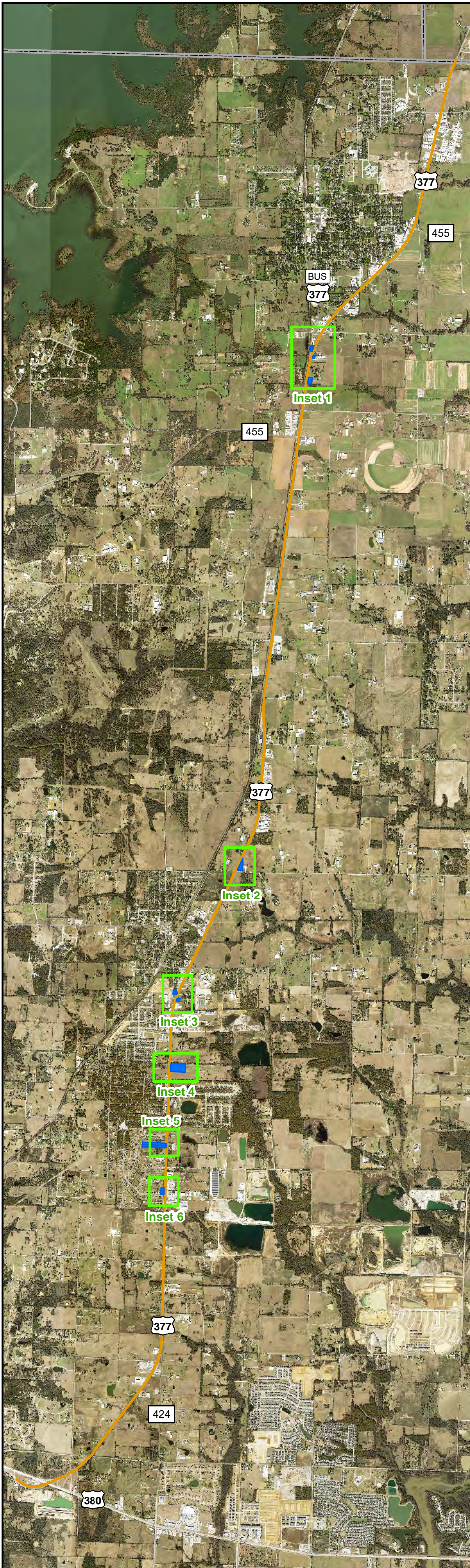
Page 2 of 2

Legend

- | | |
|---|--|
|  Project Location |  Recreational |
|  Study Area |  Government |
|  Lake Ray Roberts State Park |  Place of Worship |
|  Educational |  Cemetery |
| |  Assisted Living |



Attachment 4
Displacements Map



Legend

- Project Location
- - - Existing Right-of-Way
- - - Proposed Right-of-Way
- Potential Displacement
- Displacements Parcel

Base Map Source: TNRIS (2018)

Displacement Map
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040

Attachment 5
Displacements List

Table 1: Potential Displacements

No.	Name	Impact Types	Situs Address	Appraised Value
1	Commercial; Corner Cafe (Restaurant)	Building, Parking	1280 S US 377, Pilot Point, TX 76258	\$ 155,645
2	Commercial; Sunny Mart (Gas Station)	Tank hold, Gasoline Pumps and Awning	1293 S US 377, Pilot Point, TX 76258	\$ 300,640
3	Residential; Single-family	Barn/Shed	1311 S US 377, Pilot Point, TX 76258	\$ 146,820
4	Commercial; ATX Auction House	Building, Parking	556 E Blackjack Rd, Pilot Point, TX 76258	\$ 248,162
5	Residential; Single-family	Building	809 Chestnut St, Aubrey, TX 76222	\$ 131,474
6	Commercial; Keller Williams Realty	Building, Parking	806 US 377, Aubrey, TX 76227	\$ 285,998
7	Commercial; Betty's Flowers & Gifts; B. Ellen's House of Brows	2 Buildings, Parking	903 US 377, Aubrey, TX 76227	\$ 339,779
8			901 US 377, Aubrey, TX 76227	
9	Residential; Apartments	Building	5408 US 377 S, Aubrey, TX 76227	\$ 417,784
10	Commercial; Storage Place	Storage Units	5055 S US 377, Aubrey, TX 76227	\$ 1,121,678
			5059 S US 377, Aubrey TX 76227	\$ 653,561
11	Residential; Single-family	3 Buildings/Sheds	855 Sherry Ln S, Krugerville, TX 76227	\$ 383,096

Source: Denton County Appraisal District, accessed May 2020.

Attachment 6
Summary of Census Data

Summary of Census Data for the Community Impacts Assessment (CIA) Study Area

There are 758 census blocks within, and 12 block groups encompassing the CIA study area. Because the census blocks and block groups do not share the same boundary, the total recorded population and percent of each race/ethnicity are not the same.

The total recorded population of the CIA study area is 17,675. Of these, 76.79% are White alone; 16.05% are Hispanic or Latino; 4.03% are Black or African American alone; 0.64% are American Indian and Alaska Native alone; 0.76% are Asian alone; 0.10% Native Hawaiian and Other Pacific Islander alone; 0.05% are some other race alone; and 1.60% are two or more races.

Of the 758 census blocks in the CIA study area, 61 (8.0%) have a minority population greater than or equal to 50% with minorities accounting for approximately 23.2% of the population within the entire CIA study area.

There are 12 census block groups encompassing the CIA study area. Of these block groups, none have a median household income less than the DHHS 2020 poverty level of \$26,200 (for a family of four). The median household income in the study area ranges from \$30,213 to \$109,345.

There are 12 census block groups encompassing the CIA study area. Of these block groups, 11 have populations who speak English "less than very well".

The total recorded population (age 5 years and over) for the census block groups encompassing the CIA study area is 28,281. Of this population 1,071 (3.8%), speak English "less than very well". Of those that speak English "less than very well", 931 (3.3%) speak Spanish; 33 (0.1%) speak Asian and Pacific Island languages; 107 (0.4%) speak other Indo-European languages; and (0.0%) speak other languages.

# of Geographies	Census Tracts		Block Groups		Blocks	
	Total	Percent	Total	Percent	Total	Percent
Population	6		12		758	
	50,573		30,053		17,675	

Race and Ethnicity Summary (2010 Census Summary File 1, Table P9)

P9: HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE - Universe: Total population

	Total	Percent	Total	Percent	Total	Percent
White alone	40,050	79.19%	23,968	79.75%	13,572	76.79%
Hispanic or Latino	6,420	12.69%	3,973	13.22%	2,836	16.05%
Black or African American alone	2,515	4.97%	1,196	3.98%	712	4.03%
American Indian and Alaska Native alone	208	0.41%	143	0.48%	113	0.64%
Asian alone	241	0.48%	114	0.38%	134	0.76%
Native Hawaiian and Other Pacific Islander alone	23	0.05%	0	0.00%	17	0.10%
Some Other Race alone	242	0.48%	25	0.08%	9	0.05%
Two or More Races	874	1.73%	634	2.11%	282	1.60%
Total Minority Population in Study Area	10,523	20.81%	6,085	20.2%	4,103	23.2%
Geographies with Minority Population > 50%	0	0.0%	0	0.0%	61	8.0%

Limited English Proficiency Summary (2014-2018 American Community Survey 5-Year Estimates)

B16004: AGE BY LANGUAGE SPOKEN AT HOME BY ABILITY TO SPEAK ENGLISH FOR THE POPULATION 5 YEARS AND OVER - Universe: Population 5 years and over

	Estimated Population 5 years and older		28,281		No Data	
Geographies with LEP Population	6	100.0%	11	91.7%	No Data	No Data
Population of Geographies with LEP Population > 10%	0	0.0%	0	0.0%	No Data	No Data
Geographies with LEP Population > 10%	0	0.0%	0	0.0%	No Data	No Data
Spanish Speakers: Speak English "less than very well"	1,518	3.2%	931	3.3%	No Data	No Data
Other Indo-European Language Speakers: Speak English "less than very well"	127	0.3%	107	0.4%	No Data	No Data
Asian and Pacific Island Language Speakers: Speak English "less than very well"	61	0.1%	33	0.1%	No Data	No Data
Other Language Speakers: Speak English "less than very well"	48	0.1%	0	0.0%	No Data	No Data
Total LEP Population	1,754	3.7%	1,071	3.8%	No Data	No Data

Median Income Summary (2014-2018 American Community Survey 5-Year Estimates)

B19013: MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2018 INFLATION-ADJUSTED DOLLARS) - Universe: Households

	2020 DHHS Poverty Threshold for a Family of Four		\$26,200		No Data	
Minimum Household Median Income in Study Area	\$67,472		\$30,213		No Data	
Maximum Household Median Income in Study Area	\$105,539		\$109,345		No Data	
Average Household Median Income in Study Area	\$86,395		\$74,433		No Data	
Geographies with Household Median Incomes below Poverty Threshold	0	0.0%	0	0.0%	No Data	No Data

B17017: POVERTY STATUS IN THE PAST 12 MONTHS BY HOUSEHOLD TYPE BY AGE OF HOUSEHOLDER - Universe: Households

	Households		10,977		No Data	
Households below Poverty Threshold	856	4.8%	507	4.6%	No Data	No Data

Census Tract Data	Total:	Hispanic or Latino	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Some Other Race alone	Two or More Races:	Total Minority Population	% Hispanic or Latino	% White alone	% Black or African American alone	% American Indian and Alaska Native alone	% Asian alone	% Native Hawaiian and Other Pacific Islander alone	% Some Other Race alone	% Two or More Races	% Minority Population
Census Tract 7 Cooke County	6912	164	6651	0	21	0	17	0	59	261	2.4%	96.2%	0.0%	0.3%	0.0%	0.2%	0.0%	0.9%	3.8%
Census Tract 201.03 Denton County	11650	1540	9670	77	111	29	0	21	202	1,980	13.2%	83.0%	0.7%	1.0%	0.2%	0.0%	0.2%	1.7%	17.0%
Census Tract 201.04 Denton County	4893	800	3273	750	0	0	0	0	70	1,620	16.3%	66.9%	15.3%	0.0%	0.0%	0.0%	0.0%	1.4%	33.1%
Census Tract 201.06 Denton County	8220	1451	5862	616	34	116	0	4	137	2,358	17.7%	71.3%	7.5%	0.4%	1.4%	0.0%	0.0%	1.7%	28.7%
Census Tract 201.07 Denton County	7712	1210	5008	1041	0	47	0	217	189	2,704	15.7%	64.9%	13.5%	0.0%	0.6%	0.0%	2.8%	2.5%	35.1%
Census Tract 19 Grayson County	11186	1255	9586	31	42	49	6	0	217	1,600	11.2%	85.7%	0.3%	0.4%	0.4%	0.1%	0.0%	1.9%	14.3%

Block Group Data	Total:	Hispanic or Latino	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Some Other Race alone	Two or More Races:	Total Minority Population	% Hispanic or Latino	% White alone	% Black or African American alone	% American Indian and Alaska Native alone	% Asian alone	% Native Hawaiian and Other Pacific Islander alone	% Some Other Race alone	% Two or More Races	% Minority Population
Block Group 4 CT 7 Cooke County	1656	26	1571	0	0	0	0	0	59	85	1.6%	94.9%	0.0%	0.0%	0.0%	0.0%	0.0%	3.6%	5.1%
Block Group 1 CT 201.03 Denton County	2294	321	1888	18	0	0	0	21	46	406	14.0%	82.3%	0.8%	0.0%	0.0%	0.0%	0.9%	2.0%	17.7%
Block Group 2 CT 201.03 Denton County	2710	185	2465	9	6	13	0	0	32	245	6.8%	91.0%	0.3%	0.2%	0.5%	0.0%	0.0%	1.2%	9.0%
Block Group 3 CT 201.03 Denton County	3412	305	3006	9	43	16	0	0	33	406	8.9%	88.1%	0.3%	1.3%	0.5%	0.0%	0.0%	1.0%	11.9%
Block Group 4 CT 201.03 Denton County	842	9	814	0	0	0	0	0	19	28	1.1%	96.7%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	3.3%
Block Group 5 CT 201.03 Denton County	1442	536	844	0	62	0	0	0	0	598	37.2%	58.5%	0.0%	4.3%	0.0%	0.0%	0.0%	0.0%	41.5%
Block Group 6 CT 201.03 Denton County	950	184	653	41	0	0	0	0	72	297	19.4%	68.7%	4.3%	0.0%	0.0%	0.0%	0.0%	7.6%	31.3%
Block Group 2 CT 201.04 Denton County	1711	279	1432	0	0	0	0	0	0	279	16.3%	83.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.3%
Block Group 1 CT 201.06 Denton County	3501	511	2842	72	8	0	0	4	64	659	14.6%	81.2%	2.1%	0.2%	0.0%	0.0%	0.1%	1.8%	18.8%
Block Group 1 CT 201.07 Denton County	6947	1183	4487	1041	0	47	0	0	189	2,460	17.0%	64.6%	15.0%	0.0%	0.7%	0.0%	0.0%	2.7%	35.4%
Block Group 2 CT 19 Grayson County	3591	254	3155	6	23	38	0	0	115	436	7.1%	87.9%	0.2%	0.6%	1.1%	0.0%	0.0%	3.2%	12.1%
Block Group 4 CT 19 Grayson County	997	180	811	0	1	0	0	0	5	186	18.1%	81.3%	0.0%	0.1%	0.0%	0.0%	0.0%	0.5%	18.7%

Block Data	Total:	Hispanic or Latino	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Some Other Race alone	Two or More Races:	Total Minority Population	% Hispanic or Latino	% White alone	% Black or African American alone	% American Indian and Alaska Native alone	% Asian alone	% Native Hawaiian and Other Pacific Islander alone	% Some Other Race alone	% Two or More Races	% Minority Population
Block 2065, BG 2, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2061, BG 2, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1078, BG 1, CT 201.07, Denton County	92	1	85	5	0	0	0	0	1	7	1.1%	92.4%	5.4%	0.0%	0.0%	0.0%	0.0%	1.1%	7.6%
Block 1045, BG 1, CT 201.06, Denton County	8	0	8	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 4009, BG 4, CT 201.03, Denton County	46	11	33	2	0	0	0	0	0	13	23.9%	71.7%	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%	28.3%
Block 1028, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1003, BG 1, CT 201.07, Denton County	42	3	39	0	0	0	0	0	0	3	7.1%	92.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.1%
Block 1002, BG 1, CT 201.07, Denton County	23	4	19	0	0	0	0	0	0	4	17.4%	82.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.4%
Block 1008, BG 1, CT 201.03, Denton County	11	3	2	0	0	0	0	0	6	9	27.3%	18.2%	0.0%	0.0%	0.0%	0.0%	0.0%	54.5%	81.8%
Block 2155, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1087, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1050, BG 1, CT 201.03, Denton County	2	0	2	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1064, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2083, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2109, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1040, BG 1, CT 201.06, Denton County	3	0	3	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 6018, BG 6, CT 201.03, Denton County	102	75	24	0	0	0	0	0	3	78	73.5%	23.5%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%	76.5%
Block 4031, BG 4, CT 201.03, Denton County	2	0	2	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1001, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 6021, BG 6, CT 201.03, Denton County	29	5	24	0	0	0	0	0	0	5	17.2%	82.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.2%
Block 6037, BG 6, CT 201.03, Denton County	8	0	8	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 6039, BG 6, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1006, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 5013, BG 5, CT 201.03, Denton County	46	6	33	7	0	0	0	0	0	13	13.0%	71.7%	15.2%	0.0%	0.0%	0.0%	0.0%	0.0%	28.3%
Block 1071, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 6001, BG 6, CT 201.03, Denton County	68	2	56	10	0	0	0	0	0	12	2.9%	82.4%	14.7%	0.0%	0.0%	0.0%	0.0%	0.0%	17.6%
Block 4022, BG 4, CT 201.03, Denton County	5	0	1	1	0	0	0	0	3	4	0.0%	20.0%	20.0%	0.0%	0.0%	0.0%	0.0%	60.0%	80.0%
Block 5023, BG 5, CT 201.03, Denton County	57	8	49	0	0	0	0	0	0	8	14.0%	86.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.0%

Block Data	Total:	Hispanic or Latino	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Some Other Race alone	Two or More Races:	Total Minority Population	% Hispanic or Latino	% White alone	% Black or African American alone	% American Indian and Alaska Native alone	% Asian alone	% Native Hawaiian and Other Pacific Islander alone	% Some Other Race alone	% Two or More Races	% Minority Population
Block 4028, BG 4, CT 201.03, Denton County	6	6	0	0	0	0	0	0	0	6	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Block 4008, BG 4, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 5019, BG 5, CT 201.03, Denton County	17	0	17	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1041, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2048, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1036, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2013, BG 2, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1040, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2076, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1075, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1067, BG 1, CT 201.03, Denton County	2	0	2	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1061, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1047, BG 1, CT 201.03, Denton County	60	0	54	0	0	2	0	0	4	6	0.0%	90.0%	0.0%	0.0%	3.3%	0.0%	0.0%	6.7%	10.0%
Block 5030, BG 5, CT 201.03, Denton County	11	0	11	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1017, BG 1, CT 201.03, Denton County	7	0	7	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 5029, BG 5, CT 201.03, Denton County	25	4	18	3	0	0	0	0	0	7	16.0%	72.0%	12.0%	0.0%	0.0%	0.0%	0.0%	0.0%	28.0%
Block 1023, BG 1, CT 201.03, Denton County	21	1	20	0	0	0	0	0	0	1	4.8%	95.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%
Block 2032, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2010, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2017, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1079, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2094, BG 2, CT 201.03, Denton County	1	0	1	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1105, BG 1, CT 201.03, Denton County	2	0	2	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1044, BG 1, CT 201.06, Denton County	12	2	10	0	0	0	0	0	0	2	16.7%	83.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%
Block 2142, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1011, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1021, BG 1, CT 201.06, Denton County	1	0	1	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 2049, BG 2, CT 201.03, Denton County	41	9	32	0	0	0	0	0	0	9	22.0%	78.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.0%
Block 3036, BG 3, CT 201.03, Denton County	48	6	38	0	0	0	0	0	4	10	12.5%	79.2%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	20.8%
Block 3053, BG 3, CT 201.03, Denton County	24	1	23	0	0	0	0	0	0	1	4.2%	95.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.2%
Block 3035, BG 3, CT 201.03, Denton County	49	1	47	0	0	0	0	0	1	2	2.0%	95.9%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	4.1%
Block 3029, BG 3, CT 201.03, Denton County	76	11	65	0	0	0	0	0	0	11	14.5%	85.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.5%
Block 3065, BG 3, CT 201.03, Denton County	10	4	6	0	0	0	0	0	0	4	40.0%	60.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	40.0%
Block 3027, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2143, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2153, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2044, BG 2, CT 201.03, Denton County	33	0	33	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 2077, BG 2, CT 201.03, Denton County	36	6	30	0	0	0	0	0	0	6	16.7%	83.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%
Block 1100, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1081, BG 1, CT 201.06, Denton County	11	2	5	4	0	0	0	0	0	6	18.2%	45.5%	36.4%	0.0%	0.0%	0.0%	0.0%	0.0%	54.5%
Block 1096, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1074, BG 1, CT 201.07, Denton County	21	0	20	0	0	1	0	0	0	1	0.0%	95.2%	0.0%	0.0%	4.8%	0.0%	0.0%	0.0%	4.8%
Block 1094, BG 1, CT 201.06, Denton County	22	3	19	0	0	0	0	0	0	3	13.6%	86.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	13.6%
Block 1015, BG 1, CT 201.06, Denton County	177	9	166	0	1	0	0	0	1	11	5.1%	93.8%	0.0%	0.6%	0.0%	0.0%	0.0%	0.6%	6.2%
Block 2073, BG 2, CT 201.03, Denton County	61	3	55	0	1	0	1	0	1	6	4.9%	90.2%	0.0%	1.6%	0.0%	1.6%	0.0%	1.6%	9.8%
Block 3072, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3068, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 4025, BG 4, CT 201.03, Denton County	267	176	76	11	1	1	0	0	2	191	65.9%	28.5%	4.1%	0.4%	0.4%	0.0%	0.0%	0.7%	71.5%
Block 3003, BG 3, CT 201.03, Denton County	42	2	39	0	0	0	0	0	1	3	4.8%	92.9%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%	7.1%
Block 1059, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1066, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1088, BG 1, CT 201.07, Denton County	91	27	61	2	1	0	0	0	0	30	29.7%	67.0%	2.2%	1.1%	0.0%	0.0%	0.0%	0.0%	33.0%
Block 1032, BG 1, CT 201.07, Denton County	35	6	29	0	0	0	0	0	0	6	17.1%	82.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.1%
Block 3102, BG 3, CT 201.03, Denton County	373	39	329	3	1	1	0	0	0	44	10.5%	88.2%	0.8%	0.3%	0.3%	0.0%	0.0%	0.0%	11.8%
Block 1077, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1049, BG 1, CT 201.03, Denton County	2	0	2	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 2085, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2098, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2019, BG 2, CT 201.03, Denton County	5	0	5	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1065, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%

Block Data	Total:	Hispanic or Latino	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Some Other Race alone	Two or More Races:	Total Minority Population	% Hispanic or Latino	% White alone	% Black or African American alone	% American Indian and Alaska Native alone	% Asian alone	% Native Hawaiian and Other Pacific Islander alone	% Some Other Race alone	% Two or More Races	% Minority Population
Block 2078, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1035, BG 1, CT 201.06, Denton County	86	1	76	5	0	4	0	0	0	10	1.2%	88.4%	5.8%	0.0%	4.7%	0.0%	0.0%	0.0%	11.6%
Block 3005, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3112, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1096, BG 1, CT 201.03, Denton County	5	0	1	1	0	0	0	0	3	4	0.0%	20.0%	20.0%	0.0%	0.0%	0.0%	0.0%	60.0%	80.0%
Block 6032, BG 6, CT 201.03, Denton County	2	2	0	0	0	0	0	0	0	2	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Block 1082, BG 1, CT 201.07, Denton County	30	0	30	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1069, BG 1, CT 201.07, Denton County	163	16	145	0	1	0	0	0	1	18	9.8%	89.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.6%	11.0%
Block 1098, BG 1, CT 201.06, Denton County	10	2	8	0	0	0	0	0	0	2	20.0%	80.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%
Block 2043, BG 2, CT 201.03, Denton County	30	2	28	0	0	0	0	0	0	2	6.7%	93.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.7%
Block 3009, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1055, BG 1, CT 201.06, Denton County	762	165	520	54	1	8	0	1	13	242	21.7%	68.2%	7.1%	0.1%	1.0%	0.0%	0.1%	1.7%	31.8%
Block 1030, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2052, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2049, BG 2, CT 201.04, Denton County	2	0	2	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 2060, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1003, BG 1, CT 201.06, Denton County	64	0	61	0	0	0	0	0	3	3	0.0%	95.3%	0.0%	0.0%	0.0%	0.0%	0.0%	4.7%	4.7%
Block 2007, BG 2, CT 201.04, Denton County	3	1	2	0	0	0	0	0	0	1	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%
Block 1076, BG 1, CT 201.07, Denton County	135	18	109	1	0	2	0	0	5	26	13.3%	80.7%	0.7%	0.0%	1.5%	0.0%	0.0%	3.7%	19.3%
Block 1023, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1008, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1060, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1083, BG 1, CT 201.03, Denton County	1	0	1	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1058, BG 1, CT 201.07, Denton County	166	7	153	0	0	6	0	0	0	13	4.2%	92.2%	0.0%	0.0%	3.6%	0.0%	0.0%	0.0%	7.8%
Block 1032, BG 1, CT 201.06, Denton County	5	0	5	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 2092, BG 2, CT 201.03, Denton County	108	20	88	0	0	0	0	0	0	20	18.5%	81.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.5%
Block 1004, BG 1, CT 201.06, Denton County	2	0	2	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 3081, BG 3, CT 201.03, Denton County	6	0	6	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 3041, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3010, BG 3, CT 201.03, Denton County	4	0	4	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 2010, BG 2, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2001, BG 2, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1107, BG 1, CT 201.03, Denton County	150	9	135	1	3	0	0	0	2	15	6.0%	90.0%	0.7%	2.0%	0.0%	0.0%	0.0%	1.3%	10.0%
Block 1101, BG 1, CT 201.03, Denton County	8	0	8	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1099, BG 1, CT 201.03, Denton County	1	0	1	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 2093, BG 2, CT 201.04, Denton County	178	18	150	0	5	0	0	0	5	28	10.1%	84.3%	0.0%	2.8%	0.0%	0.0%	0.0%	2.8%	15.7%
Block 2097, BG 2, CT 201.04, Denton County	40	0	36	4	0	0	0	0	0	4	0.0%	90.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%
Block 3107, BG 3, CT 201.03, Denton County	172	10	149	2	3	0	0	0	8	23	5.8%	86.6%	1.2%	1.7%	0.0%	0.0%	0.0%	4.7%	13.4%
Block 2063, BG 2, CT 201.04, Denton County	108	22	80	0	0	0	0	0	6	28	20.4%	74.1%	0.0%	0.0%	0.0%	0.0%	0.0%	5.6%	25.9%
Block 1047, BG 1, CT 201.06, Denton County	18	0	18	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1078, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2036, BG 2, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2011, BG 2, CT 201.03, Denton County	3	0	3	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1104, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2090, BG 2, CT 201.04, Denton County	2	0	2	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1056, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1002, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1005, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2079, BG 2, CT 201.04, Denton County	1	0	1	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1112, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1051, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1093, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1043, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1020, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2087, BG 2, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 6011, BG 6, CT 201.03, Denton County	9	3	6	0	0	0	0	0	0	3	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%
Block 4024, BG 4, CT 201.03, Denton County	16	1	13	2	0	0	0	0	0	3	6.3%	81.3%	12.5%	0.0%	0.0%	0.0%	0.0%	0.0%	18.8%
Block 6013, BG 6, CT 201.03, Denton County	28	14	14	0	0	0	0	0	0	14	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%
Block 6022, BG 6, CT 201.03, Denton County	32	17	14	0	0	0	0	0	1	18	53.1%	43.8%	0.0%	0.0%	0.0%	0.0%	0.0%	3.1%	56.3%
Block 5010, BG 5, CT 201.03, Denton County	22	12	9	1	0	0	0	0	0	13	54.5%	40.9%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	59.1%

Block Data	Total:	Hispanic or Latino	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Some Other Race alone	Two or More Races:	Total Minority Population	% Hispanic or Latino	% White alone	% Black or African American alone	% American Indian and Alaska Native alone	% Asian alone	% Native Hawaiian and Other Pacific Islander alone	% Some Other Race alone	% Two or More Races	% Minority Population
Block 5008, BG 5, CT 201.03, Denton County	12	0	12	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 5007, BG 5, CT 201.03, Denton County	8	0	7	1	0	0	0	0	0	1	0.0%	87.5%	12.5%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%
Block 4000, BG 4, CT 201.03, Denton County	567	69	469	20	3	2	0	0	4	98	12.2%	82.7%	3.5%	0.5%	0.4%	0.0%	0.0%	0.7%	17.3%
Block 6002, BG 6, CT 201.03, Denton County	17	6	11	0	0	0	0	0	0	6	35.3%	64.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	35.3%
Block 6023, BG 6, CT 201.03, Denton County	28	10	11	1	1	0	0	0	5	17	35.7%	39.3%	3.6%	3.6%	0.0%	0.0%	0.0%	17.9%	60.7%
Block 1010, BG 1, CT 201.03, Denton County	69	33	35	1	0	0	0	0	0	34	47.8%	50.7%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	49.3%
Block 2050, BG 2, CT 201.03, Denton County	26	0	26	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 3062, BG 3, CT 201.03, Denton County	12	0	12	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 2041, BG 2, CT 201.03, Denton County	68	1	62	2	0	0	0	0	3	6	1.5%	91.2%	2.9%	0.0%	0.0%	0.0%	0.0%	4.4%	8.8%
Block 2072, BG 2, CT 201.03, Denton County	36	3	32	1	0	0	0	0	0	4	8.3%	88.9%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%	11.1%
Block 3093, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3105, BG 3, CT 201.03, Denton County	92	16	68	1	0	0	1	0	6	24	17.4%	73.9%	1.1%	0.0%	0.0%	1.1%	0.0%	6.5%	26.1%
Block 1109, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1111, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1027, BG 1, CT 201.07, Denton County	14	4	3	7	0	0	0	0	0	11	28.6%	21.4%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	78.6%
Block 1080, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2058, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 6009, BG 6, CT 201.03, Denton County	34	19	15	0	0	0	0	0	0	19	55.9%	44.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	55.9%
Block 3002, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1076, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2064, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2160, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2064, BG 2, CT 201.03, Denton County	18	0	18	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1018, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2089, BG 2, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2048, BG 2, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2003, BG 2, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2058, BG 2, CT 201.03, Denton County	4	0	4	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1071, BG 1, CT 201.07, Denton County	3	0	3	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1054, BG 1, CT 201.06, Denton County	2	0	2	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1086, BG 1, CT 201.06, Denton County	9	0	4	5	0	0	0	0	0	5	0.0%	44.4%	55.6%	0.0%	0.0%	0.0%	0.0%	0.0%	55.6%
Block 1033, BG 1, CT 201.07, Denton County	48	6	37	5	0	0	0	0	0	11	12.5%	77.1%	10.4%	0.0%	0.0%	0.0%	0.0%	0.0%	22.9%
Block 1043, BG 1, CT 201.07, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1090, BG 1, CT 201.07, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2018, BG 2, CT 201.03, Denton County	18	6	12	0	0	0	0	0	0	6	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%
Block 1055, BG 1, CT 201.07, Denton County	123	18	74	19	1	4	0	0	7	49	14.6%	60.2%	15.4%	0.8%	3.3%	0.0%	0.0%	5.7%	39.8%
Block 1048, BG 1, CT 201.07, Denton County	94	29	46	14	0	0	0	0	5	48	30.9%	48.9%	14.9%	0.0%	0.0%	0.0%	0.0%	5.3%	51.1%
Block 1051, BG 1, CT 201.07, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3104, BG 3, CT 201.03, Denton County	91	4	82	0	1	0	0	0	4	9	4.4%	90.1%	0.0%	1.1%	0.0%	0.0%	0.0%	4.4%	9.9%
Block 3103, BG 3, CT 201.03, Denton County	81	10	68	0	1	0	0	0	2	13	12.3%	84.0%	0.0%	1.2%	0.0%	0.0%	0.0%	2.5%	16.0%
Block 3024, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1062, BG 1, CT 201.03, Denton County	9	0	9	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1046, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3047, BG 3, CT 201.03, Denton County	69	6	62	0	1	0	0	0	0	7	8.7%	89.9%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	10.1%
Block 4006, BG 4, CT 201.03, Denton County	6	0	6	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 4004, BG 4, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 6029, BG 6, CT 201.03, Denton County	2	0	2	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 6027, BG 6, CT 201.03, Denton County	24	2	19	0	3	0	0	0	0	5	8.3%	79.2%	0.0%	12.5%	0.0%	0.0%	0.0%	0.0%	20.8%
Block 5000, BG 5, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 5015, BG 5, CT 201.03, Denton County	32	9	23	0	0	0	0	0	0	9	28.1%	71.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	28.1%
Block 1041, BG 1, CT 201.07, Denton County	67	13	29	21	0	1	0	0	3	38	19.4%	43.3%	31.3%	0.0%	1.5%	0.0%	0.0%	4.5%	56.7%
Block 1050, BG 1, CT 201.07, Denton County	66	11	41	8	0	6	0	0	0	25	16.7%	62.1%	12.1%	0.0%	9.1%	0.0%	0.0%	0.0%	37.9%
Block 1090, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1103, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3012, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2008, BG 2, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3015, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2004, BG 2, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3004, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3008, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%

Block Data	Total:	Hispanic or Latino	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Some Other Race alone	Two or More Races:	Total Minority Population	% Hispanic or Latino	% White alone	% Black or African American alone	% American Indian and Alaska Native alone	% Asian alone	% Native Hawaiian and Other Pacific Islander alone	% Some Other Race alone	% Two or More Races	% Minority Population
Block 1094, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1055, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2082, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 4010, BG 4, CT 201.03, Denton County	59	5	54	0	0	0	0	0	0	5	8.5%	91.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.5%
Block 3052, BG 3, CT 201.03, Denton County	8	0	8	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1014, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1081, BG 1, CT 201.03, Denton County	7	0	7	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 6017, BG 6, CT 201.03, Denton County	36	23	13	0	0	0	0	0	0	23	63.9%	36.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	63.9%
Block 6038, BG 6, CT 201.03, Denton County	12	10	2	0	0	0	0	0	0	10	83.3%	16.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	83.3%
Block 5011, BG 5, CT 201.03, Denton County	5	5	0	0	0	0	0	0	0	5	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Block 5016, BG 5, CT 201.03, Denton County	43	22	18	0	2	0	0	0	1	25	51.2%	41.9%	0.0%	4.7%	0.0%	0.0%	0.0%	2.3%	58.1%
Block 1007, BG 1, CT 201.03, Denton County	17	0	17	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1009, BG 1, CT 201.03, Denton County	18	6	10	0	2	0	0	0	0	8	33.3%	55.6%	0.0%	11.1%	0.0%	0.0%	0.0%	0.0%	44.4%
Block 5020, BG 5, CT 201.03, Denton County	30	4	26	0	0	0	0	0	0	4	13.3%	86.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	13.3%
Block 5021, BG 5, CT 201.03, Denton County	42	25	17	0	0	0	0	0	0	25	59.5%	40.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	59.5%
Block 1013, BG 1, CT 201.03, Denton County	18	7	11	0	0	0	0	0	0	7	38.9%	61.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	38.9%
Block 3056, BG 3, CT 201.03, Denton County	68	10	57	0	0	0	0	0	1	11	14.7%	83.8%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	16.2%
Block 4018, BG 4, CT 201.03, Denton County	7	0	5	0	0	0	0	0	2	2	0.0%	71.4%	0.0%	0.0%	0.0%	0.0%	0.0%	28.6%	28.6%
Block 6005, BG 6, CT 201.03, Denton County	10	0	10	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 5026, BG 5, CT 201.03, Denton County	23	3	20	0	0	0	0	0	0	3	13.0%	87.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	13.0%
Block 5038, BG 5, CT 201.03, Denton County	10	0	5	5	0	0	0	0	0	5	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%
Block 1016, BG 1, CT 201.03, Denton County	19	4	15	0	0	0	0	0	0	4	21.1%	78.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.1%
Block 2059, BG 2, CT 201.04, Denton County	3	0	3	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1069, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1072, BG 1, CT 201.06, Denton County	14	0	9	5	0	0	0	0	0	5	0.0%	64.3%	35.7%	0.0%	0.0%	0.0%	0.0%	0.0%	35.7%
Block 1028, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2053, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2039, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2044, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1025, BG 1, CT 201.07, Denton County	62	19	33	10	0	0	0	0	0	29	30.6%	53.2%	16.1%	0.0%	0.0%	0.0%	0.0%	0.0%	46.8%
Block 1031, BG 1, CT 201.07, Denton County	20	1	14	5	0	0	0	0	0	6	5.0%	70.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%
Block 2097, BG 2, CT 201.03, Denton County	12	0	12	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 5022, BG 5, CT 201.03, Denton County	28	8	20	0	0	0	0	0	0	8	28.6%	71.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	28.6%
Block 5004, BG 5, CT 201.03, Denton County	35	1	34	0	0	0	0	0	0	1	2.9%	97.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%
Block 6025, BG 6, CT 201.03, Denton County	78	16	47	12	0	0	0	0	3	31	20.5%	60.3%	15.4%	0.0%	0.0%	0.0%	0.0%	3.8%	39.7%
Block 6014, BG 6, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1015, BG 1, CT 201.03, Denton County	28	12	16	0	0	0	0	0	0	12	42.9%	57.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	42.9%
Block 1018, BG 1, CT 201.03, Denton County	19	0	17	0	0	2	0	0	0	2	0.0%	89.5%	0.0%	0.0%	10.5%	0.0%	0.0%	0.0%	10.5%
Block 5024, BG 5, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1019, BG 1, CT 201.03, Denton County	8	0	8	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 5034, BG 5, CT 201.03, Denton County	23	9	14	0	0	0	0	0	0	9	39.1%	60.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	39.1%
Block 1108, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1049, BG 1, CT 201.06, Denton County	14	0	14	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 2091, BG 2, CT 201.03, Denton County	48	5	40	1	0	0	0	0	2	8	10.4%	83.3%	2.1%	0.0%	0.0%	0.0%	0.0%	4.2%	16.7%
Block 3039, BG 3, CT 201.03, Denton County	26	0	26	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1105, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1107, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1086, BG 1, CT 201.03, Denton County	6	3	3	0	0	0	0	0	0	3	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%
Block 1071, BG 1, CT 201.06, Denton County	16	2	13	1	0	0	0	0	0	3	12.5%	81.3%	6.3%	0.0%	0.0%	0.0%	0.0%	0.0%	18.8%
Block 1000, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 4026, BG 4, CT 201.03, Denton County	29	5	24	0	0	0	0	0	0	5	17.2%	82.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.2%
Block 6007, BG 6, CT 201.03, Denton County	47	31	16	0	0	0	0	0	0	31	66.0%	34.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	66.0%
Block 3071, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2035, BG 2, CT 201.03, Denton County	1	0	1	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 2140, BG 2, CT 201.04, Denton County	2	0	2	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 5037, BG 5, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1043, BG 1, CT 201.03, Denton County	2	0	2	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1044, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2103, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1103, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%

Block Data	Total:	Hispanic or Latino	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Some Other Race alone	Two or More Races:	Total Minority Population	% Hispanic or Latino	% White alone	% Black or African American alone	% American Indian and Alaska Native alone	% Asian alone	% Native Hawaiian and Other Pacific Islander alone	% Some Other Race alone	% Two or More Races	% Minority Population
Block 1039, BG 1, CT 201.07, Denton County	46	6	27	8	0	1	0	0	4	19	13.0%	58.7%	17.4%	0.0%	2.2%	0.0%	0.0%	8.7%	41.3%
Block 1062, BG 1, CT 201.06, Denton County	67	12	38	13	0	4	0	0	0	29	17.9%	56.7%	19.4%	0.0%	6.0%	0.0%	0.0%	0.0%	43.3%
Block 1097, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1075, BG 1, CT 201.07, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1072, BG 1, CT 201.07, Denton County	9	0	8	0	0	0	0	0	1	1	0.0%	88.9%	0.0%	0.0%	0.0%	0.0%	0.0%	11.1%	11.1%
Block 2070, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1070, BG 1, CT 201.03, Denton County	51	1	46	0	0	3	0	0	1	5	2.0%	90.2%	0.0%	0.0%	5.9%	0.0%	0.0%	2.0%	9.8%
Block 2006, BG 2, CT 201.04, Denton County	33	11	22	0	0	0	0	0	0	11	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%
Block 2062, BG 2, CT 201.03, Denton County	27	0	27	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1113, BG 1, CT 201.03, Denton County	19	0	12	0	3	1	0	0	3	7	0.0%	63.2%	0.0%	15.8%	5.3%	0.0%	0.0%	15.8%	36.8%
Block 2076, BG 2, CT 201.03, Denton County	41	4	36	0	1	0	0	0	0	5	9.8%	87.8%	0.0%	2.4%	0.0%	0.0%	0.0%	0.0%	12.2%
Block 3061, BG 3, CT 201.03, Denton County	16	2	14	0	0	0	0	0	0	2	12.5%	87.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%
Block 3060, BG 3, CT 201.03, Denton County	13	0	13	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 3026, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3097, BG 3, CT 201.03, Denton County	5	0	5	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 3099, BG 3, CT 201.03, Denton County	25	0	24	0	0	0	0	0	1	1	0.0%	96.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	4.0%
Block 3098, BG 3, CT 201.03, Denton County	45	11	32	2	0	0	0	0	0	13	24.4%	71.1%	4.4%	0.0%	0.0%	0.0%	0.0%	0.0%	28.9%
Block 2045, BG 2, CT 201.03, Denton County	3	0	3	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 2053, BG 2, CT 201.03, Denton County	19	0	16	0	0	1	0	2	0	3	0.0%	84.2%	0.0%	0.0%	5.3%	0.0%	10.5%	0.0%	15.8%
Block 2078, BG 2, CT 201.03, Denton County	48	6	42	0	0	0	0	0	0	6	12.5%	87.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%
Block 3091, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3063, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3094, BG 3, CT 201.03, Denton County	2	0	2	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1084, BG 1, CT 201.07, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1031, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2089, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2095, BG 2, CT 201.04, Denton County	5	0	5	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 2088, BG 2, CT 201.04, Denton County	2	0	2	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1010, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3120, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1039, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3080, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3085, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3119, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1085, BG 1, CT 201.03, Denton County	4	0	4	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1100, BG 1, CT 201.03, Denton County	5	5	0	0	0	0	0	0	0	5	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Block 1053, BG 1, CT 201.07, Denton County	115	19	56	29	0	4	0	0	7	59	16.5%	48.7%	25.2%	0.0%	3.5%	0.0%	0.0%	6.1%	51.3%
Block 1089, BG 1, CT 201.07, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1038, BG 1, CT 201.07, Denton County	135	28	85	17	2	0	0	0	3	50	20.7%	63.0%	12.6%	1.5%	0.0%	0.0%	0.0%	2.2%	37.0%
Block 4023, BG 4, CT 201.03, Denton County	10	1	6	2	0	0	0	0	1	4	10.0%	60.0%	20.0%	0.0%	0.0%	0.0%	0.0%	10.0%	40.0%
Block 2040, BG 2, CT 201.03, Denton County	32	4	28	0	0	0	0	0	0	4	12.5%	87.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%
Block 1045, BG 1, CT 201.07, Denton County	3	0	3	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1061, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1026, BG 1, CT 201.06, Denton County	167	8	150	1	3	1	0	1	3	17	4.8%	89.8%	0.6%	1.8%	0.6%	0.0%	0.6%	1.8%	10.2%
Block 1033, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3044, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1115, BG 1, CT 201.03, Denton County	15	0	15	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1073, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3007, BG 3, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1052, BG 1, CT 201.06, Denton County	29	1	25	0	1	1	0	0	1	4	3.4%	86.2%	0.0%	3.4%	3.4%	0.0%	0.0%	3.4%	13.8%
Block 3077, BG 3, CT 201.03, Denton County	4	0	4	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1036, BG 1, CT 201.03, Denton County	8	0	8	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1020, BG 1, CT 201.03, Denton County	30	8	21	0	0	0	0	1	0	9	26.7%	70.0%	0.0%	0.0%	0.0%	0.0%	3.3%	0.0%	30.0%
Block 1031, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2047, BG 2, CT 201.04, Denton County	1	0	1	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 2077, BG 2, CT 201.04, Denton County	3	0	3	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 2055, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1060, BG 1, CT 201.06, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 4007, BG 4, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2013, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%

Block Data	Total:	Hispanic or Latino	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Some Other Race alone	Two or More Races:	Total Minority Population	% Hispanic or Latino	% White alone	% Black or African American alone	% American Indian and Alaska Native alone	% Asian alone	% Native Hawaiian and Other Pacific Islander alone	% Some Other Race alone	% Two or More Races	% Minority Population	
Block 5003, BG 5, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2101, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2072, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 3025, BG 3, CT 201.03, Denton County	1	0	1	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1069, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 2054, BG 2, CT 201.03, Denton County	55	0	55	0	0	0	0	0	0	0	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Block 1027, BG 1, CT 201.03, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1067, BG 1, CT 201.06, Denton County	12	8	0	4	0	0	0	0	0	12	66.7%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Block 2066, BG 2, CT 201.04, Denton County	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Block 1083, BG 1, CT 201.07, Denton County	100	10	80	0	0	7	0	0	3	20	10.0%	80.0%	0.0%	0.0%	7.0%	0.0%	0.0%	0.0%	3.0%	20.0%

LEP Populations: Census Tracts

5 to 17 Years Old:

Census Tracts	Total:	Total in Age Group:	Speak Spanish:	Speak English "very well"	Speak other Indo-European languages:	Speak English "very well"	Speak Asian and Pacific Island languages:	Speak English "very well"	Speak other languages:	Speak English "very well"
Census Tract 7 Cooke County	6,669	938	29	29	0	0	0	0	0	0
Census Tract 201.03 Denton County	11,062	1,852	262	185	34	6	0	0	0	0
Census Tract 201.04 Denton County	4,467	1,014	135	135	0	0	0	0	28	28
Census Tract 201.06 Denton County	7,543	2,141	121	69	4	4	0	0	127	127
Census Tract 201.07 Denton County	7,108	1,636	107	101	22	10	16	16	18	18
Census Tract 19 Grayson County	10,579	2,372	315	315	4	4	10	10	0	0

18 to 64 Years Old:

Census Tract 7 Cooke County	6,669	3,751	37	0	0	0	17	0	0	0
Census Tract 201.03 Denton County	11,062	7,452	987	702	79	67	33	17	0	0
Census Tract 201.04 Denton County	4,467	3,010	460	160	0	0	0	0	186	173
Census Tract 201.06 Denton County	7,543	4,850	399	281	5	5	0	0	35	0
Census Tract 201.07 Denton County	7,108	4,853	803	546	135	108	22	17	37	37
Census Tract 19 Grayson County	10,579	6,542	503	229	51	43	32	23	4	4

65 Years Old and Over:

Census Tract 7 Cooke County	6,669	1,980	26	26	37	17	0	0	0	0
Census Tract 201.03 Denton County	11,062	1,758	45	22	23	23	0	0	0	0
Census Tract 201.04 Denton County	4,467	443	25	0	9	9	0	0	0	0
Census Tract 201.06 Denton County	7,543	552	13	0	0	0	0	0	0	0
Census Tract 201.07 Denton County	7,108	619	20	10	17	2	10	7	0	0
Census Tract 19 Grayson County	10,579	1,665	66	25	5	0	14	3	0	0

Total LEP Populations

Census Tracts	Spanish Speakers	Other Indo-European Language Speakers	Asian and Pacific Island Language Speakers	Other Language Speakers	% Spanish Speakers	% Other Indo-European Language Speakers	% Asian and Pacific Island Language Speakers	% Other Language Speakers	Total LEP	% LEP
Census Tract 7 Cooke County	37	20	17	0	0.6%	0.3%	0.3%	0.0%	74	1.1%
Census Tract 201.03 Denton County	385	40	16	0	3.5%	0.4%	0.1%	0.0%	441	4.0%
Census Tract 201.04 Denton County	325	0	0	13	7.3%	0.0%	0.0%	0.3%	338	7.6%
Census Tract 201.06 Denton County	183	0	0	35	2.4%	0.0%	0.0%	0.5%	218	2.9%
Census Tract 201.07 Denton County	273	54	8	0	3.8%	0.8%	0.1%	0.0%	335	4.7%
Census Tract 19 Grayson County	315	13	20	0	3.0%	0.1%	0.2%	0.0%	348	3.3%

LEP Populations: Block Groups

5 to 17 Years Old:

Census Block Groups	Total:	Total in Age Group:	Speak Spanish:	Speak English "very well"	Speak other Indo-European languages:	Speak English "very well"	Speak Asian and Pacific Island languages:	Speak English "very well"	Speak other languages:	Speak English "very well"
Block Group 4 CT 7 Cooke County	1,636	189	14	14	0	0	0	0	0	0
Block Group 1 CT 201.03 Denton County	2,172	326	208	185	0	0	0	0	0	0
Block Group 2 CT 201.03 Denton County	2,590	350	3	0	3	3	0	0	0	0
Block Group 3 CT 201.03 Denton County	3,193	541	0	0	3	3	0	0	0	0
Block Group 4 CT 201.03 Denton County	842	249	0	0	28	0	0	0	0	0
Block Group 5 CT 201.03 Denton County	1,399	170	51	0	0	0	0	0	0	0
Block Group 6 CT 201.03 Denton County	866	216	0	0	0	0	0	0	0	0
Block Group 2 CT 201.04 Denton County	1,671	274	40	40	0	0	0	0	0	0
Block Group 1 CT 201.06 Denton County	3,178	456	52	0	0	0	0	0	0	0
Block Group 1 CT 201.07 Denton County	6,357	1,502	76	70	22	10	16	16	18	18
Block Group 2 CT 19 Grayson County	3,422	852	50	50	0	0	10	10	0	0
Block Group 3 CT 19 Grayson County	1,114	201	56	56	0	0	0	0	0	0
Block Group 4 CT 19 Grayson County	955	211	35	35	4	4	0	0	0	0

18 to 64 Years Old:

Census Block Groups	Total:	Total in Age Group:	Speak Spanish:	Speak English "very well"	Speak other Indo-European languages:	Speak English "very well"	Speak Asian and Pacific Island languages:	Speak English "very well"	Speak other languages:	Speak English "very well"
Block Group 4 CT 7 Cooke County	1,636	968	0	0	0	0	0	0	0	0
Block Group 1 CT 201.03 Denton County	2,172	1,537	429	327	0	0	0	0	0	0
Block Group 2 CT 201.03 Denton County	2,590	1,778	37	32	9	9	5	5	0	0
Block Group 3 CT 201.03 Denton County	3,193	2,247	105	64	36	29	28	12	0	0
Block Group 4 CT 201.03 Denton County	842	405	0	0	29	29	0	0	0	0
Block Group 5 CT 201.03 Denton County	1,399	1,012	303	225	0	0	0	0	0	0
Block Group 6 CT 201.03 Denton County	866	473	113	54	5	0	0	0	0	0
Block Group 2 CT 201.04 Denton County	1,671	1,024	197	49	0	0	0	0	0	0
Block Group 1 CT 201.06 Denton County	3,178	2,372	229	174	5	5	0	0	0	0
Block Group 1 CT 201.07 Denton County	6,357	4,301	600	432	135	108	22	17	37	37
Block Group 2 CT 19 Grayson County	3,422	2,039	97	36	11	11	19	10	0	0
Block Group 4 CT 19 Grayson County	955	582	54	27	40	32	0	0	0	0

65 Years Old and Over:

Block Group 4 CT 7 Cooke County	1,636	479	26	26	0	0	0	0	0	0
Block Group 1 CT 201.03 Denton County	2,172	309	0	0	0	0	0	0	0	0
Block Group 2 CT 201.03 Denton County	2,590	462	13	13	0	0	0	0	0	0
Block Group 3 CT 201.03 Denton County	3,193	405	9	9	0	0	0	0	0	0
Block Group 4 CT 201.03 Denton County	842	188	9	0	23	23	0	0	0	0
Block Group 5 CT 201.03 Denton County	1,399	217	0	0	0	0	0	0	0	0
Block Group 6 CT 201.03 Denton County	866	177	14	0	0	0	0	0	0	0
Block Group 2 CT 201.04 Denton County	1,671	373	16	0	9	9	0	0	0	0
Block Group 1 CT 201.06 Denton County	3,178	350	13	0	0	0	0	0	0	0
Block Group 1 CT 201.07 Denton County	6,357	554	1	1	17	2	10	7	0	0
Block Group 2 CT 19 Grayson County	3,422	531	0	0	5	0	3	3	0	0
Block Group 4 CT 19 Grayson County	955	162	0	0	0	0	0	0	0	0

Total LEP Populations

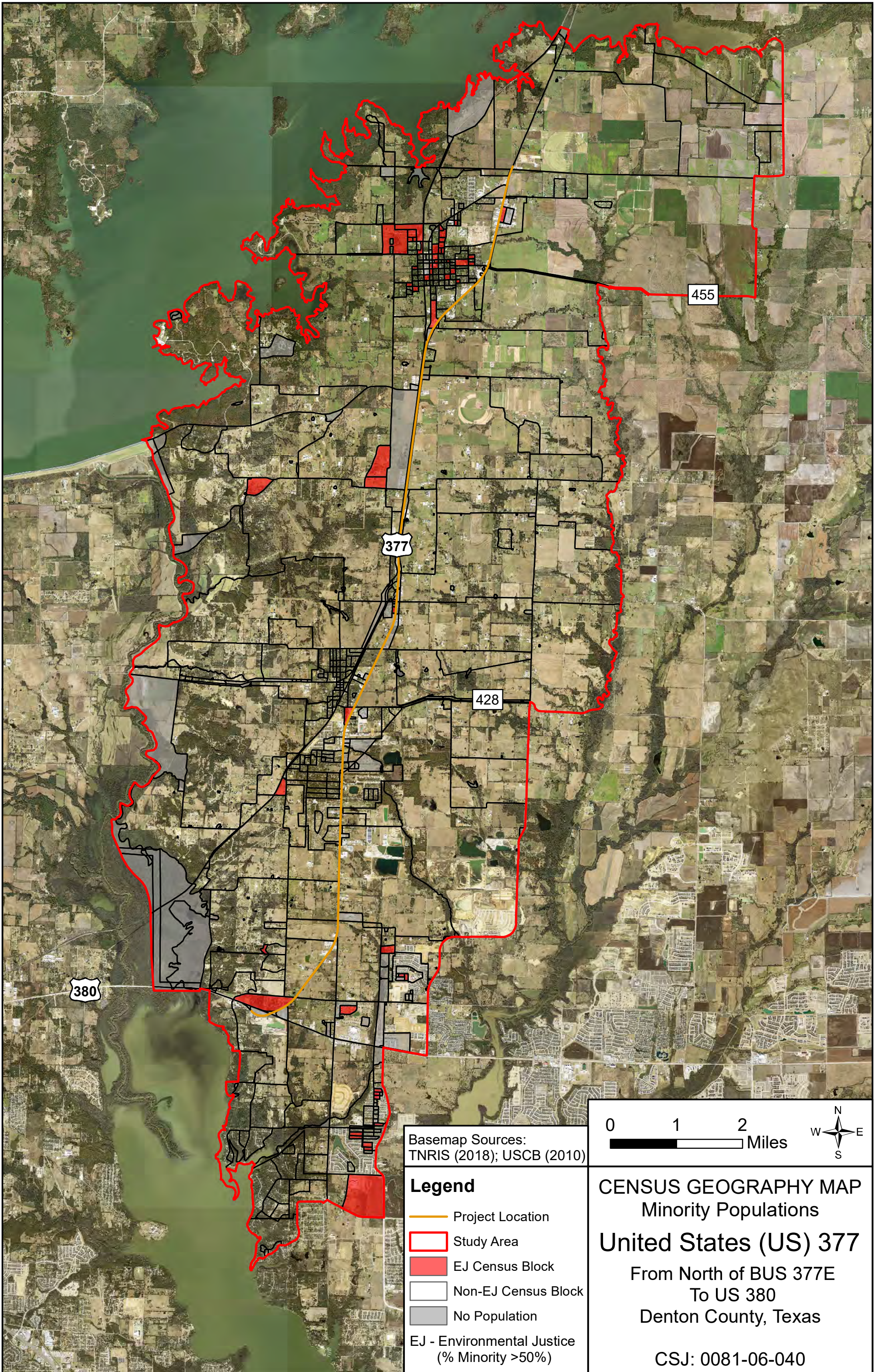
Census Block Groups	Spanish Speakers	Other Indo-European Language Speakers	Asian and Pacific Island Language Speakers	Other Language Speakers	% Spanish Speakers	% Other Indo-European Language Speakers	% Asian and Pacific Island Language Speakers	% Other Language Speakers	Total LEP	% LEP
Block Group 4 CT 7 Cooke County	0	0	0	0	0.0%	0.0%	0.0%	0	0	0.0%
Block Group 1 CT 201.03 Denton County	125	0	0	0	5.8%	0.0%	0.0%	0	125	5.8%
Block Group 2 CT 201.03 Denton County	8	0	0	0	0.3%	0.0%	0.0%	0	8	0.3%
Block Group 3 CT 201.03 Denton County	41	7	16	0	1.3%	0.2%	0.5%	0	64	2.0%
Block Group 4 CT 201.03 Denton County	9	28	0	0	1.1%	3.3%	0.0%	0	37	4.4%
Block Group 5 CT 201.03 Denton County	129	0	0	0	9.2%	0.0%	0.0%	0	129	9.2%
Block Group 6 CT 201.03 Denton County	73	5	0	0	8.4%	0.6%	0.0%	0	78	9.0%
Block Group 2 CT 201.04 Denton County	164	0	0	0	9.8%	0.0%	0.0%	0	164	9.8%
Block Group 1 CT 201.06 Denton County	120	0	0	0	3.8%	0.0%	0.0%	0	120	3.8%
Block Group 1 CT 201.07 Denton County	174	54	8	0	2.7%	0.8%	0.1%	0	236	3.7%
Block Group 2 CT 19 Grayson County	61	5	9	0	1.8%	0.1%	0.3%	0	75	2.2%
Block Group 4 CT 19 Grayson County	27	8	0	0	2.8%	0.8%	0.0%	0	35	3.7%

Median Household Income

Census Tracts	Total Households:	Median household income in the past 12 months (in 2018 inflation-adjusted dollars)	Households below poverty level in the past 12 months	% Households below poverty level
Census Tract 7 Cooke County	2,898	\$ 78,649	125	4.3%
Census Tract 201.03 Denton County	4,320	\$ 67,472	230	5.3%
Census Tract 201.04 Denton County	1,608	\$ 105,539	46	2.9%
Census Tract 201.06 Denton County	2,521	\$ 94,258	109	4.3%
Census Tract 201.07 Denton County	2,617	\$ 92,386	73	2.8%
Census Tract 19 Grayson County	3,871	\$ 80,066	273	7.1%

Census Block Groups	Total Households:	Median household income in the past 12 months (in 2018 inflation-adjusted dollars)	Households below poverty level in the past 12 months	% Households below poverty level
Block Group 4 CT 7 Cooke County	602	\$ 82,651	0	0.0%
Block Group 1 CT 201.03 Denton County	699	\$ 59,256	34	4.9%
Block Group 2 CT 201.03 Denton County	979	\$ 94,702	48	4.9%
Block Group 3 CT 201.03 Denton County	1,249	\$ 69,836	32	2.6%
Block Group 4 CT 201.03 Denton County	280	\$ 58,864	19	6.8%
Block Group 5 CT 201.03 Denton County	807	\$ 56,250	21	2.6%
Block Group 6 CT 201.03 Denton County	306	\$ 30,213	76	24.8%
Block Group 2 CT 201.04 Denton County	635	\$ 84,875	46	7.2%
Block Group 1 CT 201.06 Denton County	1,331	\$ 109,345	12	0.9%
Block Group 1 CT 201.07 Denton County	2,381	\$ 94,073	52	2.2%
Block Group 2 CT 19 Grayson County	1,297	\$ 92,596	118	9.1%

Attachment 7
Census Geography Map
Minority Populations



Basemap Sources:
TNRIS (2018); USCB (2010)

0 1 2 Miles



Legend

- Project Location
 - Study Area
 - EJ Census Block
 - Non-EJ Census Block
 - No Population
- EJ - Environmental Justice
(% Minority >50%)

CENSUS GEOGRAPHY MAP
Minority Populations

United States (US) 377

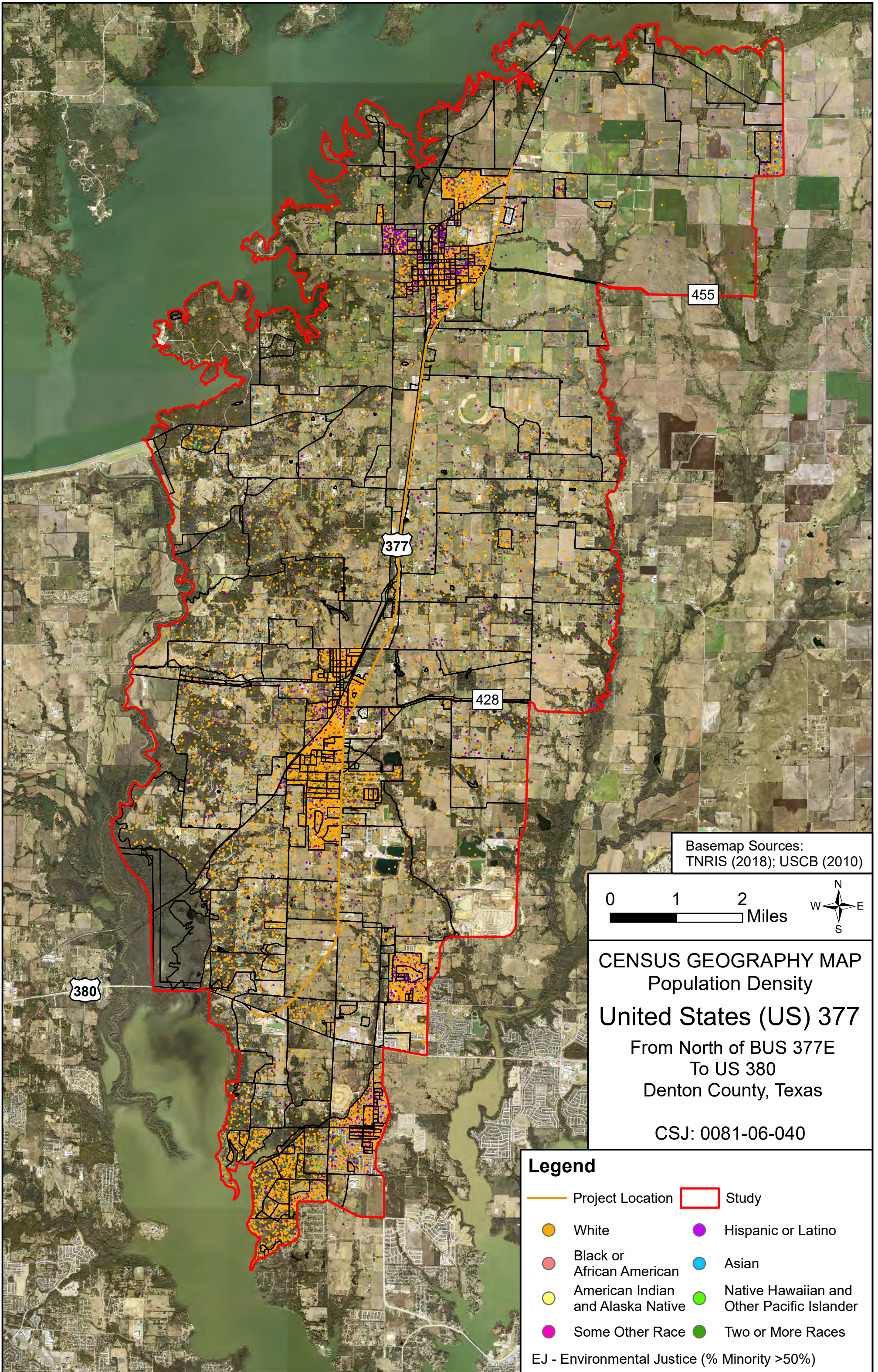
From North of BUS 377E

To US 380

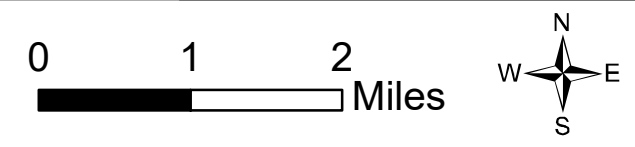
Denton County, Texas

CSJ: 0081-06-040

Attachment 8
Census Geography Map
Population Density



Basemap Sources:
TNRIS (2018); USCB (2010)



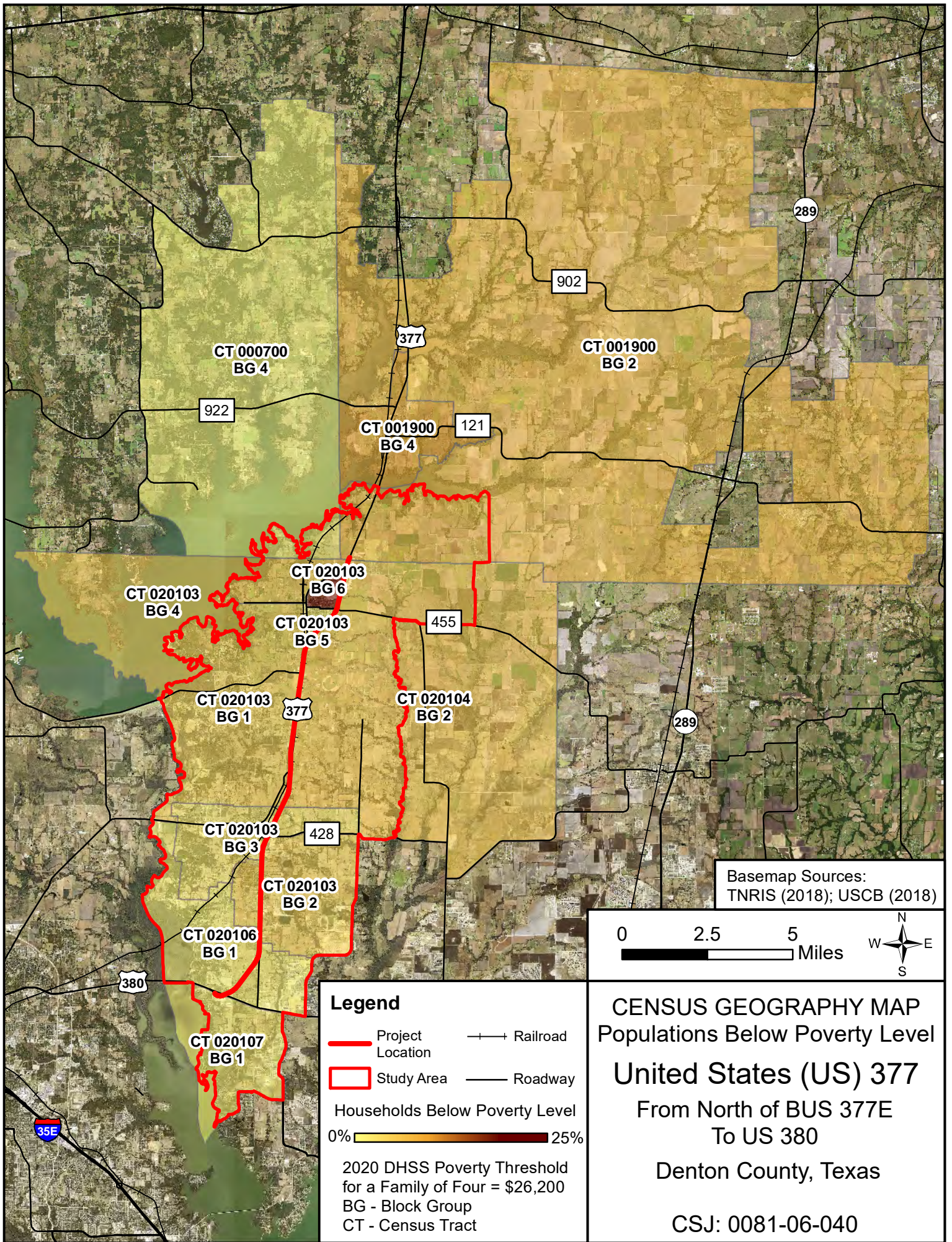
CENSUS GEOGRAPHY MAP
Population Density
United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040

Legend

Project Location	Study
White	Hispanic or Latino
Black or African American	Asian
American Indian and Alaska Native	Native Hawaiian and Other Pacific Islander
Some Other Race	Two or More Races

EJ - Environmental Justice (% Minority >50%)

Attachment 9
Census Geography Map
Median Household Income



CT 000700
BG 4

CT 001900
BG 2

922

CT 001900
BG 4

121

CT 020103
BG 4

CT 020103
BG 6

CT 020103
BG 5

455

CT 020103
BG 1

CT 020104
BG 2

CT 020103
BG 3

428

CT 020103
BG 2

CT 020106
BG 1

CT 020107
BG 1

Basemap Sources:
TNRIS (2018); USCB (2018)

0 2.5 5 Miles



Legend

- Project Location
- Study Area
- +— Railroad
- Roadway

Households Below Poverty Level
0% 25%

2020 DHSS Poverty Threshold
for a Family of Four = \$26,200
BG - Block Group
CT - Census Tract

**CENSUS GEOGRAPHY MAP
Populations Below Poverty Level**

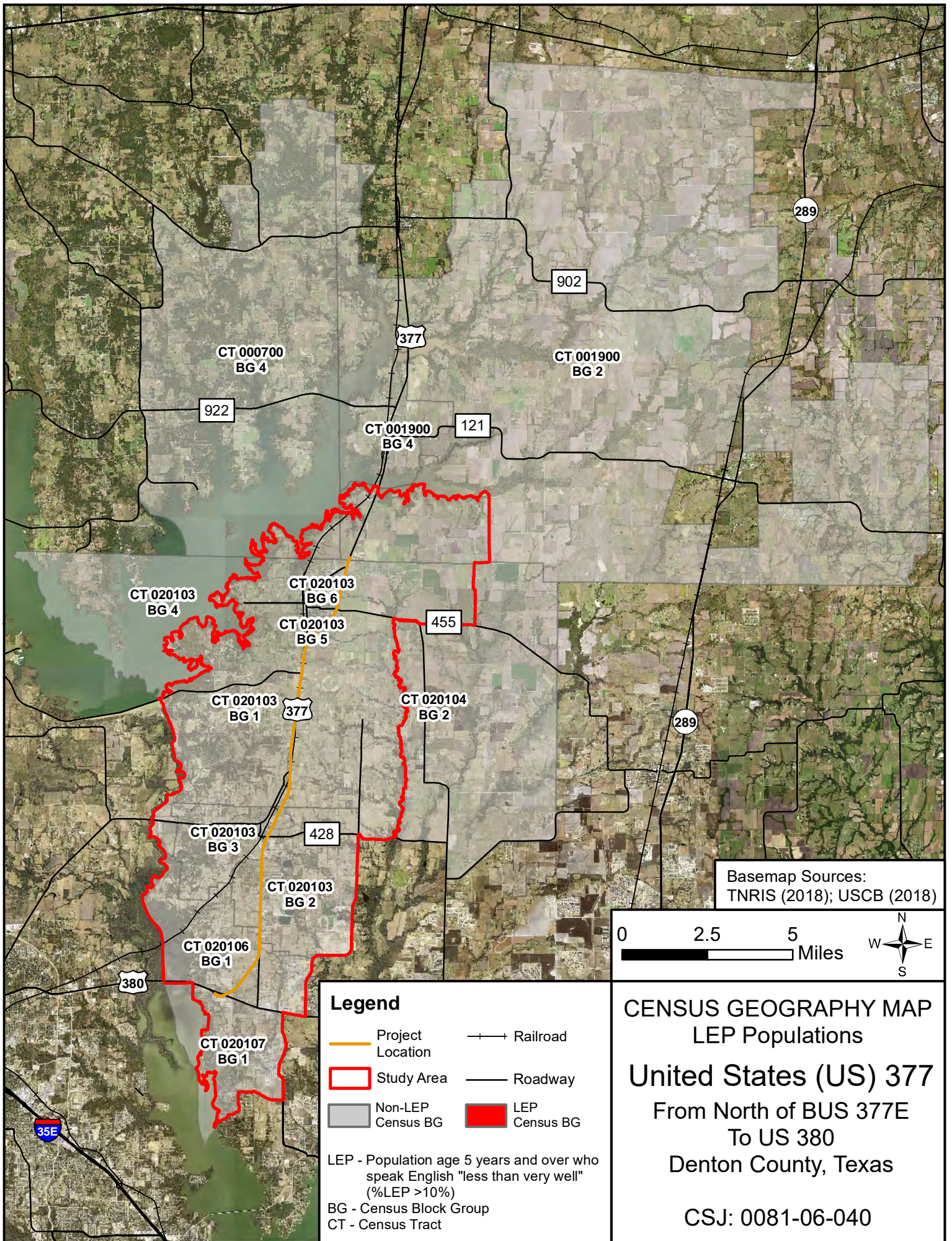
United States (US) 377

From North of BUS 377E
To US 380

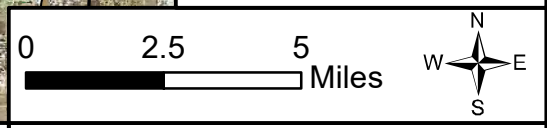
Denton County, Texas

CSJ: 0081-06-040

Attachment 10
Census Geography Map
LEP Populations



Basemap Sources:
 TNRIS (2018); USCB (2018)



Legend

Project Location	Railroad
Study Area	Roadway
Non-LEP Census BG	LEP Census BG

LEP - Population age 5 years and over who speak English "less than very well" (%LEP >10%)
 BG - Census Block Group
 CT - Census Tract

CENSUS GEOGRAPHY MAP
LEP Populations
United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040

Attachment 11
CIA Project Area Photographs



Photograph 1: View looking northwest from a parking lot off Business 377 towards Countryside Nursing & Rehabilitation (ID 3) at 1700 N Washington St, Pilot Point, TX 76258. Date of photograph: 4/29/20.



Photograph 2: View looking west from S Harrison St towards Pilot Point Middle School (ID 29) at 828 S Harrison St, Pilot Point, TX 76258. Date of photograph: 4/29/20.



Photograph 3: View looking east from S Harrison St towards the Pilot Point ISD Administration Building (ID 30) at 829 S Harrison St, Pilot Point, TX 76258. Date of photograph: 4/29/20.



Photograph 4: View looking east from Debbie Ln towards Skinner Cemetery (ID 31) at Debbie Ln, Pilot Point, TX 76258. Date of photograph: 4/29/20.



Photograph 5: View looking northeast from US 377 towards the sign of the Denton First Seventh-day Adventist Church (ID 33) at 11010 US-377, Pilot Point, TX 76258. Date of photograph: 4/29/20.



Photograph 6: View looking west from Belew Rd towards Belew Cemetery (ID 35) at 9500 Belew Rd, Aubrey, TX 76227. Date of photograph: 4/29/20.



Photograph 7: View looking southeast from US 377 towards Midway Church (ID 36) at 9540 US-377, Pilot Point, TX 76258. Date of photograph: 4/29/20.



Photograph 8: View looking west from a parking lot off US 377 towards the Early Bird Learning Center (ID 41) at 415 Tisdell Ln, Aubrey, TX 76227. Date of photograph: 4/29/20.



Photograph 9: View looking southwest from a parking lot off US 377 towards the Aubrey ISD DAEP (ID 42) at 415 Tisdell Ln, Aubrey, TX 76227. Date of photograph: 4/29/20.



Photograph 10: View looking south from Spring Hill Rd towards Aubrey High School (ID 54) at 510 Spring Hill Rd, Aubrey, TX 76227. Date of photograph: 4/29/20.



Photograph 11: View looking north from a parking lot off US 377 towards HL Brockett Elementary School (ID 55) at 900 Chestnut St, Aubrey, TX 76227. Date of photograph: 4/29/20.



Photograph 12: View looking west from a parking lot off US 377 towards The Summit Church and Dreams Music Academy (ID 56 & 57) at 910 US-377, Aubrey, TX 76227. Date of photograph: 4/29/20.



Photograph 13: View looking west from a parking lot off Stanley Dr towards the United States Postal Service (ID 62) at 120 Stanley Dr, Aubrey, TX 76227. Date of photograph: 4/29/20.



Photograph 14: View looking west from a parking lot off US 377 towards Wild Hearts Nature Preschool (ID 63) at 5411 US-377, Aubrey, TX 76227. Date of photograph: 4/29/20.



Photograph 15: View looking northwest along Kruger Rd toward the Northeast Police Department (ID 65) at 100 Kruger Rd, Krugerville, TX 76227. Date of photograph: 4/29/20



Photograph 16: View looking west from US 377 toward Krugerville City Hall (ID 66) at 5097 US-377, Aubrey, TX 76227. Date of photograph: 4/29/20



Photograph 17: View looking northwest from US 377 toward the First Baptist Church of Krugerville (ID 68) at 5021 US-377, Aubrey, TX 76227. Date of photograph: 4/29/20



Photograph 18: View looking southeast from US 377 toward New Hope Baptist Church (ID 71) at 5800 US-377, Aubrey, TX 76227. Date of photograph: 4/29/20



Photograph 19: View looking north from a parking lot toward Corner Cafe, a potential displacement (Disp. 1) at 1280 S US 377, Pilot Point, TX 76258. Date of photograph: 5/6/20



Photograph 20: View looking southeast from US 377 toward Sunny Mart, a potential displacement (Disp. 2) at 1293 S US 377, Pilot Point, TX 76258. Date of photograph: 5/6/20



Photograph 21: View looking southeast from US 377 toward a metal barn that is a potential displacement (Disp. 3) at 1311 S US 377, Pilot Point, TX 76258. Date of photograph: 5/6/20



Photograph 22: View looking northeast from Black Jack Rd toward ATX Auction House, a potential displacement (Disp 4) at 556 E Blackjack Rd, Pilot Point, TX 76258. Date of photograph: 5/6/20



Photograph 23: View looking north from Chestnut St toward a single-family house, a potential displacement (Disp. 5) at 809 Chestnut St, Aubrey, TX 76227-9116. Date of photograph: 5/6/20



Photograph 24: View looking west from US 377 toward Keller Williams Realty, a potential displacement (Disp. 6) at 806 US 377, Aubrey, TX 76227. Date of photograph: 5/6/20



Photograph 25: View looking east from US 377 toward Betty's Flowers & Gifts and B. Ellen's House of Browns, both potential displacements (Disp. 7 & 8) at 903 & 901 US 377, Aubrey, TX 76227. Date of photograph: 5/6/20



Photograph 26: View looking north from a parking lot off US 377 toward an apartment complex, a potential displacement (Disp. 9) at 5408 US 377 S, Aubrey, TX 76227-6211. Date of photograph: 5/6/20



Photograph 27: View looking north from a driveway off US 377 toward Storage Place, a potential displacement (Disp. 10) at 5055 S US 377, Aubrey, TX 76227. Date of photograph: 5/6/20



Photograph 28: View looking southwest from US 377 toward a metal shed, and two other storage buildings, potential displacements (Disp. 11) at 855 Sherry Ln S, Krugerville, TX 76227. Date of photograph: 5/6/20



Photograph 29: View looking east from Debbie Ln in Pilot Point toward a home in disrepair, possibly abandoned. Date of photograph: 5/6/20



Photograph 30: View looking north from E Walcott St in Pilot Point toward a home in disrepair. Date of photograph: 5/6/20



Photograph 31: View looking south from E Main St in Pilot Point toward a home with a wheelchair lift, indicating vulnerable populations. Date of photograph: 5/6/20



Photograph 32: View looking east from S Magnolia St in Aubrey toward a home with a ramp, indicating vulnerable populations. Date of photograph: 5/6/20



Photograph 33: View looking west from a parking lot off US 377 toward a business with a sign indicating Spanish language accommodation, located at 8000 US Highway 380 Ste 400, Crossroads TX, 76227. Date of photograph: 5/6/20



Photograph 34: View looking southwest from De Moya Ln in Aubrey, toward an apartment complex with a "For Rent" sign, indicating potential replacement housing for Displacement 9. Date of photograph: 5/6/20



Photograph 35: View looking west from a parking lot off US 377 in Aubrey, toward an apartment complex with a “For Lease” sign, indicating potential replacement housing for Displacement 9. Date of photograph: 5/6/20



MEMO

October 28, 2020

To: Mohammed Shaikh
Project Manager, Project Development, Dallas District

From: Jonathan Stewart
Civil Associates, Inc.

Subject: Community Impacts Assessment Technical Report Memorandum of Change
United States Highway (US) 377 from North of Business 377E to US 380
Denton County
CSJs: 0081-06-040

The US 377 Community Impacts Assessment (CIA) Technical Report was submitted to TxDOT on May 13, 2020, and approved June 17, 2020. Since approval, the design has been revised based on public comments received following a Virtual Public Meeting held April 28, 2020. The design changes based on public comments resulted in a reduction of proposed Right-of-Way (ROW), and subsequently a reduction in displacements and overall community impacts.

At the time of submission, the proposed ROW required was 63.2 acres, and the proposed easements required was 1.8 acres. However, revisions to the design have resulted in the reduction of proposed ROW to 54.7 acres, and proposed easements to 1.1 acres.

Ten properties were identified as having displacements. These displacements included two residential properties with building impacts, two residential properties with impacts to buildings other than homes, and six commercial properties (seven businesses) with building impacts.

The reduction of proposed ROW decreased displacements from ten to seven properties. These displacements include two residential properties with building impacts, and five commercial properties (six businesses) with building impacts. **Table 1** below lists the revised displacements as well as the three that were removed. Refer to the attached **Displacements Map** for the location of the revised displacements.

Table 1: Revised Potential Displacements

No.	Name	Impact Types	Situs Address	Appraised Value
1	Commercial; Sunny Mart (Gas Station)	Tank hold, Gasoline Pumps and Awning	1293 S US 377, Pilot Point, TX 76258	\$ 300,640
2	Commercial; ATX Auction House	Building, Parking	556 E Blackjack Rd, Pilot Point, TX 76258	\$ 248,162
3	Residential; Single-family	Building	809 Chestnut St, Aubrey, TX 7622	\$ 131,474

OUR GOALS

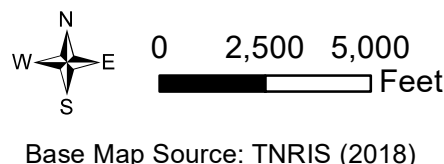
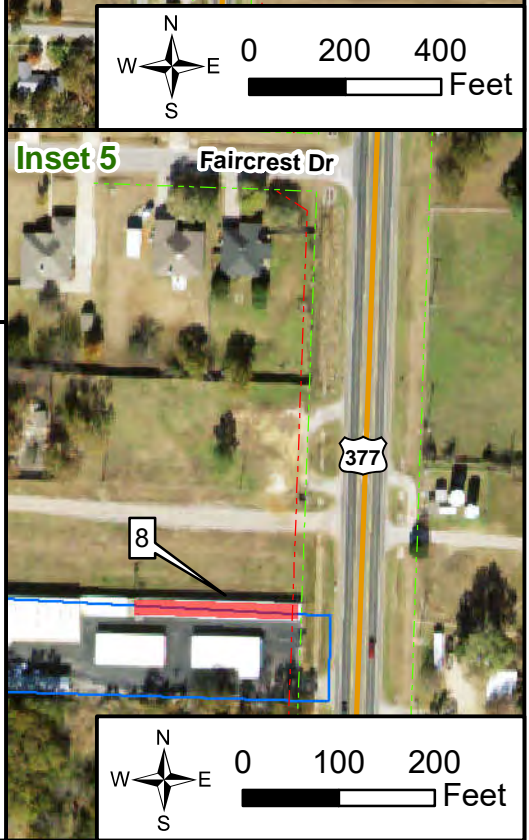
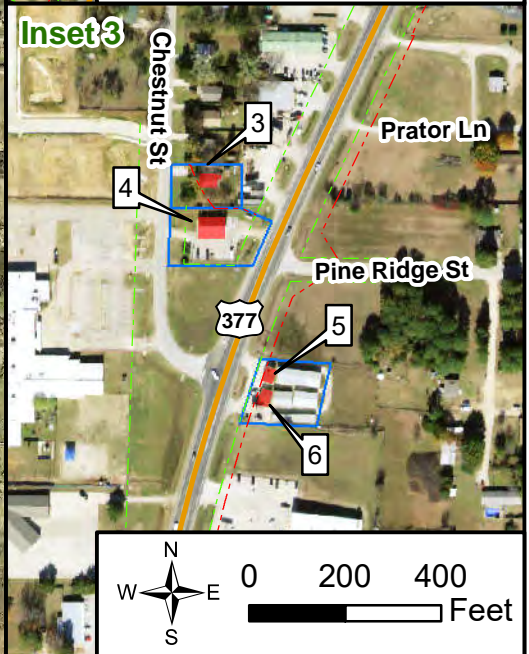
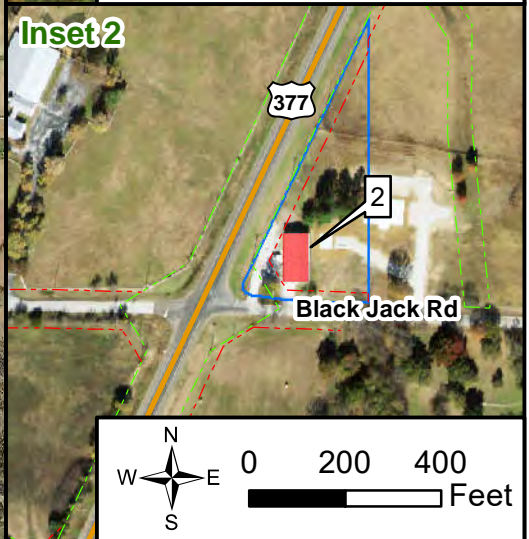
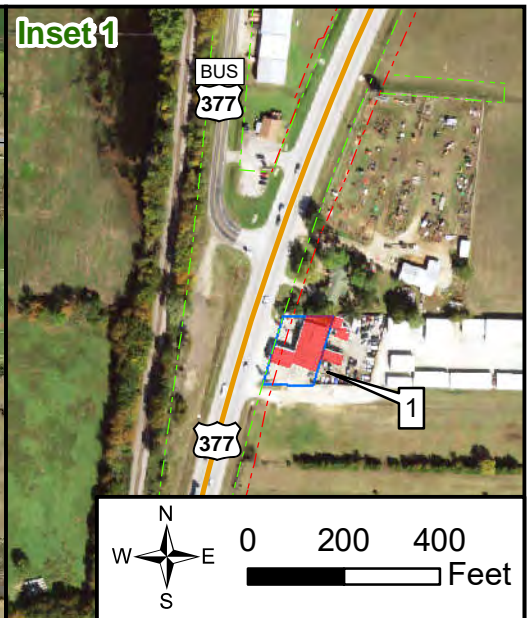
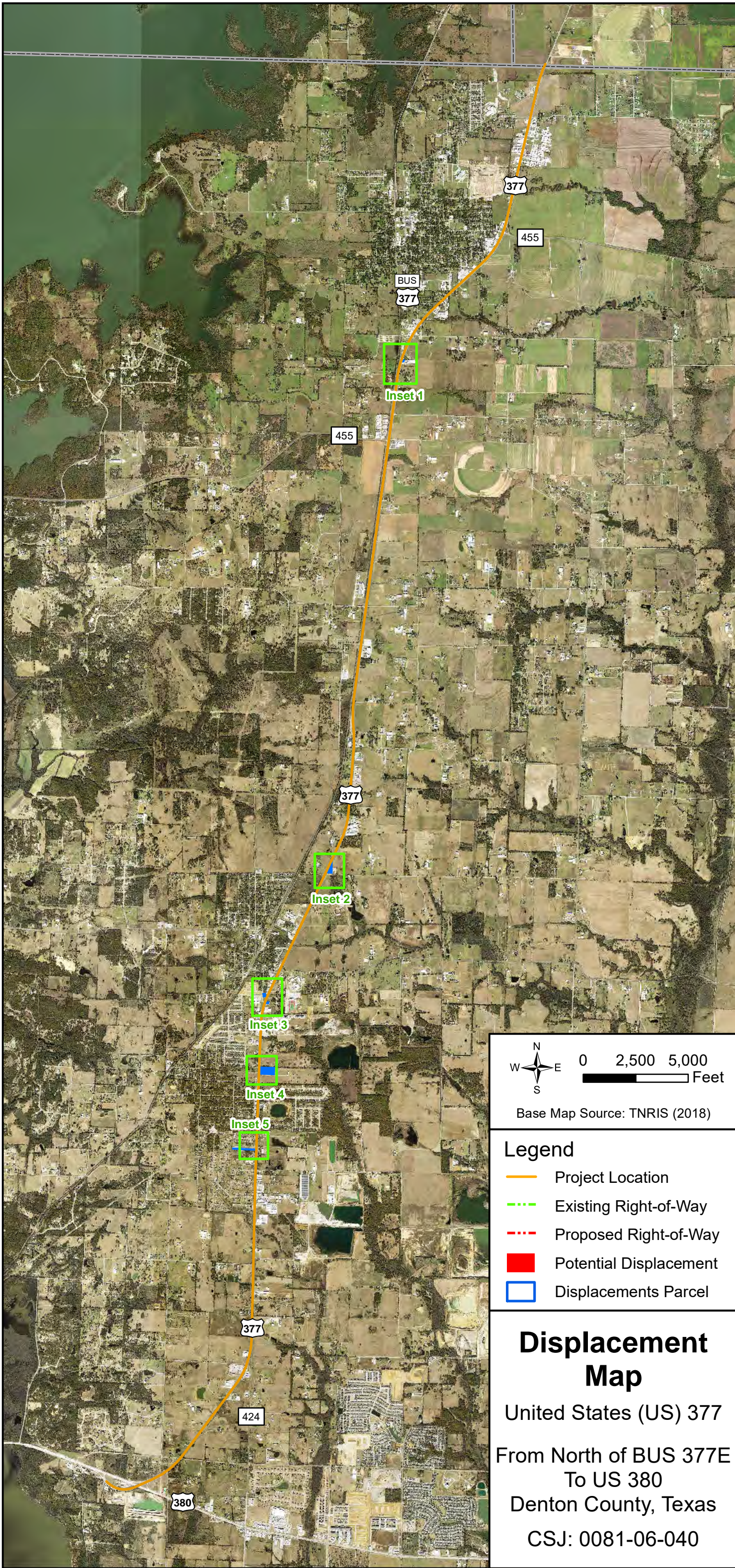
MAINTAIN A SAFE SYSTEM ▪ ADDRESS CONGESTION ▪ CONNECT TEXAS COMMUNITIES ▪ BEST IN CLASS STATE AGENCY
An Equal Opportunity Employer

4	Commercial; Keller Williams Realty	Building, Parking	806 US 377, Aubrey, TX 76227	\$ 285,998
5	Commercial; Betty's Flowers & Gifts; B. Ellen's House of Brows	2 Buildings, Parking	903 US 377, Aubrey, TX 76227	\$ 339,779
6			901 US 377, Aubrey, TX 76227	
7	Residential; Apartments	Building	5408 US 377 S, Aubrey, TX 76227	\$ 417,784
8	Commercial; Storage Place	Storage Units	5055 S US 377, Aubrey, TX 76227	\$ 1,121,678

Displacements Removed Since Last Submittal

	Name	Impact Types	Situs Address	Appraised Value
	Commercial; Corner Cafe (Restaurant)	Building, Parking	1280 S US 377, Pilot Point, TX 76258	\$ 155,645
	Residential; Single-family	Barn/Shed	1311 S US 377, Pilot Point, TX 76258	\$ 146,820
	Residential; Single-family	3 Buildings/Sheds	855 Sherry Ln S, Krugerville, TX 76227	\$ 383,096

Source: Denton County Appraisal District, accessed May 2020.



Base Map Source: TNRIS (2018)

- Legend**
- Project Location
 - - - Existing Right-of-Way
 - - - Proposed Right-of-Way
 - Potential Displacement
 - Displacements Parcel

Displacement Map

United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040



Report Version 6

Hazardous Materials Initial Site Assessment (ISA)

May 29, 2020

District: Dallas

United States Highway (US) 377

CSJ: 0081-06-040

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

TxDOT Environmental Affairs Division
Effective Date: December 2019
510.02.DS
Version 6

Hazardous Materials Initial Site Assessment (ISA) Report

This ISA complies with the Federal Highway Administration's (FHWA's) policy dealing with hazardous materials discussed in FHWA's *Supplemental Hazardous Waste Guidance* (January 16, 1997) located at <http://www.environment.fhwa.dot.gov/guidebook/vol1/doc7b.pdf>.

FHWA's policy emphasizes three objectives: 1) identify and assess potentially contaminated sites early in project development, 2) coordinate early with federal/ state/ local agencies to assess the contamination and the cleanup needed; and 3) determine and implement measures early to avoid or minimize involvement with substantially contaminated properties.

In addition, completing the ISA will aid in identifying hazardous material issues early, avoiding construction delays, and reducing the department's liability associated with the purchase of contaminated right of way.

Maintain a copy of the completed ISA report with all applicable attachments in the project file.

For additional information, refer to TxDOT's online manual: *Hazardous Materials in Project Development*: <http://onlinemanuals.txdot.gov/txdotmanuals/haz/index.htm> and the Hazardous Materials Toolkit Site: <http://www.txdot.gov/inside-txdot/division/environmental/compliance-toolkits/haz-mat.html>

Abbreviations and Acronyms

CALF	Closed and Abandoned Landfill
CERCLIS	Comprehensive Environmental Response Compensation and Liability Information System
EA	Environmental Assessment
EIS	Environmental Impact Statement
ECOS	Environmental Compliance Oversight System
ERNS	Emergency Response Notification System
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
HAZMAT	Hazardous Materials
MS4	Municipal Separate Storm Sewer System
MSWLF	Municipal Solid Waste Landfill
NPL	National Priorities List
RCRA	Resource Conservation and Recovery Act
ROW	Right of Way
SEMS	Superfund Enterprise Management System
TCEQ	Texas Commission on Environmental Quality
TRRC	Texas Railroad Commission
US	United States
USGS	United States Geological Survey
VCP	Voluntary Cleanup Program

TxDOT Hazardous Materials Initial Site Assessment (ISA) Report

Project Information

CSJ No: 0081-06-040	City: Aubrey, Cross Roads, Krugerville, Pilot Point	Zip Code: 76227, 76258	County: Denton
HWY: US 377	Limits: From north of BUS 377E to US 380		

Section 1: Identify Previously Completed Environmental Site Assessments, Known Hazmat Conditions, Preliminary Project Design, and Right-of-Way Requirements

Note: Obtain information/comments from design, right-of-way, and/or environmental staff. Attach maps and/or details as appropriate.

<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown	Are there any previous environmental assessments, testing, or studies performed within the proposed project area related to contamination issues (to include Phase I ESAs)? If yes, explain here if there are any concerns to the proposed project:
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Have the project schematics and/or plan-profile sheets (if available) been reviewed?* Look for substantial excavations (including utilities and storm sewer designs), new ROW and easements, and bridge demolitions or renovations.

* For consultants: this information shall be supplied by TxDOT.

Section 2: Demolition and Renovation Information Related to Asbestos and Lead-Containing-Paint

<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there proposed bridges or building demolitions or renovations for this project?
<p>Note: If "Yes" is selected, buildings or structures being acquired through the acquisition process are assessed and mitigated for asbestos, as needed, within the ROW process according to the TxDOT ROW Manual ROW Vol. 6 Miscellaneous -Chapter 1 Section 5. Bridge structures being demolished or renovated are assessed and mitigated for asbestos and lead-containing-paint, as needed, within the construction process according to Standard Specification Item 6.10 (and applicable Provisions), and the TxDOT guidance document: Guidance for Handling Asbestos in Construction Projects, dated January 26, 2007.</p>	

Section 3: Project Screening

Note: Section 3.1 is only applicable for Categorically Excluded (CE) projects. If you are uncertain of the project type, select "No" and continue to Section 3.2.

Section 3.1 Determine if the proposed project has a low potential to encounter contamination. Refer to the preliminary schematics for project limits and internet-based maps for surrounding land use.

<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No or an EA or EIS Project	Are the limits of the proposed project within a historically undeveloped area and outside the boundaries of a designated MS4 permitted area? Historically undeveloped areas are locations where no commercial buildings are located within one-half (0.5) miles of the proposed project limits and the surrounding land use is historically agricultural, forest, or ranch lands.
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If "Yes" is selected, the ISA is complete. The proposed project has a low potential to encounter contamination. Complete Sections 9 and 10 of this ISA and maintain a copy and all applicable attachments in the project file.

If "No" is selected, proceed to Section 3.2 of this ISA.

Section 3.2

Note: Determine if the project includes any of the activities listed below:

<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Project Excavations: Will the work consist of substantial excavation operations. Substantial excavation includes, but is not necessarily limited to: <ul style="list-style-type: none"> • Underpass construction, • Storm sewer installations, and • Trenching or tunneling that would require temporary or permanent shoring.
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Dewatering of Groundwater: Are there proposed de-watering operations. If yes, what is the estimated depth to groundwater?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Encroachments: Are there known or potential encroachments into the project area? Encroachments include soil and groundwater contamination, dump sites, tanks, and other issues in the ROW.
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ROW and Easements: Are there any acquisitions of new ROW, easements, temporary construction easements planned for the project?

3.3 Complete the appropriate box below:

- If Section 3.2 contains any "Yes" answers, please proceed to Section 4.
- If Section 3.2 contains all "No" answers, proceed to Section 6, Site Survey. Please perform a site survey documenting the results in Section 6 and then mark the appropriate box below. If a Phase I ESA has been prepared for this project, you may use the applicable site survey information from the Phase I ESA.
- The site survey did not identify evidence of any environmental concerns listed in Section 6. The ISA is complete. Complete Sections 9 and 10 and maintain a copy of the ISA and all applicable attachments in the project file.
- The site survey identified evidence of environmental concerns listed in Section 6. Continue with Section 4.

Section 4: Current and Past Land Use Information

Note: Review and assess current and past land use (up to 50 years) in the project area. Document and attach sources that were reviewed. If one or more Phase I ESAs were prepared for this project, please use applicable information from the Phase I ESAs to help complete this section of the ISA.

<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Available <input type="checkbox"/> Not Applicable	4.1 Review Current and Past USGS 7.5 Minute Topographic Maps of the project area: Look for oil & gas pipelines, tanks, landfills, or other industrial features. Describe any concerns: No environmental concerns.		
	List Topo Maps Reviewed:	Dates:	Comments:
	Aubrey	1960, 2010, 2013, 2016, 2019	No pipelines, tanks, landfills or other industrial features were identified in the historic topographic maps.
	Denton East	1960, 2010, 2013, 2016, 2019	
	Little Elm	1960, 2010, 2013, 2016, 2019	
	Pilot Point	1961, 2010, 2013, 2016, 2019	

<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Available <input type="checkbox"/> Not Applicable	4.2 Review Current and Past Aerial Photographs of the project area: Look for oil & gas pipelines, tanks, landfills, or other industrial features. Describe any concerns: No environmetnal concerns.		
	List All Aerial Photos Reviewed:	Photo Dates:	Comments:
	HistoricAerials.com	1968, 1981	Herbert Clay Mine (Map ID 27) adjacent south of US 380, is visible on all aerials, with a large expansion between 1968 and 1981.
	Google Earth	1984, 1990, 1995, 2000, 2005, 2010, 2015, 2016	The project area has remained mostly agricultural throughout all aerials, except within the Cities of Pilot Point, Aubrey and Krugerville. New development can be identified along US 377 throughout all aerials, especially near Pilot Point and Aubrey.
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Available <input type="checkbox"/> Not Applicable	4.3 Review Current and Past Right-of-Way Maps/Files*: Look for oil & gas pipelines, tanks, landfills, or other industrial features. Describe any concerns:		
	List Maps/ Files & Dates Reviewed:	Comments:	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Available <input type="checkbox"/> Not Applicable	4.4 Review Sanborn Fire Insurance Maps/Files: Look for tanks, oil & gas pipelines, landfills, or other industrial features. Describe any concerns:		
	List Maps/ Files & Dates Reviewed:	Comments:	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Available <input type="checkbox"/> Not Applicable	4.5 Review TxDOT As-Built Plans*: Were any concerns identified during previous work within the project limits? If yes, explain: If known, what is the previous Project CSJ:		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Available <input type="checkbox"/> Not Applicable	4.6 Review TxDOT Geotechnical Soil Boring Logs*: Were any concerns noted on the boring logs such as unusual odors, visible contamination, trash, waste or debris? If yes, explain:		
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Available	4.7 Review TxDOT Temporary Use ROW Agreements (permits issued by the district to entities to occupy a portion of the ROW)*: Were any concerns such as monitor wells or treatment systems identified within the ROW? For consultants: this information shall be supplied by TxDOT. If yes, explain:		
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Available	4.8 Review Notifications of Contamination to TxDOT* (These are typically letters from TCEQ or third parties explaining the presence of contamination on TxDOT ROW): Were any concerns regarding contamination of ROW from off-site sources? If yes, explain:		

* For consultants: this information shall be supplied by TxDOT. If no information is supplied by TxDOT, then select Not Available.

Section 5: Complete a Regulatory Records Review (Database Search)	
Note: Use the comment field in Section 5.1 to provide a synopsis of the total number of sites identified within the search distances of the regulatory record reviewed. No comments are required when no sites were identified or the regulatory record was not reviewed.	

Select the appropriate box below:

A Database search was conducted through a contracted service. Indicate in Section 5.1, and if applicable, Section 5.2, the regulatory records searched. Maintain a complete copy of the database search findings (contractor's report deliverable) in the project file with the ISA.

A Database search was conducted in-house. For in-house database searches, not all databases need to be reviewed, but at a minimum the databases listed in Section 5.1 marked in **bold with a star(*)** must be reviewed. Include database records that list potential issues in the project file with the ISA. It is not necessary to include records of negative findings.

Section 5.1 Standard Database Sources of Environmental Information from Government Agency Records

Findings	Regulatory Record
<input type="checkbox"/> Sites Identified <input checked="" type="checkbox"/> No Sites Identified	Federal Active NPL or Not NPL list (CERCLIS or SEMS sites)* https://cumulis.epa.gov/supercpad/CurSites/srchsites.cfm ; and/or https://www.epa.gov/cleanups/cleanups-my-community (1 mile minimum search distance from project limits)

Comments for Sites Identified:

<input type="checkbox"/> Sites Identified <input checked="" type="checkbox"/> No Sites Identified	Federal Archived NPL or Not NPL list (CERCLIS or SEMS sites)* https://cumulis.epa.gov/supercpad/CurSites/srchsites.cfm (0.5 mile minimum search distance from project limits)
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Comments for Sites Identified:

<input type="checkbox"/> Sites Identified <input checked="" type="checkbox"/> No Sites Identified <input type="checkbox"/> Not Reviewed	US EPA Brownfield Properties https://www.epa.gov/cleanups/cleanups-my-community (0.5 mile minimum search distance from project limits)
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Comments for Sites Identified:

<input type="checkbox"/> Sites Identified <input checked="" type="checkbox"/> No Sites Identified <input type="checkbox"/> Not Reviewed	Federal RCRA Corrective Action (CORRACTS) list https://www.epa.gov/cleanups/cleanups-my-community , and/or http://www.epa.gov/enviro/ (1 mile minimum search distance from project limits)
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Comments for Sites Identified:

<input type="checkbox"/> Sites Identified <input checked="" type="checkbox"/> No Sites Identified <input type="checkbox"/> Not Reviewed	Federal RCRA non-CORRACTS Treatment Storage Disposal (TSD) facilities list http://www.envcap.org/statetools/tsdf/ and/or http://www.epa.gov/enviro/ (0.5 mile minimum search distance from project limits)
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Comments for Sites Identified:

<input checked="" type="checkbox"/> Sites Identified <input type="checkbox"/> No Sites Identified <input type="checkbox"/> Not Reviewed	Federal RCRA generators http://www.epa.gov/enviro/ (acquired property and adjoining properties)
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Comments for Sites Identified: Two sites (Map IDs 3 and 30) are listed on the regulatory database report and are within the specified search radius.

Map ID 3, a small quantity generator of waste water containing metals, is not associated with a release site, and has no reported violations. Based on the regulatory information and no reported releases, this site is considered a low environmental risk.

Map ID 30 is associated with a dry cleaner remediation site and is discussed in the attached US 377 Hazardous Materials Impact Evaluation.

<input checked="" type="checkbox"/> Sites Identified	Federal ERNS (or Responses) https://www.epa.gov/cleanups/cleanups-my-community
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<input type="checkbox"/> No Sites Identified <input type="checkbox"/> Not Reviewed	(acquired property and adjoining properties)
<p>Comments for Sites Identified: One locatable incident (Map ID 8) and two unlocatable incidents are listed on the regulatory database report. One of the unlocatable incidents was an air release and the second occurred outside of the specified search radius. Based on the information for the unlocatable incidents, these are not considered environmental concerns.</p> <p>Map ID 8, Twin Cities South Trailers, is adjacent east of US 377 in Pilot Point. In April 2019, an unknown amount of aluminum brightener containing sulfuric acid and hydrochloric acid was released to the soil. None is reported as reaching water. The reported incident also identified the same issue as occurring at 10359 FM 455 (currently the Wash Rack) in Pilot Point, another adjacent property to the project. Based on the incident information for both locations identified, these two incident properties are considered low environmental risks.</p>	
<input type="checkbox"/> Sites Identified <input checked="" type="checkbox"/> No Sites Identified	TCEQ Industrial Hazardous Waste Corrective Action (IHWCA) sites only* http://www15.tceq.texas.gov/crpub/ (1 mile minimum search distance from project limits)
Comments for Sites Identified:	
<input type="checkbox"/> Sites Identified <input checked="" type="checkbox"/> No Sites Identified	TCEQ Superfund sites* http://www15.tceq.texas.gov/crpub/ and/or https://www.tceq.texas.gov/remediation/superfund/sites/index.html (1 mile minimum search distance from project limits)
Comments for Sites Identified:	
<input type="checkbox"/> Sites Identified <input checked="" type="checkbox"/> No Sites Identified	Closed and abandoned municipal solid waste landfill sites* http://www.tceq.texas.gov/permitting/waste_permits/msw_permits/msw-data (0.5 mile minimum search distance from project limits)
Comments for Sites Identified:	
<input checked="" type="checkbox"/> Sites Identified <input type="checkbox"/> No Sites Identified	TCEQ leaking petroleum storage tank remediation lists (LPST)* http://www15.tceq.texas.gov/crpub/ (0.5 mile minimum search distance from project limits)
<p>Comments for Sites Identified: Eleven sites, consisting of nine locatable sites (Map IDs 11, 12, 16, 20, 26, 28, 35, 37, and 38) and two unlocatable sites are listed on the regulatory database report. All of the sites are within the specified search radius. Three sites (Map IDs 35, 37 and 38) are situated between approx. 1,200 to 2,040 ft. from the project and have closed cases. Based on the distances and closed cases, these three sites are not considered environmental concerns. The remaining eight sites are discussed in the attached US 377 Hazardous Materials Impact Evaluation.</p>	
<input checked="" type="checkbox"/> Sites Identified <input type="checkbox"/> No Sites Identified	TCEQ registered petroleum storage tank lists (PST)* http://www15.tceq.texas.gov/crpub/ (acquired property and adjoining properties)
<p>Comments for Sites Identified: Twenty-two registrations at 15 locatable sites (Map IDs 7, 9, 11 (2 registrations), 12, 16, 19, 20, 22, 26, 27, 28 (2 registrations), 29, 31, 33, and 34), and five unlocatable sites (one is a duplicate), are listed on the regulatory database report. Three locatable sites (Map IDs 27, 33, and 34) and three unlocatable sites are outside of the specified search radius and are therefore not environmental concerns. The remaining 14 sites are discussed in the attached US 377 Hazardous Materials Impact Evaluation.</p>	
<input type="checkbox"/> Sites Identified <input checked="" type="checkbox"/> No Sites Identified	TCEQ voluntary cleanup program (VCP) sites* http://www15.tceq.texas.gov/crpub/ (0.5 mile minimum search distance from project limits)
Comments for Sites Identified:	
<input checked="" type="checkbox"/> Sites Identified <input type="checkbox"/> No Sites Identified <input type="checkbox"/> Not Reviewed	TCEQ Innocent Owner/ Operator (IOP) sites http://www15.tceq.texas.gov/crpub/ (0.5 mile minimum search distance from project limits)
<p>Comments for Sites Identified: One site (Map ID 26) is listed on the regulatory database report and is within the specified search radius. This site is associated with a groundwater contamination case (GWCC) and is discussed in the attached US 377 Hazardous Materials Impact Evaluation.</p>	

<input checked="" type="checkbox"/> Sites Identified <input type="checkbox"/> No Sites Identified	TCEQ Dry Cleaners <u>remediation only</u> Database* http://www15.tceq.texas.gov/crpub/ (0.5 mile minimum search distance from project limits)
Comments for Sites Identified: One site (Map ID 30) is listed on the regulatory database report and is within the specified search radius. Map ID 30, Moore Cleaners at 424 US 377 in Pilot Point, is situated approximately 370 feet northwest of project improvements. The dry cleaner is active, however, it has been a drop station since 2011 and no longer performs onsite dry cleaning. A dry cleaner remediation application was submitted in Aug. 2018 and the site is currently under active investigation. Based on the distance from the project improvements, this facility is considered a low environmental risk.	
<input type="checkbox"/> Sites Identified <input checked="" type="checkbox"/> No Sites Identified	Texas Railroad Commission VCP sites* http://www.rrc.state.tx.us/oil-gas/environmental-cleanup-programs/site-remediation/voluntary-cleanup-program/ (0.5 mile minimum search distance from project limits)
Comments for Sites Identified:	
Section 5.2 List below other pertinent records reviewed such as local records and/or additional state records	
<p>Record Source and Comments: A review of the Railroad Commission of Texas Public GIS Viewer (http://www.gisp.rrc.state.tx.us/GISViewer2/), accessed 4-15-20, revealed five natural gas pipelines and one highly volatile liquid pipeline crossing the US 377 project limits, and are discussed as follows:</p> <ol style="list-style-type: none"> 1. Enterprise Products Operating LLC 36-inch diameter, South Texas-TX150, natural gas transmission line is situated approx. 0.7 mile south of FM 455. The pipeline crosses the project near STA 332+75. The pipeline is currently "in service." See the Hazardous Materials Site Map (Page 6). 2. Atmos Pipeline - Texas 24-inch diameter, NT-201, natural gas transmission line approximately 1,000 feet south of E. Sherman Dr. north of Aubrey, TX. The pipeline crosses the project near STA 461+00. The pipeline is listed as currently "in service." See the Hazardous Materials Site Map (Page 9). This pipeline is not shown on the design schematic. 3. Atmos Pipeline - Texas 30-inch diameter, WN, natural gas transmission line just south of Black Jack Rd. in Aubrey, TX. The pipeline crosses the project near STA 508+00. The pipeline is listed as currently "in service." See the Hazardous Materials Site Map (Page 10). 4. Energy Transfer Company 36-inch diameter, Northeast Texas Region Energy Transfer F, natural gas transmission line just south of Black Jack Rd. in Aubrey, TX. The pipeline crosses the project near STA 508+50. The pipeline is listed as currently "in service." See the Hazardous Materials Site Map (Page 10). 5. Oneok NGL Pipeline, LLC 6.63-inch diameter, Sterling Pipeline System, highly volatile liquid (HVL) transmission line approximately 1,280 feet south of Sherry Ln. in Krugerville, TX. The pipeline crosses the project near STA 681+00. The pipeline is currently "in service." See the Hazardous Materials Site Map (Page 13). 6. Atmos Energy Corp. MID-TEX Div. 6.63-inch diameter, D9-2, natural gas transmission line just south of Fishtrap Rd. in Cross Roads, TX. The pipeline crosses the project near STA 804+00. The pipeline is currently "in service." See the Hazardous Materials Site Map (Page 16). <p>Based on the contents of the natural gas and HVL pipelines, these features are not considered an environmental concern. Formal utilities location and advance planning would be required to facilitate pipeline and utilities adjustments and to otherwise avoid associated impacts. TxDOT Dallas District SUE Coordinator and ROW will be responsible for the adjustments and displacements.</p>	
Record Source and Comments:	

Section 6: Complete a Project Site Survey
<p>Note: Do not document site survey concerns that were previously identified by the regulatory list search, by the Current and Past Land Use review, or both. In Section 6.1, describe the location and size of the concern. Attach site maps and photographs, as appropriate. If a Phase I ESA has been prepared for this project, you may use the applicable site survey information from the Phase I ESA and updated current site conditions, as needed.</p> <p>Possible Site Survey Concerns: The following items are to be used as a guide to help identify potential hazardous material issues during a site survey.</p> <ul style="list-style-type: none"> • underground storage tanks • vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground

- aboveground storage tanks
- injection wells, cisterns, sumps, dry wells
- floor drains, walls stained by substances other than water or emitting foul odors
- stockpiling, storage of material
- surface dumping of trash, garbage, refuse, rubbish, debris half exposed/buried, etc.
- stained, discolored, barren, exposed or foreign (fill) soil
- oil sheen or film on surface water, seeps, lagoons, ponds, or drainage basins
- changes in drainage patterns from possible fill areas
- Dead animals (fish, birds, etc.)
- electrical and transformer equipment storage or evidence of release
- groundwater monitoring wells and groundwater treatment systems
- vats, 55-gallon drums (labeled/unlabeled), canisters, barrels, bottles, etc.
- evidence of liquid spills
- damaged or discarded automotive or industrial batteries
- dead, damaged, or stressed vegetation
- pits, ponds, or lagoons associated with waste treatment or waste disposal
- security fencing, protected areas, placards, warning signs

Site Survey Date(s): April 29, 2020; May 26, 2020

6.1 Describe Concerns Observed During the Site Survey. Do not include concerns previously identified during the regulatory list search, the current and past land use review or both. Indicate if the concern is associated with existing ROW, proposed ROW, adjacent property, or easements. Provide address location (or relative location) and any additional information about the evidence identified; include photographs as an attachment to the ISA.

Comments or Concerns Identified:

Pole-mounted electrical transformers are located along various sections of US 377. No environmental concerns were observed. These transformers do not pose an environmental concern for the project.

There are numerous industry services and industrial businesses along the corridor adjacent to the project improvements, the majority of which are not listed regulatory sites. Evidence of spills or releases was not observed near project improvement areas. The presence of these businesses is considered a low environmental risk to the project.

Section 7: Interviews		
<p>Section 7.1 Were interviews conducted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Possible interviewees include local residents, TxDOT staff, fire department personnel, city or county department of health/environmental staff, city or county planning staff, TCEQ staff, TRRC staff, and current and former property owners or operators.</p> <p>If one or more Phase I ESAs were prepared for this project, please use applicable interview information from the Phase I ESAs to help complete this section of the ISA.</p>		
<p>Section 7.2 Interview Summary: Complete this section if interviews were conducted. Add additional rows as needed. Attach record of communications to the ISA.</p>		
Name:	Title:	Date:
Describe any potential concerns:		
Name:	Title:	Date:
Describe any potential concerns:		
Name:	Title:	Date:

Describe any potential concerns:

Section 8: Hazardous Material Concerns

On the list below, indicate if a concern is resolved or unresolved. "Unresolved" indicates additional investigation or research is required. "Resolved" indicates the concern has been resolved during the preparation of this ISA. If a concern is "Unresolved" or "Resolved", include a statement explaining the planned next steps to resolve the issue. If no concerns were identified, select "No Issue".

For additional information regarding scheduling considerations, internal/external coordination and recommended practices for resolving hazmat issues please refer to TxDOT's *Environmental Tool Kit* web site.

Contact TxDOT ENV Hazardous Material Management (HMM) for additional assistance.

8.1 Identify Type of Hazardous Material Concerns

Resolution	Type of Concern
<input type="checkbox"/> Unresolved <input type="checkbox"/> Resolved <input checked="" type="checkbox"/> No Issue	Current or Past Land Use Concerns: These concerns are associated with hazardous material issues identified in Section 4 that <u>were not discovered during the database search in Section 5.1 or during the Site Survey in Section 6.1.</u> Note: <i>For ECOS IIR development, the Available Contaminated Media would be "Other".</i>

Explain Unresolved or Resolved Issues:

<input type="checkbox"/> Unresolved <input checked="" type="checkbox"/> Resolved <input type="checkbox"/> No Issue	Site Visit Concerns: These concerns are associated with hazardous material issues discovered following the completion of Section 6 that <u>were not previously discovered during the database search in Section 5.1 or during the current and past land use review in Section 4.</u> Note: <i>For ECOS IIR development, the Available Contaminated Media would be "Other".</i>
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Explain Unresolved or Resolved Issues:Resolved:

Pole-mounted electrical transformers located along various sections of the project do not pose an environmental concern for the project.

The presence of industry services and industrial businesses along the project, some not listed as regulatory sites, are considered a low environmental risk to the project.

<input type="checkbox"/> Unresolved <input type="checkbox"/> Resolved <input type="checkbox"/> No Issue <input checked="" type="checkbox"/> N/A	Interview Concerns: These concerns are associated with any hazardous material issues discovered during an interview listed in Section 7, <u>that were not previously discovered during the database search in Section 5.1, during the current and past land use review in Section 4, or during the Site Survey in Section 6.1.</u> Note: <i>For ECOS IIR development, the Available Contaminated Media would be "Other".</i>
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Explain Unresolved or Resolved Issues:

<input checked="" type="checkbox"/> Unresolved <input checked="" type="checkbox"/> Resolved <input type="checkbox"/> No Issue	Petroleum Storage Tanks (PSTs) Concerns discovered during the database search: PSTs are underground or aboveground storage tanks used to store fuel or other petroleum substances. Typically, these are found at gasoline and diesel refueling facilities. Select below all that apply.	
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ROW acquisition or partial acquisition of a parcel with one or more PSTs.
	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Other- Describe:
<p>Explain Unresolved or Resolved Issues: Unresolved: Five sites (Map IDs 11, 12, 16, 19, and 28) are determined to be a moderate environmental risk.</p> <p>Resolved: All remaining PST sites are determined to be a low environmental risk or not an environmental concern.</p> <p>All sites are discussed in Section 5.1 and the attached US 377 Hazardous Materials Project Impact Evaluation.</p>		
<input checked="" type="checkbox"/> Unresolved <input checked="" type="checkbox"/> Resolved <input type="checkbox"/> No Issue	Leaking Petroleum Storage Tanks (LPSTs) Concerns discovered during the database search: LPSTs are PSTs that have caused or are suspected to have caused a release of fuel or other petroleum substances to the environment.	
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Additional Research is needed or uncertain of impacts from one or more LPSTs. Request assistance from ENV.
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ROW acquisition or partial acquisition of a parcel with one or more LPSTs.
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	One or more LPSTs are located within 0.25 miles of the project.
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Other- Describe: Displacement of an LPST site.
<p>Explain Unresolved or Resolved Issues: Unresolved: Six sites (Map IDs 11, 12, 16, 26-LPST, 28, and Unlocated Site-Former Trade Post.) are determined to be a moderate environmental risk.</p> <p>Resolved: All remaining LPST sites are determined to be a low environmental risk or not an environmental concern.</p> <p>All of the sites are discussed in Section 5.1 and the attached US 377 Hazardous Materials Project Impact Evaluation.</p>		
<input type="checkbox"/> Unresolved <input checked="" type="checkbox"/> Resolved <input type="checkbox"/> No Issue	Oil and Gas Activity Concerns: TxDOT is concerned with the acquisition of oil and gas wells (and ancillary equipment) such as process, piping, production equipment, pipelines, etc. Select below all that apply.	
	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Additional Research needed or uncertain of impacts. Request assistance from ENV.
	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Database search identified TRRC VCP Site within 0.5 miles of project.
	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Oil/ Gas Wells within future ROW.
	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Spills or other Contamination Issues associated with ancillary equipment or pipelines.
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Other- Describe: Natural gas and HVL pipelines
<p>Explain Unresolved or Resolved Issues: Resolved: Five natural gas pipelines and one HVL pipeline transect the project. These features are not considered an environmental concern. Additional information regarding the pipelines is discussed in Sec. 5.2. Formal utilities location and advance planning would be required to facilitate pipeline and utilities adjustments and to otherwise avoid associated impacts. TxDOT Dallas District SUE Coordinator and ROW will be responsible for the adjustments and displacements.</p>		
<input checked="" type="checkbox"/> Unresolved <input checked="" type="checkbox"/> Resolved <input type="checkbox"/> No Issue	Non-LPST Source Contamination Concerns discovered during the database search: These are sites or locations that have a potential for soil and groundwater contamination and are not associated with LPST sites. Select below all that apply.	
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Additional Research is needed or uncertain of impacts from a Non-LPST site. Request assistance from ENV.
	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Database search identified SEMS Active NPL or Not NPL site(s) within 1 mile of the project. This may be identified on a database search as a CERCLIS or NPL site.
	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Database search identified SEMS Archived NPL or Not NPL site(s) within 0.5 miles of the project. This may be identified on a database search as a CERCLIS NFRAP.

<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Database search identified RCRA Corrective Action(s) site within 1 mile of project.
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Database search identified RCRA TSD facilities within 0.5 miles of project.
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Database search identified TCEQ IHW Corrective Action sites within 1 mile of project.
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Database search identified TCEQ Superfund sites within 1 mile of project.
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Database search identified TCEQ VCP sites within 0.5 miles of project.
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Database search identified TCEQ IOP sites within 0.5 miles of project.
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Other- Describe: ERNS, DCRPS, GWCC, RCRA Generators.

Explain Unresolved or Resolved Issues:

Unresolved: Two sites (Map IDs 26-IOP/GWCC and Map ID 30) are determined to be moderate environmental risks.

Resolved: All remaining Non-LPST sites are determined to be a low environmental risk or not an environmental concern.

All sites are discussed in Section 5.1 and the attached US 377 Hazardous Materials Project Impact Evaluation.

<input type="checkbox"/> Unresolved	Landfills/Waste Pits/Dump Site Concerns: These concerns are associated with any known or suspected (based on visual observations) landfills, dump sites, or waste pits. These concerns may appear on a database search as CALF or MSWLF site. Additionally, the local Council of Governments (COG) maintains a list of closed and open landfills in your project area. Select below all that apply.
<input type="checkbox"/> Resolved	
<input checked="" type="checkbox"/> No Issue	

<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Additional research is needed or uncertain of impacts. Request assistance from ENV.
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Database search identified active/closed/abandoned CALF or MSWLF landfill sites within .5 miles of the project.
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Other- Describe:

Explain Unresolved or Resolved Issues:

8.3 Did the ISA identify any Unresolved Hazardous Material concerns?

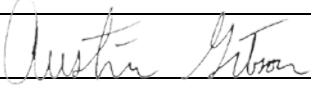
No, unresolved hazardous materials concerns were identified and/or all potential concerns were resolved within the ISA. No further hazardous materials action is required. The ISA is complete for this project. Any unanticipated hazardous materials impacts encountered during the project construction phase shall be addressed in accordance with regulatory requirements and TxDOT standard specifications. Complete Sections 9 and 10 and maintain a copy of the ISA and all applicable attachments in the project file.

Yes, the ISA identified one or more unresolved hazardous materials concerns requiring additional investigations or assessments. An Issues, Identification, and Resolution (IIR) form shall be completed in ECOS to track the additional investigations and assessments. Complete Sections 9 and 10 and maintain a copy of the ISA and all applicable attachments in the project file.

Section 9: Reference Materials Utilized (Identify any referenced materials and attach them to the ISA or in the project file.

Referenced Materials Used	<input checked="" type="checkbox"/> Project Map	<input checked="" type="checkbox"/> USGS Topo Maps	<input checked="" type="checkbox"/> Aerial Photographs
	<input type="checkbox"/> ROW Maps/Files	<input type="checkbox"/> Sanborn Fire Insurance Maps	<input type="checkbox"/> Temporary Use Agreements
	<input type="checkbox"/> TxDOT As-Built Plans	<input type="checkbox"/> Notifications	<input checked="" type="checkbox"/> Photographs
	<input checked="" type="checkbox"/> Project Schematics/Profiles	<input checked="" type="checkbox"/> Regulatory Database	<input type="checkbox"/> Record of Interviews
	<input checked="" type="checkbox"/> Other: Hazardous Materials Site Map, Pipeline Information		

Section 10: Contact/Completed by

Name:	Austin Gibson, C. Hagar	Tel: (214) 703-5151
Title:	Environmental Scientist	
Firm (District Section):	Civil Associates, Inc.	
Address:	9330 LBJ Freeway, Suite 1150, Dallas, TX 75243	
Signature:		Date: May 29, 2020

Appendix A

The following table shows the revision history for this guidance document.

Revision History	
Effective Date	Reason for and Description of the Change
December 2019	<p>Version 6</p> <p>Updated NEPA assignment disclaimer language to reflect first renewed NEPA assignment MOU date of December 9, 2019.</p>
April 2017	<p>Version 5</p> <p>The cover page has additional fields related to specific project information. This is added to personalize the ISA to a project.</p> <p>Section 2 was modified to acknowledge that asbestos or lead-in-paint issues might exist on our construction projects, but the identification and resolution to these issues are outside of the ISA process and are handled programmatically by TxDOT (usually in CST or the ROW processes).</p> <p>Section 3 was modified by adding an additional screening option. You are now able to screen out of performing a full ISA if your project meets the parameters described.</p> <p>Section 6 was reformatted to remove the numerous selections related to the Possible Site Survey Concerns. Additionally, redundant questions were removed to make the section easier to use. Under the new format, the preparer is required to insert the survey dates and a description of what was identified during the survey.</p> <p>Minor changes were made to terminology throughout the ISA, this was performed to clarify and streamline the process.</p> <p>Section 8.1 has been modified to provide resolution to potential hazardous materials issues that can be resolved easily during the ISA process. Additionally, a comment field was added to provide direction related to issues requiring further action to resolve. This will streamline the process in reducing the amount of IIR entries requires in ECOS and will reduce the time required to review a project.</p>
June 2016	<p>Version 4</p> <p>Modifications to Section 5: Web links and database names were modified based on changes made by regulatory agency websites.</p>
October 2014	<p>Version 3</p> <p>Modifications to Section 2: Clarified this section to better define what are asbestos and lead-in-paint concerns. Changes were made due to numerous comments from the end-user.</p> <p>An additional note was added to this section. This note directs end-users to ENV-HMM for further assistance related to lead-in-paint issues.</p> <p>Modifications to Section 3: The question concerning Project Excavations in Section 3.1 was modified to match the definition used in Scoping Procedure for Categorically Excluded TxDOT Projects for Hazardous Materials found in the NEPA and Project Development Toolkit.</p> <p>Modifications to Section 5: Web links were modified based on changes made by regulatory agency websites.</p>

	Modifications to 8.2: Clarified the “Yes” answer in 8.2 to remove the need for additional assessments for all identified hazardous materials concerns. The question was modified due to comments by the end-user.
August 2014	Version 2 Removed introductory note describing ISA threshold criteria. Note was removed because the ISA threshold criteria are located in other TxDOT guidance.
April 2014	Version 1 Released

ATTACHMENTS

The following have been attached to this report:

Attachment 1: US 377 Hazardous Materials Project Impact Evaluation (10 sheets)

Attachment 2: Project Location Map

Attachment 3: USGS Topographic Map

Attachment 4: Hazardous Materials Site Map (16 sheets)

Attachment 5: Hazardous Materials Sites Project Photographs (10 sheets)

Attachment 6: US 377 Project Design Schematic (31 sheets)

Attachment 7: US 377 Regulatory Database Report (338 sheets)

Attachment 8: Other Documentation – Central Registry & Pipeline Attributes (9 sheets)

Section 1.0 Introduction

The presence of hazardous materials within a project study area can create issues affecting right-of-way (ROW) acquisition, project development, and construction. This Hazardous Materials Project Impact Evaluation Report identifies the potential hazardous materials concerns as they relate to project construction and/or ROW acquisition for concerns identified by the project Hazardous Materials Initial Site Assessment (ISA).

Section 2.0 Project Description

The proposed project consists of the reconstruction and widening of a 13.747-mile long section of US 377 from US 380 to north of BUS 377E. The project would widen the existing 2-lane, undivided, rural roadway to a 6-lane, divided, urban roadway with a raised median. The proposed improvements consist of two 12-foot-wide travel lanes and one 14-foot-wide outside shared-use lane with curb and gutter in each direction separated by a variable width raised median. There would be 5-foot wide sidewalks along each side of the roadway except on the west side of US 377 parallel to the Union Pacific Railroad. American Disabilities Act (ADA) curb ramps would be located at all sidewalk intersections. Proposed drainage would be conveyed into a storm sewer system and culvert crossings. Three bridge class culverts will also be replaced. Other improvements would include realigning the intersections of BU 377 S. at US 377 and FM 424 at US 377. The proposed project would require 63.2 acres of additional right of way (ROW), 1.8 acres of permanent drainage easements, and would have a typical ROW width of 140 ft. Refer to the attached **Project Location Map** and the **Project Location on United States Geological Survey (USGS) Topographic Map**.

Section 3.0 Sites with Potential Hazardous Materials Concerns

An ISA was prepared to identify sites of potential hazardous materials concerns within the project study area. The components of the ISA included reviewing project design and ROW requirements, reviewing existing and previous land use, reviewing federal and state regulatory databases and files, conducting project site visits or field investigations, and conducting interviews, if possible.

As part of the ISA, a review of selected environmental regulatory databases published by federal and state agencies was conducted to determine the potential for hazardous material issues within and near the project study area. A review of the regulatory database reports dated April 8, 2020 was performed in general accordance with the ASTM Standard E1527 and TxDOT guidelines, which defines the environmental record sources to be reviewed and their minimum search distances from the project study area.

The **Hazardous Materials Sites Map** attachment to this report identifies the potential hazardous materials concerns on an aerial base map.

Section 4.0 Evaluation of Unresolved Potential Hazardous Materials Concerns

Each “unresolved” hazardous material concern identified by the ISA was evaluated for the following:

- Site name, address, and parcel number (if available)
- Database or discovery tool (ex: LPST, site survey, current/past land use, etc.)
- Regulatory identifier (i.e., database or regulatory number or other identifier used by regulatory agency)
- Potential ROW requirements from affected parcels
- Description of site and any potential hazardous material concerns on affected parcel
- Potential impact to the project related to hazardous material concerns

The evaluations will draw conclusions about potential impacts for each concern identified during preparation of the ISA within a category as follows:

1. Low Potential or No Potential Project Impacts (Green): The issue has a low potential to affect the proposed project and no further investigations are required.
2. Possible Project Impacts (Yellow): The issue has a moderate potential to affect the proposed project. Not enough information is currently known about the project and/or issue to determine potential impacts. Further investigation, and/or additional project design and right-of-way information, is required.
3. Anticipated Project Impacts (Red): The issue has a high potential to impact the proposed project and further investigations, coordination, or contingencies may be required.

The regulatory sites are associated with automotive gasoline/service stations, drycleaners, industry services, and industrial businesses. The presence of petroleum storage tanks and generation of hazardous waste adjacent to the proposed project represent a potential risk for encountering soil and groundwater contamination during the construction phase of the project (Refer to **Table 1**).

See **Figure 4** for the location of identified regulatory database sites and facilities and graphical evaluation of potential issues of concern. The mapped sites are classified in accordance with the criteria shown above.

Nine regulatory sites were determined to be moderate environmental risk to the project. **Table 1** presents a summary of hazardous materials sites associated with the proposed US 377 Project.

US 377 HAZARDOUS MATERIALS PROJECT IMPACT EVALUATION

Table 1: 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
7	Pilot Point Tiger Mart 49 1800 N. Highway 377 Pilot Point, TX 76258 Photo: 1	Adjacent NWC of US 377 at Business US 377 Proposed ROW Acquisition	PST	The site is an active gas station utilizing one single-wall composite, 20,000-gallon gasoline and one single-wall composite, split-tank 20,000-gallon gasoline/diesel underground PSTs, both installed in 2005. The tank hold is approx. 103 ft. west of proposed ROW on the east side of the property. No releases have been reported for the facility. According to the TCEQ Central Registry, no violations, commissioners' enforcement actions, or effective enforcement orders have been reported. Proposed work activity for this area includes widening US 377 and realigning Business US 377. Based on the distance of proposed ROW from the tank hold and no reported releases, this site is considered a low environmental risk to the project.	Low
9	Allsup's 313 1153 US Highway 377 Pilot Point, TX 76258 Photo: 2	Adjacent E. of US 377, S. of Holiday St.	PST	The site is an active gas station utilizing two single-wall, composite, 10,000-gallon gasoline and one single-wall, composite, 10,000-gallon diesel underground PSTs, all installed in 1987. The tank hold is adjacent southeast of existing ROW. No releases have been reported for the facility. According to the TCEQ Central Registry, no violations, commissioners' enforcement actions, or effective enforcement orders have been reported. No ROW would be acquired from this site. Proposed work activity for this area includes widening US 377. Based on the absence of ROW acquisition and no reported releases, this site is considered a low environmental risk to the project.	Low
11	Sunny Mart 1293 S. Highway 377, Ste. 100 Pilot Point, TX 76258 (Formerly Hampton's Kwik Mart) Photo: 3	Adjacent E. of US 377, S. of Business US 377 Proposed Full Displacement	LPST PST (2)	The site is an active gas station utilizing one single-wall, steel, 10,000-gallon gasoline, one single-wall, steel, 6,000-gallon gasoline, and one single-wall steel 4,000-gallon diesel underground PSTs, all installed in 1985. The site formerly utilized two 2,000-gallon diesel and one 2,000-gallon, contents not reported, underground PSTs, all installed in 1965 and removed from the ground in 1992. The existing tank hold, pump islands, and canopy are within proposed ROW and would be displaced. A release was reported on 6-24-92. The database reports minor soil contamination – does not require a Response Action Plan. The TCEQ issued final concurrence on 11-9-92 and the case is closed. Proposed work activity for this area includes widening US 377 and realigning Business US 377. Based on proposed full displacement including the tank hold, pump islands, and canopy, the age of the tanks, and release history, this site is considered a moderate environmental risk to the project.	Moderate

US 377 HAZARDOUS MATERIALS PROJECT IMPACT EVALUATION

Table 1: 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
12	<p>Jerry's Beverage City</p> <p>1225 N. Highway 377 Pilot Point, TX 76258</p> <p>Photo: 4</p>	<p>Adjacent SEC of US 377 at Production Rd.</p> <p>Proposed ROW Acquisition</p>	<p>LPST PST GWCC</p>	<p>The site is an active gas station utilizing one double-wall, composite, 10,000-gallon gasoline and one double-wall, composite, 10,000-gallon split diesel/gasoline, underground PSTs, both installed in 1993. The tank hold is situated approx. 30 ft. southeast of proposed ROW to be acquired from the northwest corner of the site. A release was reported on 10-7-09. Groundwater is reported as impacted with gasoline and no apparent receptors were impacted; however, additional information is not provided. The TCEQ issued final concurrence on 12-4-09 and the case is closed. The TCEQ Central Registry reports a complaint was received on 1-20-10 regarding bad fuel with the assumption that the tank was leaking. The complaint was investigated and a Notice of Violation (NOV) was issued on 2-12-10 for "failure to maintain corrosion protection on all underground metal components of an underground storage tank (UST) system." The violation was resolved on 3-24-10 and the status is closed. Proposed work activity for this area includes widening US 377. Based on the proposed ROW acquisition from the site, the location of the tank hold, the nature of the violation, and the former release, this site is considered a moderate environmental risk to the project.</p>	Moderate
16	<p>Edgar's Shell</p> <p>100 N. Highway 377 Krugerville, TX 76227</p> <p>Photo: 5</p>	<p>Adjacent NWC of US 377 at Baseline Rd.</p> <p>Proposed ROW Acquisition</p>	<p>LPST PST GWCC</p>	<p>The site is an active gas station utilizing one single-wall, steel 10,000-gallon gasoline, and two single-wall, steel, 4,000-gallon gasoline underground PSTs, all installed in 1980. The tank hold is situated adjacent southeast of proposed ROW at the northwest corner of the property. A release was reported 7-3-06. Groundwater is reported as impacted and monitoring was performed through at least 2009. The TCEQ issued final concurrence on 7-5-10 and the case is closed. Proposed work activity for this area includes widening US 377. Based on the proposed ROW acquisition from the site, the location of the tank hold, and the former release, this site is considered a moderate environmental risk to the project.</p>	Moderate

US 377 HAZARDOUS MATERIALS PROJECT IMPACT EVALUATION

Table 1: 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
19	<p>Gunsmoke Grill (TCEQ: Clampitt Country Store) 5065 US Highway 377, Krugerville, TX 76227</p> <p>Photo: 6</p>	<p>Adjacent W of US 377</p> <p>Proposed ROW Acquisition</p>	PST	<p>This site, currently a vacant lot situated approx. 220 ft south of Fieldcrest Dr, was a former gas station facility.</p> <p>Historic aerials show a structure at this location from at least 1981 to 2015. Denton CAD was used to confirm the location (DCAD ID 52057) for the former gas station using the responsible party's/owner name and affiliation customer names shown on TCEQ information.</p> <p>The facility formerly utilized one 6,000-gallon and one 12,000-gallon, contents not reported, underground PSTs (PST ID 67988) that were registered in 1987 and listed as temporarily out of service as of 1989. No releases are reported for the facility. ROW will be acquired from this property for the widening of US 377. Based on ROW acquisition, no information on tank removal, and unknown location of the former tank hold, this site is considered a moderate environmental risk to the project.</p>	Moderate
20	<p>Evan's Stop N Go</p> <p>110 N. Highway 377 Pilot Point, TX 76258</p> <p>Photo: 7</p>	<p>Adjacent NWC of US 377 at E. Liberty St. (FM 1192)</p> <p>Proposed ROW Acquisition</p>	LPST PST	<p>The site is an active gas station utilizing one double-wall, steel, 12,000-gallon gasoline and one double-wall, steel, 12,000-gallon split diesel/gasoline underground PSTs, both installed in 1997. The site formerly utilized two 6,000-gallon gasoline underground PSTs, installed in 1978, and one 4,000-gallon diesel underground PST, installed in 1983. All three former PSTs were removed from the ground in 1996. The tank hold is situated approx. 25 ft. from proposed ROW along US 377. A release was reported 6-28-96 upon tank closure. The database reports "no groundwater impact, no apparent threats or impacts to receptors." The TCEQ issued final concurrence on 8-5-96 and the case is closed. Proposed work activity for this area includes widening US 377 and improvements with FM 455/FM 1192. Based on no groundwater impact from the prior release, no additional reported releases, and no significant excavations occurring adjacent to the facility or tank hold, this site is considered a low environmental risk to the project.</p>	Low

US 377 HAZARDOUS MATERIALS PROJECT IMPACT EVALUATION

Table 1: 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
22	<p>Frank Bartel Trucking</p> <p>7401 Highway 377 Aubrey, TX 76227</p> <p>Photo: 8</p>	<p>Adjacent SWC of US 377 at Dr Griffin Rd.</p> <p>Proposed ROW Acquisition</p>	PST	<p>This site currently utilizes one steel, 10,000-gallon, diesel aboveground PST with concrete containment, installed in 1989. Based on aerial imagery the aboveground PST is situated approx. 400 ft west of proposed ROW. A complaint was received on 8-2-16 regarding diesel fuel regularly being spilled during refueling. Upon investigation on 8-3-16, a Notice of Violation (NOV) was issued on 8-11-16 for "failure to contain and immediately clean up a spill or overflow of a petroleum substance from an AST that is less than 25 gallons." The status is listed as resolved. Proposed work activity for this area includes widening US 377 and realigning Dr Griffin Rd. Based on the distance of ROW acquisition from the PST and the type of PST (aboveground), this site is considered a low environmental risk to the project.</p>	Low
26	<p>Stephen's Fuel Center</p> <p>442 S. Highway 377 Pilot Point, TX 76258</p> <p>Photo: 9</p>	<p>Adjacent W. of US 377, S. of E. Liberty St. (FM 1192)</p>	LPST PST	<p>The site is an active gas station utilizing one double-wall, composite, 40,000-gallon split gasoline/diesel underground PST installed in 2006. A release was reported 4-19-11. Groundwater was reported as impacted with gasoline and monitoring through 2019. At least one free product recovery event occurred in 2012. TCEQ issued final concurrence on 3-6-19 and the case is closed. The groundwater contamination case (GWCC), historic groundwater contamination (HISTGWCC) case, and violation are related to the April 2011 reported release. The tank hold is approx. 30 ft northwest of existing ROW. Proposed improvements adjacent to this facility include widening of US 377. Although ROW is not proposed from this facility, based on the recent LPST activity that included groundwater impact, this facility is considered a moderate environmental risk to the project.</p>	Moderate
26	<p>Stephen's Supermarket</p> <p>444 S. Highway 377 Pilot Point, TX 76258</p> <p>Photo: 9</p>	<p>Shopping Center Property - Adjacent W; Supermarket Bldg – 230 ft NW</p>	GWCC (2) IOP	<p>This site is a grocery store. Historic aerials show this structure at this location from at least 1981. Denton CAD identifies the grocery store structure was built in 1975. The grocery store building was added onto with the current full shopping center strip in 1982 and 1985 according to Denton CAD.</p> <p>A Phase I ESA and Phase II LESA were performed on the grocery store property in 2013 and 2014, respectively. An IOP application was also submitted in 2014. IOP information states 1.543 acres has groundwater impact of TPH and tetrachloroethylene. The source of contamination is listed as Moore Cleaners (Map ID 30). An Innocent Owner Certificate was issued to the grocer 1-14-20. Proposed improvements adjacent to this property include widening of US 377. Although ROW is not proposed from this property, based on the extent of groundwater impact from the dry cleaner, this site is considered a moderate environmental risk to the project.</p>	Moderate

US 377 HAZARDOUS MATERIALS PROJECT IMPACT EVALUATION

Table 1: 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
28	<p>Chaparral Plaza</p> <p>704 S. Highway 377 Aubrey, TX 76227</p> <p>Photos: 12 & 13</p>	<p>Adjacent SWC of US 377 at Spring Hill Rd. (FM 428)</p> <p>Proposed ROW Acquisition</p>	<p>LPST PST (2)</p>	<p>The site is an active gas station utilizing one single-wall, steel, 8,000-gallon gasoline, one single-wall, steel, 6,000-gallon gasoline, one single-wall, steel, 10,000-gallon gasoline, and one single-wall, steel, 6,000-gallon diesel underground PSTs, all installed in 1984. The tank hold is situated approx. 100 ft. south of proposed ROW and 45 ft southwest of existing ROW. A monitor well was observed on the site approx. 15 feet east of the tank hold. The facility also formerly utilized one 2,000-gallon gasoline aboveground PST, but is reported as out of use as of November 1991. A release was reported on 3-25-02. The database reports "groundwater impacted, no apparent threats or impacts to receptors." The TCEQ issued final concurrence on 11-16-04 and the case is closed. The TCEQ Central Registry reports a Commissioners' Enforcement Action issued on 2-27-18. The status is reported as "active" and no other information is provided. Proposed work activity for this area includes widening US 377 and intersection improvements at Spring Hill Rd. Based on the proximity of the tank hold to existing ROW, the age of the tanks, and release history with an active enforcement order, this site is considered a moderate environmental risk to the project.</p>	<p>Moderate</p>
29	<p>Circle K Store 2741876</p> <p>7500 S. Highway 377 Aubrey, TX 76227</p> <p>Photo: 14</p>	<p>Adjacent E. of US 377 and W. of FM 424</p> <p>Proposed ROW Acquisition</p>	<p>PST</p>	<p>The site is an active gas station utilizing one double-wall, composite, 19,782-gallon gasoline and one double-wall, composite, 16,742-gallon split diesel/gasoline underground PSTs both installed in 2016. The tank hold is approx. 35 ft. east of proposed ROW along US 377, and approx. 60 ft. from proposed ROW along FM 424. ROW acquisition is proposed for the north, east and west sides of the site. According to the TCEQ Central Registry, no reported releases, no violations, commissioners' enforcement actions, or effective enforcement orders have been reported. Proposed work activity adjacent to this facility includes widening of US 377 and FM 424 and realignment of the intersection of US 377 with FM 424 and Dr Griffin Rd. Based on no reported releases and the age of the tanks, this facility is considered a low environmental risk to the project.</p>	<p>Low</p>

US 377 HAZARDOUS MATERIALS PROJECT IMPACT EVALUATION

Table 1: 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
30	Moore Cleaners & Laundry 424 N. Highway 377 Pilot Point, TX 76258 Photo: 15	Shopping Center Property - Adjacent W; Drycleaner Bldg – 350 ft NW	DCRPS DCR RCRAGR06	The facility is currently an active drycleaner. The facility performed onsite drycleaning from 2003 to 2010 changing to a drop station in 2011. According to the TCEQ Central Registry, the DCRP application began on 6-11-18 and is undergoing assessment. The site was a large quantity generator (updated 9-2-00) of tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2, trichloroethane. Although this site has only just begun the release assessment, contaminants have been identified as migrating based on the IOP at the adjacent Stephen's Supermarket (Map ID 26). Proposed work activity for this area includes widening US 377. Based on the active status of the site and known contaminant migration, the site is considered a moderate environmental risk to the project.	Moderate
31	US 380 Travel Center 6500 US Highway 380, Cross Roads, TX 76227 Photo: 16	Adjacent N of US 380	PST	This site is an active gas station utilizing one 20,000-gallon gasoline and one 20,000-gallon diesel underground PSTs, both installed in 2002. No releases are reported for the facility. The tank hold is situated approx. 100 ft northeast of project improvements. No ROW will be acquired from this property. Proposed improvement adjacent to this facility includes widening of the US 380 northbound ramp to US 377. Based on no reported releases, distance of the tank hold from project improvements, and minimal work activity adjacent to this facility, this site is considered a low environmental risk to the project.	Low

Table 1: 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
N/A	<p>Pennington Tire Company</p> <p>107 US 377 Aubrey, TX 76227</p> <p>Photo: 17</p>	Adjacent NWC US 377 at De Moye Ln.	LPST PST	<p>The site was listed as an Unlocatable site on the regulatory database report. A search on Denton CAD online for “Pennington” owner identified a site with the addresses of 101 and 107 N US 377 and the 107 address was listed as DBA “Pennington Tire Co”. This location was identified at the northwest corner of US 377 and De Moye Ln and is operating as Pennington Tire and Farms. The site formerly utilized one 6,000-gallon gasoline and one 4,000-gallon gasoline underground PSTs installed in 1977, one 2,000-gallon gasoline underground PST installed in 1979, all removed from the ground in 1998. The facility had also utilized one 4,000-gallon diesel, aboveground PST with no containment installed in 1982 and reported as out of use as of 1990. A release was reported on 1-6-99 after tank closure. The database reports “no groundwater impact, no apparent threats or impacts to receptors.” The TCEQ issued final concurrence on 5-11-00 and the case is closed. According to the TCEQ Central Registry, no violations, commissioners' enforcement actions, or effective enforcement orders have been reported. No ROW would be acquired from the site. Proposed work activity for this area includes widening US 377. Based on the absence of ROW acquisition from the site, tank removal, and LPST closure, this site is considered a low environmental risk to the project.</p>	Low
N/A	<p>Former Trade Post/ Abandoned Service Station</p> <p>5335 US 377 Krugerville, TX 76227</p> <p>Photo: 18</p>	Adjacent W of US 377, S of Baseline Rd	LPST PST	<p>The site was listed as an Unlocatable site on the regulatory database report. Comparing PST dates to historic aerials, Denton CAD information, and current properties in Krugerville along US 377, the former gas station facility was identified at address 5335 US 377, which was observed to be an abandoned gas/service station type building. DCAD identifies the structure was built in 1980.</p> <p>The site formerly utilized two 4,000-gallon gasoline and one 280-gallon used oil underground PSTs that were registered in 1987 and removed from the ground in 1996.</p> <p>A release was reported on 11-10-95. Groundwater was impacted and monitoring performed from 1996 through 2004. At least four phase-separated hydrocarbon removal events occurred from 2000 to 2004. Final concurrence was issued 3-4-05 and the case is closed. No ROW is proposed from this property. Proposed work activity adjacent to this site is widening of US 377. Based on the LPST information, this site is considered a moderate environmental risk to the project.</p>	Moderate

Proposed Next Steps

Based on nine sites being potential moderate environmental risks, the following additional investigation and/or research is warranted.

1. Review of TCEQ data files, facility and property owner/operations records;
2. Interviews with current and past property owners/operators and adjoining property owners;
3. Review of final design, ROW acquisition and construction details to determine exactly where soil disturbance will occur.

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 as well as the areas with planned construction involving soil removal and/or groundwater dewatering during construction.

Combined with the understanding of the depth and area of potential disturbance and history of site operations of concern, a plan for soil and groundwater testing could be developed as warranted. Using these results, the level of past and estimated potential contamination at each of the sites with unresolved potential hazardous materials concerns could be understood.

Should unanticipated hazardous materials/substances be encountered during construction, TxDOT and/or the contractor would be notified and steps would be taken to protect personnel and the environment. Any unanticipated hazardous materials 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. All construction materials used for the proposed project would be removed as soon as the work schedules permit. The contractor would initiate early regulatory agency coordination during project development.

The **Hazardous Materials Sites Map** attachment displays each potential concern (resolved or unresolved) identified by the ISA and includes the following information:

- Property buildings and other real property with project schematics overlay.
- Current and proposed ROW
- Potential hazardous material concern property color coded with their respective low, medium, or high-risk level.
- Each potential concern will include identified name and associated Map ID number

For additional project details, refer to the **Project Location on USGS Topographic Map**, **Project Design Schematic** and **Hazardous Materials Project Photographs** attachments.

Hazardous Materials Site Map

United States (US) 377

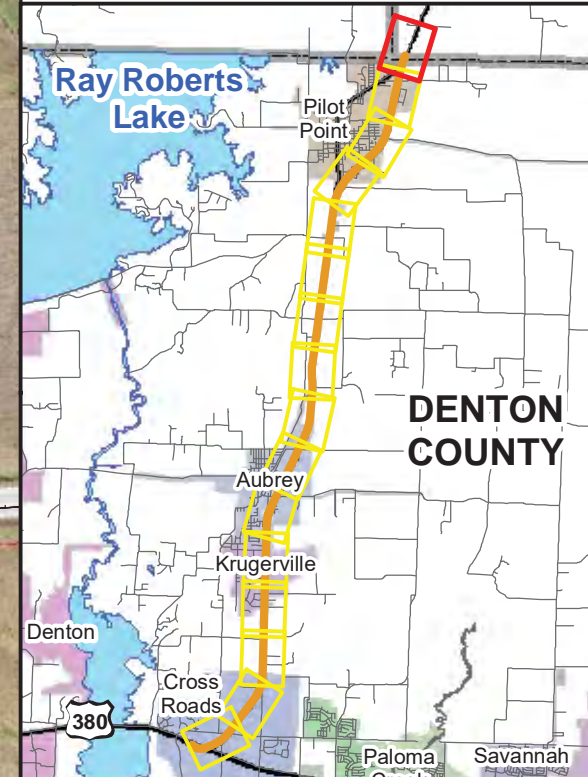
From North of BUS 377E

To US 380

Denton County, Texas

CSJ: 0081-06-040

Page 1 of 16



Legend

- Proposed Right-of-Way
- Proposed Easement
- Existing Right-of-Way
- Pipelines
- Anticipated Project Impacts
- Possible Project Impacts
- Low Potential or No Potential for Project Impacts

Basemap Source: TNRIS (2018)

Hazardous Materials Site Map

United States (US) 377

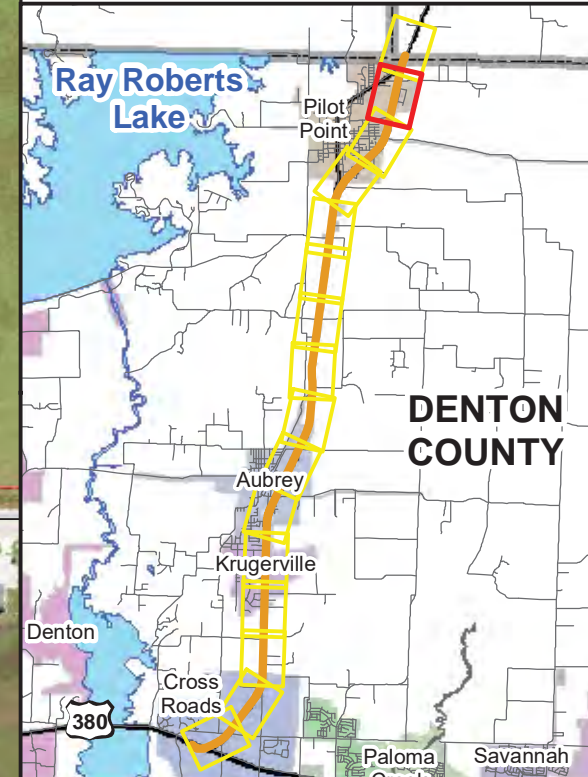
From North of BUS 377E

To US 380

Denton County, Texas

CSJ: 0081-06-040

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Legend

- Proposed Right-of-Way
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Basemap Source: TNRIS (2018)

Hazardous Materials Site Map

United States (US) 377

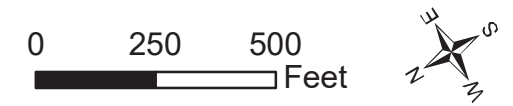
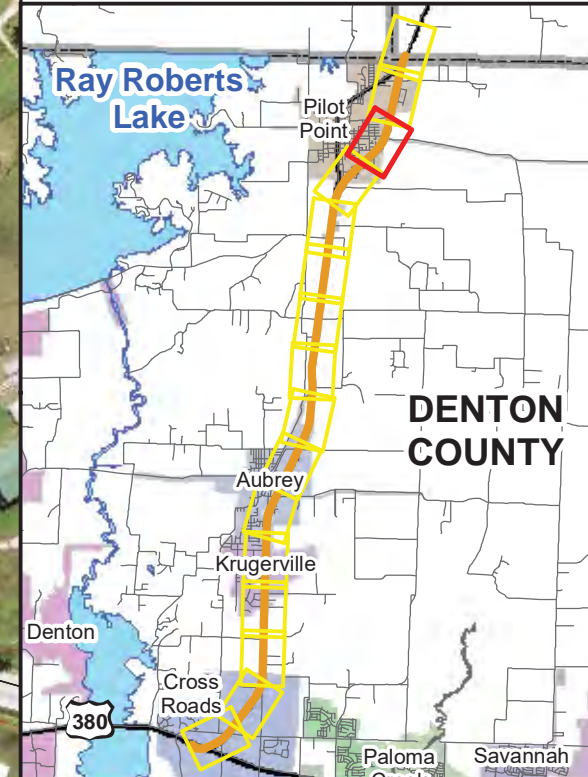
From North of BUS 377E

To US 380

Denton County, Texas

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Legend

- Proposed Right-of-Way
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Basemap Source: TNRIS (2018)

Hazardous Materials Site Map

United States (US) 377

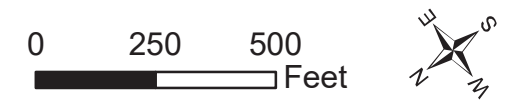
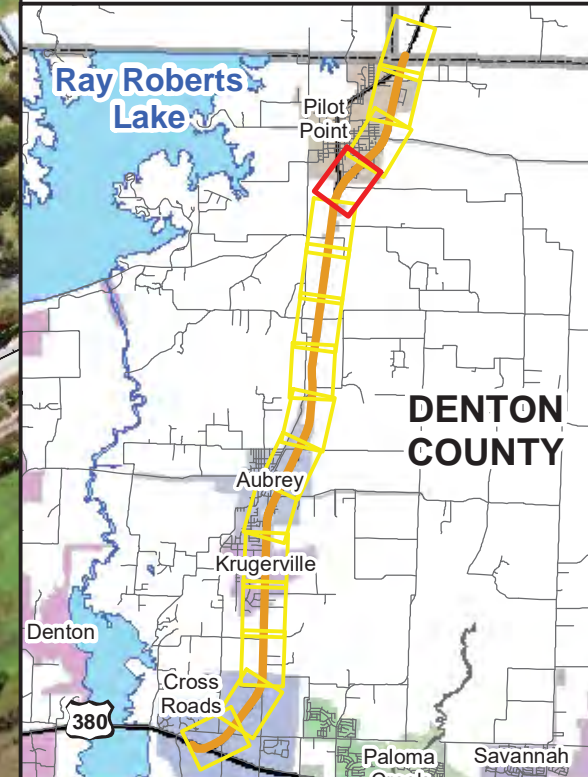
From North of BUS 377E

To US 380

Denton County, Texas

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Legend

- Proposed Right-of-Way
- Proposed Easement
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- Anticipated Project Impacts
- Possible Project Impacts
- Low Potential or No Potential for Project Impacts

Basemap Source: TNRIS (2018)

Hazardous Materials Site Map

United States (US) 377

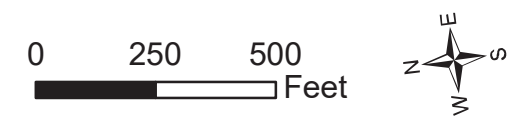
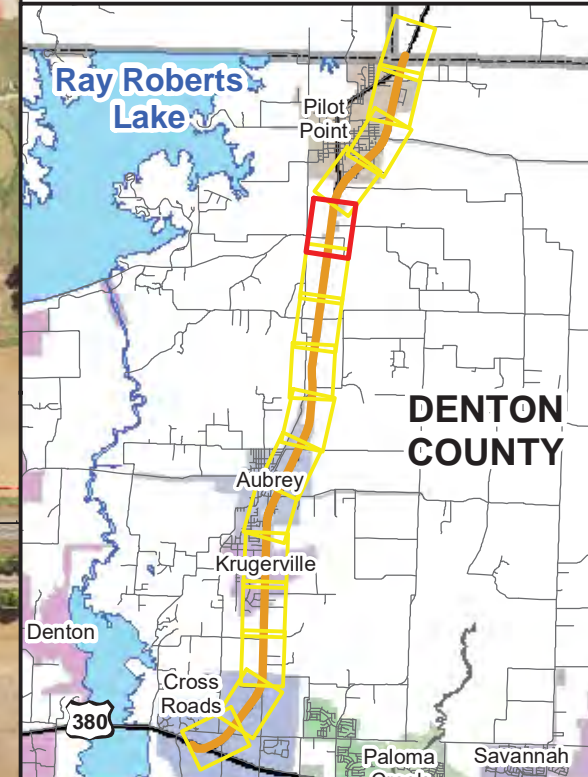
From North of BUS 377E

To US 380

Denton County, Texas

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Legend

- Proposed Right-of-Way
- Proposed Easement
- Existing Right-of-Way
- Pipelines
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- Possible Project Impacts
- Low Potential or No Potential for Project Impacts

Basemap Source: TNRIS (2018)

Hazardous Materials Site Map

United States (US) 377

From North of BUS 377E

To US 380

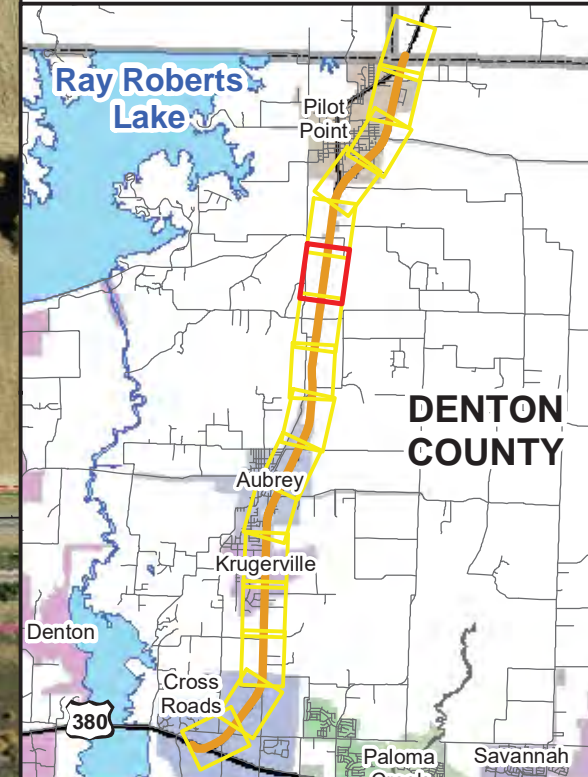
Denton County, Texas

CSJ: 0081-06-040

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Natural Gas Pipeline
36" Diameter
Operated by
Enterprise Products Operating LLC



0 250 500 Feet



Legend

- Proposed Right-of-Way
- Proposed Easement
- Existing Right-of-Way
- Pipelines
- Anticipated Project Impacts
- Possible Project Impacts
- Low Potential or No Potential for Project Impacts

Basemap Source: TNRIS (2018)

Hazardous Materials Site Map

United States (US) 377

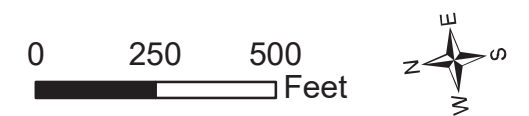
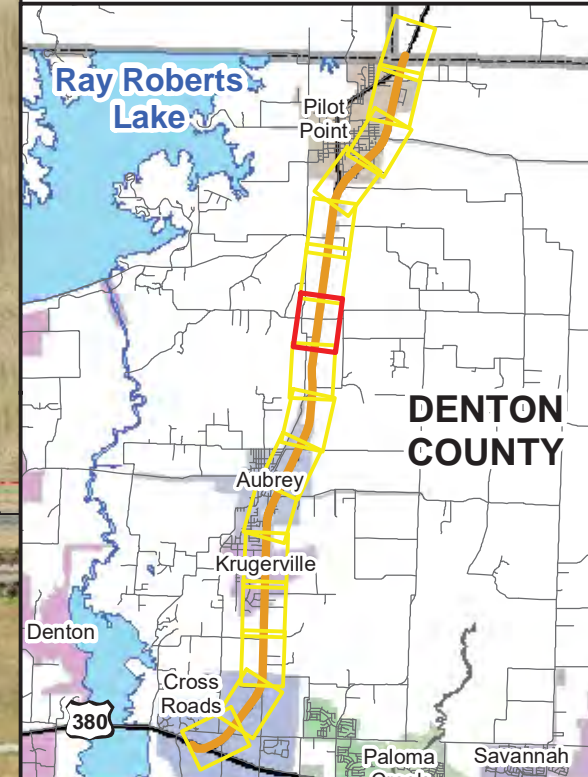
From North of BUS 377E

To US 380

Denton County, Texas

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Legend

- Proposed Right-of-Way
- Proposed Easement
- Existing Right-of-Way
- Pipelines
- Anticipated Project Impacts
- Possible Project Impacts
- Low Potential or No Potential for Project Impacts

Basemap Source: TNRIS (2018)

Hazardous Materials Site Map

United States (US) 377

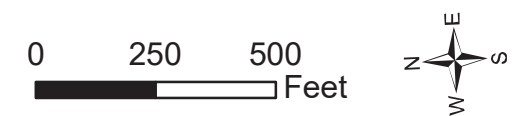
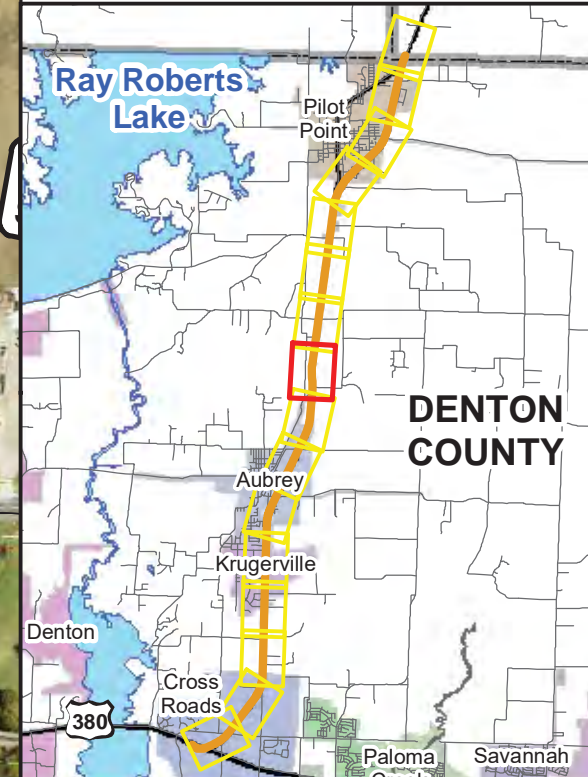
From North of BUS 377E

To US 380

Denton County, Texas

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Legend

- Proposed Right-of-Way
- Proposed Easement
- Existing Right-of-Way
- Pipelines
- Anticipated Project Impacts
- Possible Project Impacts
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Basemap Source: TNRIS (2018)

Hazardous Materials Site Map

United States (US) 377

From North of BUS 377E

To US 380

Denton County, Texas

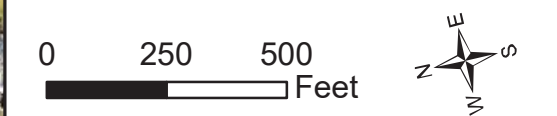
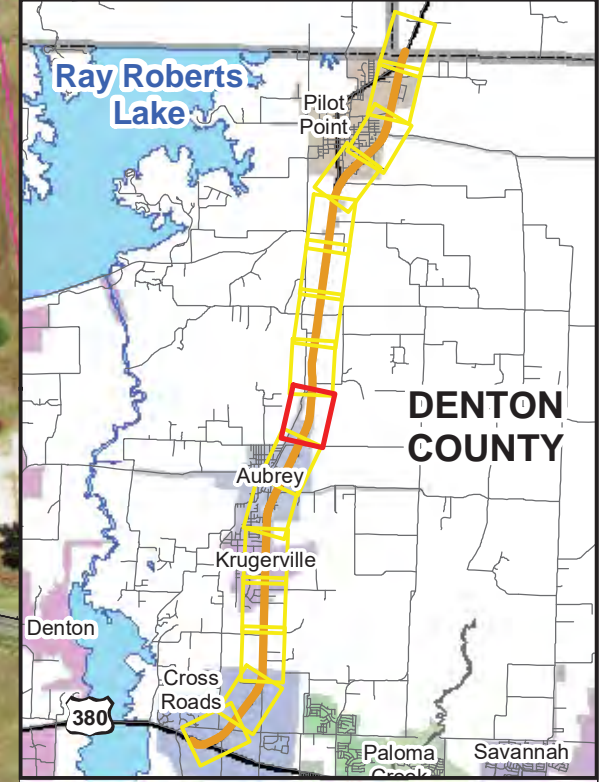
CSJ: 0081-06-040

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8: Twin Cities South Trailers

Natural Gas Pipeline
24" Diameter
Operated by
Atmos Pipeline - Texas



- Legend**
- Proposed Right-of-Way
 - Proposed Easement
 - Existing Right-of-Way
 - Pipelines
 - Anticipated Project Impacts
 - Possible Project Impacts
 - Low Potential or No Potential for Project Impacts

Basemap Source: TNRIS (2018)

Hazardous Materials Site Map

United States (US) 377

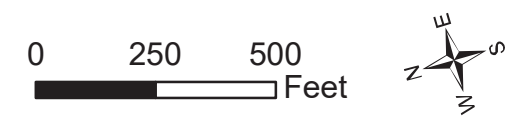
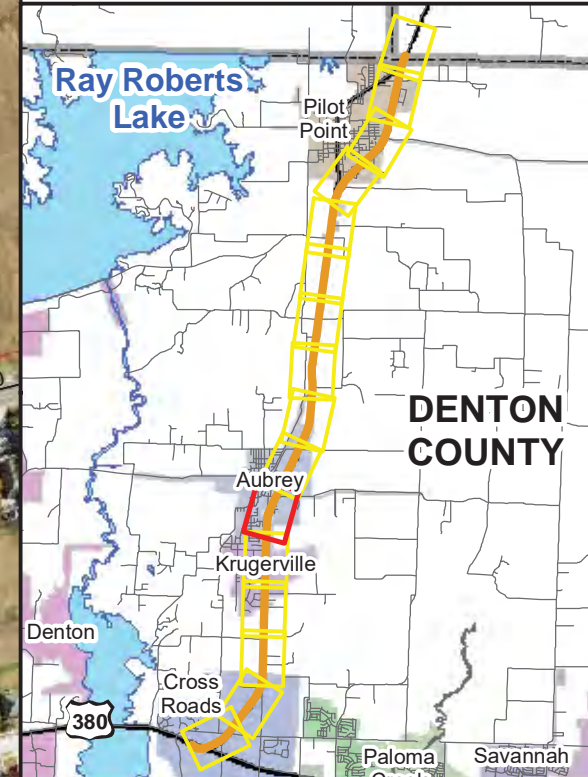
From North of BUS 377E

To US 380

Denton County, Texas

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Legend

- Proposed Right-of-Way
- Proposed Easement
- Existing Right-of-Way
- Pipelines
- Anticipated Project Impacts
- Possible Project Impacts
- Low Potential or No Potential for Project Impacts

Basemap Source: TNRIS (2018)

Hazardous Materials Site Map

United States (US) 377

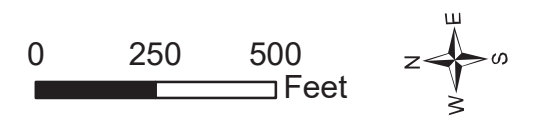
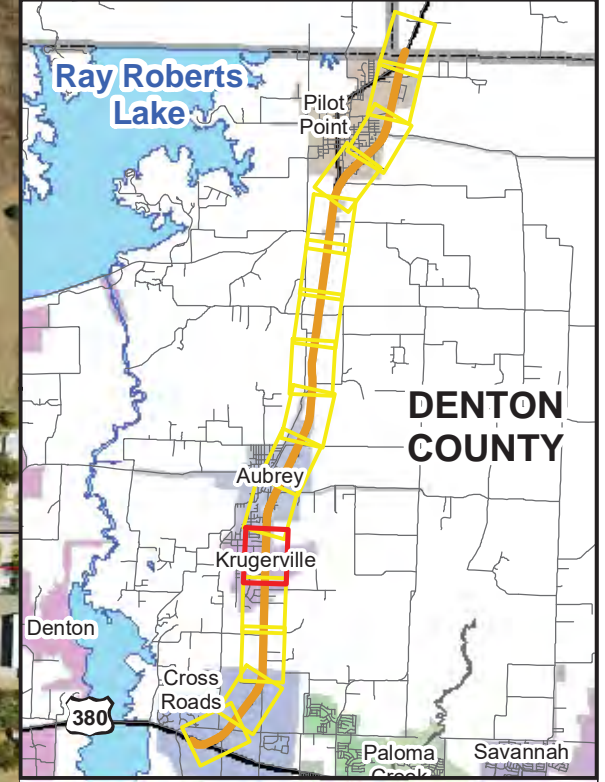
From North of BUS 377E

To US 380

Denton County, Texas

CSJ: 0081-06-040

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- Legend**
- Proposed Right-of-Way (dashed red line)
 - Proposed Easement (dashed orange line)
 - Existing Right-of-Way (dashed green line)
 - Pipelines (solid pink line)
 - Anticipated Project Impacts (red circle)
 - Possible Project Impacts (yellow circle)
 - Low Potential or No Potential for Project Impacts (green circle)

Basemap Source: TNRIS (2018)

Hazardous Materials Site Map

United States (US) 377

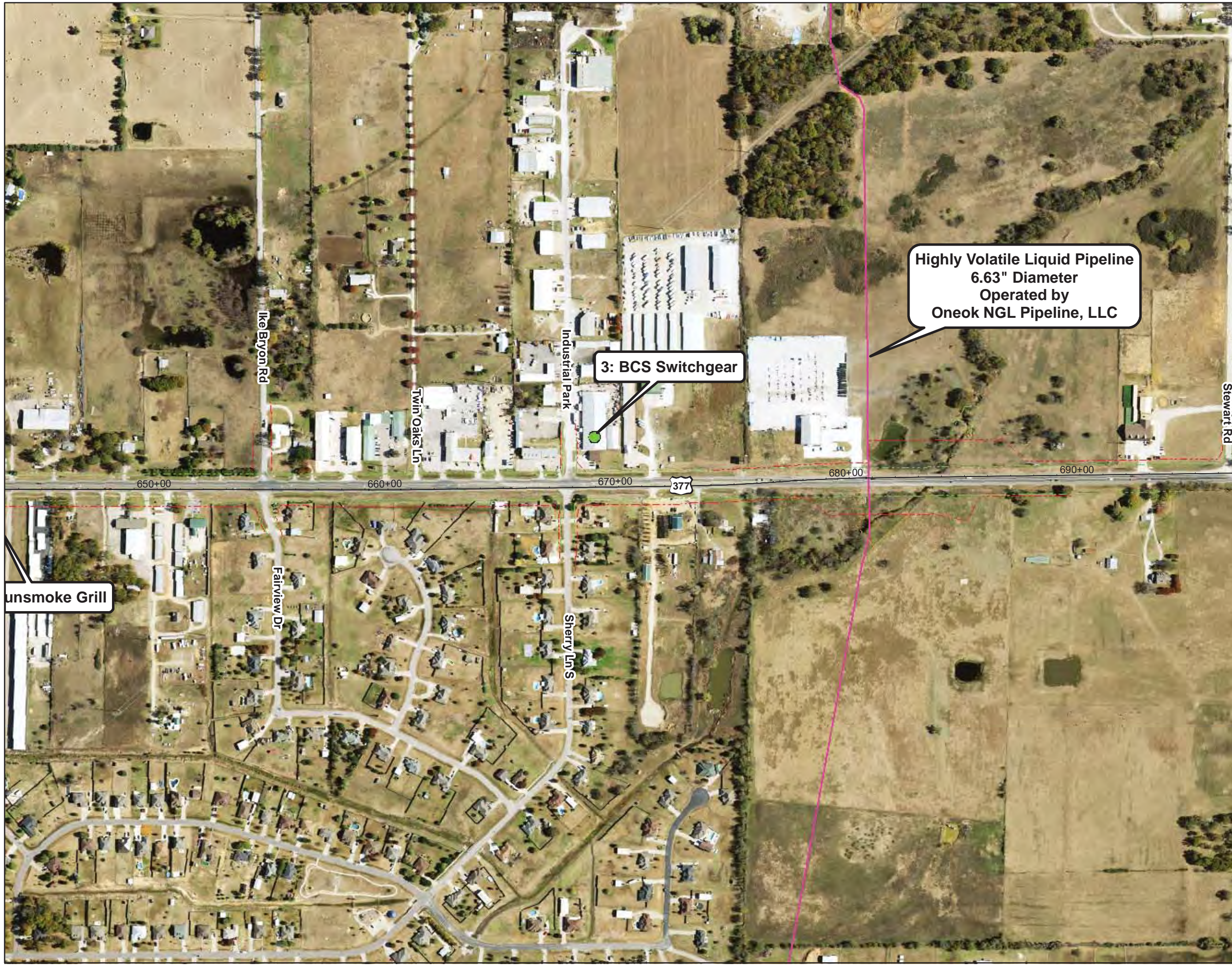
From North of BUS 377E

To US 380

Denton County, Texas

CSJ: 0081-06-040

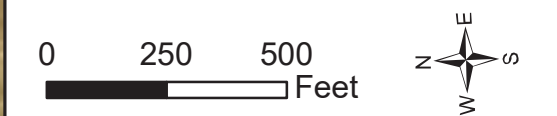
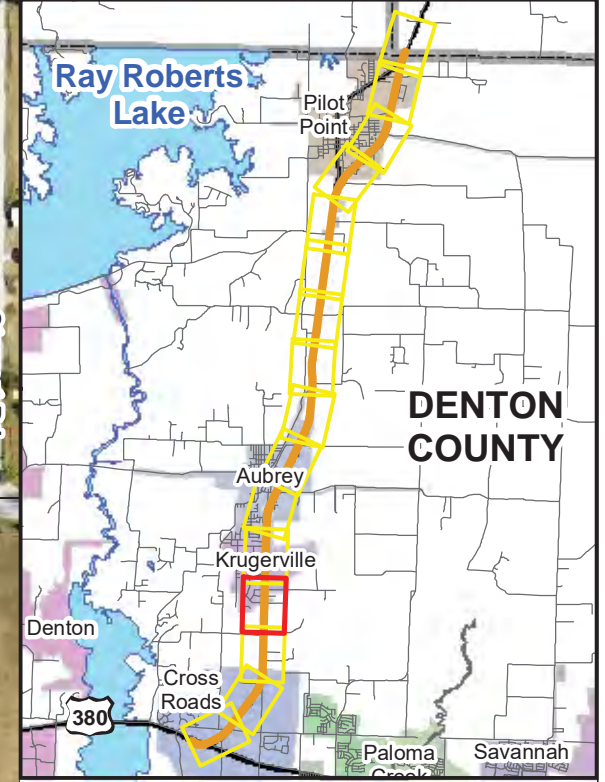
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Highly Volatile Liquid Pipeline
6.63" Diameter
Operated by
Oneok NGL Pipeline, LLC

3: BCS Switchgear

Sunsmoke Grill



- Legend**
- Proposed Right-of-Way
 - Proposed Easement
 - Existing Right-of-Way
 - Pipelines
 - Anticipated Project Impacts
 - Possible Project Impacts
 - Low Potential or No Potential for Project Impacts

Basemap Source: TNRIS (2018)

Hazardous Materials Site Map

United States (US) 377

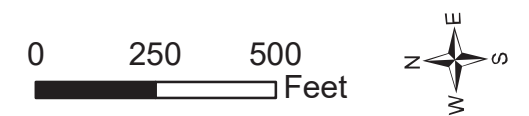
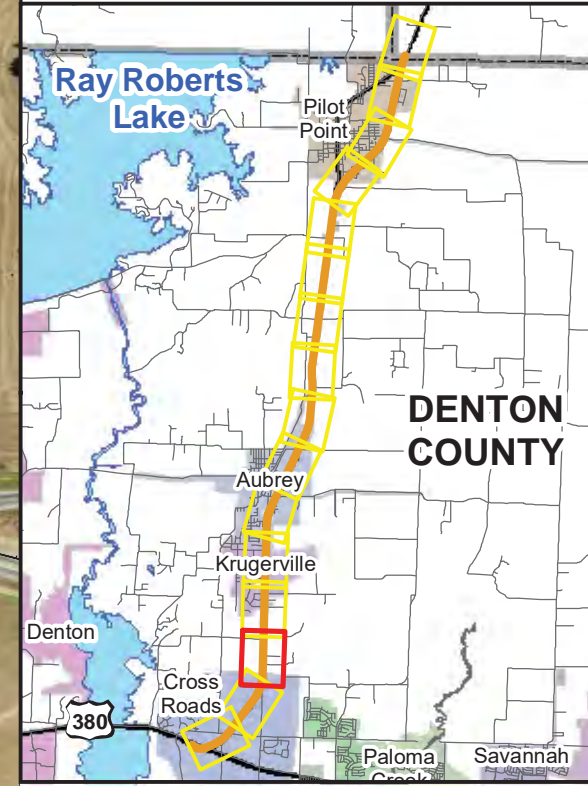
From North of BUS 377E

To US 380

Denton County, Texas

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Legend

- Proposed Right-of-Way
- Proposed Easement
- Existing Right-of-Way
- Pipelines
- Anticipated Project Impacts
- Possible Project Impacts
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Basemap Source: TNRIS (2018)

Hazardous Materials Site Map

United States (US) 377

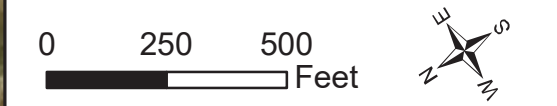
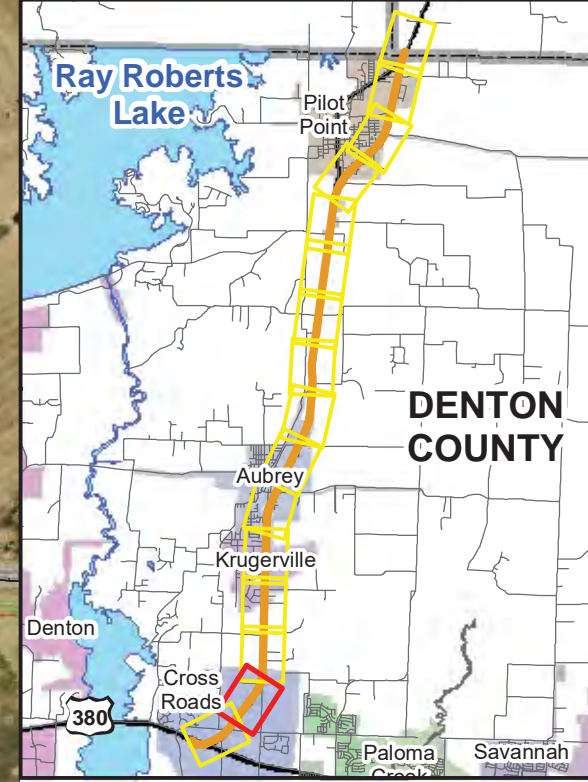
From North of BUS 377E

To US 380

Denton County, Texas

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- Legend**
- Proposed Right-of-Way
 - - - Proposed Easement
 - - - Existing Right-of-Way
 - Pipelines
 - Anticipated Project Impacts
 - Possible Project Impacts
 - Low Potential or No Potential for Project Impacts

Basemap Source: TNRIS (2018)

Hazardous Materials Site Map

United States (US) 377

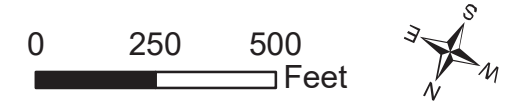
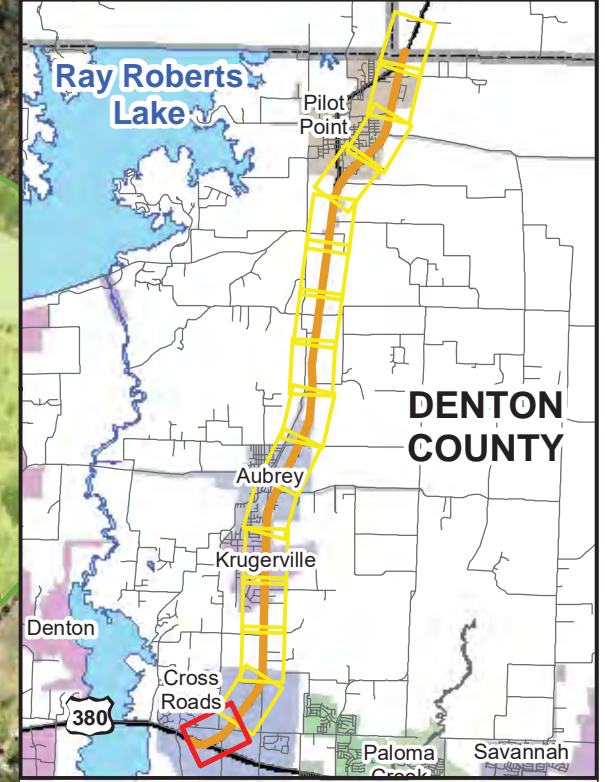
From North of BUS 377E

To US 380

Denton County, Texas

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- Legend**
- Proposed Right-of-Way
 - Proposed Easement
 - Existing Right-of-Way
 - Pipelines
 - Anticipated Project Impacts
 - Possible Project Impacts
 - Low Potential or No Potential for Project Impacts

Basemap Source: TNRIS (2018)



Photograph 1: View looking south towards the tank hold of the Tiger Mart 49 PST site at 1800 N. US 377, Pilot Point, TX 76258 (Map ID 7). Date of photograph: 4/29/20.



Photograph 2: View looking north towards the tank hold of the Allsup's 313 PST site at 1153 US 377 Pilot Point, TX 76258 (Map ID 9). Date of photograph: 4/29/20.



Photograph 3: View looking southeast towards the tank hold of the Sunny Mart LPST and PST site at 1293 S. US 377, Ste. 100, Pilot Point, TX 76258 (Map ID 11). Date of photograph: 4/29/20.



Photograph 4: View looking east towards the tank hold of the Jerry's Beverage City LPST and PST site at 1225 N. US 377, Pilot Point, TX 76258 (Map ID 12). Date of photograph: 4/29/20.



Photograph 5: View looking northwest towards the tank hold of the Edgar's Shell LPST and PST site at 100 N. US 377, Krugerville, TX 76227 (Map ID 16). Date of photograph: 4/29/20.



Photograph 6: View looking north towards the former location of the Gunsmoke Grill, an FRSTX site at 5065 US Highway 377 S, Krugerville, TX 76227-6204 (Map ID 19). Date of photograph: 5/26/20.



Photograph 7: View looking northeast towards the tank hold of the Evan's Stop N Go LPST and PST site at 110 N. US 377, Pilot Point, TX 76258 (Map ID 20). Date of photograph: 4/29/20.



Photograph 8: View looking west towards the Frank Bartel Trucking PST site at 7401 US 377, Aubrey, TX 76227 (Map ID 22). Date of photograph: 4/29/20.



Photograph 9: View looking southeast towards the tank hold of the Stephen's Fuel Center LPST and PST site at 442 S. US 377, Pilot Point, TX 76258 (Map ID 26). Date of photograph: 4/29/20.



Photograph 10: View looking west towards the former location of Stephen's Supermarket, an IOP site at 444 S. US 377, Pilot Point, TX 76258 (Map ID 26). Date of photograph: 5/26/20.



Photograph 11: View looking south towards the entrance to the Herbert Clay Mine PST site south of the US 377/US 380 connector, Aubrey, TX 76227 (Map ID 27). Date of photograph: 4/29/20.



Photograph 12: View looking north towards the tank hold of the Chaparral Plaza LPST and PST site at 704 S. US 377, Aubrey, TX 76227 (Map ID 28). Date of photograph: 4/29/20.



Photograph 13: View looking south towards a monitoring well at the Chaparral Plaza LPST and PST site at 704 S. US 377, Aubrey, TX 76227 (Map ID 28). The tank hold is at the right of the photo. Date of photograph: 5/6/20.



Photograph 14: View looking east towards the tank hold of the Circle K Store 2741876 PST site at 7500 S. US 377, Aubrey, TX 76227 (Map ID 29). Date of photograph: 4/29/20.



Photograph 15: View looking west towards the Moore Cleaners & Laundry DCRPS, DCR, and RCRAGR06 site at 424 N. US 377, Pilot Point, TX 76258 (Map ID 30). Date of photograph: 4/29/20.



Photograph 16: View looking northeast towards the tank hold of a Circle K (formerly US 380 Travel Center CK 119), a PST site at 6500 US Highway 380, Cross Roads, TX 76227 (Map ID 31). Date of photograph: 5/26/20.



Photograph 17: View looking north towards the location of the Pennington Tire Company, an LPST and PST site at 107 S. US 377, Aubrey, TX 76227. Date of photograph: 5/26/20.



Photograph 18: View looking north towards the former Trade Post, an LPST site at 5335 US 377, Krugerville, TX 76227. Date of photograph: 5/26/20.



Photograph 19: View looking southwest toward a natural gas pipeline marker along Fishtrap Road just west of US 377. Date of photograph: 5/6/20.



Historical Studies Project Coordination Request (PCR)

Reset Form

Main CSJ: 0081-06-040

District personnel should complete this form with all appropriate documentation attached. ENV-HIST staff review is contingent on provision of an active CSJ (or equivalent if the project is not a construction project) against which environmental work can be charged. District personnel shall ensure project description information in ECOS is complete and accurate prior to submitting the PCR to ENV-HIST. District-provided responses should reflect known data about the project and identify any limitations that hindered provision of the requested information. ENV-HIST staff will review the PCR form and attached information per established Documentation Standards. This review will result in:

- ENV-HIST environmental clearance of the project; OR
- ENV-HIST identification of additional technical studies required for clearance; OR
- ENV-HIST rejection of the PCR for failure to meet specific Documentation Standards and instructions on how to redress the rejection.

This form specifies minimally required information needed to properly facilitate ENV-HIST's review process. Please submit all relevant documentation with this PCR at one time.

NOTE: * If this project information changes over the course of design OR if the funding source changes, then HIST requires re-coordination and a revised PCR in ECOS.

 No If FHWA funded, does the project conform to the type listed in Appendix 4 and the Historic Resources Toolkit?
OR

Does this historic coordination apply to the Antiquities Code as referenced in the Historic Resources Toolkit?

Information Required to Process Projects with Potential to Affect Historic Properties

1. Targeted ENV clearance date: July 31, 2020

2. *Anticipated letting date: November 2020

3. "Historic-age" date (let date minus 45 years): 1975

4. Yes *The proposed action is subject to federal permitting (i.e. Corps of Engineers, Coast Guard, IBWC, etc.).

Describe:

USACE NWP 14 with and without a PCN

5. Yes *The proposed action requires additional ROW (purchased or donated) or easements?

Parcel ID	Required New ROW (acres)	Required New Easements	
		Temporary	Permanent
see Attachment 1	68.92	0	1.45
Total:	68.92	0	1.45



Historical Studies Project Coordination Request (PCR)

Reset Form

6. The following maps, tables or equivalents are uploaded to ECOS.

Yes/No/NA	Map Type	ECOS File Name:
<u>Yes</u>	Existing and proposed ROW boundaries.	0081-06-040_US 377 PCR attachments
<u>Yes</u>	Parcel boundaries for properties within the APE.	0081-06-040_US 377 PCR attachments
<u>Yes</u>	Results of the Texas Historic Sites Atlas search, identifying NHL, NRHP, SAL, and RTHL resources located within one-quarter mile of the project area listed in a table format and identified on color aerial map(s) or equivalent.	0081-06-040_US 377 PCR attachments
	Comments:	There are no NHL, NRHP properties or districts, SAL, or RTHL located in the project study area per the Texas Historic Sites Atlas. There are three cemeteries in the project study area, Skinner, Belew, and Conway. There are two OTHMs; Skinner Cemetery and Belew Cemetery.
<u>Yes</u>	Results of TxDOT eligibility and historic bridge layers search. (See Historic Resources Toolkit for links).	0081-06-040_US 377 PCR attachments
	Comments:	There are no previously identified eligible or listed historic properties or bridges in the project study area.

7. Yes Representative and dated photographs of the project area are uploaded to ECOS.

Note: Photographs should include the following elements:

- Buildings/structures adjacent to project, especially if TxDOT will acquire ROW or easements from parcel.
- Road Features (culverts, bridges, landscaping, etc).
- Areas of proposed construction.

File Name in ECOS: 0081-06-040_US 377 PCR attachments

8. Yes Preliminary plans are uploaded to ECOS.

File Name in ECOS: 0081-06-040 – US 377 60% Overall Schematic.pdf

9. Yes Historic-age bridges are within the project area.

Location	NBI #	Year Built	Eligibility
0.35 MI N OF FM 455	180610008106068	1963	Not Eligible
0.10 MI SW OF US 377	180610008105025	1933	Not Eligible
0.60 MI S OF FM 428	180610008106061	1962	Not Eligible
2.40 MI S OF FM 428	180610008106062	1962	Not Eligible



Historical Studies Project Coordination Request (PCR)

[Reset Form](#)

Location	NBI #	Year Built	Eligibility
----------	-------	------------	-------------

9.1 Yes Aerial map(s) or equivalent with bridge location(s) identified are uploaded to ECOS.

File Name in ECOS:

9.2 No CHC consultation required (contact HIST if needed).

10. No Rock masonry features (culverts, ditches, walls, etc.) are within the project area.

11. No Historic-age rest area(s) are located within the project area.

12. No The proposed action involves the relocation of historical markers.

13. Yes Additional consulting parties (other than the THC) may be involved in this project.

Consulting Party Name	Representing	Contact Information
Denton County Historical Commission	CHC	Gary Hayden 214-695-5079 mchpartnersinc@gmail.com

Additional Project Comments:

District Personnel Certification

Yes I reviewed all submitted documents for quality assessment and control.

District Personnel Name

Date:



Reset Form

The following table shows the revision history for this document.

Revision History	
Effective Date Month, Year	Reason for and Description of Change
December 2013	Version 1 released.
June 2015	Version 2 released. The form was converted to a PDF format. Form level validations were installed to ensure that all certified forms contained the minimum required information. Various questions were modified to accommodate the improved functionality of the PDF format.
August 2015	Version 3 released. Revised the form to make it compatible with Adobe Acrobat Reader DC. No changes were made to the question sequence or form logic.
June 2019	Version 4 released. The form was updated to include a separate section for Appendix 4. Additional questions were added for form logic.



Historical Resources Survey Report

Reconnaissance Survey

Project Name: US 377

Project Limits: from Bus 377E to US 380

District(s): Dallas

County(s): Denton

CSJ Number(s): 0081-06-040

Principal Investigator: Cherise Bell and Deborah Dobson-Brown

Report Completion Date: July 2020

This historical resources survey report is produced for the purposes of meeting requirements under Section 106 of the National Historic Preservation Act, the Antiquities Code of Texas, and other cultural resource legislation related to environmental clearance as applicable.

Abstract

The project is in the governmental jurisdictions of the towns of Pilot Point, Aubrey, Krugerville, Cross Roads, and Denton County. The proposed project spans from Bus US 377E to US 380. A total of 54.7 acres of new right-of-way (ROW) plus 1.14 acres for permanent easements would be acquired. Where new ROW is proposed, the area of potential effect (APE) is 150-feet from the outer edge of the proposed ROW.

TxDOT certified historians surveyed the project APE on May 21 and 22, 2020. A total 40 parcels with historic-age resources, built before 1975, were recorded. After evaluating the properties for listing in the National Register of Historic Places (NRHP), project historians recommend all the properties as not eligible for NRHP listing.

The proposed undertaking would have no effect on historic properties under Section 106 and would not result in the transportation use of any historic properties under Section 4(f).

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Project Identification

- Report Completion Date: 06/30/2020
- Date(s) of Fieldwork: 05/21/2020 to 05/22/2020
- Survey Type: Windshield Reconnaissance Intensive
- Report Version: Draft Final
- Regulatory Jurisdiction: Federal State
- TxDOT Contract Number: N/A
- District or Districts: Dallas
- County or Counties: Denton
- Highway or Facility: US 377
- Project Limits:
 - From: Bus 377E
 - To: US 380
- Main CSJ Number: 0081-06-040
- Report Author(s): Cherise Bell
- Principal Investigator: Cherise Bell and Deborah Dobson-Brown
- List of Preparers: Cherise Bell (author and survey), Paige Ritter (survey), and Jeff Cragle (GIS)

Area of Potential Effects (APE)

- Existing ROW
 - 150' from Proposed ROW and Easements
 - 300' from Proposed ROW and Easements
 - Custom: <0'> from Proposed ROW and Easements
-
- **Historic-Age Survey Cut-Off Date:** 1975
 - **Study Area** 1300 feet from edge of the Area of Potential Effects

Section 106 Consulting Parties

- **Public Involvement Outreach Efforts:**

Due to the COVID 19 pandemic, TxDOT created a virtual public meeting presentation that was available for viewing from April 28, 2020 through May 13, 2020. Public comments were due May 13, 2020. Of the 53 comments received, none concerned historic resources.

- **Identification of Section 106 Consulting Parties:**

Aside from the stakeholders, no other consulting parties were identified.

- **Section 106 Review Efforts:**

Per 36 CFR 800 and the 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, TxDOT may afford the THC an opportunity to review and comment on the historic resources eligibility determinations and project effects determinations.

- **Summary of Consulting Parties Comments:**

Aside from the stakeholders, no other consulting parties were identified.

Stakeholders

- **Stakeholder Outreach Efforts:**

An email with project maps was sent on May 19, 2020 to Denton County Historical Commission Chair, the City of Pilot Point Director of Development Services, and the City of Cross Roads Zoning Department.

Voice mail messages were left on May 19, 2020 for the City of Aubrey City Planner and the City of Krugerville City Secretary.

- **Identification of Stakeholder Parties:**

Denton County Historical Commission, Gary Hayden: 214-695-5079,
[REDACTED]

City of Pilot Point Director of Development Services, John Taylor,
[REDACTED]

City of Aubrey City Planner (contractor), Michelle Hardin, 972-823-8800

City of Krugerville City Secretary, Sandy Frantz, 940-365-5833

Town of Cross Roads, Town Administrator and Director of Planning, Becky Ross,
[REDACTED]

- **Summary of Stakeholder Comments:**

Denton County Historical Commission, Gary Hayden, responded by email June 9, 2020, and provided resource links and contact information.

City of Pilot Point Main Street Director, Lenette Cox, responded by email May 19, 2020 stating she was “not aware of any designated or potential historic structures, buildings, ranches, or objects in the projected area of the US 377 project.”

City of Aubrey City Planner, Michelle Hardin, stated the city does not have a historic zoning overlay or any historic designated structures.

City of Krugerville City Secretary, Sandy Frantz, returned the historian’s call and left a message stating there were no historic resources, and she did not know if the city had a historic preservation ordinance.

Town of Cross Roads Town Administrator and Director of Planning, Becky Ross, sent an email on May 22, 2020, indicating the Belew Cemetery (9800 Belew Road) was the only historic structure along the US 377 route.

Project Setting/Study Area

- **Study Area**

The project is in northeast Texas, Denton County, west of Ray Roberts Lake and passes through four towns. From north to south the towns are Pilot Point, Aubrey, Krugerville, and Cross Roads. A rail line is adjacent and west of US 377 from Pilot Point south to Aubrey at which point it travels west to the city of Denton. In each city, commercial use abuts the highway. Outside of the city limits, agricultural and undeveloped land is prominent.

- **Previously Evaluated Historic Resources**

A review of the Texas Historical Commission (THC) Atlas and survey files, the National Park Service (NPS) NRHP database, TxDOT Historic District and Properties database, the list of non-archeological State Archeological Landmarks (SALs), and the list of Recorded Texas Historic Landmarks (RTHLs) revealed no previously evaluated resources within the project study area. There are three cemeteries in the project study area, Skinner, Belew, and Conway.

- **Previously Designated Historic Properties**

A review of the THC Atlas and survey files, the NPS NRHP database, the list of non-archeological SALs, and the list of RTHLs revealed no previously designated historic properties within the project study area.

- **Previously Designated Historic Districts**

A review of the THC Atlas and survey files, the NRHP database, the list of non-archeological SALs, and the list of RTHLs revealed no previously designated historic districts within the project study area.

- **Historic Land Use**

Historic land use was agriculture farmland and undeveloped land.

- **Current Land Use and Environment**

Within the city limits of Pilot Point, Aubrey, Krugerville and Cross Roads, land use is predominately commercial with some light industrial. Residential, agricultural and commercial uses are interdispersed throughout the project.

- **Historic Period(s) and Property Types**

The historic period for Community Development is 1854 to 1975, which represents the founding of Pilot Point, the first town settled in the project area, to the project cut-off date of 1975.

Property types observed in the field were residential, commercial, and agriculture.

- **Integrity of Historic Setting**

The historic agricultural and undeveloped land has steadily been developed with commercial and residential subdivisions since 1975, changing the rural landscape and impacting the historic integrity of setting, feeling, and association as a rural landscape.

Survey Methods

- **Methodological Description**

As stipulated in the 2015 Programmatic Agreement among the Federal Highway Administration, TxDOT, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings, the APE is 150 feet beyond the proposed ROW boundaries along the existing alignment. The APE includes all parcels of land that are partially or wholly contained within the limits of the APE.

Multiple digital photographs were taken of each resource of historic-age that was accessible. When possible, photographs included at least two oblique views of the primary façade and a side façade. Additional photographs were taken if the surveyor felt that a property warranted in-depth documentation. Visible modern buildings or intrusions located on properties with historic-age resources were photographed to show their relationships to the historic-age resources. Each historic-age resource was given a map ID number, keyed to a resource location map (**Figure 3a-h**), and included in a tabular inventory. The address, if available, or location information and latitude/longitude were recorded and provided in the survey report.

Construction dates were determined with the use of field assessment by a professional historian combined with historic mapping and aerial photography. County appraisal district records were used to assist with dating changes to the property, such as additions and sheds. Data collected in the field included, but was not limited to, style, construction date, and any modifications made to the property. Once information was gathered, analysis was

conducted to determine whether the property was individually eligible for listing in the NRHP or whether it contributed to the significance of a potential historic district.

- **Comments on Methods**

All work was conducted and supervised by individuals meeting the Secretary of Interior's Professional Qualification Standards for history and architectural history. The survey complies with ENV Standards of Submission regarding maps, tables, images and image quality, and geographic information system files. Survey maps and project schematics reflect the current proposed ROW as known to project historians at the time of report authorship.

The survey was conducted over two days. The changing weather pattern, from cloudy and misty to sunny, is evident in the photos. Several buildings were located further back on the lot and not clearly visible due to foliage.

Available historic aerial photographs started in 1995 for Google Earth Pro and in 1981 for www.NETRonline.com. Historic topographic maps started at 1962, 1963 or 1974, depending upon the location within the project area. When comparing historic aerial photographs with the Denton County Appraisal District (DCAD) "year built", the DCAD information had incorrect "year built" dates and some structures were not recorded. The historian used the DCAD date when they concurred that the building style occurred in the timeframe recorded in the DCAD.

Survey Results

- **Project Area Description**

The project is in Denton County and the jurisdictional area of four towns, Pilot Point, Aubrey, Krugerville, and Cross Roads. Development is concentrated around the towns, while sporadic development of commercial and agricultural use is evident between the towns. Land adjacent to US 377 is typical of post-World War II highway development in Texas. Scattered, historic-age residential buildings have been converted to commercial use. Modern buildings and their uses have typical forms, such as gas stations, fast food restaurants, retail stores, and metal warehouses. Parking lots are adjacent to the highway with commercial and industrial buildings at the rear of the parcel.

- **Literature Review**

AmaTerra professional staff reviewed secondary sources on the history of the project area. *The Handbook of Texas Online* gave researchers an overview of the history of Pilot Point, Aubrey, Krugerville, Cross Roads, Denton County, Lake Ray Roberts and Lewisville Lake. Historic road and county highway maps identified highways constructed near or

through the project area. City and county websites were reviewed for history of annexation and land development patterns. Additional information came from historic aerial photographs obtained through the U.S. Geological Survey's EarthExplorer and NETRonline websites.

Due to the agricultural nature of the area, a review of the Department of Agriculture Family Land Heritage files listed two honorees potentially in the project APE and three farms without any address. Rue Farm (1854) and F.C. Schmittou Farm (1889) are both listed as "located three miles south of Aubrey." Several properties owned by Schmittou were identified with three parcels clustered together on the northwest corner of US 377 and Arvin Hill Road. DCAD ID, 4599 S Highway 377, had a house constructed 1996, field-verified as modern, and 20 acres. DCAD ID 77032, on Arvin Hill Road was 30 acres of native pasture. DCAD 52307 on US 377 had five acres of native pasture. Jean Burk, Aubrey Historical Society, stated the Rue farm was at Parvin Road and FM 1385 (the Rue farm is outside the project study area).

The historian had a phone interview with Jim Ogg, Acme Plant and Mining Manager, regarding the large clay pit located south of the junction of US 377 and East University Drive in Cross Roads, TX. Mr. Ogg stated there were no structures on the site and estimated the pit was used to extract clay since about 1912.

Historical Context Statement

Settlement and Community Growth (1854-1975)

Denton County (1856-1975)

Texas Congress provided a land grant to Kentuckian, William Peters, in 1841, thus starting Anglo settlement of what is today Denton County. The Texas legislature formed Denton County in 1856 carving it out of Fannin County and naming it after a Fannin County lawyer and Methodist preacher, John Denton. A new county seat was established in 1856 near the center of the county and the town was named Denton.

Settlers lived on subsistence farming or cattle ranching until the railroads came in the 1880s, providing transportation to markets thus spurring the production of cotton and wheat. With the increase in crop production, the amount of cattle grazing dropped significantly. Denton County ranked first and second in US wheat production from 1890 to 1920. Cotton production peaked in the 1920s and declined thereafter. The county remained largely agrarian, farming diversified crops until World War II. After World War II, the county followed the economic shift in America from rural to urban. For those who continued to farm, the economic growth after World War II impacted Texas farmers and ranchers favorably. With more income, ranchers were able to replace older buildings with

pre-manufactured metal buildings and construct new Ranch style houses on their farms (Moore 2013: 4-53).

Oil was discovered in 1937 on the Forester Ranch near Bolivar, Texas, northwest of the city of Denton. Although oil well drilling had occurred in the project area prior to the discovery of the Bolivar Field, all other attempts in the county had failed by 1933 except for a few low-production wells in Pilot Point (Walter 1969: 90).

After World War II, several factors, including public universities, road improvements, and an airport, helped foster Denton County towns to become bedroom communities of Dallas and Fort Worth. The University of North Texas and Texas Woman's University were established in 1890 and 1903, respectively. Both universities are in the city of Denton and have enjoyed growth in students and expansion of their campuses. Construction of Interstate Highway 35E in the 1950s increased commuting. Construction of Interstate Highway 35 West in the 1970s, plus the opening of the Dallas-Fort Worth International Airport in 1974, helped make Denton County the fastest-growing county in the nation in the 1970s (Denton County 2020). The county's population grew from 47,432 to 143,126 between 1960 and 1980. In 2019, the US Census estimated the county's population to be 887,207.

The late 1960s and 1970s saw a "back-to-the-land" movement across America. Individuals left large urban areas for rural towns to own land or join communes (Beale 1988: 6). The land purchased by these individuals is often referred to as a recreation or hobby farm. No official definition is available for hobby farms; however, the general consensus defines it as, a parcel of land, large or small, used to grow food, plants, or animals, as a hobby rather than as a primary source of income.

The early 1970s also brought horsemen to Denton county who discovered that soil and climate conditions were ideal for raising horses, and the land was far more affordable than in Kentucky. Horse ranchers purchased land at bargain prices from struggling farmers (Boardman 2007). In 2007, there were an estimated 300 horse farms with a total of 25,000 animals ranging from multi-million-dollar operations to mom and pop farms (Boardman 2007). Denton County's horse industry continued to expand with over 350 farms and 40,000 horses by 2017 (Joseph 2019). The Denton Chamber of Commerce created three different self-driving tours to promote horse ranching tourism; one of the tours covers the area between Pilot Point and Krugerville (**FIGURE 4**). Behind-the-scenes bus tours are also available.

The towns in the project area are discussed below in geographical order, from north to south.

Pilot Point (1854-1975)

Pilot Point derived its name from its location on the highest point of ground between Texarkana and Fort Worth. The hill had a dense grove of trees, which allowed the hill to

be easily seen across the open, undulating prairie land and served as a trail landmark (CoPP 2020).

In 1854, Pilot Point was platted on land that was part of an 1841 land grant of Charles Smith. By 1890, the town population had increased to 1,090. The subsequent decades brought increased growth to Pilot Point. Brothers Emil and Joseph Flusche encouraged German Catholics to migrate and settle in various American towns, including Pilot Point. Their efforts were successful, resulting in an increase in population and the construction of a new church and parochial school. The population was 1,371 in 1914.

Although population rose in the 1920s, it declined thereafter and recorded 1,156 residents in the 1950s with 65 businesses and three clothing and furniture manufacturing plants. By 1983, Denton County had large horse ranches throughout the county (Odom 2019). The City's 2030 Comprehensive Plan stated Agriculture/Rural land was the largest land use category in the city, representing 38 per cent of the land. Most of the large tracts of land are located outside city limits but within the Extra Territorial Jurisdiction (ETJ).

Aubrey (1881-1975)

Dr. George Key settled in present-day Aubrey in 1858, and it became known as Key Schoolhouse settlement. When the Texas and Pacific Railway (TPR) came through in 1881, TPR constructed a section house about a mile away from the Key Schoolhouse settlement, naming it Onega. Due to the unpopularity of the name, it was changed that same year to Aubrey (Fuller 2010). By 1920, Aubrey had a population of 700 and thirty businesses. The agricultural economy was once based on cotton, but over time changed to peanuts. In the 1970s, agricultural fields were converted to horse ranching, and in 1980, the population was 948.

Krugerville (1964-1975)

Developer L.H. Kruger purchased 328 acres off Highway 377 in 1964 with the plan to construct houses on one-acre lots (CoK 2020). Two plats were identified within the Study Area; Country Estates (96.16 acres in 1968) and Extension No. One of Country Estates Subdivision (31.68 acres in 1970) (**FIGURES 5 and 6**). Due to the success of the subdivision, other development came to the area and the town of Krugerville incorporated in 1973. Krugerville's population was 469 in 1980. The city's website states Mr. Kruger and his wife still reside in town.

Cross Roads (1929 to 1975)

The construction of Lake Dallas in 1929 spurred development along its banks. Cross Roads started as a retirement village on the shores of the lake (Cowen 2016). The town had a population of 50 in 1945 and incorporated in 1973. By 1978 the population increased to 215 (Minor 2010). Per the city's 2015 Comprehensive Plan, the town has maintained a one-acre minimum lot size for detached single-family-dwellings.

Located within the city limits, south of the US 377 and US 380 junction, is Acme Brick's clay mine. This mine is a large pit that is easily visible from US 380 and from the elevated portion of US 377 (Michael R. Coker Co. 2015: 4-1). Acme Brick started mining the clay around 1912. There are no buildings on the clay pit property (Ogg 2020).

Transportation (1880-1975)

The Texas and Pacific Railway arrived in Denton County in the 1880s. The rail line traveled east from the city of Denton through Aubrey, north through Pilot Point, continuing north to Oklahoma. The railroad tracks between Denton to Pilot Point generally followed State Highway 10.

The road from Denton to Whitesboro, going through Aubrey and Pilot Point, was originally State Highway 10. In 1960 it was changed to State Highway 99 (SH 99) (TxDOT minute 048670). In 1968, SH 99 was assigned as US 377 and extended northeast to Oklahoma (TxDOT minute order 0608023). US 377, as configured today, was constructed in the mid-1970s, bypassing the downtowns of Pilot Point and Aubrey. (FIGURES 7a-j).

The road from Aubrey to today's Cross Roads was Farm-to-Market Road 424 (FM 424) and was constructed in 1945 (TxDOT minute order 021215). In the 1970s, instead of veering west to Denton at the town of Aubrey, US 377 expanded south, through Krugerville and Cross Roads. At the town of Cross Roads, US 377 connects with East University Drive, then continues west to Denton.

Reservoirs (1927-1975)

Two reservoirs are in the project area and have had an impact on the area's development, Lewisville Lake and Lake Ray Hubbard. Located at the north end of the project is Lake Ray Hubbard. Lewisville Lake is located at the south end of the project.

In 1927 Garza Dam was constructed to provide a water source for the Dallas area which resulted in Lake Dallas. Population growth after World War II and a state-wide drought (1950 to 1957) created a need for an additional water supply. In 1955 the United States Army Corps of Engineers (USACE) constructed Garza-Little Elm Dam, creating a lake which engulfed Lake Dallas and was eventually named Lewisville Lake (USACE 2020). The town of Cross Roads abuts the lake's north shore.

Lake Ray Hubbard was authorized in 1965, but the permit was issued ten years later in 1975. Construction of the dam started in 1982 and took five years to complete with water impoundment occurring in 1987 (TWDB 2020). The reservoir was named after Congressman Ray Roberts. Constructed to primarily provide water for Dallas and Denton, the lake has spurred development and recreational tourism. The towns of Pilot Point and Aubrey abut the eastern shoreline.

National Register Eligibility Recommendations

- **Eligible Properties/Districts**

Survey efforts identified no eligible historic properties or districts within the project APE.

- **Ineligible Properties/Districts**

Survey efforts identified a total of 40 properties in the following categories: 19 Domestic, 10 Commerce, and 11 Agriculture. All the resources are recommended not eligible for listing in the NRHP under Criterion A, B, or C.

Domestic

Residential properties are often the most common building type encountered during a survey. Style and form vary greatly depending on time, period, and region. The years following World War II saw the greatest homogenization of suburban housing stock as developers undertook massive subdivision projects to counteract a housing shortage and to fuel the “American Dream” of home ownership.

A domestic building can be eligible for NRHP listing under Criterion C if it was constructed in or prior to 1975 and it retains a significant amount of its architectural integrity; in other words, it should appear almost exactly as it did at the time of construction or when it was sympathetically altered in or prior to 1975. Significant additions and unsympathetic alterations, such as the application of synthetic siding, replacement of original wooden porch supports with metal ones, new vinyl windows, and the enclosure of carports diminish the building’s architectural integrity and may make it not eligible for NRHP listing. Buildings eligible under Criterion A or B should have strong historical associations but do not have to be unaltered or even particularly noteworthy examples of an architectural style, form, or type.

Ranch style (1950-1975)

The Ranch style (American Ranch, Western Ranch, or California Rambler) originated in the early 1930s in California. The style loosely followed the Spanish Colonial precedents in California and was influenced by Craftsman and Prairie house styles that had been widely popular earlier in the twentieth century. The Ranch style remained largely confined to California until after World War II. A combination of factors created a “perfect storm” that led to the wide popularity of the style in the 1950s and 1960s: the demand for single-family housing by World War II veterans starting families; the GI Bill, which provided many different types of loans for returning veterans to buy homes; an increase in automobile ownership, which freed workers from the need to live close to public transportation routes; and the strict FHA-Veterans Affairs (VA) guidelines under which developers operated in

order to be able to market the houses to buyers using FHA and VA government-subsidized mortgages.

Ranch style houses have several notable, character-defining features. They are usually parallel to the street with asymmetrical facades. The roof is low pitched, either gabled or hipped, with large eaves. Windows tend to be large and plentiful. Fixed picture windows and sliding glass doors are common. The overall form emphasizes the horizontal, accentuated by low walls, horizontal wood, brick, or stone siding, and a long, narrow shape with relatively simple floor plans and an attached garage (McAlester 2013: 597–612). Most of the resources had at least one modern accessory building, such as a storage shed or carport, on their parcel, which were documented as part of the property.

Because Ranch houses are very common, the bar of individual architectural significance is high. The Ranch house needs to have physical qualities of significant design representing specific trends, design concepts, or other attributes to transcend to the level necessary to be eligible for the NRHP.

The residential properties surveyed possessed no known significance under Criterion A or B. The houses surveyed were not noteworthy examples of their architectural style and did not introduce a new design concept or innovation. Most of the houses had unsympathetic alterations and additions making them not eligible under Criterion C. Many of the properties had ancillary buildings such as modern sheds, carports, or garages. In general, the outbuildings were utilitarian in style and material and not noteworthy for their architecture or construction method.

Resource Nos. 6, 7, 9, 10, 16, 22, 24, 36 and 39 are all Ranch style houses, with alterations such as enclosed garages (Resource Nos. 7 and 9), new windows (Resource Nos. 7, 9, 33, and 39), new siding (Resource Nos. 16 and 24), new columns (Resource Nos 10 and 22), and additions (Resource Nos. 6, 9, 36, and 39) which reduced the integrity of material, design, and workmanship. Due to the alterations, the Ranch style houses are not significant under Criterion C. Additionally, they have no known direct associations with significant events, trends, or persons under Criterion A or B. They are therefore recommended as *not eligible* for NRHP listing.

Resource Nos. 8, and 12, are Ranch style houses and appear to retain their architectural integrity but are common examples of the Ranch style with no unique or outstanding features which would elevate them to the level necessary to be listed in the NRHP. The houses are modest examples of the Ranch style and therefore not significant under Criterion C. Additionally, they have no known direct associations with significant events, trends, or persons under Criterion A or B. They are therefore recommended as *not eligible* for NRHP listing.

Resource Nos. 33 and 34, both constructed circa 1975, are in the L.H. Kruger's Extension No. One County Estates Subdivision and Country Estates Subdivision, respectively. Resource No. 33 is a single-story Ranch style house with brick siding. The modern

windows reduce the integrity of material and design. Resource No. 34 is a Styled Ranch with Neoclassical influences. The modern windows reduce the integrity of material and design. The houses are common examples of Ranch style architecture and are therefore not significant under Criterion C. The two plats did not develop quickly as there are vacant lots between Brumley Road and Baseline Road. Per the plats, the lots varied in size, and many were not one-acre as stated in the City's website. The idea to create a subdivision with one-acre lots in rural America, was not a new or innovative concept. A website search provided no additional information on Mr. Kruger. Although the town was named after Mr. Kruger, he did not have a master plan for a complete town concept. His subdivision merely spurred development in the area. Based on the above information the houses and subdivisions are recommended *not eligible* for inclusion in the NRHP under Criterion A or B.

Minimal Traditional (1935-1950)

Property No. 14 has three houses on the parcel. Resources 14a and 14b constructed circa 1935 are Minimal Traditional style houses with hip roofs and central front stoops. Resource 14c is a Minimal Traditional style house (circa 1950) with a side gable roof. The 1963 topographic map shows a different road configuration with no buildings along the road. Based on the style, estimated years of construction, and historic maps, the houses were moved to this site by 1981. Based on the alterations of the individual buildings and the fact the houses are not original to this location, the resources lack integrity of material, setting, and location.

Resource No. 28 is a single-story, Minimal Traditional style house (circa 1935). Alterations include aluminum siding, new windows, new metal columns, decorative shutters, and a rear addition. Due to the changes, Resource 28 lacks integrity of design, material, and workmanship.

Based on their lack of integrity, Resource Nos. 14a, 14b, 14c, and 28, are recommended not eligible under Criterion C. Additionally, they have no known direct associations with significant events, trends, or persons under Criterion A or B. They are therefore recommended as *not eligible* for NRHP listing.

Craftsman (1905-1930)

Resource Nos 27 and 29 are modest examples of single-story, Craftsman style houses of the front-gabled roof principal subtype, both constructed circa 1925. Alterations include new siding, new windows, new columns, and a concrete foundation for the porch. The fenestration patterns of both houses have been altered as original windows openings have been covered by the modern siding. Due to the alterations, the houses lack integrity of design, material, and workmanship.

Lacking integrity, Resource Nos. 27 and 29 are recommended *not eligible* under Criterion C. Additionally, they have no known direct associations with significant events,

trends or persons under Criterion A or B. They are therefore recommended *not eligible* for NRHP listing.

Miscellaneous Styles

Resource No. 25 is a single-story, ell-plan, Victorian style house (circa 1910) with asbestos shingle siding and aluminum framed windows. A wood storage shed is located on the property. Based on the above changes the house lacks integrity of material, design, and workmanship, and is therefore recommended *not eligible* Criterion C. Additionally, the house has no known direct associations with significant events, trends, or persons under Criterion A or B and therefore recommended as *not eligible* for NRHP listing.

Resource No. 26a is a two-story Mansard style house (circa 1970) with brick siding. The sliding glass windows are modern. Resource 26b is a two-story Mansard style garage with an apartment (circa 1970), which matches the house's brick siding and mansard roof. The original windows have been replaced. The house and garage lack integrity of material and design, and recommended *not eligible* under Criterion C. Additionally, the house has no known direct associations with significant events, trends, or persons under Criteria A or B. Resource Nos. 26a and 26b are therefore recommended as *not eligible* for NRHP listing.

Commerce (1930 to 1975)

Specialty Stores

Resource No. 4, Evans Stop-N-Go, is a single-story commercial, multi-bay, building (circa 1975) with brick and metal siding. A large metal addition with a garage door has been added to the south façade and new awnings are on the front façade. The addition and awnings reduce the integrity of material, design, workmanship and feeling.

Resource No. 30 is a single-story cinder block retail building (circa 1975). Alterations include a new shed roof, canopy, changes in the fenestration pattern, plus additions to the rear and side façade. Two modern metal storage sheds are also on the property. Based on the alterations, Resource 30 lacks integrity of design, material, and workmanship.

The specialty stores, Resource Nos. 4 and 30, lack integrity of material, design, workmanship, and feeling, and therefore are *not eligible* under Criterion C. Additionally, the stores have no known direct associations with significant events, trends, or persons under Criterion A or B, and are therefore recommended as *not eligible* for NRHP listing.

Warehouses

Resource No. 2, Mark's Body Shop, is a metal warehouse (1975). The front façade has two additions, a porch with a gable roof and metal columns, and an office with a gable roof, stucco siding and fixed horizontal windows. Due to the alterations, the warehouse

lacks integrity of design, workmanship, and materials and is recommended *not eligible* under Criterion C.

Resource No. 3, Pilot Point Feed Store, is metal warehouse (circa 1970). The warehouse appears to be intact. Due to the utilitarian nature and fabricated construction method, the warehouse does not rise to the level necessary to be included in the NRHP and therefore is recommended *not eligible* under Criterion C.

Resource Nos. 2, and 3, have no known association to any known persons or important trends or events and are recommended *not eligible* under Criterion A or B.

Resource No. 13, Rodeo Warehouse, is a complex of warehouses used for storage. The buildings are on the former rodeo grounds. Per a 1981 aerial photograph, the parcel had one building (c. 1970) and an oblong dirt riding ring. Resource No. 13 appears to be the original barn, covered in modern metal siding with hinged doors on the south elevation and garage roll up doors on the north elevation. There are seven modern warehouses and a concrete block utility on the parcel which were added between 1996 and 2004. Based on the new siding and roof material, the change in fenestration pattern, the change in use, the loss of the riding ring and the addition of new buildings, Resource No. 13 has loss integrity of material, design, workmanship, material, setting, association and feeling and is recommended *not eligible* under Criterion C. Other than the past association of the Rodeo, which has lost its integrity, Resource 13 has no known association with trends or events and is recommended *not eligible* under Criterion A. Resource 13 has no known association with any known persons and is recommended *not eligible* under Criterion B.

Converted Houses

Although currently in commercial use, Resource Nos. 11, 21, 23, 31 and 38 were originally designed as single-family dwellings for residential occupation. The change in use from residential to commercial reduces the integrity of setting, feeling, and association. The converted houses also have changes in material, particularly modern windows (Nos. 11, 21, 23, and 38), siding (Nos. 23 and 38) and additions (Nos. 21, 23, and 38). Due to the alterations and additions, the converted houses are recommended *not eligible* under Criterion C.

Resource No. 11 is single-story Ranch style (circa 1965) red brick house with a hip roof. The house is zoned commercial with no visible business or residential occupation during the survey. The windows, door, and front column are modern, and the shutters have been removed. The house lacks integrity of design, material, association, and workmanship.

Resource No. 21, Haughton Law Group, is a single-story, Ranch style house (circa 1965) with three modern metal buildings on the 4.38 acres. A large porte-cochere has been added to the front façade. The windows and entry doors are modern. Included on the 4.38-acre lot are a barn (2000), a storage shed (1993), and a large storage shed (2003;

dates constructed per DCAD). Based on the addition, alterations and change in use, Resource 21 lacks integrity of design, material, workmanship, association and feeling.

Resource 23, Hair Illusions Salon, is a single-story, modest example of a Craftsman Bungalow style house (circa 1925) with new siding, new windows, new front door, new porch, and a rear addition. Based on the alterations, addition, and change in use, Resource 24 no longer retains integrity of design, material, workmanship, association, and feeling.

Resource 31, Wild Hearts Nature Preschool, is a single-story Ranch style house (circa 1975). The original front door has been replaced. The front and side yards have been covered with asphalt to create parking spaces. The backyard has various farm animals and multiple modern structures. Due to the change in use from domestic to commerce, Resource 31 lacks integrity of association, feeling and setting.

Resource 38, Stallion Business Park, has an office building, a mobile home, and eight modern, metal warehouses on 7.96 acres. Resource 38 is a single-story, Ranch style house (circa 1950). The house has been converted for commercial use as flexible office space. Other changes include modern siding, door, roof, windows, an attached carport on the front façade, and the front yard has been converted to a parking lot. Resource 38 lacks integrity of design, material, workmanship, setting, feeling, and association.

Resource Nos. 11, 21, 23, 31 and 38 lack integrity of design, material, setting, association, and feeling, and therefore, are recommended *not eligible* for inclusion in the NRHP under Criterion C. The resources have no known association to any known historically significant persons or important trends or events and are recommended *not eligible* under Criterion A or B.

Agricultural 1854-1975

Agricultural resources include a variety of buildings, objects, and structures with varying roles in the production of crops and livestock. The form of individual elements, as well as the arrangement of the buildings, fields, fence lines, and vehicular access, often reflects the type of farming or ranching originally practiced. Agricultural resources may be eligible under Criterion A if they have known associations with a historic event, trend, or ethnic group, or under Criterion B for association with a significant person or family. To be considered eligible in the category of Agriculture, they must show a clear association with historic agricultural methods and retain sufficient integrity to convey how such methods were used. Agricultural resources are usually evaluated under Criterion C for the architecture of the primary residence or building.

Agricultural properties, farms and ranches, are best understood when separated into functions: Domestic work zone, Agricultural work zone, and fields/pastures. The residential portion of an agricultural property includes a domestic work zone. “Common types of resources found within the domestic work zone are: main house, privy, garage or

carport, domestic shed, cistern, well, windmill, well house and pump house, worker housing, chicken coop, storm shelter, smokehouse, [and] landscaping features (including vegetation, fences, gates, paths, driveways)” (Moore, 2013: 5-2).

The agricultural work zone includes structures which support the daily management and operation of the property. Common resources in this area include barn, work shed, silo, corrals, pens, stock tank, grain storage and self-feeders (Moore, 2013: 5-34). “The agricultural zone is usually located close to the domestic work zone, mainly to allow workers easy access to both areas. This zone is also located adjacent to the fields and pastures so equipment and/or feed can be moved directly into the fields and pastures zone” (Moore, 2013: 5-34). To access the agricultural zone there is often a driveway direct from the main road separate from the driveway to the main house. The agricultural work zone is often not enclosed by fencing.

Fields and pastures are the third zone for an agricultural property. Common resources found in this zone include drainage ditch, self-feeder, stock tank, corrals, fences, cattle guard, and contouring or terracing for soil conservation.

Since the study area has a rural land use tradition, the historians, based on building types and evidence of livestock, divided properties into “agricultural” versus “hobby farms.” The hobby farms include one or two outbuildings necessary to maintain acreage and/or livestock but agricultural use does not appear to be the primary function or economic intent of the land.

Agriculture

Property No. 1, Berend Farms, established in 1927, per a sign on the property, has 3.0-acres with a house and 0.75-acres of cropland (DCAD). Per DCAD, three barns are located on the 22.92 acres located north and behind the house. Despite county records, the house and barns appear to be on one parcel. Three buildings (Resource Nos. 1a, 1b, and 1c) appear on a 1963 topographic map. Resource No. 1a is a Ranch style house (circa 1963) with a hip roof and brick siding. The house has a new Victorian style door. Resource 1b is a metal equipment barn (circa 1963) with a metal gable roof and central sliding doors on both gable ends, plus a door on the south end. Resource 1c is a metal animal barn (circa 1963) with a metal gable roof. The south façade is opened at the eave line allowing ventilation and light for animals. Cows were present in the fenced field adjacent to the structure. Resource 1d is a metal windmill (circa 1963). The house, windmill, and animal barn are in the domestic work zone.

The farm is currently active as evident by wheat growing in the fields and cows in the fenced pasture connected to Resource 1c. Although the farm started in 1927, all the buildings appear to be from the 1960s with no evidence of past structures and therefore, the property lacks the layering and connectivity of development often present in farms of this age. The current agricultural buildings are utilitarian in style and design, while the house is a common example of the Ranch style. Property 1 fails to rise to the level

necessary to be included in the NRHP under Criterion C and is recommended *not eligible*. A website search of the Berend name and current owner did not reveal any important information. Property No. 1 has no known direct associations with persons, significant events, or trends, and is recommended *not eligible* for NRHP listing under Criterion A or B.

Property 5 is a 20.1-acre parcel; with a 1-acre homesite, 11- acres of native pasture, and 8.1-acres of cropland. The property was in a trust until 2012 when it was purchased by a limited liability corporation (LLC) (DCAD). Resource No. 5a is single-story, red brick Ranch style house (circa 1970) with cedar shake shingles in the gable end. The house appears to maintain integrity but is a common example of the Ranch style and does not rise to the level necessary for inclusion in the NRHP. Resource 5b is a single-story, concrete building with a wood door. Resource 5c is a metal barn with a central opening and missing door. An open, four-bay addition is on the east façade and abuts a fenced pasture. There is a modern storage shed (circa 1995) with wood siding on the parcel. Resources 5b and 5c are utilitarian in design and style. All the buildings appear to be from the 1970s with no evidence of past agricultural structures or farming activity. On the adjacent parcel, also owned by the same LLC, is a collection of about 13 structures, which appear to include a dwelling, animal facilities, pens, and grain bins. They all are actively in operation. Property 5 fails to convey the structures and infrastructure necessary to reflect a farm. Based on the above information, Property 5 is recommended *not eligible* under Criterion A, B, or C.

Property No. 15 has 9.5 acres with 0.5-acre as a homesite and 8.9 acres as native pasture (DCAD). A house and multiple agricultural buildings, which are in various states of disrepair, are clustered together. A 1963 topographic map has three structures on the parcel, 15a, 15b, and 15c. By 1981, an aerial photograph shows a total of eight structures on the parcel, and during the survey, an additional three structures were identified. Due to location of structures on the parcel, density of the structures, and foliage, it was difficult to document the structures.

Resource No. 15a is a single story, Ranch style house (circa 1963). The siding and windows are modern and a flat-roof, two-car garage has been added to the front façade. Resource 15b is a wood building with a metal roof. Based on the width of the wood siding laid in a horizontal pattern, the central pedestrian door in the gable end, and the shed addition on the west façade, the building could have been a single-family dwelling at some point. The building has three additions. Resource 15c is a barn with vertical wood siding, a metal gable roof, and multiple openings visible on the south façade. The building abuts a fenced pasture. The remaining structures consist of pole barns and cinder-block structures.

The house (Resource 15a), detached garage (circa 1981), and two, cinder block buildings are in the domestic work zone. Resources 15b and 15c, plus two equipment pole barns (both circa 1981), a loafing shed, and a clay-tile structure are in the agricultural work zone. Resources 15a, 15b, and 15c all have had alterations reducing their architectural

integrity, and therefore, are recommended *not eligible* for listing in the NRHP under Criterion C. Property No. 15 has no known direct associations with significant events, trends, or persons under Criterion A or B and is therefore recommended *not eligible* for NRHP listing.

Resource No. 17 is a single-story Ranch style house (circa 1970) with brick siding. The large protruding front porch with imbrication in the gable end is not original. According to DCAD, a 1,257 square foot addition and multiple open porches were added in 1988. The house is on a 10.6-acre parcel, one-acre homesite and 9.6-acres of improved pasture (DCAD). The DCAD lists a house and carport (circa 1973), two barns (circa 1995), and two residential-storage sheds (circa 1995). There are multiple buildings on the 1981 aerial photograph, but the footprint size and orientations differ from the 2018 aerial photograph. Based on the alterations and additions to the house and the modern outbuildings, Resource No. 17 is recommended *not eligible* for listing in the NRHP under Criterion C. The property has no known associations with any important persons, trends, or events. And therefore, are recommended *not eligible* for inclusion in the NRHP under Criterion A or B.

Property No. 20, Sterling Ranch, is a 120-acre horse-breeding and training ranch. Resource No. 20 is a single-story, Ranch style house (c. 1975) with brick siding. Additions to the house include a porte-cochere, west façade addition, a rear addition with wood framing, and stone quoins on the front façade. No buildings are shown on a 1974 topographic map, but DCAD has the year built as 1972, and based on original massing, scale, arched windows and the brick soldier course at the eave line, the house was constructed in the 1970s. The DCAD lists the barns, arenas and storage with as built in 1985, 1996, 2006 and 2009. According to <https://sterlingranchusa.com/about/>, the facilities include a 26-stall show barn, a 16-stall young horse barn, a 130'x270' indoor arena, an indoor round pend, an indoor horse walker, and a 250'x450' outside track. Based on the house alterations and the multiple modern structures, Resource No. 20 lacks integrity of design, material, workmanship, and setting, and is recommended *not eligible* under Criterion C. The horse ranch is part of the trend of raising horses in this area which started in the 1970s, but other than the house, the facility is modern and has no known local, state, or national horse-related events and therefore is recommended *not eligible* under Criterion A. The horse ranch has no known association with known persons and is recommended *not eligible* under Criterion B.

Property No. 35 is a multi-acre parcel with a Ranch style house (1968 per DCAD), a metal barn with an apartment (circa 1981), a metal barn with central door (circa 1981), an animal facility (c. 1981) and a small storage shed. The DCAD lists the owner of the parcel as Blue Sky Therapeutic Riding and Respite, Inc. Their website, <https://blueskytexas.org/>, cites this address and notes that they organized in 2010. A sign on the house has Aubrey Pediatric Speech Therapy. Per www.Realtor.com, the commercially zoned property is on 8.5 acres and has two barns, one that includes a two-room apartment and a riding ring.

Per DCAD, there are three barns, two built in 2000 and one built in 1995. Three structures and the house appear on the 1981 aerial, www.NETRonline.com, but there are no buildings on the 1974 topographic map for this parcel. The massing, scale and front porch support are typical of a 1960s Ranch style house. Since the house does not appear on the 1974 topographic map it could have been moved to this site. Alterations to the house include modern vinyl siding, windows, shutters, and the front door. The width of the house and the change in window styles indicate an addition to the north facade. The change in materials and new commercial use reduces the integrity of material, design, workmanship, feeling, setting, and association. Property No. 35 is recommended not eligible under Criterion A, B, or C.

Property No. 37 is 15.5 acres with a one-acre homesite and 14.5-acres improved pasture. Per Google Earth historic aerial photographs, the acreage is used to produce hay. Resource No. 37a is a single-story, Tudor style house (c. 1930) with stone siding. The rear porch has been enclosed with windows. Resource 37b is a large, metal pole barn (circa 1975). The barn does not appear on the 1974 topographic map, but appears on a 1981 aerial photograph, and is not listed on the DCAD. Resource 37c is a stone ruin (circa 1930). Based on the west façade, the original roof was probably gable. The stone ruin is lighter in color than the house's stone façade, and no framework is visible. The house and ruin are in the domestic work zone. Based on the lack of agricultural buildings, the property no longer possesses a distinct agricultural work zone. The farm has no known association with important events, trends, or persons and is recommended not eligible under Criterion A, B, or C.

Hobby Farms

Resource No. 18 is a single-story, Ranch style house (circa 1975) with brick siding, a hip roof, and an integrated carport located on one acre. A pole barn and modern storage shed are on the property. The house is a common example of the Ranch style and the agricultural building is modern. Resource No. 18 has no known associations with any important persons or events and therefore, is recommended not eligible for inclusion in the NRHP under Criterion A, B, or C.

Resource No. 19 is a single-story, Ranch style house (circa 1960) with a side gable roof. Original brick siding has been covered by stone around the garage and window openings and at the inset, front porch wall. The new siding reduces integrity of design, material, workmanship and feeling. Two modern agricultural buildings (circa 2012) are located on the parcel. Resource No. 19 has no known associations with any important persons, trends, or events and therefore, is recommended not eligible for inclusion in the NRHP under Criterion A, B, or C.

Property No. 32 is a 4.5-acre parcel with two houses, a barn, and two modern agricultural outbuildings. Resource No. 32a is a single-story, Ranch style house (circa 1965) that has multiple additions reducing integrity of design, style, feeling and workmanship. Resource

No. 32b is a single-story house with wood siding and an inset porch. This modest variant of the Craftsman style has new columns and a change in the fenestration pattern. The DCAD has “year built” as 1959. Based on the wood profile, exposed rafters, roof pitch and coupled windows, the house appears to have been constructed circa 1930. Resource No. 32c is a metal pole barn with an addition to the south façade. Based on the alterations, the house lacks integrity of design, material, workmanship, and feeling. Resource 32c is a metal pole barn (DCAD 1970) with an addition on the south façade. Property No. 32 has no known associations with any important persons, trends, or events and therefore, is recommended not eligible for inclusion in the NRHP under Criterion A, B, or C.

Property No. 40 consists of two houses and two modern metal barns (circa 2017 and 1981) on seven acres. Resource 40a is a single-story, Ranch style house (circa 1964). Alterations include new siding, windows, a front door, columns, and a rear addition. Resource 40b is a single-story, Ranch style house with brick siding (circa 1970). Based on the roof pitch and style, the house was connected to a detached garage, thus creating the existing breezeway/carport. A large rear addition occurred around 2009. The windows are modern. Due to the alterations, both houses lack integrity of material, design, and workmanship. The resources have no known associations with any important persons, trends or events, and therefore, are recommended *not eligible* for inclusion in the NRHP under Criterion A, B, or C.

- **Recommendations for Further Study**

There are no recommendations for further study at this time.

Determination of Section 106 Effects Recommendations

- **Direct Effects**

As no listed or eligible historic properties are located within the project APE, the proposed undertaking would have no direct effects on historic properties.

- **Indirect, Cumulative or Reasonable Foreseeable Effects**

The proposed undertaking would have no indirect effects or cumulative impacts on historic properties. The proposed project activities would have no reasonably foreseeable effects on historic properties, known or unknown.

U.S. DOT Section 4(f) Applicability Statement

The proposed undertaking would have no impact or use of historic properties under Section 4(f), and no Section 4(f) would be required.

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Appendix A: Project Information and ROW Information

Finalize [Back To List](#)

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

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Project Definition

Project Name:

CSJ: - - Anticipated Environmental Classification:

Is this an FHWA project that normally requires an EIS per 23 CFR 771.115(a)?

Project Association(s)

Manually Associate CSJ:

CSJ	DCIS Funding	DCIS Number	Env Classification	DCIS Classification	Main or Associate	Doc Tracked In	Actions
There are currently no Project Associations added to this project.							

DCIS Project Funding and Location

Funding

DCIS Funding Type:

Federal Stat Local Private

Location

DCIS Project Number: Highway:

District: County:

Project Limit -- From:

Project Limit -- To:

Begin Latitude: , Begin Longitude: ,

End Latitude: , End Longitude: ,

DCIS & P6 Letting Dates

DCIS District: DCIS Approved: DCIS Actual:

P6 Ready To Let: P6 Proposed Letting:

DCIS Project Description

Type of Work:

Layman's Description:

DCIS Project Classification:

Design Standard:

Roadway Functional Classification:

Jurisdiction

Does the project cross a state boundary, or require a new Presidential Permit or modification of an existing Presidential Permit?

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

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

Who is the project sponsor as defined by 43 TAC 2.77?

https://apps.dot.state.tx.us/ECOS/apps/ecos/project_definition.jsp?submitStatus=Y&errorE... 7/23/2020

USACE IBWC USCG NPS IAJR Other

Environmental Clearance Project Description

Project Area
 Typical Depth of Impacts: (Feet) Maximum Depth of Impacts: (Feet)
 New ROW Required: (Acres)
 New Perm. Easement Required: (Acres) New Temp. Easement Required: (Acres)

Project Description
 Describe Limits of All Activities:

The project would extend for a total of approximately 13.75 miles along US 377 from north of BUS 377E to US 380 in Denton County, Texas. Improvements would also be made at BU 377 N, BU 377 S, FM 455, FM 3524, FM 428, FM 424, US 380 and other minor collectors and local roads. The width of ROW would be typical 140 feet. The project would require 65 acres of additional ROW and 2 acres of permanent easement. There is potential for displacements as a result of the proposed project.

Describe Project Setting:

The project passes through the cities of Cross Roads, Krugerville, Aubrey, and Pilot Point, Texas. These cities may be considered substantial traffic generators for the project area. Additionally, US 380 located at the south end of the project is also a substantial traffic generator. The vegetation within and immediately adjacent to the proposed project limit is classified as Urban, agriculture, disturbed prairie, tallgrass prairie grassland, and cross timbers woodland and forest. There are several water features that cross or run parallel to the US 377. Adjacent land use consists of residential, commercial, development, and undeveloped land.

Describe Existing Facility:

The existing US 377 facility from North of BUS 377E to US 380 in Denton County, Texas mainly consists of a rural 2-lane roadway with 12-foot driving lanes and 10-foot shoulders. The roadway consists of a rural 2-lane roadway with a continuous two way left turn lane in Pilot Point, Texas from BU 377 N to FM 455 E, and in Aubrey, Texas / Krugerville, Texas from FM 428 to Sherry Lane / Industrial Park. This section consists of 12-foot driving lanes, a 14-foot continuous two way left turn lane, and 4-foot shoulders. Along US 377 from BU 377 S to FM 3524, Union Pacific Railroad runs parallel to the roadway on the west side of the facility. Along this section of roadway, there are four at grade railroad crossings: FM 455 E, St. John Rd, Belew Rd and a private driveway. There are ditches along both sides of the roadway that provide surface drainage as well as culverts crossing along the existing roadway at multiple locations. Stormwater runoff within the limits is conveyed through an open ditch drainage system. The facility is intersected by seven major collectors, including: BU 377 N, BU 377 S, FM 455, FM 3524, FM 428, FM 424, US 380 and other minor collectors and local roads. Existing speed limits are 60 miles per hour (mph) in rural areas, 55 mph in the urban areas of Pilot Point, Aubrey and Krugerville, Texas and 35 mph in school zones.

Describe Proposed Facility:

The proposed project consists of the reconstruction and widening of US 377 from US 380 to North of BUS 377E for approximately 13.75 miles. Improvements would include the expansion of the current 2-lane rural roadway to a 6-lane urban roadway with a raised median to provide additional capacity and improve safety. Improvements would consist of 12-foot-wide travel lanes, and 14-foot-wide outside shared-use lanes, 5-foot sidewalks with American Disabilities Act (ADA) curb ramps in both directions. The exception would be no sidewalk on the west side of the road along the parallel section with the Union Pacific Railroad. Proposed drainage will be conveyed by curb & gutter, a storm sewer system and crossing culverts. Other improvements would include realigning the intersection BU 377 S at US 377 and FM 424 at US 377 for safer operations. The existing ROW width will increase with the proposed project to the typical 140-foot ROW footprint. The proposed project is anticipated to require 65 acres of additional ROW and 2 acres of proposed permanent drainage easements to accommodate the proposed improvements.

Would the project add capacity?

Transportation Planning

Is the project within an MPO's boundaries?

Does the project meet the definition for a grouped category for planning and programming purposes?

The project is located in area.

This status applies to:

CO - Carbon Monoxide

O3 - Ozone

NO2 - Nitrogen Dioxide

PM10 - Particulate

PM2.5 - Particulate

Environmental Clearance Information

Environmental Clearance Date:

Environmental LOA Date:

Closed Date:

Archived Date:

Approved Environmental Classification:

Project Contacts

Created by:

Date Created:

Project Sponsor: TXDOT (Or) Local Government

Sponsor Point Of Contact:

ENV Core Team Member:

District Core Team Member:

Other Point of Contact(s):

County of Denton.

Updated By: Mohammed Shukri

Last Updated Date: 07/23/2020 01:09:41



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Appendix B: Tabular Inventory of Surveyed Properties

Resource No.	Address/ Location	Function/ Sub-function	Architectural Style	Date(s)	Integrity/Comments	NRHP Eligibility
1a	908 Berend 33.410305°, -96.940072°	DOMESTIC/ Single family dwelling	Ranch	c. 1963	Property 1, Berend Farms established 1927, consists of a Ranch style house, barns, a windmill, and wheat field. The DCAD lists the house, with attached garage, as being on 3.0 acres and 0.75-acres of cropland. The DCAD lists three barns on 22.92-acres located behind the house. Based on location and spatial distance of the structures, the domestic yard, consisting of the house, windmill, and three barns, visual appears to be on one large parcel. Three buildings appear on a 1963 topographic map. Resource 1a is a Ranch style house with hip roof and brick siding and a new Victorian style door. Based on established date of 1927 the Ranch style house replaced the original farmhouse.	No
1b	908 Berend 33.410348°, -96.939925°	AGRICULTURE/ Secondary structure	None	c. 1963	Resource 1b is a metal barn with metal gable roof and central sliding doors on both gable ends, plus a door on the south end.	No
1c	908 Berend 33.410452° -96.939608°	AGRICULTURE/ Animal Facility	None	c. 1963	Resource 1c is a metal barn with metal gable roof. The south façade is opened at the eave line allowing ventilation and light for animals. A large metal sliding door is located on the east façade. Cows were present in the field adjacent to the structure.	No
1d	908 Berend 33.410305°, -96.940072°	AGRICULTURE/ Windmill	None	c. 1963	Resource 1d is a windmill with metal structure and blades.	No
2	1112 N US 377 33.406473°, -96.943362°	COMMERCE/ Warehouse	None	1975	Resource 2, Mark's Body Shop, is a metal warehouse. The front façade has two additions, a porch with gable roof and metal columns, and an office with gable roof, stucco siding and fixed horizontal windows. Due to the front façade alterations the warehouse lacks integrity of design, workmanship, and materials.	No

Resource No.	Address/ Location	Function/ Sub-function	Architectural Style	Date(s)	Integrity/Comments	NRHP Eligibility
3	1100 N US 377 33.406101°, -96.944007°	COMMERCE/ Warehouse	None	c. 1970	Resource 3, Pilot Point Feed Store, is metal a warehouse with end gable windows, large rolling garage door, and a pedestrian door. There are windows on the side façade.	No
4	110 N US 377 33.395973° -96.946407°	COMMERCE/ Specialty store	None	c. 1975	Resource 4, Evans Stop-N-Go. is a single-story commercial, multi-bay building with brick and metal siding. A large metal building with garage door has been added to the south façade and new awnings are on the front façade. The addition and awnings reduce the integrity of material, design, workmanship and feeling.	No
5a	835 Debbie Lane 33.389335°, -96.949470°	DOMESTIC/ Single family dwelling	c. 1970	Ranch	Property 5 is a 20.1-acre parcel; with a 1-acre homesite, 11- acres native pasture, and 8.1-acres cropland. Within the domestic zone is a house, concrete structure, pole barn, and modern shed. The property was in a trust until 2012 when it was purchased by a limited liability corporation (DCAD). Resource 5a is single-story, red brick Ranch style house with cedar shake shingles in the gable end. The house appears to maintain integrity but, is a common example of the Ranch style and does not rise to the level necessary for inclusion in the NRHP.	No
5b	835 Debbie Lane 33.389241°, -96.949369°	DOMESTIC/ Secondary structure	None	c. 1970	Resource 5b is a single-story solid concrete building with a wood door.	No
5c	835 Debbie Lane 33.389097°, -96.948737°	Agriculture/ Animal facility	None	1970	Resource 5c is a metal barn with a central opening and missing doors. An open, four-bay, addition is on the east façade. Due to the missing doors and addition the structure has loss integrity of design, material, workmanship and feeling.	No
6	836 Debbie Lane 33.389389°, -96.950139°	DOMESTIC/ Single-family dwelling	Ranch	c. 1963	Resource 6 is a single-story Ranch style house with painted brick and cedar shake shingle siding. Based on the t-plan, different siding material and different shaped windows, the south portion is a later addition. The house lacks integrity of material, design, and workmanship.	No

Resource No.	Address/ Location	Function/ Sub-function	Architectural Style	Date(s)	Integrity/Comments	NRHP Eligibility
7	332 E Fairlane Drive 33.387298° -96.955662°	DOMESTIC/ Single-family dwelling	Ranch	c. 1970	Resource 7 is a single-story Ranch style house with polychromatic brick siding. The windows have been replaced and the garage enclosed for living space. Per historic aerials, a rear addition was added between 1981 and 1994. The house lacks integrity of material, design, and workmanship.	No
8	325 E Fairlane Drive 33.386845°, -96.955770°	DOMESTIC/ Single-family dwelling	Ranch	1972	Resource 8 is a single-story Ranch style house with a cross-gable roof, beige brick siding and a two-car garage. The house retains integrity but is a common example and does not rise to the level necessary for inclusion in the NRHP.	No
9	316 E Holiday Street 33.386184°, -96.956523°	DOMESTIC/ Single-family dwelling	Ranch	1968	Resource 9 is a single-story Ranch style house with polychromatic brick siding and multiple hip roofs located on two acres. The garage has been infilled to create living space and a two-car carport attached to the house. The windows have been replaced. The alterations and carport decrease the integrity of design, material, and workmanship.	No
10	1001 E Wayside Circle 33.386077°, -96.957420°	DOMESTIC/ Single-family dwelling	Ranch	1974	Resource 10 is a single-story Ranch style house with a cross-gable roof and red brick siding. The garage is located on the rear façade of the house. A Victorian style spindle column is located by the front door and appears to be the only nonoriginal architectural feature. The house is a common example of the Ranch style and does not rise to the level necessary for inclusion in the NRHP.	No
11	1101 S US 377 33.385482°, -96.955986°	COMMERCE/ Office building	Ranch	c. 1965	Resource 11 is single-story Ranch style red brick house with a hip roof. The windows, door, and front column are modern, and the shutters have been removed. The house is zoned Commercial. The house lacks integrity of design, material, association, and workmanship.	No
12	101 Holiday Street 33.385640°,- 96.959382°	DOMESTIC/ Single-family dwelling	Ranch	1966	Resource 12 is one and a half-story Ranch style with polychromatic brick and wood siding. The house retains its integrity but, is a common example of a Ranch style house.	No

Resource No.	Address/ Location	Function/ Sub-function	Architectural Style	Date(s)	Integrity/Comments	NRHP Eligibility
13	1100 S Washington 33.385620°, -96.961555°	COMMERCE/ Warehouse	None	C. 1970	Resource 13, Rodeo Warehouse, is a complex of warehouses used for storage. The buildings are on the former rodeo grounds. Per a 1981 aerial photograph, the parcel had one building and an oblong dirt riding ring. Today there are seven warehouses on the grounds and no evidence of the riding ring. The building below appears to be the original barn, covered in modern metal siding with hinged doors on the south elevation and garage roll up doors on the north elevation. Based on the new siding and roof material, the change in door/ingress/egress, the change in use, the loss of the riding ring, and addition of new structures, Property 13 has loss integrity of material, design, workmanship, setting, association, and feeling.	No
14a	1201 S David Lane 33.383152°, -96.958787°	DOMESTIC/ Single-family dwelling	Minimal Traditional	c. 1935	Resource 14a is a single-story Minimal Traditional style house with wood siding and a hip roof. The windows have been replaced and a shed roof carport has been added to the north façade. The house is similar to 14b. A 1963 topographic map has no buildings in this area. Based on the style, estimated year of construction and topographic map the houses were moved to this site. Based on the alterations on the individual buildings and the fact the houses are not original to this location, the resources lack integrity of material, setting, and location.	No

Resource No.	Address/ Location	Function/ Sub-function	Architectural Style	Date(s)	Integrity/Comments	NRHP Eligibility
14b	1203 S David Lane 33.382982°, -96.958835°	DOMESTIC/ Single-family dwelling	Minimal Traditional	c. 1935	Resource 14b is a single-story Minimal Traditional style house with wood siding and a hip roof. Some windows have been replaced and a shed roof carport has been added to the south façade. The house is similar to 14a. Property 14 has three houses on the parcel. Based on the style, estimated years of construction, and historic maps, the houses were moved to this site by 1981. Based on the alterations on the individual buildings and the fact the houses are not original to this location, the resources lack integrity of material, setting, and location.	No
14c	1205 S David Lane 33.382786°, -96.958847°	DOMESTIC/ Single-family dwelling	Minimal Traditional	c. 1950	Resource 14c is a single-story Minimal Traditional style house with asbestos shingle siding and a cross wing roof. A gable roof carport has been added to the north façade. Property 14 has three houses on the parcel. Based on the style, estimated years of construction, and historic maps, the houses were moved to this site by 1981. Based on the alterations on the individual buildings and the fact the houses are not original to this location, the resources lack integrity of material, setting, and location.	No
15a	10055 Strittmatter 33.382026°, -96.958263°	AGRICULTURAL/ Single-family dwelling	Ranch	c. 1963	Resource 15a is a single story, Ranch style house of painted masonry units. The siding and windows are modern. A modern, flat-roof, two-car garage has been added to the south façade. The property has multiple agricultural buildings in various states of disrepair located on 9.5 acres. The DCAD only has a date on the house (1965) and garage (1985) and does not list any other buildings on the property. Based on the alterations of the house and the disrepair of the agricultural buildings, Property 15 lacks the integrity of material, design, and workmanship.	No

Resource No.	Address/ Location	Function/ Sub-function	Architectural Style	Date(s)	Integrity/Comments	NRHP Eligibility
15b	10055 Strittmatter 33.382352°, -96.958007°	AGRICULTURAL/ Secondary structure	None	c. 1963	Resource 15b is a wooden building with a metal roof. Based on the width of the wood siding laid in a horizontal pattern, the central pedestrian door in the gable end, and the shed addition on the west façade with a framed opening, the building could have been a single-family dwelling. There are three additions to the east façade, one with a shed roof and two with gable roofs. Based on the additions and probable change in use, the building lacks integrity of design, setting and association.	No
15c	10055 Strittmatter 33.382020°, -96.957344°	AGRICULTURAL/ Animal facility	None	c. 1963	Resource 15c is a barn with vertical wood siding, metal gable roof. and multiple openings visible on the south façade. The building abuts a fenced in pasture.	No
16	1291 US 377 33.378717°, -96.961621°	DOMESTIC/ Single-family dwelling	Ranch	1965	Resource 16 is a Ranch style house, with brick siding and a two-car garage. Alterations include painted brick, new shutters, and new garage door. Based on the alterations, Resource 16 lacks integrity of design, materials, and workmanship.	No
17	1301 S US 377 33.376531°, -96.962062°	DOMESTIC/ Single-family dwelling	Ranch	c. 1970	Resource 17a is a single-story Ranch style house with brick siding and a protruding porch with imbrication in the gable end. According to DCAD a 1257 square addition and multiple open porches were added in 1988. Property 17 has six outbuildings although DCAD only lists two barns and two storage sheds with year built as 1995. There are multiple buildings on the 1981 aerial photograph, but the footprint size and orientations differ than the 2018 aerial photographs. Based on the large addition and the front porch style, Property 17 lacks integrity of design and material. The addition of five structures reduces the integrity of setting and feeling.	No

Resource No.	Address/ Location	Function/ Sub-function	Architectural Style	Date(s)	Integrity/Comments	NRHP Eligibility
18	1311 S US 377 33.375349°, -96.962507°	DOMESTIC/ Single-family dwelling	Ranch	c. 1975	Resource 18 is a single-story Ranch style house with brick siding, hip roof, and an integrated carport located on one acre. The house is a common example of the Ranch style and does not rise to the level necessary to be included in the NRHP. A pole barn and storage she, both modern, are on the property.	No
19	11100 US 377 33.360496°, -96.964697°	DOMESTIC/ Single-family dwelling	Ranch	c. 1960	Resource 19 is a single-story Ranch style house with a side gable roof. Original brick siding has been covered by stone around the garage and window openings and at the inset, front porch. The new siding has reduced integrity of design, material, workmanship and feeling. Two modern agricultural buildings are located on the parcel.	No
20	9811 Friendship Road 33.346755°, -96.964088°	DOMESTIC/ Single-family dwelling	Ranch	c. 1975	Property 20, Sterling Ranch, is a 120-acre horse breeding and training ranch. Resource 20 is a single-story Ranch style house with brick siding. Additions to the house included a porte-cochere, west façade addition, a rear addition with wood framing and stone quoins to the front façade. The DCAD has the year built for the house as 1972, but a 1974 topographic map shows no buildings on this property. The DCAD lists the barns, arenas and storage with year built as 1985, 1996, 2006 and 2009. According to https://sterlingranchusa.com/about/ , the facilities include a 26 stall show barn, a 16 stall young horse barn, a 130'x270' indoor arena, an indoor round pend, an indoor horse walker, and a 250'x450' outside track. Based on these additions and the additions of multiple agricultural buildings on the parcel, Property 20 lacks integrity of design, material, workmanship, and setting.	No

Resource No.	Address/ Location	Function/ Sub-function	Architectural Style	Date(s)	Integrity/Comments	NRHP Eligibility
21	8491 US 377 33.325506°, -96.971426°	COMMERCE/ Professional	Ranch	c. 1965	Resource 21, Houghton Law Group, is a single-story, Ranch style house with a side gable roof. A large porte-cochere has been added to the front façade. The windows and entry doors are modern. Included on the 4.38-acre lot is a barn (2000) a storage shed (1993), and a large storage shed (2003). Dates constructed per DCAD. Based on the addition, alterations and change in use, Resource 21 lacks integrity of design, material, workmanship, association and feeling.	No
22	8171 US 377 33.324232°, -96.971838°	DOMESTIC/ Single-family dwelling	Ranch	c. 1955	Resource 22 is a single-story Ranch style house with wood siding and cross gable roof. A Victorian Style column supports the front porch stoop roof overhang. The house was only visible from the adjacent lot. The DCAD has the year built as 1977, however, based on the siding and chimney size, the house appears to be built earlier. Google Earth Pro imagery has a storage shed behind the house.	No
23	409 Spring Hill Road 33.298925°, -96.983538°	COMMERCE/ Specialty store	Craftsman Bungalow	c. 1925	Resource 23, Hair Illusions Salon, is a single-story, modest example of a Craftsman Bungalow style house with new siding, new windows, new front door, new porch, and a rear addition. Based on the alterations, addition, and change in use, Resource 24 no longer retains integrity of design, material, workmanship, association or feeling.	No
24a	407 Spring Hill Road 33.298981°, -96.983832°	DOMESTIC/ Single-family dwelling	Ranch	c.1970	Resource 24a is a single-story, cross-roof plan, Ranch style house with brick siding and vinyl siding in the gable ends. The front door has been replaced with a modern Victorian style door. The house lacks integrity of material and design due to the alterations.	No
24b	407 Spring Hill Road 33.299236°, -96.983842°	DOMESTIC/ Secondary structure	None	c.1970	Resource 24b is a single-story, single-car garage with work space. The original asphalt shingle roof has been replaced with a metal roof.	No

Resource No.	Address/ Location	Function/ Sub-function	Architectural Style	Date(s)	Integrity/Comments	NRHP Eligibility
25	402 Spring Hill Road 33.298508°, -96.984544°	DOMESTIC/ Single-family dwelling	Victorian	c. 1910	Resource 25 is a single-story, Victorian style house with asbestos shingle siding and aluminum framed windows. Based on the changes the house lacks integrity of material, design, and workmanship.	No
26a	701 Chestnut Street 33.298526°, -96.984871°	DOMESTIC/ Single-family dwelling	Mansard	c. 1970	Resource 26a is a two-story Mansard style house with brick siding and a mansard roof. The sliding glass windows are modern. The house lacks integrity of material.	No
26b	701 Chestnut Street 33.298424°, -96.984782°	DOMESTIC/ Secondary structure	Mansard	c. 1970	Resource 26b is a two-story Mansard style garage with apartment which matches the house's brick siding and mansard roof. The original windows have been replaced. The garage apartment lacks integrity of material and design.	No
27	805 Chestnut Street 33.296255°, -96.985005°	DOMESTIC/ Single-family dwelling	Craftsman	c. 1925	Resource 27 is a modest example of a single-story, Craftsman style house with the front-gabled roof principal subtype. Alterations include vinyl siding, new windows, new metal columns, concrete porch foundation, and decorative shutters. Removal of windows has changed the fenestration pattern. Due to the changes, Resource 27 lacks integrity of design, material, and workmanship. The DCAD year built is 1962, which is incorrect based on the house style, but may indicate the building was moved to this site at that time.	No
28	807 Chestnut Street 33.296089°, -96.985016°	DOMESTIC/ Single-family dwelling	Minimal Traditional	c. 1935	Resource 28 is a single-story, Minimal Traditional style house. Alterations include aluminum siding, new windows, new metal columns, decorative shutters, and a rear addition. Due to the changes, Resource 29 lacks integrity of design, material, and workmanship. The DCAD year built is 1962, which is incorrect based on the house style, but may indicate the building was moved to this site at that time.	No

Resource No.	Address/ Location	Function/ Sub-function	Architectural Style	Date(s)	Integrity/Comments	NRHP Eligibility
29	809 Chestnut Street 33.295885 °, -96.985029 °	DOMESTIC/ Single-family dwelling	Craftsman	c. 1925	Resource 29 is a modest example of a single-story, Craftsman style house with the front-gabled roof principal subtype. Alterations include new siding, new windows, new columns, a concrete foundation for the porch. The fenestration pattern has been altered. Resource 29 lacks integrity of design, material, and workmanship. The DCAD year built is 1962, which is incorrect based on the house style, but may indicate the building was moved to this site at that time.	No
30	916 US 377 33.293345 °, -96.985982 °	COMMERCE/ Specialty store	None	c. 1975	Resource 30 is a single-story cinder block retail building. Alterations include a new shed roof, canopy, changes in the fenestration pattern, plus additions to the rear and side façade. Based on the alterations Resource 30 lacks integrity of design, material, and workmanship.	No
31	5411 US 377 33.286770 °, -96.986498 °	COMMERCE/ Business	Ranch	c.1975	Resource 31, Wild Hearts Nature Preschool, is a single-story Ranch style house. The original front door has been replaced. The front and side yards have been covered with asphalt to create parking spaces. The backyard has various farm animals and multiple modern structures. Due to the change in use from domestic to commerce, Resource 31 lacks integrity of association, feeling, and setting.	No
32a	5408 US 377 33.286259 °, -96.985501 °	DOMESTIC/ Single-family dwelling	Ranch	c. 1965	Property 32 is a 4.5-acre parcel with two houses, a barn, and various agricultural outbuildings. Resource 32a is a single-story Ranch style house that has multiple additions. Based on these additions the house no longer has integrity of design, material, and feeling.	No
32b	5408 US 377 33.285970 °, -96.985399 °	DOMESTIC/ Single-family dwelling	Craftsman	c. 1930	Resource 32b is a single-story house with wood siding and inset porch. This modest variant of the Craftsman style has new columns and a change in the fenestration pattern. The DCAD has year built as 1959. Based on the wood profile, exposed rafters, roof pitch and coupled windows the house appears to have been constructed circa 1930.	No

Resource No.	Address/ Location	Function/ Sub-function	Architectural Style	Date(s)	Integrity/Comments	NRHP Eligibility
32c	5408 US 377 33.286134°, -96.984696°	AGRICULTURE/ Secondary structure	None	1970	Resource 32c is a metal pole barn with an addition on the south façade.	No
33	104 Brumley Road 33.285891°, -96.986960	DOMESTIC/ Single-family dwelling	Ranch	c. 1975	Resource 33 is a single-story Ranch style house with brick siding in Extension No. one of Country Estates Subdivision by L.H. Kruger. The new windows reduce the integrity of material and design.	No
34	105 Perkins Road 33.278428°, -96.987549°	DOMESTIC/ Single-family dwelling	Styled Ranch/ Neoclassical	c. 1975	Resource 34 is a two-story, Styled Ranch with Neoclassical influences as evidenced by the overall massing, two-story columns, and front entry. The house has new windows reducing integrity of material and design. The house is in Country Estates Subdivision by L.H. Kruger.	No
35	5098 US 377 33.277944°, -96.986060°	COMMERCE/ Professional	Ranch	c. 1965	Property 35 is a multi-acre parcel with a Ranch style house and multiple barns. The DCAD list the owner of the parcel as Blue Sky Therapeutic Riding and Respite, Inc. and their website, https://blueskytexas.org/ cites this address and notes they organized in 2010. A sign on the house says Aubrey Pediatric Speech Therapy. Alterations to the house include siding, windows, shutters, front door, and use. Per www.Realtor.com , the commercially zoned property is on 8.5 acres, has two barns, one that includes a two-room apartment, and a riding ring. Per DCAD there are three barns, two built in 2000 and one built in 1995. Three structures appear on the 1981 aerial, www.NETRonline.com , but there are no buildings on the 1974 topographic map for this parcel. Due to the massing, scale, window patterns and porch support brackets the house was probably moved to this site after 1974. The changes in materials and commercial use reduces the integrity of material, design, workmanship, feeling, and association.	No

Resource No.	Address/ Location	Function/ Sub-function	Architectural Style	Date(s)	Integrity/Comments	NRHP Eligibility
36	4645 US 377 33.267004°, -96.987526°	DOMESTIC/ Single-family dwelling	Ranch	c. 1965	Resource 36 is a single-story Ranch style house. Changes include a rear addition, new accent siding, a new porch, and new roof. The house no longer retains integrity of material, design, and workmanship.	No
37a	4398 US 377 33.259889°, -96.986962°	DOMESTIC/ Single-family dwelling	Tudor	c. 1930	Property 37 is 15.48 acres (DCAD ID# 302202) with a house, pole barn, and a collapsed stone structure. Per aerial photographs, the acreage is used to produce hay. Resource 37a is a single-story, Tudor style house with rock siding. The rear porch has been enclosed with windows and metal awnings are on the front façade. Due to the alterations, the house lacks integrity of material and design.	No
37b	4398 US 377 33.259603°, -96.986749°	DOMESTIC/ Secondary structure	Pole Barn	c. 1975	Resource 37b is a large metal pole barn. The barn does not appear on the 1974 topographic map, but appears on a 1981 aerial photograph, and is not listed on the DCAD.	No
37c	4398 US 377 33.259810°, -96.987013°	DOMESTIC/ Ruin	None	c. 1930	Resource 37c is a stone ruin. Based on the west façade the original roof was probably gable. The stone is lighter in color than the house stone and no framework is visible.	No
38	4294 US 377 33.256834°, -96.987089°	COMMERCE/ Business	Ranch	c. 1950	Property 38, Stallion Business Park, has an office building, a mobile home, and eight modern, metal warehouses on 7.96 acres. Resource 38 is a single-story, Ranch style house. The house has been converted for commercial use as flexible office space. Other changes include siding, door, roof, windows, an attached carport on the front façade, and the front yard has been converted to a parking lot. Property 38 lacks integrity of design, material, workmanship, setting, feeling, and association.	No

Resource No.	Address/ Location	Function/ Sub-function	Architectural Style	Date(s)	Integrity/Comments	NRHP Eligibility
39	5001 Fishtrap Road 33.234863°, -96.998311°	DOMESTIC/ Single-family dwelling	Ranch	c. 1960	Resource 39 is a single-story Ranch style house on a one-acre parcel. Alterations to the house include new windows, door, porch columns, and large cross gable addition on the front façade. Modern secondary structures are located on the parcel. Based on the alterations, Resource 39 lacks integrity of design, material, and workmanship.	No
40a	1800 S US 377 33.234522°, -96.999443°	DOMESTIC/ Single-family dwelling	Ranch	c. 1964	Property 40 consists of two houses and two modern metal barns on seven acres. Resource 40a is a single-story Ranch style house. Alterations include new siding, windows, front door, columns, and rear addition. Due to the alterations the house lacks integrity of material, design, and workmanship.	No
40b	1800 S US 377 33.234159°, -96.999769°	DOMESTIC/ Single-family dwelling	Ranch	c. 1970	Resource 40b is a single-story Ranch style house with brick siding. Based on the roof pitch and style, the house was connected to a detached garage thus creating the existing breezeway/carport. A large rear addition occurred around 2009. The windows are modern. Based on the changes the house lacks integrity of design, material, and workmanship.	No



Indirect and Cumulative Impacts Analysis

United States (US) 377

From: North of BUS 377E

To: US 380

Denton County, Texas

Control-Section-Job (CSJ): 0081-06-040

Date: August 2020

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Appendix

Aerial Map

Indirect Impacts Area of Influence Map

Cumulative Impacts Resource Study Area Map

Induced Growth Indirect Impacts Decision Tree

Email Correspondence with Cities

I. INTRODUCTION

The Texas Department of Transportation (TxDOT) is proposing improvements to United States (US) 377 from north of Business (BUS) 377E to US 380 in Denton County, Texas; a distance of approximately 13.75 miles. Improvements would include the expansion of the current 2-lane rural roadway to a 6-lane urban roadway with a raised median to provide additional capacity and improve safety. The proposed project is anticipated to require 54.7 acres of additional right of way (ROW) and 1.14 acres of proposed permanent drainage easements to accommodate the proposed improvements. See **Appendix: Project Location Map, USGS Topographic Map, and Aerial Map.**

A. Need and Purpose

The proposed project is needed because the existing US 377 within the project limits a) fails to meet current safety design standards because the existing facility lacks ROW for pedestrians and b) is inadequate to meet current and future traffic volumes, resulting in congestion and reduced mobility.

The purpose of the proposed project is to provide infrastructure options to reduce traffic congestion on the existing roadways; to improve operations of the roadway; to provide a safer, more convenient route for traveling through the area; to increase mobility (including pedestrian and bicycle accommodations); and, to provide improved connectivity to the area. Roadway improvements would increase the capacity and driver delay would decrease. Safety for pedestrians and drivers should also improve with the proposed project.

B. Existing Facility

The existing US 377 facility from US 380 to North of BUS 377E in Denton County, Texas mainly consists of a rural 2-lane roadway with 12-foot driving lanes and 10-foot shoulders. The roadway consists of a rural 2-lane roadway with a continuous two-way left turn lane in Pilot Point, Texas from BUS 377 N to Farm to Market (FM) 455 E, and in Aubrey, Texas / Krugerville, Texas from FM 428 to Sherry Lane / Industrial Park. This section consists of 12-foot driving lanes, a 14-foot continuous two-way left turn lane, and 4-foot shoulders. Along US 377 from BUS 377 S to FM 3524, Union Pacific Railroad runs parallel to the roadway on the west side of the facility. Along this section of roadway, there are four at grade railroad crossings: FM 455 E, St. John Road, Belew Road and a private driveway. There are ditches along both sides of the roadway that provide surface drainage as well as culverts crossing along the existing roadway at multiple locations. Stormwater runoff within the limits is conveyed through an open ditch drainage system. The facility is intersected by seven major collectors, including: BUS 377 N, BUS 377 S, FM 455, FM 3524, FM 428, FM 424, US 380 and other minor collectors and local roads. Existing speed limits are 60 miles per hour (mph) in rural areas,

55 mph in the urban areas of Pilot Point, Aubrey and Krugerville, Texas and 35 mph in school zones.

C. Proposed Facility

The proposed project consists of the reconstruction and widening of US 377 from US 380 to North of BUS 377E for approximately 13.75 miles. Improvements would include the expansion of the current 2-lane rural roadway to a 6-lane urban roadway with a raised median to provide additional capacity and improve safety. Improvements would consist of 12-foot-wide travel lanes, and 14-foot-wide outside shared-use lanes, 5-foot sidewalks with American Disabilities Act (ADA) curb ramps in both directions. The exception would be no sidewalk on the west side of the road along the parallel section with the Union Pacific Railroad. Proposed drainage will be conveyed by curb & gutter, a storm sewer system and crossing culverts. Other improvements would include realigning the intersection BUS 377 S at US 377 and FM 424 at US 377 for safer operations. The existing ROW width will increase with the proposed project to the typical 140-foot ROW footprint. The proposed project is anticipated to require 54.7 acres of additional ROW and 1.14 acres of proposed permanent drainage easements to accommodate the proposed improvements.

II. INDIRECT IMPACTS

The Council on Environmental Quality (CEQ) defines indirect effects as those caused by the action and occur later in time or farther removed in distance than direct effects 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 Code of Federal Regulations [CFR] Section 1508.8). Indirect effects differ from the direct impacts associated with the construction and operation of the Build Alternative and are caused by another action or actions that have an established relationship or connection to the Build Alternative. These induced actions are those that would not or could not occur without the implementation of the Build Alternative.

The encroachment-alteration component of indirect impacts is discussed in tandem with direct impacts that were addressed in the resource specific technical reports. These technical reports are available for review at the TxDOT Dallas District office.

Completion of the Induced Growth Indirect Impacts Decision Tree indicated the need for an Induced Growth Impacts Analysis, with the qualifying elements listed below:

- There is land within the project area available for development and/or redevelopment
- The proposed project adds capacity
- The proposed project is located within an MPO
- The proposed project increases mobility

- The project area is experiencing economic growth

The above elements trigger an Induced Growth Impacts Analysis. The full **Induced Growth Indirect Impacts Decision Tree** can be viewed in the appendices.

The analysis of indirect impacts discussed in this document follows the six-step process outlined in TxDOT's Indirect Impacts Analysis Guidance (January 2019). The six steps in the TxDOT Indirect Impacts Analysis Guidance consist of the following:

1. Define the Methodology
2. Define the Area of Influence (AOI) and Study Timeframe
3. Identify Areas Subject to Induced Growth in the AOI
4. Determine if Growth is Likely to Occur in the Induced Growth Areas
5. Identify Resources Subject to Induced Growth Impacts
6. Identify Mitigation if Applicable

Step 1: Define the Methodology

The potential for induced growth impacts was determined using a planning judgment approach consisting of reviewing planning documents, and correspondence with available planning representatives of the cities and towns of Aubrey, Cross Roads, Krugerville, Little Elm, Oak Point, Pilot Point and Providence Village.

Cartographic techniques using map overlays of environmental constraints such as cemeteries, floodplains, and parks were used to identify areas where potential induced growth would not likely occur.

Step 2: Define the Area of Influence and Study Timeframe

The basic objective in creating an indirect impacts AOI is to delineate a study area in which project-related indirect induced growth may occur. According to TxDOT's Indirect Impacts Analysis Guidance, there are four preferred methods for determining the AOI:

1. Adopting political/geographic boundaries;
2. Using the project's commute-shed;
3. Using the location of next major parallel roadway; and/or
4. Incorporating data from stakeholder interviews or public involvement.

The AOI was determined using political and geographic boundaries. Census block groups were used as a starting point for the boundary of the AOI; however, the size of the adjacent census block group boundary far exceeded necessary limits. To narrow down the AOI, areas were trimmed away using census blocks. The southern portion of the AOI was mostly unchanged; however, some census blocks encompassed mostly or fully by Lewisville Lake were removed. The western side of the AOI follows the Elm Fork Trinity River. The northwestern side of the AOI follows Lake Ray Roberts. The northernmost side of the AOI follows Buck Creek. The

central eastern side was trimmed along Pecan Creek, and the northeastern portion was trimmed to follow Pelzel Road in Denton County and Maier Road in Grayson County. The northeastern portion follows these roads to reduce the size of the AOI while retaining the census block shapes and a relatively normal shape. Then, communication was initiated with the cities and towns of Aubrey, Cross Roads, Krugerville, Lincoln Park, Little Elm Oak Point, Pilot Point and Providence Village.

The Planning representatives of the cities and towns of Aubrey, Cross Roads, Krugerville, Pilot Point and Providence Village agreed that the AOI would encompass any induced growth effects associated with the proposed project. The AOI encompasses approximately 62,601.4 acres and can be viewed on the **Indirect Impacts Area of Influence Map**.

The area within the AOI encompasses the entire Build Alternative and adjacent areas where development or accelerated rates of development could potentially occur. Extending the AOI out farther would encompass areas unlikely to be affected by the proposed project.

Temporal boundaries for the indirect effect analysis extend from construction of the Build Alternative (2028) until 2045, the end of the proposed Metropolitan Transportation Plan (MTP) planning cycle.

Step 3: Identify Areas Subject to Induced Growth in the AOI

Cartographic techniques using overlays showing potential constraints such as cemeteries, existing development, floodplains, surface wells, parks, and water bodies were used to identify which areas within the AOI would be most likely to experience induced growth. Utilities are available to the entire AOI. A discussion of the land uses within the AOI and whether they would be subject to induced growth is as follows:

Areas Without Potential for Induced Growth

The following land uses within the AOI and outside of the proposed project footprint would generally not experience induced growth within the cities and towns of Aubrey, Cross Roads, Krugerville, Lincoln Park, Little Elm, Oak Point, Pilot Point and Providence Village, and unincorporated areas of Denton County. All areas without potential for induced growth (excluding existing development) are shown on the **Indirect Impacts Area of Influence Map**.

Floodplain

A portion of the AOI contains Buck Creek, Elm Fork Trinity River, Pecan Creek, and their associated tributaries and floodplains. The floodplain areas total approximately 8,263.3 acres and depending on specific site conditions, would generally not experience induced growth. These floodplain areas (100-year flood zones) are shown on the **Indirect Impacts Area of Influence Map**. Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) geographic information system (GIS) data was utilized to identify 100-year flood zones

within the AOI.¹ This constraint is unlikely to undergo induced growth due to regulatory protections.

Waters of U.S.

The National Wetlands Inventory (NWI) Wetlands Mapper was utilized to determine potential open water, riverine and wetland acreages in the AOI along with aerial imagery analysis.²

There are approximately 1,208.3 acres of Waters of U.S. in the AOI and consist of approximately 504.5 of open water (freshwater ponds and lakes), 0.25 acre of riverine features and 703.6 acres of potential wetlands. These constraints are unlikely to undergo induced growth due to regulatory protections. These water features are shown on the **Indirect Impacts Area of Influence Map**.

Cemeteries

These areas were identified using North Central Texas Council of Governments (NCTCOG) Land Use data for 2015³ and the Texas Historical Commission Atlas Map.⁴ There are nine cemeteries within the AOI and consist of Belew Cemetery, Key School Community Cemetery, Pilot Point Community Cemetery, Pilot Point Memorial Cemetery, Skinner Cemetery, St. John Cemetery, St. Thomas Cemetery, Taylor Family Cemetery, Wilson-Black Jack Cemetery. These cemeteries encompass approximately 72.7 acres of land within the AOI.

Parkland/Green Belts

These areas were identified using NCTCOG Land Use data for 2015.³ Approximately 4,455.5 acres of parkland and green belts, including a Ray Roberts Lake State Park, are located within the AOI. Land identified as parkland/green space is shown on the **Indirect Impacts Area of Influence Map**. This constraint is unlikely to undergo induced growth due to regulatory protections.

Existing Roadways and Railroads

There are approximately 906.0 acres of existing roadways⁵ and associated transportation ROW, and approximately 188.4 acres of existing railroads.⁶ These roadways and railroads are not subject to induced growth. These constraints are unlikely to undergo induced growth because these roadways/railroads already exist and city planning representatives did not identify any roadways/railroads that would be modified as a result of the proposed project.

¹ <https://www.fema.gov/faq-details/GIS-Data/>

² <https://www.fws.gov/wetlands/data/Mapper.html>

³ <http://data-nctcoggis.opendata.arcgis.com/datasets/2015-land-use>

⁴ <https://atlas.thc.texas.gov/Map>

⁵ <http://gis-txdot.opendata.arcgis.com/datasets/txdot-roadways>

⁶ <http://gis-txdot.opendata.arcgis.com/datasets/texas-railroads>

Proposed Project

The existing and proposed project footprint is approximately 327.9 acres and is not developable. The proposed project would not undergo induced growth because the footprint would be utilized for the US 377 widening.

Existing Development

There are approximately 50,640.7 acres of existing development within the AOI.⁷ This development consists of agriculture, single-family and multi-family residential, parks and recreation, commercial/retail services, industrial, civic/institutional facilities, utilities and places of worship. The majority of existing land use in the AOI is agriculture. This agricultural land totals approximately 25,910.7 acres with 2,762.5 potentially being subject to redevelopment through planned development. Areas of planned redevelopment were identified by Cross Roads, Krugerville and Pilot Point planning representatives, as well as planning documents and online research.

Planned Development Not Dependent on Proposed Project

Currently planned and foreseeable development and redevelopment were identified using information gathered through email correspondence with planners, from planning documents, and online research. Planned development is identified in **Table 1** and is shown on the **Indirect Impacts Area of Influence Map**.

Table 1: Planned Development within the AOI

Map ID No.	City	Development Type	Name	Area (acres) ¹
1	Pilot Point	Single-family Residential	Pilot Point 113	112.4
2		Single-family Residential	Hat Creek Estates	57.2
3		Single-family Residential	Mustang Creek	17.4
4		Mixed Residential	Yarbrough Farms	103.7
5		Estate Residential	The Hills at Pilot Point	56.5
6		Single-family Residential	Lakeview Estates	16.9
7		Single-family Residential	Rodeo Crossing	7.8
8	Aubrey	Commercial	Unknown	3.2
9		Commercial	Unknown	1.9
10		Commercial	Unknown	1.7
11		Commercial	Unknown	1.2

⁷ <http://data-nctcogis.opendata.arcgis.com/datasets/2015-land-use>

12		Commercial	Unknown	1.7
13		Residential	Unknown	1,405.4
14		Commercial	Unknown	16.0
15		Commercial	Unknown	9.9
16		Commercial	Unknown	7.9
17		Commercial	Unknown	6.8
18		Commercial	Unknown	9.6
19		Commercial	Unknown	0.4
20		Commercial	Unknown	4.1
21		Single-family Residential	Unknown	12.0
22		Multi-family Residential	The Meadows	7.7
23		Single-family Residential	Unknown	13.3
24		Industrial	Unknown	10.3
25		Commercial	Unknown	4.5
26		Single-family Residential	Aubrey Creek Estates	41.7
27		Single-family Residential	Silverado	791.7
28	Krugerville	Office/Commercial	Unknown	1.8
29		Commercial	Unknown	5.0
30		Residential	Unknown	45.9
31		Mixed-Use	Tarsan Corp Development	14.8
32		Retail/Light Industrial	Unknown	2.5
33		Industrial	Unknown	53.3
34	Providence Village	Single-family Residential	Unknown	45.5
35		Single-family Residential	Unknown	41.6
36		Commercial	Unknown	49.3
37	Cross Roads	Residential	29 Acres (Assisted Living)	28.8
38		Commercial/Retail	Strip Mall	16.1
39		Commercial/Retail	Strip Mall	8.7
40		Commercial	Bank	1.4
41		Commercial	Unknown Restaurant	0.9
42		Commercial	Unknown Commercial	0.9
43		Commercial	Unknown Mixed Commercial	4.2
44		Mixed Use Commercial/Multi-family	Cross Roads Market Square	35.0
45		Single-family Residential	Oak Hill Ranch	202.2
46	Little Elm ETJ	Single-family Residential	Unknown	23.3
47		Single-family Residential	Hillstone Point	85.5
				3,389.6

Sources: Email correspondence with planners from the Town of Cross Roads (4/14/20); City of Krugerville (6/15/20); City of Pilot Point (4/13/20); Planning documents from all cities within the AOI; online research of developments within the AOI.

¹The area of proposed roadways within planned developments are included in the area (acreage) of the planned development.

The 3,389.6 acres of planned and foreseeable development and redevelopment listed in **Table 1** are not dependent on the proposed project.

Vacant Land Not Influenced by the Proposed Project

Approximately 1,631.7 acres of vacant land is located within the AOI that does not fall under the other categories discussed in Step 3. The professional opinion of the preparers and of those interviewed was that any new development of these vacant lands would be associated with the other roadways, economic conditions, and population demand of the project area cities and counties.

Summary

Table 2 shows a summary of the areas without the potential for induced growth within the AOI.

Table 2: Summary of the Areas Without the Potential for Induced Growth Within the AOI

Land Use	Acres
Floodplain*	8,263.3
Open Water*	504.5
Riverine Features*	0.25
Wetlands*	703.6
Cemeteries	72.7
Parkland/Green Belts	4,455.5
Existing Roadways	906.0
Existing Railroads	188.4
Proposed US 377 Project*	327.9
Existing Development Excluding Planned Redevelopment	47,878.2
Planned Development Not Dependent on Proposed Project*	3,389.6
Vacant Land Not Influenced by the Proposed Project	1,631.7
Total	69,321.7

*Overlaps other areas of land use.

Sources: FEMA NFHL GIS data (2018); USFWS GIS data (2019); NCTCOG GIS Data (2015); TNRIS and Google Maps aerial imagery (2018, 2019).

As shown in **Table 2**, there are approximately 69,321.7 acres of land without the potential for induced growth within the AOI. Areas of agricultural land use with planned developments or potential induced growth are excluded (47,878.2 acres).

Areas with Potential for Accelerated or Induced Growth

City of Krugerville planning representatives identified various areas of potential induced growth. Discussions with City of Cross Roads and Pilot Point planning representatives indicated that induced growth was unlikely as a result of the project. They believed that development adjacent to the project location will ultimately happen regardless of the proposed project, however, the planning representatives did state that the project would likely accelerate growth of commercial developments along the project location. From here forward, accelerated growth will be discussed along with induced growth. The City of Aubrey and Town of Providence Village planning representatives did not anticipate any accelerated or induced growth as a result of the project either due to planned developments already underway, or distance from the project. Responses were not received from the City of Little Elm or City of Oak Point, however, they are located as far as or further away from the project location than Providence Village, so it can be presumed that no accelerated or induced growth would occur in these cities.

Table 3: shows the acreage, of all areas of potential accelerated or induced growth in the AOI and the **Indirect Impacts Area of Influence Map** shows the locations of the areas with the potential for accelerated or induced growth. This is based on input from city planners as well as planning documents found on city websites.

Table 3: Summary of Commercial Areas with Potential for Accelerated and Induced Growth in the AOI

City	Growth Type	Map ID	Acres
City of Pilot Point	Accelerated	A	3.7
	Accelerated	B	4.9
	Accelerated	C	1.1
	Accelerated	D	1.8
	Accelerated	E	1.3
	Accelerated	F	5.5
	Accelerated	G	4.7
	Accelerated	H	23.8
	Accelerated	I	26.7
	Accelerated	J	0.9
	Accelerated	K	1.9
	Accelerated	L	1.1
	Accelerated	M	4.0
	Accelerated	N	9.9
Accelerated	O	11.6	
City Subtotal			102.9
City of	Induced	P	5.0
	Induced	Q	23.4

Krugerville	Induced	R	7.5
	Induced	S	5.1
	Induced	T	3.2
	Induced	U	4.6
City Subtotal			48.8
Town of Cross Roads	Accelerated	V	20.4
	Accelerated	W	1.8
	Accelerated	X	2.1
	Accelerated	Y	13.3
	Accelerated	Z	4.9
City Subtotal			42.5
Total All Cities			194.2

Sources: Email correspondence with planners from the Town of Cross Roads (4/14/20); City of Krugerville (6/15/20); City of Pilot Point (4/13/20); Planning documents from all cities within the AOI; online research of developments within the AOI.

As shown in **Table 3**, the areas within the AOI with the potential for accelerated or induced growth are located within the Town of Cross Roads, City of Krugerville, and City of Pilot Point, and total approximately 194.2 acres.

Note that some of the listed resources overlap (i.e., floodplains and waters overlap existing land use, the proposed project overlaps existing roadways). For this reason, the areas within the AOI not subject to accelerated or induced growth (69,321.7 acres) exceed the area of the AOI (62,601.4 acres). Floodplains account for the majority of this overlap, which when excluded, reduce the areas within the AOI not subject to accelerated or induced growth to 61,058.4 acres, much closer to the area of the AOI. See the **Indirect Impacts Area of Influence Map** for detailed map symbolizing the above land uses.

Step 4: Determine if Growth is Likely to occur in the Induced Growth Areas

The purpose of this step is to analyze the likelihood for accelerated or induced growth to occur on the land identified in Step 3. Factors that were used to determine the likelihood of accelerated or induced growth include information from planners, planning documents, land use and zoning maps, and population, employment, and housing trend data.

Planner Information

Pilot Point

Email correspondence on April 13, 2020 with the City of Pilot Point planning representatives indicated that induced growth was not anticipated, however, the proposed project could

accelerate commercial development along US 377. These areas of commercial land use were identified using the Pilot Point Future Land Use Map.

Cross Roads

Email correspondence with the Town of Cross Roads planning representatives on April 14, 2020 indicated that induced growth was not expected, but the project could accelerate commercial development along US 377 due to the proposed improvements. These areas of commercial land use were identified using the Cross Roads Future Land Use Map.

Aubrey

Email correspondence with the City of Aubrey planning representative was held on June 3 and 10, 2020. The planning representative indicated that no induced or accelerated growth was expected because the majority of properties adjacent to US 377 are either developed or have planned developments.

Krugerville

Email correspondence with City of Krugerville planning representatives on June 15, 2020 indicated that induced growth may occur and identified these locations using Parcel IDs. They also identified areas of planned development using Parcel IDs.

Providence Village

Email correspondence with Town of Providence Village planning representatives on June 15, 2020 indicated that accelerated or induced growth was not anticipated due to the distance of the town from the project.

Little Elm

Email correspondence was attempted with various City of Little Elm officials multiple times in June 2020 however no responses were received. Based on responses from the City of Aubrey, Town of Cross Roads, City of Krugerville, City of Pilot Point, and Town of Providence Village, it was presumed accelerated growth would only occur adjacent to the project. Because Little Elm is so far from the project, accelerated or induced growth was not anticipated.

Oak Point

Email correspondence was attempted with various City of Oak Point officials multiple times in June 2020 however no responses were received. Based on responses from the City of Aubrey, Town of Cross Roads, City of Krugerville, City of Pilot Point, and Town of Providence Village, it was presumed accelerated growth would only occur adjacent to the project. Because Oak Point is so far from the project, accelerated or induced growth was not anticipated.

Based on the recommendations of the planners of the City of Aubrey, Town of Cross Roads, City of Krugerville, City of Pilot Point, and the Town of Providence Village, the resulting areas

with potential for accelerated or induced growth can be viewed on the **Indirect Impacts Area of Influence Map**.

Planning Documents

There are numerous planning documents that cover the AOI. Representative applicable planning documents are listed in **Table 4**.

Table 4: Planning Documents

Document	Entity
Mobility 2045: The Metropolitan Transportation Plan for North Central Texas	NCTCOG
Vision North Texas 2050 (2010)	NCTCOG
Denton County Thoroughfare Plan (2017)	Denton County
Aubrey Future Land Use Map (2015)	City of Aubrey
Aubrey Zoning Map (2015)	City of Aubrey
Aubrey Planned Developments Map (2020)	City of Aubrey
Cross Roads Future Land Use Map (2015)	Town of Cross Roads
Cross Roads Zoning Map (2015)	Town of Cross Roads
Little Elm Future Land Use Map (2018)	City of Little Elm
Little Elm Zoning Map (2019)	City of Little Elm
Little Elm Subdivision Map (2018)	City of Little Elm
Oak Point Future Land Use Map (2019)	City of Oak Point
Oak Point Zoning Map (2019)	City of Oak Point
Pilot Point Future Land Use Map (2018)	City of Pilot Point
Pilot Point Zoning Map (2019)	City of Pilot Point
Pending Development PowerPoint (2019)	City of Pilot Point
Providence Village Future Land Use Map (2018)	City of Providence Village
Providence Village Zoning Map (2018)	City of Providence Village

Details from various planning documents that support the induced/accelerated growth discussion in the coming steps are summarized below:

- *Mobility 2045: The Metropolitan Transportation Plan for North Central Texas* was adopted in June 2018 by the Regional Transportation Council, which serves as the policy body for the Metropolitan Planning Organization for North Central Texas. The Plan is the defining vision for the multimodal transportation system in the Dallas-Fort Worth Metropolitan Planning Area and guides the implementation of multimodal transportation improvements, policies, and programs in the 12-county Metropolitan Planning Area through the year 2045. Appendix E. Mobility Options recommends making US 377 six-lanes by 2045.
- *Vision North Texas 2050 (2010)* was a collaborative planning effort conducted in the late 2000s to educate elected officials and regional leaders on growth trends in the

North Texas region. The Plan acknowledges that North Texas is the fastest-growing region in the country and the increasing growth is putting pressure on the region's natural resources (especially water) and infrastructure (especially transportation).

- The Denton County Thoroughfare Plan Map, indicates the eventual expansion of US 377 to six lanes.
- The various Future Land Use Maps and Zoning Maps help to indicate both future and present land use within the Area of Influence and Resource Study Area to help identify reasonably foreseeable actions.
- The Aubrey Planned Developments Map provided by city planners shows planned developments within the city limits
- The Little Elm Subdivision map found on the city website helps to identify planned and existing developments within the AOI.
- The Pending Development PowerPoint provided by Pilot Point city planners with the shows planned developments within the city limits.

Population and Employment Trends and Forecasts

Population

According to *Mobility 2045*, the 12-county Dallas-Fort Worth (DFW) Metropolitan Planning Area (MPA) had a 2010 population of approximately 6.4 million persons. By 2045, the population of the 12-county DFW MPA is projected to be 11.2 million persons; an increase in growth of approximately 75 percent.⁸

According to NCTCOG population projections, the 2017 population of Denton County was 804,396 persons and the 2045 population is projected to be 1,346,316 persons; an increase in growth of approximately 67.3 percent. Transportation Serial Zones (TSZ) created by the NCTCOG provide area-specific population and employment trends from 2005 to 2045 as based on *Mobility 2045*. These zones follow roadways and the AOI contains large portions of 17 TSZs. The combined populations for these TSZs show 15,441 persons for 2005 and 52,659 persons for 2045.⁹ Compared to the county or individual city populations, this is a 241 percent increase in population relative to the 2005 population. This is likely due to a number of planned and potential developments in what are currently heavily agricultural areas previously outside of city limits.

The Texas Water Development Board conducts population projections to assist in regional water planning. **Table 5** shows the projected populations for six of the seven cities or towns within the US 377 project area for the years 2020 and 2040.

Table 5: Projected Populations for the Cities in the US 377 Area of Influence

⁸ <https://www.nctcog.org/trans/plan/mtp/2045>

⁹ http://data-nctcogis.opendata.arcgis.com/datasets/c8ab64bc19eb4878b659bdf50710c036_11

City	2020	2040	Percent Increase
Aubrey	4,726	7,349	55.5%
Cross Roads	2,256	3,800	68.4%
Krugerville	1,986	2,889	45.5%
Little Elm	29,860	33,821	13.3%
Oak Point	8,305	16,868	103.1%
Pilot Point	6,500	11,000	69.2%

Sources: TWDB 2016 Region C Water Plan. <http://www.twdb.texas.gov/waterplanning/rwp/plans/2016/> (Accessed 6-9-20)

As shown in **Table 5**, the 2020 projected populations for five of the six cities or towns in the project area are projected to grow from 13.3 percent to 103.1 percent by 2040.

Employment

According to the NCTCOG, 4,584,235 persons were employed in the 12-county DFW MPA in 2017. By 2045, 7,024,227 persons are projected to be employed in the 12- county DFW MPA; an increase in growth of approximately 53.2 percent. In Denton County, 298,071 persons were forecast to be employed in 2017. By 2045, Denton County employment is projected to be 479,619 persons; an increase in growth of approximately 60.9 percent. TSZs within the AOI project a 208 percent increase in employment between 2005 and 2045, from 3,365 to 10,375 persons employed there.¹⁰

Access to Development in the Project Corridor

A number of residential and commercial developments exist, or are under/pending construction near the US 377 corridor. These developments have been or would be constructed with or without the project and include the following examples:

- Yarbrough Farms – This 104-acre development in the City of Pilot Point includes 123 single-family lots, 75 townhomes and 120 patio homes as well as 8.9 acres of parks.
- Pilot Point 113 – This 113-acre development in the City of Pilot Point includes 380 lots and 17.2 acres of parks.
- Aubrey Creek Estates – This 47-acre development in the City of Aubrey includes 83 single-family lots and an amenity center.

Although the existing and planned developments discussed above are not dependent on the proposed project, the proposed widening of US 377 will improve access to many of these locations and accelerate the growth of adjacent commercial development anticipated by city planners.

¹⁰ http://data-nctcogis.opendata.arcgis.com/datasets/c8ab64bc19eb4878b659bdf50710c036_11

Summary

Based on the information from the planning departments of the City of Aubrey, Town of Cross Roads, City of Krugerville, City of Pilot Point, Town of Providence Village, and City of Little Elm, as well as planning documents, land use and zoning maps, thoroughfare plans, and population, employment and housing trend data, there is potential for accelerated or induced growth on the approximately 194.2 acres of adjacent land identified in **Step 3**.

Step 5: Identify Resources Subject to Accelerated or Induced Growth Impacts

Vegetation and Wildlife Habitat

Areas of accelerated or induced growth were overlaid on GIS habitat/vegetation polygons generated from the Phase 1 Texas Ecological Systems Classification Project (TESCP) data to determine the accelerated growth impacts to habitat/vegetation types in the AOI. **Table 6** shows a breakdown of the habitat/vegetation types potentially impacted by the 194.2 acres of land identified in Steps 3 and 4 that would be subjected to accelerated or induced growth.

Table 6: Vegetation and Wildlife Habitat Potentially Impacted by Accelerated or Induced Growth

Habitat/Vegetation Type	Accelerated Impact Area (Acres)	Induced Impact Area (Acres)	Present within the AOI (Acres)	Potential Impact
Agriculture	7.8	0.0	4,154.3	0.2%
Crosstimbers Woodland and Forest	100.6	32.2	39,487.2	0.3%
Disturbed Prairie	1.0	0.0	753.1	0.1%
Edwards Plateau Savannah, Woodland, and Shrubland	0.0	0.0	93.3	0.0%
Post Oak Savanna	0.0	0.0	220.8	0.0%
Riparian	1.1	2.3	7,346.4	0.0%
Tallgrass Prairie, Grassland	5.9	0.0	6,567.6	0.1%
Urban	29.0	14.3	3,860.8	1.1%
Total	145.4	48.8	62,483.5	0.3%
All Non-Urban Habitat/Vegetation				
	116.4	34.5	58,622.7	0.3%

Source: Texas Parks and Wildlife’s (TPWD) Phase 1 Texas Ecological Systems Classification Project (TESCP) data (accessed June 2020).

It should be noted that while 3.4 acres of riparian areas are shown to be potentially impacted by induced growth in these areas, they were originally shaped to avoid waters and floodplains based on data from the USFWS NWI and FEMA 100-year Floodplain data. This is because these areas have certain regulatory protections that make induced growth unlikely. The different datasets are compiled through different methods of varying accuracy making these overlaps noted in **Table 6** unavoidable.

Numerous wildlife species may utilize the previously discussed vegetation for food and habitat such as the timber canebrake rattlesnake, Woodhouse’s toad, Strecker’s chorus frog, western burrowing owl, black-tailed prairie dog, eastern box turtle, western box turtle, and slender

glass lizard. However, similar and higher quality habitat is present in the surrounding areas such as the 100-year floodplains and riparian areas associated with Lewisville Lake, Lake Ray Roberts, Elm Fork Trinity River, Pecan Creek, Running Branch, Buck Creek, Little Elm Creek, and their associated tributaries and reservoirs.

Farmland (Soils)

According to GIS data for soils obtained from the U.S. Department of Agriculture (USDA) and the Web Soil Survey,¹¹ there are approximately 33,324.4 acres of prime farmland and farmland of statewide importance in the AOI. Approximately 75.1 acres of prime farmland and farmland of statewide importance would be potentially impacted by accelerated development and 17.3 acres of farmland of statewide importance would be potentially impacted by induced growth. This represents approximately 0.3% of the prime farmland soils and farmland soils of statewide importance in the AOI and is not considered substantial. Of the 92.4 acres of prime farmland potentially impacted by accelerated and induced development, all are located outside of the U.S. Census Bureau (USCB) Urban Areas and are potentially subject to the Farmland Protection Policy Act (FPPA).

Waters of the U.S.

According to the USFWS NWI Wetland Mapper,¹² there are approximately 504.5 acres of open water (lakes and ponds), 0.25 acres of riverine features, and 703.6 acres of potential wetlands within the AOI. Areas of accelerated growth were overlaid on a water features polygon generated from the NWI Wetland Mapper. Because Waters of the US are unlikely to undergo induced impact due to regulatory protections, the open waters and wetlands were avoided in the measurement and drawing of accelerated growth areas indicated by planners. There are approximately 0.55 acres of open waters fully surrounded by areas with potential for induced growth. All Waters of the U.S. designated by the NWI Wetland Mapper are shown on the **Indirect Impacts Area of Influence Map**.

Floodplains

According to FEMA NFHL GIS data,¹³ there are approximately 8,263.3 acres of 100-year flood zone within the AOI. Because floodplains are unlikely to undergo induced growth impacts due to regulatory protections, floodplains were avoided in the measurement and drawing of induced growth areas indicated by planners. Areas of induced growth were overlaid on polygons generated from FEMA NFHL GIS data. Floodplains were not included as a part of the

¹¹ <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

¹² <https://www.fws.gov/wetlands/data/mapper.html>

¹³ <https://www.fema.gov/national-flood-hazard-layer-nfhl>

areas of potential induced growth within the AOI. All 100-year floodplains within the AOI are shown on the **Indirect Impacts Area of Influence Map**.

Socio-Economic/Community Impacts

Socio-economic/community resources would be subjected to accelerated growth impacts. There are several socioeconomic facets related to the anticipated project-accelerated and induced growth impacts on the 194.2 acres within the AOI. The potential development on the currently agricultural land would be expected to benefit the surrounding communities in a trend that has been ongoing for decades. While potential induced growth would impact local agriculture, existing and planned developments encompass what primarily was, or currently is, also agricultural land, and it is a common trend in the DFW region that would eventually happen regardless of the proposed project. The expected development in the AOI would improve the socioeconomic conditions of the communities through the construction of new homes and businesses. It is anticipated that environmental justice (EJ) and non-EJ populations would benefit from the induced growth impacts equally.

Step 6: Identify Mitigation

The accelerated growth associated with the proposed project does not conflict with study area goals, would not delay or interfere with the planned improvement of a resource, and is not inconsistent with any applicable laws; therefore, mitigation for the impacts to Waters of the U.S., floodplains, and socio-economic/community resources is not warranted. All developers, public and private, would be subject to the Clean Water Act, Endangered Species Act, and Migratory Bird Treaty Act; however, private developers would not be subject to Section 106 of the National Historic Preservation Act. There are no known mitigative responsibilities for private developers in Texas for impacts to Agriculture; Disturbed Prairie; Post Oak Savanna; Riparian; or Tallgrass Prairie, Grassland vegetation. Private developers would not be subject to the FPPA for impacts to prime farmland soils and farmland soils of statewide importance. Land development activities would be regulated by the local municipalities. The mitigation of potential development within the AOI considered for this assessment would be the responsibility of the agencies with the authority to implement such controls. This authority rests with the municipal governments, and, to a lesser extent, Denton County.

All of the municipalities experiencing accelerated growth from the US 377 widening have development ordinances that regulate the types of construction and landscape plantings mandated by development codes. For example, the City of Pilot Point's Tree Ordinance places the consideration of trees and how they will be preserved or mitigated at the beginning of the development process. Section 3.08 of the Town of Cross Roads outlines the qualification for and projection of trees before and during construction of development.

Overall, the expected project induced growth would be compatible with zoning requirements, city planning documents, and project area goals.

III. CUMULATIVE IMPACTS

The CEQ defines cumulative impacts as those which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR §1508.7). As such, it may be difficult to understand the role that a proposed action may have in contributing to the overall or cumulative impacts to an area or resource. In accordance with TxDOT's *Cumulative Impacts Analysis Guidelines* (January 2019), this analysis includes the five steps, listed below, to adequately consider the cumulative effects of the proposed project.

1. Resource Study Area, Conditions, and Trends
2. Direct and Indirect Effects on each Resource from the Proposed Project
3. Other Actions – Past, Present, and Reasonably Foreseeable – and their Effect on each Resource
4. The Overall Effects of the Proposed Project Combined with other Actions
5. Mitigation of Cumulative Impacts

Step 1: Resource Study Area, Conditions and Trends

The proposed project's cumulative impacts were identified by carrying forward the direct and indirect impacts that may contribute to a cumulative impact. The cumulative impacts analysis focused on resources substantially impacted by the proposed project and resources in poor or declining health or at risk that are directly or indirectly impacted by the proposed project. The resources which were evaluated for direct and indirect impacts are listed in **Table 7**. The table summarizes the direct and indirect impacts anticipated for each resource and identifies whether or not the resource is carried forward for cumulative impacts analysis.

Table 7: Resources to be Evaluated in the Cumulative Impacts Analysis

Resource or Topic Evaluated	Direct Impacts	Indirect Effects	Carried Forward for Cumulative Effects Analysis	Reason for Elimination
Community Cohesion, Acquisitions, Relocations and Displacements	<p>Two residences (one single-family and one multi-family), two residential properties' associated barn/sheds and three buildings/storage sheds, and seven commercial properties would be displaced as a result of the proposed project.</p> <p>The proposed improvements would not affect, separate, or isolate any distinct neighborhoods, ethnic groups, or other specific groups. No residential neighborhoods would be separated or divided by the proposed project. Positive impacts to residential communities would include improved mobility and accessibility throughout the project study area and to surrounding communities.</p> <p>Negative impacts to access and travel patterns resulting from the implementation of the proposed project are not anticipated.</p>	<p>The potential development in the project area is anticipated to provide an overall benefit to the surrounding community. The construction of new homes and businesses would create new jobs and increase the local tax base. Development would be compatible with zoning requirements, city planning documents, and project area goals.</p> <p>It is anticipated that EJ and non-EJ populations would benefit from the induced growth impacts equally. Impacts to socio-economic/community resources by accelerated growth are not considered substantial.</p>	No	Direct impacts to community cohesion are not anticipated. The indirect effects would provide a positive benefit to the community.
Environmental Justice	<p>No disproportionately high or adverse direct impacts.</p> <p>No adverse encroachment-alteration effects on EJ and LEP populations are anticipated.</p>	No adverse indirect effects are anticipated.	No	No adverse direct impacts or indirect effects are anticipated.
Economy	<p>The proposed improvements would benefit the economy due to new access to adjacent property and from improved mobility in the project corridor. The access to adjacent property would provide the potential for new commercial developments.</p> <p>No adverse encroachment-alteration effects on the economy are anticipated.</p>	<p>Indirect effects that may result from direct impacts include changes in travel patterns and changes in the local economy. No substantial adverse indirect effects are anticipated.</p> <p>Potential induced growth would create new jobs in the AOI and increase the local tax base.</p>	No	No adverse direct impacts or indirect effects are anticipated.
Section 4(f) and Section 6(f) Resources	<p>No Section 4(f) or 6(f) resources would be impacted by the proposed project.</p> <p>Any potential impacts to historic properties would be confined to the existing and proposed ROW/easements; thus,</p>	No indirect effects are anticipated.	No	No direct impacts or indirect effects are anticipated, and the resource is not in poor and/or declining health.

		encroachment-alteration effects are not anticipated.			
Cultural Resources	Historic Structures	No impacts to historic structures would result from the proposed project. Any potential impacts to historic properties would be confined to the existing and proposed ROW/easements; thus, encroachment-alteration effects are not anticipated.	No indirect effects are anticipated.	No	No direct impacts or indirect effects are anticipated, and the resource is not in poor and/or declining health.
	Archeological Resources	No direct impacts are anticipated to occur. Any potential impacts to archeological resources would be limited to the construction phase of the project and confined to the existing and proposed ROW/easements; thus, encroachment-alteration effects are not anticipated.	No indirect effects are anticipated.	No	No substantial adverse direct impacts or indirect effects are anticipated, and the resource is not in poor and/or declining health.
Vegetation and Wildlife Habitat		Approximately 4.2 acres of Agriculture; 2.5 acres of Crosstimbers Woodland and Forest; 8.4 acres of Disturbed Prairie; 0.2 acres of Open Water; 2.3 acres of Riparian; 16.5 acres of Tallgrass Prairie, Grassland; and 273.7 acres of Urban MOU Habitat-type vegetation would be directly impacted by the proposed project. Non-Urban vegetation impacts total approximately 34.1 acres. Potential impacts to vegetation would be confined to the existing and proposed ROW/easements; thus, encroachment-alteration effects are not anticipated.	Approximately 7.8 acres of Agriculture; 132.8 acres of Crosstimbers Woodland and Forest; 1.0 acres of Disturbed Prairie; 3.4 acres of Riparian; 5.9 acres of Tallgrass Prairie, Grassland; and 43.3 acres of Urban vegetation would be potentially impacted by accelerated and induced growth. The accelerated and induced growth impacts on non-Urban vegetation and wildlife habitat in the AOI total approximately 150.9 acres. These impacts are not considered substantial as they encompass 0.3 percent of the AOI. The potential impacts to wildlife from accelerated and induced growth could include loss of habitat, habitat fragmentation, wildlife disturbance from increased human activity levels, and changes in storm drainage patterns.	Yes. There are direct impacts, indirect effects, and the resource is in poor and/or declining health.	Not Applicable.

Migratory Birds	<p>No impacts to migration patterns or migratory bird habitat are anticipated.</p> <p>Expected impacts to migratory birds would be associated with construction activity within the project footprint, no encroachment-alteration indirect impacts to birds are likely.</p>	No indirect effects are anticipated.	No	There are no direct impacts, the indirect effects are not substantial, and the resource is not in poor and/or declining health.
Waters of the U.S.	<p>There are 18 water crossings within the proposed project, consisting of 19 streams. No wetlands are within the project limits. All combined, the proposed project would permanently impact approximately 0.3 acres of Waters of the U.S.</p> <p>The potential for project-related encroachment-alteration effects on Waters of the U.S. would be mitigated through permanent (post-construction) Best Management Practices (BMPs).</p>	No indirect effects are anticipated.	No	The direct impacts and indirect effects are not substantial, and the resource is not in poor and/or declining health.
Water Quality	<p>Potential impacts would be minimized by BMPs associated with Tier I projects and are not anticipated to be substantial.</p> <p>The potential for project-related encroachment-alteration effects on water quality would be mitigated through permanent (post-construction) BMPs. To minimize the potential for adverse impacts, the BMPs would be regularly inspected and proactively maintained.</p>	No adverse indirect impacts are anticipated.	No	The direct impacts and indirect effects are not substantial, and the resource is not in poor and/or declining health.

Floodplains	<p>The proposed project crosses 10.1 acres of FEMA designated 100-year floodplain. The project would permit the conveyance of the 100-year flood, inundation of the roadway being acceptable, without causing significant damage to the facility, stream, or other property. The proposed project would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. Coordination with the local Floodplain Administrator would be required.</p> <p>Construction would be limited to the proposed project's existing/proposed ROW/easement areas and would have no effect on floodplains outside of the construction area.</p>	No 100-year flood zones are located within the areas of potential accelerated development. Floodplain regulations monitor and prohibit select types of development within the floodplain and as such, were deemed unlikely for induced growth. No substantial indirect effects are anticipated.	No	The direct impacts and indirect effects are not substantial, and the resource is not in poor and/or declining health.
Farmland (Soils)	<p>The proposed project would convert 33.6 acres of farmland subject to the FPPA to a non-agricultural, transportation use; however, the impacts are not substantial and the resulting score of the FPPA Form SCS-CPA 106 was below that required for coordination with the Natural Resources Conservation Service.</p> <p>Farmland impacts would be limited to areas directly adjacent to the existing project corridor 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</p>	<p>Approximately 75.1 acres of prime farmland and farmland of statewide importance would be potentially impacted by accelerated development and 17.3 acres of farmland of statewide importance would be potentially impacted by induced growth. This represents approximately 0.3 percent of the 33,324.4 acres of prime farmland soils and farmland soils of statewide importance in the AOI and is not considered substantial. While there are thousands of acres of farmland soils, the majority of agricultural land within the AOI is rangeland.</p> <p>Of the 92.4 acres of farmland soils potentially impacted by accelerated and induced development, acres are located outside of the USCB Urban Areas and are potentially subject to the FPPA.</p>	Yes. While direct impacts and indirect effects are not substantial, the resource is in poor and/or declining health.	Not Applicable.
Air Quality	The project is consistent with the MTP, which conforms to the Transportation Improvement Plan; therefore, air quality impacts are not expected related to ozone.	No substantial indirect effects are anticipated.	No	The direct impacts and indirect effects are not substantial, and the resource is not in poor and/or declining health.

Visual/Aesthetics	<p>The proposed project improvements would be expected to blend with the general character of the area.</p> <p>The proposed project entails improvements/widening of an existing visual element (US 377) rather than introducing a new visual element into the environment; thus, visual encroachment-alteration effects are not anticipated.</p>	No indirect effects are anticipated.	No	No direct impacts or indirect effects are anticipated.
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Source: Study Team (June 2020).

As shown in **Table 7**, vegetation, wildlife habitat and farmland soils will be analyzed to identify effects from cumulative impacts.

Resource Study Area

A Resource Study Area (RSA) has both temporal and geographic components. The temporal component of the RSA is the timeframe in which effects to resources are expected to occur. For vegetation and wildlife habitat, the year 2001 was used as the beginning temporal boundary because it corresponds to the end of the longest period of economic expansion in recent U.S. history. The temporal boundary extends to 2045, the end of the current MTP planning cycle.

Due to laws and regulations concerning Waters of the U.S. and associated floodplains, agricultural practices and residential/commercial development usually avoid streams and their associated floodplains and can leave portions of pristine habitat in place. For this reason, quality wildlife habitat and vegetation are usually found within stream systems, adjacent to intermittent and perennial streams. The proposed project is located within the Elm Fork Trinity subbasin. The geographical RSA for vegetation and wildlife used in this analysis consist of this subbasin because it supports the vegetation, wildlife habitat, and waters most likely to be affected by the proposed project. The Elm Fork Trinity subbasin RSA is also the geographical RSA for farmland (soils). The RSA boundary follows topographical highs. Topography affects soil formation and development, and the chemical and physical properties of soil. These factors play a part in determining soil quality. Therefore, using the subbasin RSA for farmland (soils) is admissible.

The RSA captures the Cities and Towns of Aubrey, Cross Roads, Krugerville, Little Elm, Oak Point, Pilot Point, Providence Village, and unincorporated areas of Denton County. The RSA totals approximately 92,802.1 acres. A map of the RSA is shown on the **Cumulative Impacts Resource Study Area Map**.

Conditions and Trends

The RSA is located within the Cross Timbers and Prairies Ecological Region, which was historically dominated by a combination of prairies and woodlands along rivers and creeks. This region was a difficult narrow strip of woodland and prairie, difficult for early settlers to traverse. Over time, agriculture has come to dominate the region leading to fragmentation of once continuous habitat. With competition for food and cover with livestock, conversion of woodland habitat to improved pastures or other agricultural developments, and urban and rural developments, varying levels of decline in the density and diversity of wildlife can be seen today.¹⁴

¹⁴ https://tpwd.texas.gov/landwater/land/habitats/cross_timbers/ecoregions/cross_timbers.phtml

Historic aerial photographs and topographic maps were reviewed to determine the development trend in the RSA. In 2001, developed properties inside of the RSA included single and occasional multi-family residential, commercial/retail services and shopping centers, and industrial facilities. These areas of development are broken up by large tracts of agricultural and undeveloped land, especially in the central and northeastern portions of the RSA outside of the city limits. By 2019, many of the large tracts of land have been developed into residential subdivisions, however large tracts of agricultural and rural residential land remain. Other areas where rural development already existed have seen some redevelopment to greater density residential neighborhoods.

The expanding development and associated transportation network reduced the available wildlife habitat in the RSA. Much of the wildlife habitat is constrained to riparian corridors and floodplains. These areas have remained relatively unchanged over the years and continue to provide habitat for wildlife and ecological benefits from water features. Other areas consist of ranch land. As a result of a change in vegetation and habitat, wildlife species in more developed areas of the RSA are shifting to species better able to adapt to a suburban environment. The current condition of the vegetation and wildlife habitat within the RSA is considered “in decline.”

Vegetation and Wildlife Habitat

Aerial photography of the RSA from 2018 indicates that the primary vegetation types within the RSA are agriculture, floodplain forest, prairie, and maintained herbaceous. Healthy riparian areas are found adjacent to Lewisville Lake, Lake Ray Roberts, Elm Fork Trinity River, Pecan Creek, Running Branch, Buck Creek, Little Elm Creek, and their associated tributaries and reservoirs.

According to TPWD’s TESCP - Phase 1 vegetation data,¹⁵ existing potential wildlife habitat includes approximately 42,727.7 acres of Crosstimbers Woodland and Forest; 1,657.1 acres of Disturbed Prairie; 251.4 acres of Edwards Plateau Savannah, Woodland, and Shrubland; 25,079.9 acres of Riparian; 283.2 acres of Post Oak Savanna; 11,237.1 acres of Tallgrass Prairie, Grassland; 7,020.2 acres of Agriculture; and 4,545.5 acres of Urban MOU Habitat-type vegetation within the RSA. Based on the above, non-Urban MOU Habitat-type vegetation within the RSA totals approximately 88,256.6 acres.

Based upon 2018 aerial photography and 2015 Land Use GIS data from the NCTCOG,¹⁶ approximately 40 percent (36,763 acres) of the RSA is urban or developed with an additional 36 percent (33,322.6 acres) of the RSA being agricultural use, primarily ranchland.

¹⁵ Texas Parks and Wildlife’s (TPWD) Phase 1 Texas Ecological Systems Classification Project (TESCP)

¹⁶ <http://data-nctcogis.opendata.arcgis.com/datasets/2015-land-use>

Wooded areas can be found along portions of almost all major streams within the RSA as well as various tributaries and other separated areas. The largest wooded area can be found in the southern and western portions of the RSA along Lewisville Lake and the Elm Fork Trinity River, primarily within Ray Roberts Lake State Park. These wooded areas serve as a buffer to development and as a sanctuary for vegetation and wildlife. Some undeveloped areas beyond the wooded corridors consist of pasture/prairie, agriculture, and scrub/shrub vegetation. Overall, the riparian and floodplain corridors provide a protected environment for native and sensitive wildlife and plant species to live and grow with minimal disturbance.

Farmland (Soils)

According to GIS data for soils obtained from the USDA and the Web Soil Survey,¹⁷ there are approximately 43,552.2 acres of prime farmland soils and farmland soils of statewide importance in the RSA. Of this, 40,958.3 acres are located outside of the USCB Urban Areas and are potentially subject to the FPPA.

Based upon 2001 aerial photography and 2000 land use GIS data from the NCTCOG, approximately 71.6 percent (66,480.0 acres) of the RSA was used for agricultural purposes in 2001. Of the 66,480.0 acres of agricultural land, approximately 56.3 percent (37,426.0 acres) was underlain by prime farmland soils and farmland soils of statewide importance. Of the 37,426.0 acres, approximately 99.5 percent (37,238.9 acres) were located outside of the USCB 2000 Urban Areas and potentially subject to the FPPA.

Currently, approximately 28.0 percent (25,910.7 acres) of the RSA is used for agricultural purposes. Of the 25,910.7 acres, approximately 75.3 percent (19,505.9 acres) is underlain by prime farmland soils and farmland soils of statewide importance. Of the 19,505.9 acres, 98.8 percent (19,264.4 acres) are located outside of the USCB 2017 Urban Areas and are potentially subject to the FPPA. However, 91.5 percent of this agricultural land is rangeland making it not subject to the FPPA.

As the DFW Metroplex continues expanding along the US 377 corridor, existing ranchlands are being converted to residential, commercial and other developed land uses as the population grows.

Step 2: Direct and Indirect Effects on each Resource from the Proposed Project

Vegetation and Wildlife Habitat

Approximately 4.2 acres of Agriculture; 2.5 acres of Crosstimbers Woodland and Forest; 8.4 acres of Disturbed Prairie; 0.2 acres of Open Water; 2.3 acres of Riparian; 16.5 acres of Tallgrass Prairie, Grassland; and 273.7 acres of Urban MOU Habitat-type vegetation would be

¹⁷ <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

directly impacted by the proposed project. Non-Urban vegetation impacts total approximately 34.1 acres.

Approximately 7.8 acres of Agriculture; 132.8 acres of Crosstimbers Woodland and Forest; 1.0 acres of Disturbed Prairie; 3.4 acres of Riparian; 5.9 acres of Tallgrass Prairie, Grassland; and 43.3 acres of Urban vegetation would be potentially impacted by accelerated and induced growth. The accelerated and induced growth impacts on non-Urban vegetation and wildlife habitat in the AOI total approximately 150.9 acres.

Farmland (Soils)

Approximately 33.6 acres of prime farmland soils subject to FPPA would be directly impacted by the proposed project and approximately 92.4 acres of prime farmland soils subject of FPPA would be potentially impacted by accelerated growth.

Step 3: Other Actions – Past, Present and Reasonably Foreseeable – and their Effect on each Resource

The cumulative impacts analysis considers the combined effects of past, present, and reasonably foreseeable actions on the resources analyzed. To identify other past, present, and reasonably foreseeable actions within the RSA, 2015 Land Use data, aerial imagery dating 2018 and 2019, and planned development information provided by the cities and found on city websites. The past, present, and reasonably foreseeable actions identified are listed in **Table 8**.

Table 8: Other Past, Present, and Reasonably Foreseeable Actions¹

Development	Past, Present, or Reasonably Foreseeable Action	Area (acres)
Agriculture	Past	33,322.6
Commercial	Past	1,328.1
Institutional/Semi-Public	Past	451.1
Industrial/Utilities	Past	793.1
Residential	Past	26,615.3
Roadways/Railroads	Past	1,343.5
Parkland/Green Belts	Past	6,456.7
Commercial	Reasonably Foreseeable	2,091.2
Institutional/Semi-Public	Reasonably Foreseeable	577.5
Single-family/Rural Residential	Reasonably Foreseeable	4,272.5
Mixed Use	Reasonably Foreseeable	2,321.9
Industrial	Reasonably Foreseeable	297.4
Total		79,870.9

¹ The area of proposed roadways within planned developments is included in the area (acreage) of the planned development.

Many areas of foreseeable actions overlap areas of past action where redevelopment is expected.

Sources: Email correspondence with planners from the City of Aubrey (6/10/20); Town of Cross Roads (4/14/20); City of Krugerville (6/15/20); City of Pilot Point (4/13/20); City of Providence Village (6/15/20); Planning documents from all cities within the AOI; online

Table 8: Other Past, Present, and Reasonably Foreseeable Actions¹

Development	Past, Present, or Reasonably Foreseeable Action	Area (acres)
research of developments within the AOI; TNRS Aerials (2018); Google Earth (2019); NCTCOG Land Use Data for 2015 http://data-nctcoggis.opendata.arcgis.com/datasets		

As shown in **Table 8**, the other past, present and reasonably foreseeable actions total approximately 79,870.9 acres. Much of the foreseeable development overlaps existing rural agriculture and residential areas. The total coverage of past, present and reasonably foreseeable actions totals approximately 65,418.5 acres.

Vegetation and Wildlife Habitat

Potential cumulative impacts considered and discussed include direct impacts to vegetation and wildlife habitat as a result of implementation of the proposed project in combination with the effects of potential accelerated growth and other past, present, and reasonably foreseeable actions. The approximately 92,802.1-acre RSA was considered sufficient to capture the cumulative effects of the proposed project on vegetation and wildlife habitat because the Elm Fork Trinity subbasin contains the streams and associated vegetative habitat that wildlife depends on for food, water, and shelter. Acreages of vegetation types in the RSA were determined from aerial photographs and TPWD’s TESCP - Phase 1 vegetation data. For the purposes of this analysis, it was assumed that any of the past, present, and reasonably foreseeable actions would displace all of the native vegetation and wildlife habitat within the confines of the development.

Table 9 lists the vegetation that has been/will be impacted by past, present, and reasonably foreseeable actions in the RSA.

Table 9: Vegetation Impacts by Other Past, Present, and Reasonably Foreseeable Actions¹

Vegetation Classification ²	Acres
Agriculture	6,848.0
Crosstimbers Woodland and Forest	37,811.0
Disturbed Prairie	930.3
Edwards Plateau Savannah, Woodland, and Shrubland	145.0
Post Oak Savanna	269.8
Riparian	4,744.9
Tallgrass Prairie, Grassland	10,276.4
Urban	4,393.1
Total	65,418.5

¹ The vegetation impacted by direct impacts and accelerated growth is not included in this table.

² Per TPWD’s Texas Ecological Systems Classification Project - Phase 1 vegetation data.

As shown in **Table 9**, the vegetation impacts by other past, present and reasonably foreseeable actions total approximately 65,418.5 acres. Impacts to non-urban vegetation total approximately 61,025.40 acres.

The vegetation and streams surrounding the proposed project are connected to other nearby vegetated areas, creating open corridors that can be used by aerial and terrestrial animals. Development within the RSA could fragment existing vegetation into small, distinct segments surrounded by manmade structures instead of the existing continuous corridors, effectively removing travel corridors for any animals.

Farmland (Soils)

Potential cumulative impacts considered and discussed include direct impacts to farmland as a result of implementation of the proposed project in combination with the effects of potential accelerated growth and other past, present, and reasonably foreseeable actions. The approximately 92,802.1-acre RSA was considered sufficient to capture the cumulative effects of the proposed project on farmland because the RSA boundary follows topographical highs. Topography affects soil formation and development, and the chemical and physical properties of soil. These factors play a part in determining soil quality.

According to GIS data for soils obtained from the USDA and the Web Soil Survey,¹⁸ there are approximately 43,552.2 acres of prime farmland and farmland of statewide importance in the RSA. Approximately 38,999.2 acres of prime farmland soils and farmland soils of statewide importance have/would be impacted by other past, present and reasonably foreseeable actions. This represents approximately 90 percent of the 43,552.2 acres of prime farmland soils and farmland soils of statewide importance in the RSA.

Of the 38,999.2 acres of prime farmland potentially impacted by other past, present and reasonably foreseeable actions, 93 percent (36,438.6 acres) are located outside of the USCB 2017 Urban Area and are potentially subject to the FPPA.

Step 4: The Overall Effects of the Proposed Project Combined with Other Actions

Vegetation and Wildlife Habitat

The cumulative impacts on non-urban vegetation and wildlife habitat resulting from the approximately 34.1 acres of direct impacts, 150.9 acres from accelerated growth impacts, and 61,025.4 acres of impacts from the previously described other past, present, and reasonably foreseeable actions would total approximately 61,210.4 acres. The cumulative impacts to vegetation and wildlife habitat would affect approximately 69.4 percent of the approximately 88,256.6 acres of non-Urban MOU Habitat-type vegetation within the RSA.

¹⁸ <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

While cumulative impacts would affect approximately 61,210.4 acres of non-Urban MOU Habitat-type vegetation and potential wildlife habitat, it is likely that most of the wildlife that resides in the RSA would migrate to other areas of available non-human-altered habitat such as those protected within floodplain areas near rivers and streams. In addition, riparian areas are known to be migration corridors for wildlife. It is expected that these areas would not be adversely affected due to municipal protections to riparian resources within floodplains. That is, restrictions on construction within floodplains and tree preservation regulations make it probable that most of the riparian habitat within the RSA would not be subject to widespread removal. Based on the continued availability of protected habitat areas, the potential cumulative impact occurring over a 44-year period, allowing for resource recovery; and assuming appropriate implementation of regulated avoidance, minimization, and mitigation strategies for vegetation and habitat impacts, the proposed project would not contribute to substantial cumulative impacts to the area's vegetation and habitat.

Farmland (Soils)

The cumulative impact on prime farmland soils subject to the FPPA resulting from the approximately 33.6 acres of direct impacts, 92.4 acres from accelerated growth impacts, and 36,438.6 acres of impacts from the previously described other past, present, and reasonably foreseeable actions would total 36,564.6 acres. The cumulative impacts to prime farmland soils subject to the FPPA would affect approximately 89.4 percent of the approximately 40,958.3 acres of prime farmland soils subject to FPPA within the RSA.

Summary

Table 10 summarizes the information gathered in Steps 1 through 4 and presents the potential cumulative impacts to vegetation and wildlife habitat and farmland (soils) subject to the FPPA.

Table 10: Potential Cumulative Impacts to Vegetation and Wildlife Habitat and Farmland (Soils)

Vegetation Classification/Resource	Direct Impact (Acres)	Indirect Impact (Acres)	Past, Present, and Reasonably Foreseeable Projects (Acres)	Cumulative Impacts (Acres)
Agriculture	4.2	7.8	6,848.0	6,860.0
Crosstimbers Woodland and Forest	2.5	132.8	37,811.0	37,946.3
Disturbed Prairie	8.4	1.0	930.3	939.7
Edwards Plateau Savannah, Woodland, and Shrubland	0	0	145.0	145.0
Post Oak Savanna	0	0	269.8	269.8
Riparian	2.5	3.4	4,744.9	4,750.8
Tallgrass Prairie, Grassland	16.5	5.9	10,276.4	10,298.8
Urban	273.7	43.3	4,393.1	4,710.1
Non-Urban Vegetation and Wildlife Habitat	34.1	150.9	61,025.4	61,210.4

Table 10: Potential Cumulative Impacts to Vegetation and Wildlife Habitat and Farmland (Soils)

Vegetation Classification/Resource	Direct Impact (Acres)	Indirect Impact (Acres)	Past, Present, and Reasonably Foreseeable Projects (Acres)	Cumulative Impacts (Acres)
Farmland (Soils) subject to FPPA	33.6	92.4	36,438.6	36,564.6

Source: Study Team (July 2020).

Step 5: Mitigation of Cumulative Effects

Farmland (Soils)

Private developers would not be subject to the FPPA for impacts to prime farmland soils and farmland soils of statewide importance. The Texas Farm and Ranch Lands Conservation Program (TFRLCP), created in 2005, is a grant-making program that provides landowners with financial incentives to conserve their land and productivity through Agricultural Conservation Easements. These easements restrict all future development while allowing the landowner to continue farming or ranching (American Farmland Trust, 2009). The TFRLCP was transferred from the Texas General Land Office (GLO) to TPWD in 2016. Approved grant projects awarded by the Texas GLO range in size from 175 acres to 2,995 acres and by the TPWD range in size from 144 acres to 7,229 acres. This type of program could be effective mitigation within the Farmland (Soils) RSA. The average farm size in Denton County is 120 acres.¹⁹

Incorporated areas can manage growth issues through local ordinances, such as zoning and subdivision ordinances. Development activities outside of the incorporated areas are under the jurisdiction of Denton County, which use subdivision ordinances primarily to regulate lot sizes and density.

Vegetation and Wildlife Habitat

Incorporating parks, open spaces, and riparian corridors around and within developed areas would provide wildlife habitat and shelter. Planting these areas with native fruit or nut-bearing trees and shrubs, and native grain-bearing grasses would provide food for wildlife and would help to mitigate impacts to habitat used by wildlife. This mitigation could be conducted by whoever is responsible for the impact such as a city or a developer. Private development within the associated municipalities within the RSA (Aubrey, Cross Roads, Krugerville, Little Elm, Oak Point, Providence Village, and, to a lesser extent, Denton County) would be subject to the laws and ordinances regulating residential, commercial and industrial development set by each municipal government. Examples of municipal government regulations include the City of Pilot Point's and Town of Cross Roads' Tree Ordinances. Mitigation could include mandatory park areas or a limit on lot sizes. State and federal entities protect the quality of

¹⁹ https://www.nass.usda.gov/Publications/AgCensus/2012/Online_Resources/County_Profiles/Texas/cp48121.pdf

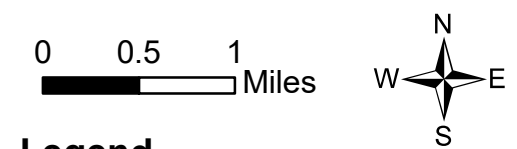
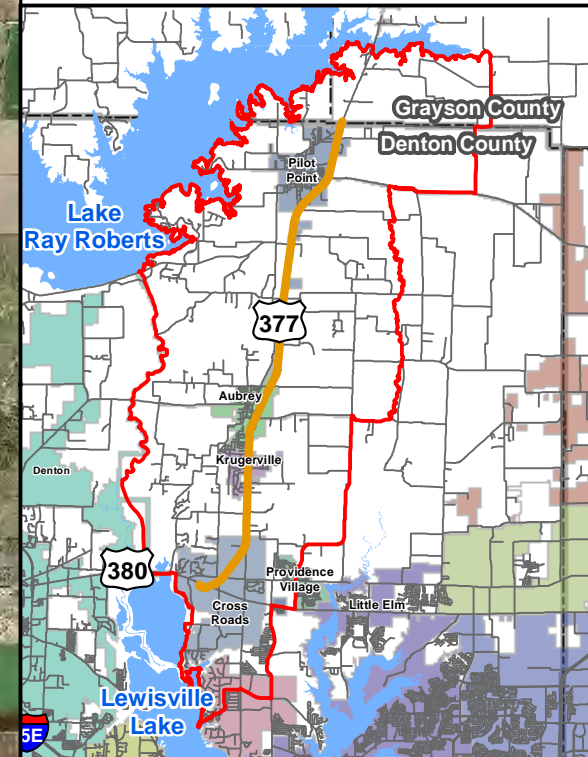
water and wildlife habitat in the area and additional development would follow the requirements of state and federal regulations.

Appendix Figures

INDIRECT IMPACTS AREA OF INFLUENCE MAP

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas

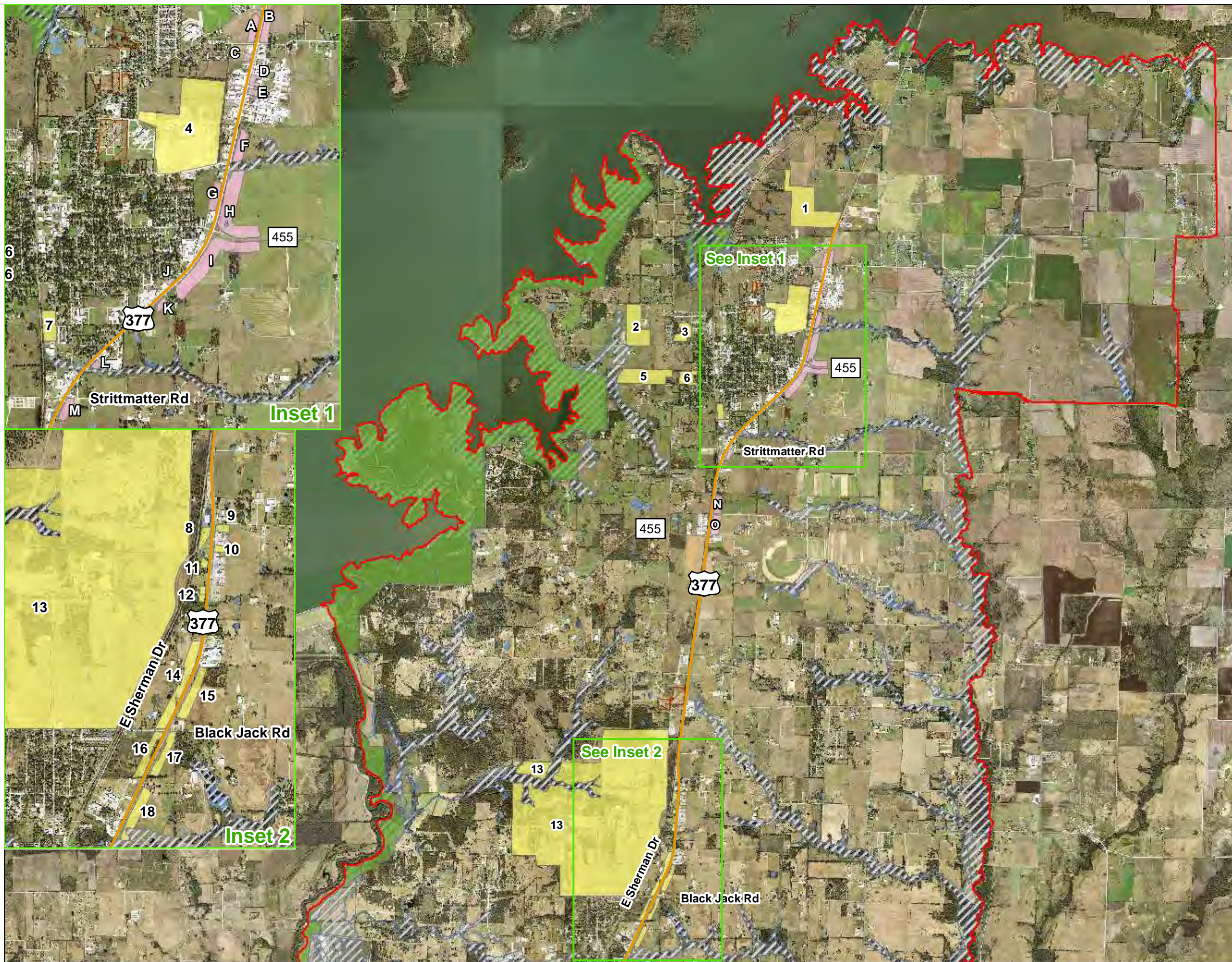
CSJ: 0081-06-040
Page 1 of 2



Legend

- Project Location
- Area of Influence
- Potential Accelerated Growth
- Potential Induced Growth
- Planned Development
- Cemetery
- Parks/Recreation
- Potential Wetland
- Waters of the U.S.
- 100-Year Floodplains

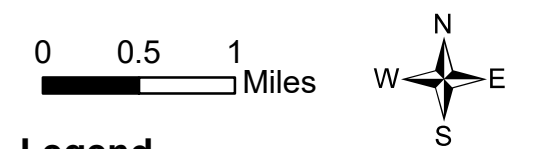
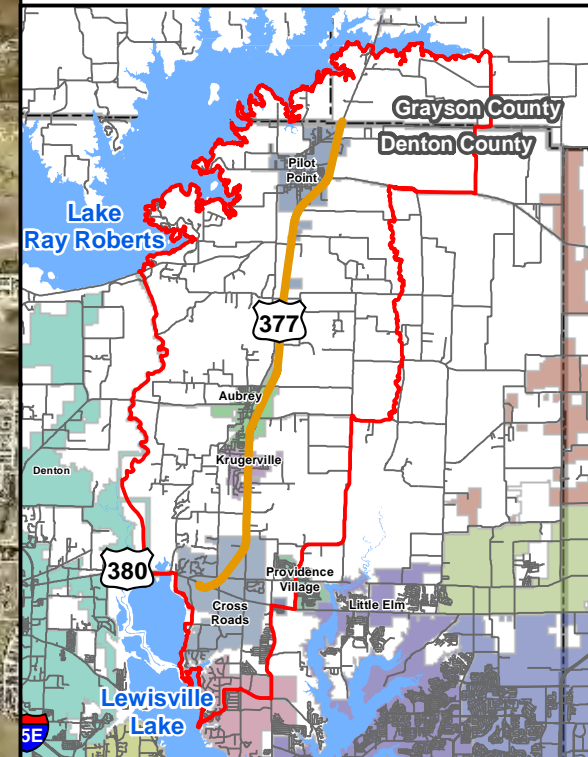
Base Map Source: TNRIS (2018)



INDIRECT IMPACTS AREA OF INFLUENCE MAP

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas

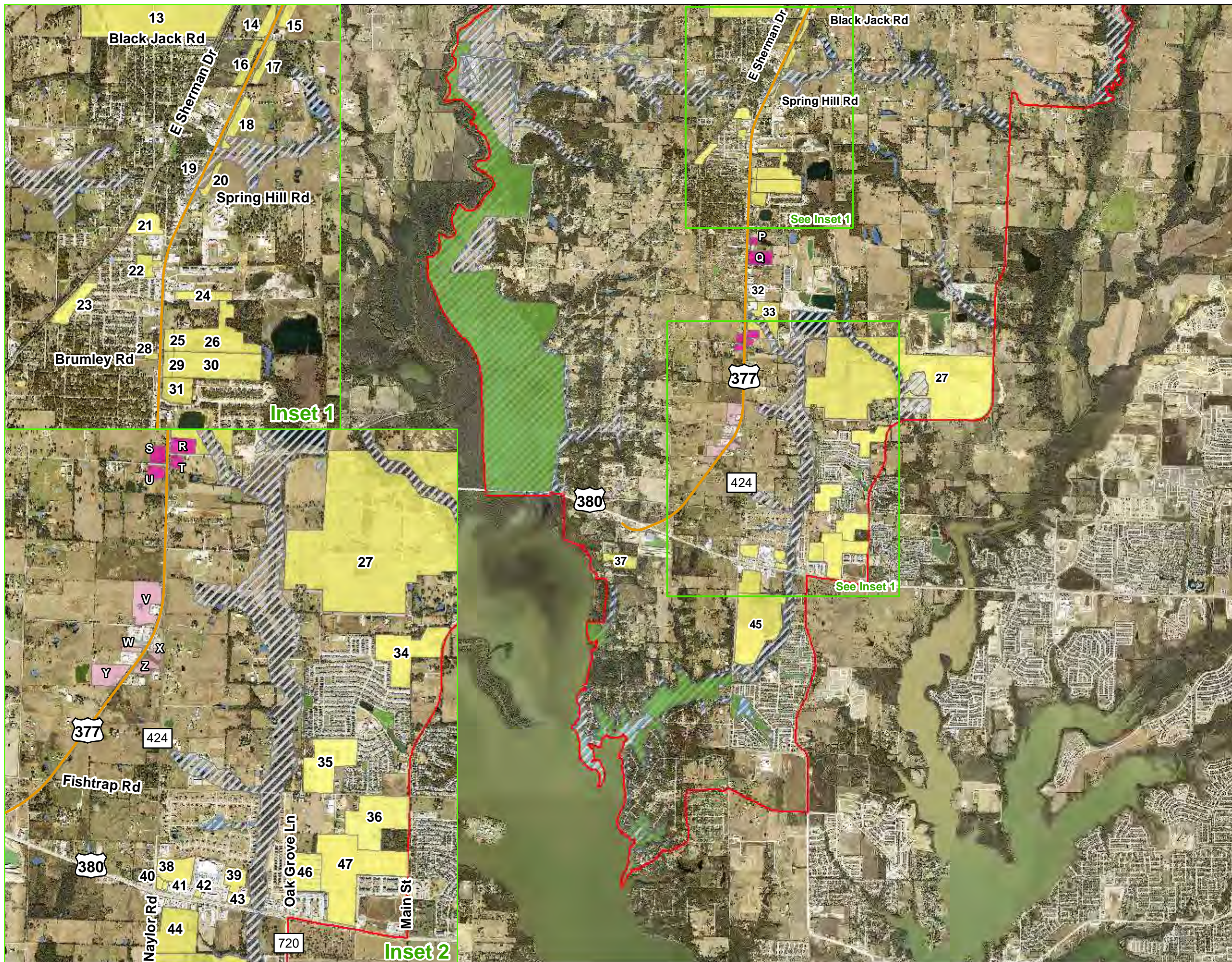
CSJ: 0081-06-040
Page 2 of 2



Legend

- Project Location
- Area of Influence
- Potential Accelerated Growth
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- Waters of the U.S.
- 100-Year Floodplains

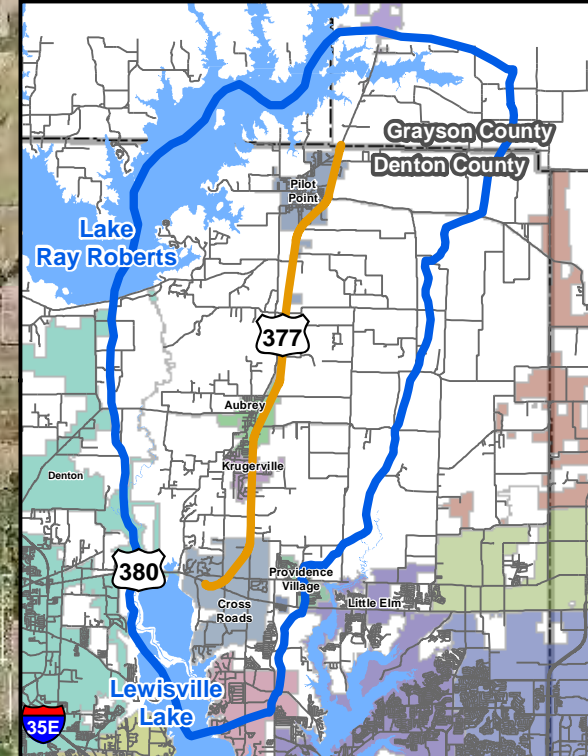
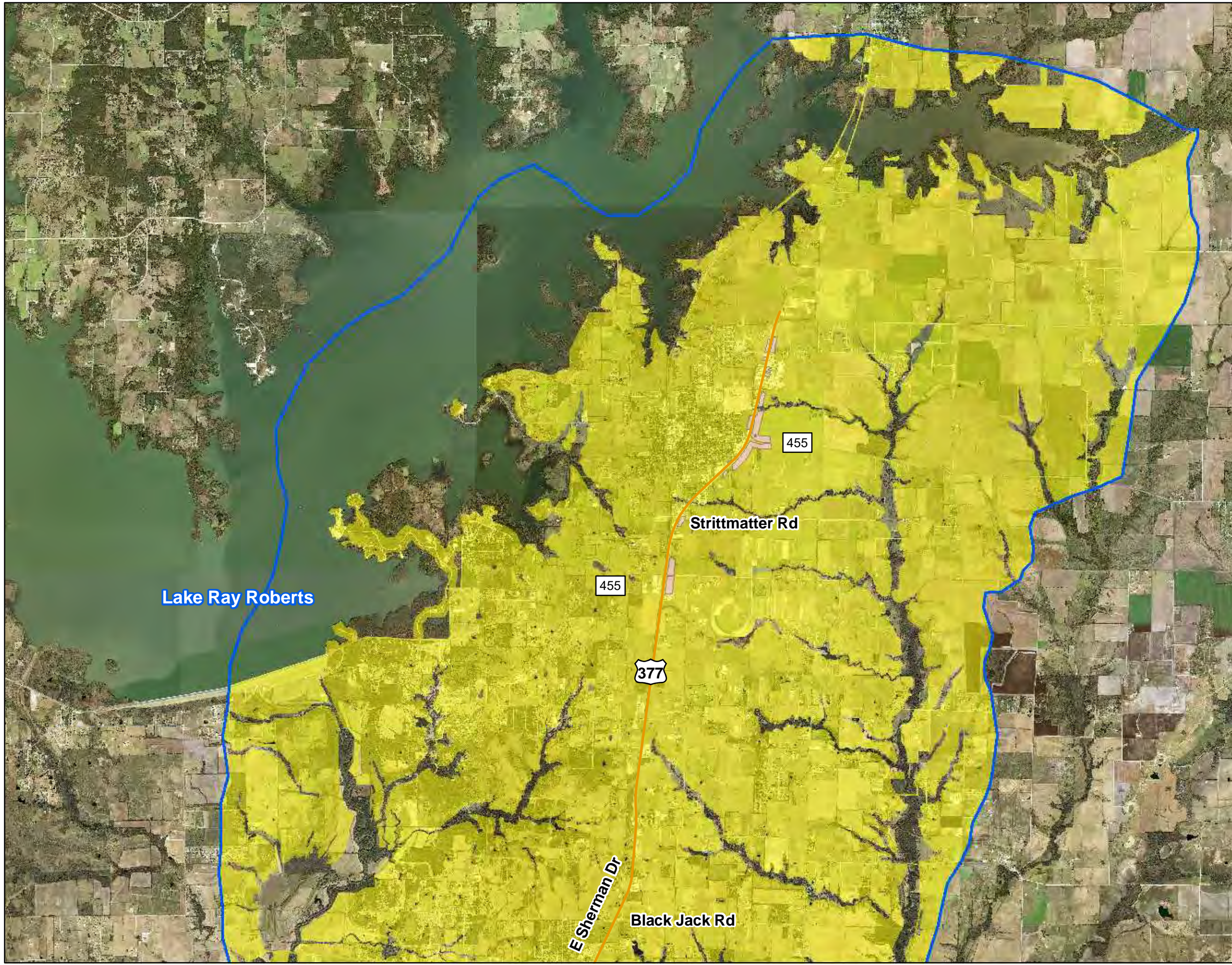
Base Map Source: TNRIS (2018)




**CUMULATIVE IMPACTS
RESOURCE STUDY AREA MAP**

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas

CSJ: 0081-06-040
Page 1 of 2



Legend

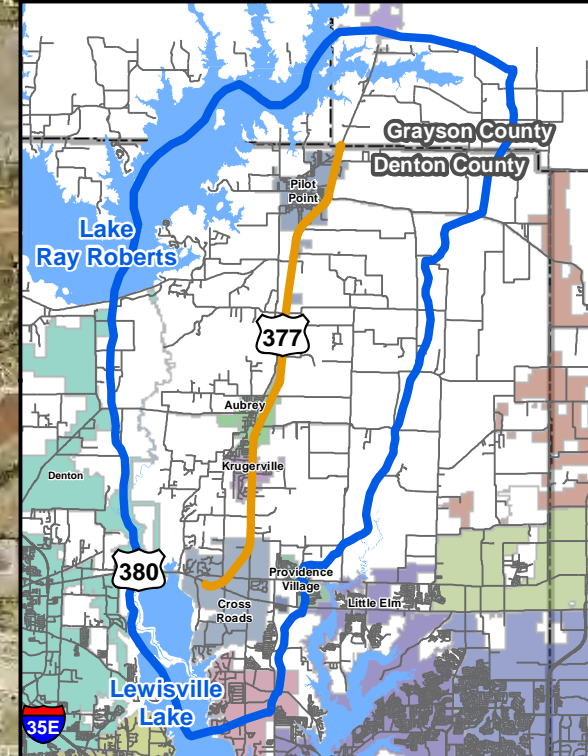
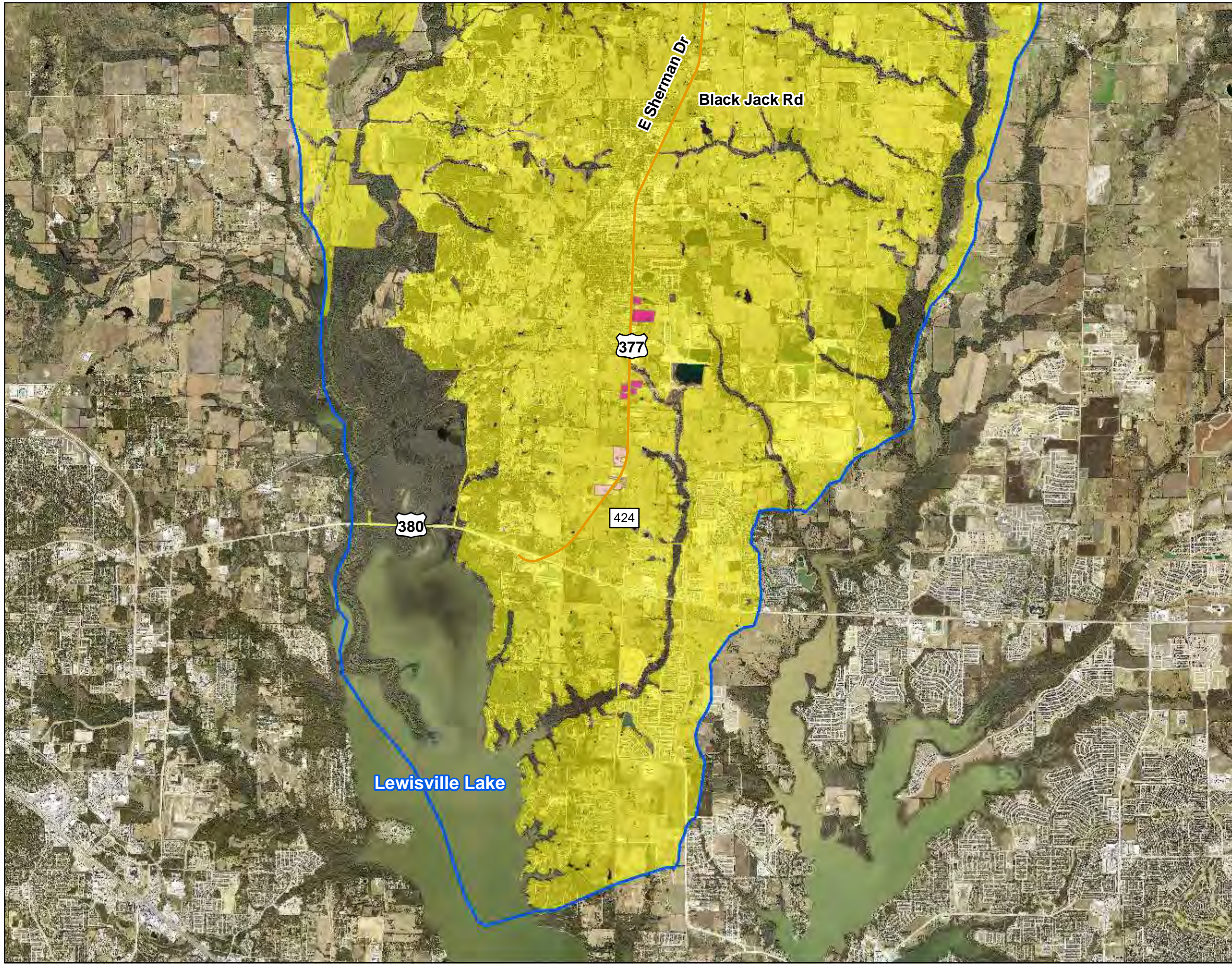
-  Project Location
-  Resource Study
-  Potential Accelerated Growth
-  Potential Induced Growth
-  Past, Present, and Reasonably Foreseeable Actions

Base Map Source: TNRIS (2018)

CUMULATIVE IMPACTS RESOURCE STUDY AREA MAP

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas

CSJ: 0081-06-040
Page 2 of 2

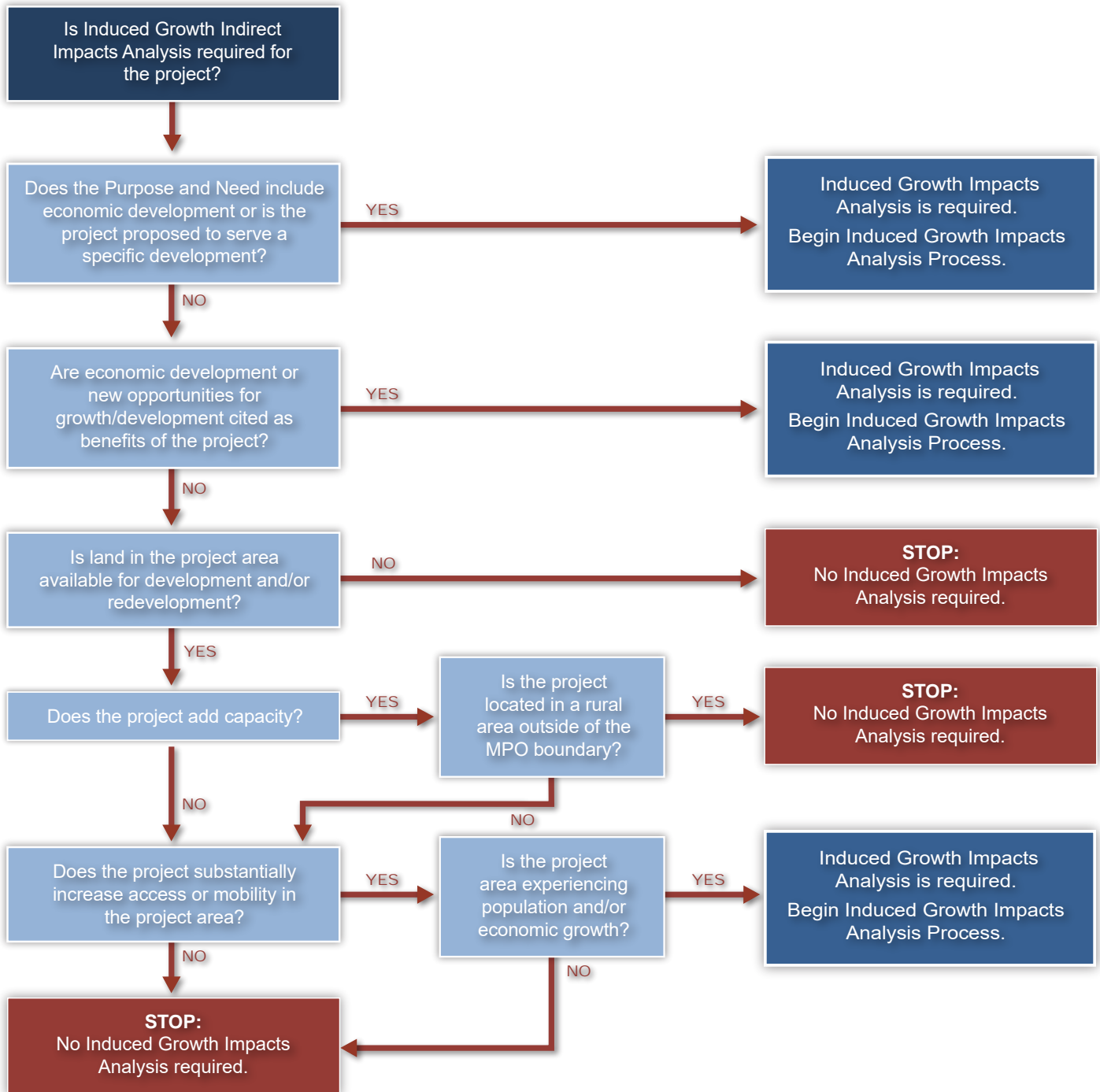


Legend

- Project Location
- Resource Study
- Potential Accelerated Growth
- Potential Induced Growth
- Past, Present, and Reasonably Foreseeable Actions

Base Map Source: TNRIS (2018)

Induced Growth Indirect Impacts Decision Tree



Austin Gibson

From: John Taylor <jtaylor@cityofpilotpoint.org>
Sent: Monday, April 13, 2020 10:07 AM
To: Austin Gibson
Cc: Jonathan Stewart
Subject: FW: US 377 - Induced Growth Associated with Highway Improvements
Attachments: Pending Development.pptx

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Here is the other part.

John Taylor
940-514-6879

From: John Taylor
Sent: Thursday, April 09, 2020 10:34 AM
To: Austin Gibson <austin@civilassociates.com>
Cc: Jonathan Stewart <jonathan@civilassociates.com>; Denise Morris <DMorris@cityofpilotpoint.org>
Subject: RE: US 377 - Induced Growth Associated with Highway Improvements

Your area of influence appears to cover all of Pilot Point and most of its ETJ so that makes it hard to answer your questions. I have attached the future land use map. It was completed prior to any knowledge of the TXDOT project. I have also attached a document that reviews know single family developments that are underway or are planned.

By 2045, 25 years, I do not expect the area of the AOI to be built out. The future tollway extension will have more of an impact on spurring development in the area than will the project of adding lanes to 377. It may have the impact of speeding up some commercial development along 377 in this area but it would have developed regardless.

Let me know what else I can provide you.

John M. Taylor, AICP, CPM
Development Services Director
City of Pilot Point

Cell 940-514-6879
Work 940-324-5026

From: Austin Gibson <austin@civilassociates.com>
Sent: Thursday, April 09, 2020 9:36 AM
To: Denise Morris <DMorris@cityofpilotpoint.org>; John Taylor <jtaylor@cityofpilotpoint.org>
Cc: Jonathan Stewart <jonathan@civilassociates.com>
Subject: US 377 - Induced Growth Associated with Highway Improvements

Hello Ms. Morris and Mr. Taylor,

Civil Associates, Inc. (CAI) is part of the project team preparing the environmental document for the proposed reconstruction and widening of US 377 in Denton County, Texas. This study is being conducted by the Texas Department of Transportation (TxDOT). The TxDOT Fort Worth District proposes the widening and reconstruction of the two-lane rural roadway to a six-lane urban roadway with raised median. See TxDOT's Project Tracker (http://apps.dot.state.tx.us/apps-cg/project_tracker/) for additional information.

CAI has been tasked with completing the Indirect and Cumulative Impacts analysis, and we need your input. The attached maps depict the Area of Influence (AOI) and Resource Study Area (RSA).

The AOI is based on census block groups and encompasses what we believe to be all potential growth induced by the proposed US 377 project. The RSA is based on topographic highs and encompasses what we believe would be all potential impacts to natural resources such as waters, soils and vegetation.

What we're asking from you is:

1. Are there any areas within the AOI that may develop directly as a result of the proposed project improvements, and would have otherwise not developed (ex: new commercial developments adjacent to the project because of added capacity)?
2. Are there any currently planned or in-progress developments within your city limits or the surrounding area that you could provide information about? This information could be as little as the location, zoning type, and name.
3. By the year 2045, to what extent do you expect land within your city limits in the RSA to be built out? This is purely speculative and we can use the city Future Land Use Map for zoning types, we just ask for an approximation of future development within the RSA for each city to estimate potential long term impacts to resources.

I've searched your city website for zoning and future land use maps but if you have any others that may be of use, we would be grateful.

Normally we would request an in-person meeting to discuss this, but due to the current situation with COVID-19, we're hoping email and phone correspondence with suffice.

Thank you,



"/> **Austin Gibson**
Civil Associates, Inc.
9330 LBJ Freeway Suite 1150
Dallas, Texas 75243
austin@civilassociates.com
Direct: 214-716-4589 | Main: 214-703-5151 ext. 4589 | Fax: 214-703-5150
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Austin Gibson

From: Austin Gibson
Sent: Tuesday, April 14, 2020 11:24 AM
To: John Taylor
Cc: Jonathan Stewart; Denise Morris
Subject: RE: US 377 - Induced Growth Associated with Highway Improvements

I believe I've received everything I need.
Thank you again for your help,

Austin

From: John Taylor <jtaylor@cityofpilotpoint.org>
Sent: Tuesday, April 14, 2020 11:13 AM
To: Austin Gibson <austin@civilassociates.com>
Cc: Jonathan Stewart <jonathan@civilassociates.com>; Denise Morris <DMorris@cityofpilotpoint.org>
Subject: RE: US 377 - Induced Growth Associated with Highway Improvements

I had resent the attachments separately and they appear to have gone through. Let me know if you still do not have them.

Pilot Point has a large ETJ so in 25 years I would guess it may be 50% built out.

The development of 377 will be impacted by the widening project as it relates to timing of that development being accelerated. However the amount of commercial development long term may not be any greater due to the project.

John Taylor
940-514-6879

From: Austin Gibson <austin@civilassociates.com>
Sent: Monday, April 13, 2020 10:53 AM
To: John Taylor <jtaylor@cityofpilotpoint.org>
Cc: Jonathan Stewart <jonathan@civilassociates.com>; Denise Morris <DMorris@cityofpilotpoint.org>
Subject: RE: US 377 - Induced Growth Associated with Highway Improvements

Hi John,

Thank you for the response and documents, we'll incorporate these planned developments into our report. I'm sorry I didn't respond sooner but it appears neither me or my colleague CC'd received your email on the 9th. Could you resend those documents?

Do you have an estimate on how much of Pilot Point and it's ETJ will be built out by 2045? Maybe 50%, or 75%? We understand this is all speculative but we prefer to incorporate the opinions of city officials into our reports.

And just to clarify, are you saying you don't expect any direct growth caused by the project? Because it's just a widening project and not something like a new location project, it would make sense that there wouldn't necessarily be any induced growth. However, there will be added capacity along with share use lanes and sidewalks for bicycle and pedestrian traffic so could that influence growth adjacent to the project in any areas within city limits?

Thank you for your input,
Austin

From: John Taylor <jtaylor@cityofpilotpoint.org>
Sent: Monday, April 13, 2020 10:07 AM
To: Austin Gibson <austin@civilassociates.com>
Cc: Jonathan Stewart <jonathan@civilassociates.com>
Subject: FW: US 377 - Induced Growth Associated with Highway Improvements

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Here is the other part.

John Taylor
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From: John Taylor
Sent: Thursday, April 09, 2020 10:34 AM
To: Austin Gibson <austin@civilassociates.com>
Cc: Jonathan Stewart <jonathan@civilassociates.com>; Denise Morris <DMorris@cityofpilotpoint.org>
Subject: RE: US 377 - Induced Growth Associated with Highway Improvements

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By 2045, 25 years, I do not expect the area of the AOI to be built out. The future tollway extension will have more of an impact on spurring development in the area than will the project of adding lanes to 377. It may have the impact of speeding up some commercial development along 377 in this area but it would have developed regardless.

Let me know what else I can provide you.

John M. Taylor, AICP, CPM
Development Services Director
City of Pilot Point

Cell 940-514-6879
Work 940-324-5026

From: Austin Gibson <austin@civilassociates.com>
Sent: Thursday, April 09, 2020 9:36 AM
To: Denise Morris <DMorris@cityofpilotpoint.org>; John Taylor <jtaylor@cityofpilotpoint.org>
Cc: Jonathan Stewart <jonathan@civilassociates.com>
Subject: US 377 - Induced Growth Associated with Highway Improvements

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What we're asking from you is:

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I've searched your city website for zoning and future land use maps but if you have any others that may be of use, we would be grateful.

Normally we would request an in-person meeting to discuss this, but due to the current situation with COVID-19, we're hoping email and phone correspondence with suffice.

Thank you,



"/> **Austin Gibson**
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Austin Gibson

From: Becky Ross <b.ross@crossroadstx.gov>
Sent: Tuesday, April 14, 2020 2:30 PM
To: Austin Gibson
Cc: Jason Pool; Bob Gorton; Jonathan Stewart
Subject: Re: US 377 - Induced Growth Associated with Highway Improvements

Adjacent land in general becomes more marketable for commercial use with an urbanized section as opposed to two lane frontage. Its current layout lends itself to more of an industrial vibe but we don't have industrial on our future land use map. The uses that remain in an agricultural capacity are slowly but surely phasing out as traffic increases. I don't know about the 380/377 interchange location though- there are some major access issues along there.

Becky Ross
Town Administrator and Director of Planning
Town of Cross Roads
940-365-9693

Town of Cross Roads is on [Facebook!](#)

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PUBLIC OFFICIALS: A "Reply to All" of this e-mail may lead to violations of the Texas Open Meetings Act. Please reply only to the sender.

On Apr 14, 2020, at 2:20 PM, Austin Gibson <austin@civilassociates.com> wrote:

Hi Ms. Ross,

Thank you for your input. For question 1, as far as commercial development along US 377, would you say any adjacent undeveloped land could have induced growth after project completion or is there anywhere in particular? Notably I see a number of buildings near the intersection of US 377 and FM 424. Could new commercial development gravitate here as a result of the project? Or maybe at the interchange with US 380 around the existing Exxon (6500 US-380)?

I understand it's all speculative, but any input is helpful and can be incorporated into our report. Thank you again for your assistance,

Austin

From: Becky Ross <b.ross@crossroadstx.gov>
Sent: Tuesday, April 14, 2020 1:49 PM
To: Austin Gibson <austin@civilassociates.com>
Cc: Jason Pool <j.pool@crossroadstx.gov>; Bob Gorton <b.gorton@crossroadstx.gov>; Jonathan Stewart <jonathan@civilassociates.com>
Subject: Re: US 377 - Induced Growth Associated with Highway Improvements

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See answers below:

1. Are there any areas within the AOI that may develop directly as a result of the proposed project improvements, and would have otherwise not developed (ex: new commercial developments adjacent to the project because of added capacity)?

Over the past few years, the Town has recognized the portion of 377 in our limits as the “next big commercial location” after 380, but 380 slowed down for a bit... There have been businesses that make more sense on 380 (QSR for example) that would fit in on 377 after the urbanization is completed.

2. Are there any currently planned or in-progress developments within your city limits or the surrounding area that you could provide information about? This information could be as little as the location, zoning type, and name.

Cross Roads Market Square is a planned development with a mixed use and multifamily component that has been approved at South of 380 and just east of Naylor Road, couple of hundred housing units, a hotel, commercial and office use.

Oak Hill Ranch is just south of Market square and is a single family subdivision with a buildout of 397 homes.

3. By the year 2045, to what extent do you expect land within your city limits in the RSA to be built out? This is purely speculative and we can use the city Future Land Use Map for zoning types, we just ask for an approximation of future development within the RSA for each city to estimate potential long term impacts to resources.

Would be nothing more than a full on GUESS- but based on the current zoning regulations and the future land use and the CURRENT road, I'd imagine the build out at 50% in 2040-...if we update our future land use plan (go more commercial) to better represent what could be serviced on a six lane urban section- 75%

Becky Ross
Town Administrator and Director of Planning
Town of Cross Roads
940-365-9693

Town of Cross Roads is on [Facebook!](#)

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PUBLIC OFFICIALS: A "Reply to All" of this e-mail may lead to violations of the Texas Open Meetings Act. Please reply only to the sender.

On Apr 9, 2020, at 9:24 AM, Austin Gibson <austin@civilassociates.com> wrote:

Hello Ms. Ross,

Civil Associates, Inc. (CAI) is part of the project team preparing the environmental document for the proposed reconstruction and widening of US 377 in Denton County, Texas. This study is being

conducted by the Texas Department of Transportation (TxDOT). The TxDOT Fort Worth District proposes the widening and reconstruction of the two-lane rural roadway to a six-lane urban roadway with raised median. See TxDOT's Project Tracker (http://apps.dot.state.tx.us/apps-cq/project_tracker/) for additional information.

CAI has been tasked with completing the Indirect and Cumulative Impacts analysis, and we need your input. The attached maps depict the Area of Influence (AOI) and Resource Study Area (RSA).

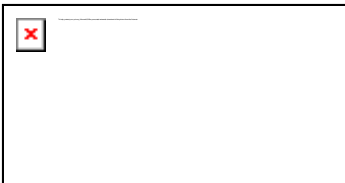
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I've searched your city website for zoning and future land use maps but if you have any others that may be of use, we would be grateful. Normally we would request an in-person meeting to discuss this, but due to the current situation with COVID-19, we're hoping email and phone correspondence with suffice.

Thank you,



Austin Gibson

Civil Associates, Inc.

9330 LBJ Freeway Suite 1150

Dallas, Texas 75243

austin@civilassociates.com

Direct: 214-716-4589 | Main: 214-703-5151 ext. 4589 | Fax: 214-703-5150

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<US_377_ICI_Cities_Map.pdf><US_377_ICI_Cross_Roads.pdf>

Austin Gibson

From: Brian Markheim <brianmarkheim@pv-tx.com>
Sent: Monday, June 15, 2020 10:04 AM
To: Daniel McCullough; Austin Gibson; Brian Roberson; Connie Hansen
Cc: Jonathan Stewart; Brian Roberson
Subject: RE: US 377 - Induced Growth Associated with Highway Improvements

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Daniel,

At this time, we do not see any significant impact on The Town of Providence Village with the expansion of Hwy 377. The limits of our town are not projected to extend further than the corner of Dr. Sanders Rd. and Liberty Rd.

If you have any further questions or comments, please feel free to contact me.

Thank you.

Brian Markheim
Town of Providence Village
Development Services Manager
Office (940) 365-9333 ext 404
Mobile (940) 765-1173
Email brianmarkheim@pv-tx.com



From: Daniel McCullough <dmccullough@tnpinc.com>
Sent: Monday, June 15, 2020 8:45 AM
To: Austin Gibson <austin@civilassociates.com>; Brian Roberson <brianroberson@pv-tx.com>; Brian Markheim <brianmarkheim@pv-tx.com>; Connie Hansen <chansen@pv-tx.com>
Cc: Jonathan Stewart <jonathan@civilassociates.com>
Subject: RE: US 377 - Induced Growth Associated with Highway Improvements
Importance: High

Mr. Roberson / Mr. Markheim –

The US 377 Design Team is up against a deadline for documenting Providence Village's information as requested below for the US 377 highway expansion. We need the Town's information TODAY.

If there is any way that it can be provided, we would greatly appreciate it.

Thank you,
Daniel



Daniel McCullough, PE

Director of Transportation Services, Associate Principal

817.336.5773 main | 817.665.7179 direct | 817.905.4004 mobile

5237 N. Riverside Drive, Suite 100 | Fort Worth, TX 76137

dmccullough@tnpinc.com

www.tnpinc.com



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From: Austin Gibson <austin@civilassociates.com>

Sent: Wednesday, June 3, 2020 2:18 PM

To: brianroberson@pv-tx.com; brianmarkheim@pv-tx.com; townsecretary@pv-tx.com

Cc: Jonathan Stewart <jonathan@civilassociates.com>; Daniel McCullough <dmccullough@tnpinc.com>

Subject: [EXTERNAL EMAIL] US 377 - Induced Growth Associated with Highway Improvements

Hello everyone,

Civil Associates, Inc. (CAI) is part of the project team preparing the environmental document for the proposed reconstruction and widening of US 377 in Denton County, Texas. This study is being conducted by the Texas Department of Transportation (TxDOT). CAI has been tasked with completing the Indirect and Cumulative Impacts analysis, and we need your input. The TxDOT Fort Worth District proposes the widening and reconstruction of the two-lane rural roadway to a six-lane urban roadway with raised median.

Would you be able to provide input on the impact of the project to Providence Village and whether or not it may induce growth to any undeveloped properties that otherwise might not develop? Also, would you be able to provide information (name, location, development type) of any current or planned developments within the city limits?

Thank you for your help,



Austin Gibson

Civil Associates, Inc.

9330 LBJ Freeway Suite 1150

Dallas, Texas 75243

austin@civilassociates.com

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Austin Gibson

From: Kristen Kromer <Kristen@krugerville.org>
Sent: Monday, June 15, 2020 12:07 PM
To: Daniel McCullough; Austin Gibson; Jeff Parrent; Sandy Frantz
Cc: Jonathan Stewart
Subject: RE: US 377 - Induced Growth Associated with Highway Improvements

Follow Up Flag: Follow up
Flag Status: Flagged

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Hi Daniel,

Current development includes the residential development of The Woodlands Phase 4-TaxID #'s 51706 & 51708. This is a 62 lot residential development.

There is possible development to the north owned by Jay McClennan. This could be commercial & residential. Part of this property is in our city limits and the rest is in our ETJ. We have had multiple discussions with the property owner regarding the annexation and development of these properties. Account numbers are 113409, 113408, 51698, 51700. Depending on future infrastructure, this will likely be a 300 home residential development with commercial development fronting Hwy 377.

Tarsan Corp has expressed interest in creating a mixed-use development on Parcel 113452. This would be retail/office/multi-family.

On the west side of 377 the 1.93 acre parcel Tax ID 52447 has been for sale as potential Office/Commercial use.

Parcel ID 252330 is a five acre parcel and was purchased by an investor to hold for future commercial development. It is currently used as a residential leased property. Highway expansion would make this a more attractive commercial lot.

The expansion of the highway would encourage commercial development at 377 and Ike Byrom on the East side of the 377. The Mayor and I have been approached by a real estate broker expressing interest in the Priest tracts. Parcel ID's 166761,51784,51790. These would be retail/commercial lots. The expansion would also encourage the development of recently platted industrial lots along Ike Byrom road.

Parcel IS 529134 was recently annexed into Krugerville and has been platted for a retail/light industrial development.

The expansion combined with the alignment of Arvin Hill and Stewart road will encourage retail/commercial growth. Both the mayor and I have spoken with Dr. Spencer about annexation and development of this land at the corner of 377 and Stewart. This corner will likely be marketed as a gas station site(Tax ID 651067). Additionally, the land next to this(52210) owned by The Holmes Family Trust has been looked at by couple of developers for industrial development similar to that of Core & Main(tax ID 718750).

The city has heard from some residents, that six lanes seems a bit much and they have questioned why a four lane divided roadway would not be sufficient.

Please let me know if this information is what you are looking for, or if there is anything else we can provide to you.

Sincerely,
Kristen Kromer
Mayor Pro-Tem
City of Krugerville

From: Daniel McCullough [mailto:dmccullough@tnpinc.com]
Sent: Monday, June 15, 2020 8:27 AM
To: Kristen Kromer; Austin Gibson; Jeff Parrent; Sandy Frantz
Cc: Jonathan Stewart
Subject: RE: US 377 - Induced Growth Associated with Highway Improvements
Importance: High

Ms. Kromer –

The US 377 Design Team is up against a deadline for documenting Krugerville’s information. We need the City’s information TODAY.

If there is any way that it can be provided, we would greatly appreciate it.

Thank you,
Daniel



Daniel McCullough, PE

Director of Transportation Services, Associate Principal

817.336.5773 main | 817.665.7179 direct | 817.905.4004 mobile

5237 N. Riverside Drive, Suite 100 | Fort Worth, TX 76137

dmccullough@tnpinc.com

www.tnpinc.com



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From: Kristen Kromer <Kristen@krugerville.org>

Sent: Thursday, June 4, 2020 10:40 AM

To: Austin Gibson <austin@civilassociates.com>; Jeff Parrent <Jeff@krugerville.org>; Sandy Frantz <Sandy@krugerville.org>

Cc: Jonathan Stewart <jonathan@civilassociates.com>; Daniel McCullough <dmccullough@tnpinc.com>

Subject: [EXTERNAL EMAIL] RE: US 377 - Induced Growth Associated with Highway Improvements

Hi Austin,

Please accept my apologies that we have not gotten back with you yet. Sandy, Jeff and I will get together and get a response to you as soon as we can.

Kristen Kromer
Mayor Pro Tem
City of Krugerville

From: Austin Gibson [<mailto:austin@civilassociates.com>]
Sent: Wednesday, June 3, 2020 1:58 PM
To: Jeff Parrent; Kristen Kromer; Sandy Frantz
Cc: Jonathan Stewart; Daniel McCullough
Subject: RE: US 377 - Induced Growth Associated with Highway Improvements

Hello,

I sent the email below last week pertaining to the US 377 TxDOT project and potential growth associated with it. If you could provide us with any assistance it would be greatly appreciated.

Thank you,
Austin Gibson

From: Austin Gibson
Sent: Thursday, May 28, 2020 9:59 AM
To: jeff@krugerville.org; kristen@krugerville.org; sandy@krugerville.org
Cc: Jonathan Stewart <jonathan@civilassociates.com>
Subject: US 377 - Induced Growth Associated with Highway Improvements

Hello everyone,

Civil Associates, Inc. (CAI) is part of the project team preparing the environmental document for the proposed reconstruction and widening of US 377 in Denton County, Texas. This study is being conducted by the Texas Department of Transportation (TxDOT). CAI has been tasked with completing the Indirect and Cumulative Impacts analysis, and we need your input. The TxDOT Fort Worth District proposes the widening and reconstruction of the two-lane rural roadway to a six-lane urban roadway with raised median.

Would you be able to provide input on the impact of the project to Krugerville and whether or not it may induce growth to any adjacent or nearby undeveloped properties that otherwise might not develop? Also, would you be able to provide information (name, location, development type) of any current or planned developments within the city limits?

Thank you for your help,

Austin Gibson

From: Kenny Faulkner <kfaulkner@aubreytx.gov>
Sent: Wednesday, June 10, 2020 1:35 PM
To: Austin Gibson
Cc: Kenny Faulkner
Subject: RE: US 377 - Induced Growth Associated with Highway Improvements
Attachments: US_377_ICI_Aubrey_Krugerville.pdf

Austin
Please see attached. If you have questions, give me a call
Kenny

Kenneth Faulkner | Director of Public Works | kfaulkner@aubreytx.gov | Office: 940-440-9343 ext.121 | Mobile 940-465-1502

City of Aubrey | 107 S. Main Street | Aubrey, TX 76227

From: Austin Gibson <austin@civilassociates.com>
Sent: Thursday, June 04, 2020 8:25 AM
To: Mark Kaiser <mkaiser@aubreytx.gov>; Kenny Faulkner <kfaulkner@aubreytx.gov>; City Secretary <CitySecretary@aubreytx.gov>
Cc: Jonathan Stewart <jonathan@civilassociates.com>; Daniel McCullough <dmccullough@tnpinc.com>
Subject: RE: US 377 - Induced Growth Associated with Highway Improvements

Hi Mark,

Thank you for your response, I understand the questions can seem vague, but you've definitely provided some useful information. Would you be able to provide any maps or documents showing the locations of what you described, especially #4 & 6? Our report includes discussing these areas of development and they need to be shown on our maps and other figures as "Planned Developments." I've attached a map showing your city limits and the project location if you'd like to draw in areas on the pdf instead.

And just to clarify, are you saying you don't believe the project would directly cause new development, but that any development (such as what you described below) is already well underway?

Thank you,
Austin

From: Mark Kaiser <mkaiser@aubreytx.gov>
Sent: Wednesday, June 3, 2020 6:02 PM
To: Austin Gibson <austin@civilassociates.com>; Kenny Faulkner <kfaulkner@aubreytx.gov>; City Secretary <CitySecretary@aubreytx.gov>
Cc: Jonathan Stewart <jonathan@civilassociates.com>; Daniel McCullough <dmccullough@tnpinc.com>
Subject: RE: US 377 - Induced Growth Associated with Highway Improvements

This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I'm sorry for delay. We have just struggled with exactly what you are looking for.

The City of Aubrey has been experiencing significant growth for the last several years. Directly along Hwy 377 we have:

- 1) secured a replacement industry of additional truck traffic with similar employee counts
- 2) We have a new thoroughfare for a new subdivision of approximately 320 homes and commercial frontage for a retail strip center.
- 3) Our agricultural use (horse breeding and training) continues to expand with all the subsidiary business operations
- 4) We are expanding the industrial complex area with possible distribution center and light industrial facilities
- 5) We continue to plan for the cross thoroughfare of an outer loop (expansion of Hwy 428 to connect Hwy 35 and Hwy 75) with future box commercial growth
- 6) Large ranches and trusts along our stretch of Hwy 377 are preparing for residential developments of thousands of homes
- 7) We evaluate apartments complexes constantly seeking Hwy 377 access for mobility to FT Worth or Dallas
- 8) Hwy 377 is used extensively by the metroplex to access Lake Ray Roberts, Lake Lewisville and Lake Texoma

In summary I contend that the induced growth associated with the highway 377 project is already in action and we need these improvements NOW

Mark A. Kaiser | City Admin/Finance Director | accounting@aubreytx.gov | Office: 940-440-9343

City of Aubrey | 107 S. Main Street | Aubrey, TX 76227

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From: Austin Gibson <austin@civilassociates.com>

Sent: Wednesday, June 03, 2020 1:57 PM

To: Mark Kaiser <mkaiser@aubreytx.gov>; Kenny Faulkner <kfaulkner@aubreytx.gov>; City Secretary <CitySecretary@aubreytx.gov>

Cc: Jonathan Stewart <jonathan@civilassociates.com>; Daniel McCullough <dmccullough@tnpinc.com>

Subject: RE: US 377 - Induced Growth Associated with Highway Improvements

Hello,

I sent the email below last week pertaining to the US 377 TxDOT project and potential growth associated with it. If you could provide us with any assistance it would be greatly appreciated.

Thank you,
Austin Gibson

From: Austin Gibson

Sent: Thursday, May 28, 2020 10:03 AM

To: 'mkaiser@aubreytx.gov' <mkaiser@aubreytx.gov>; 'kfaulkner@aubreytx.gov' <kfaulkner@aubreytx.gov>; citysecretary@aubreytx.gov

Cc: Jonathan Stewart <jonathan@civilassociates.com>

Subject: US 377 - Induced Growth Associated with Highway Improvements

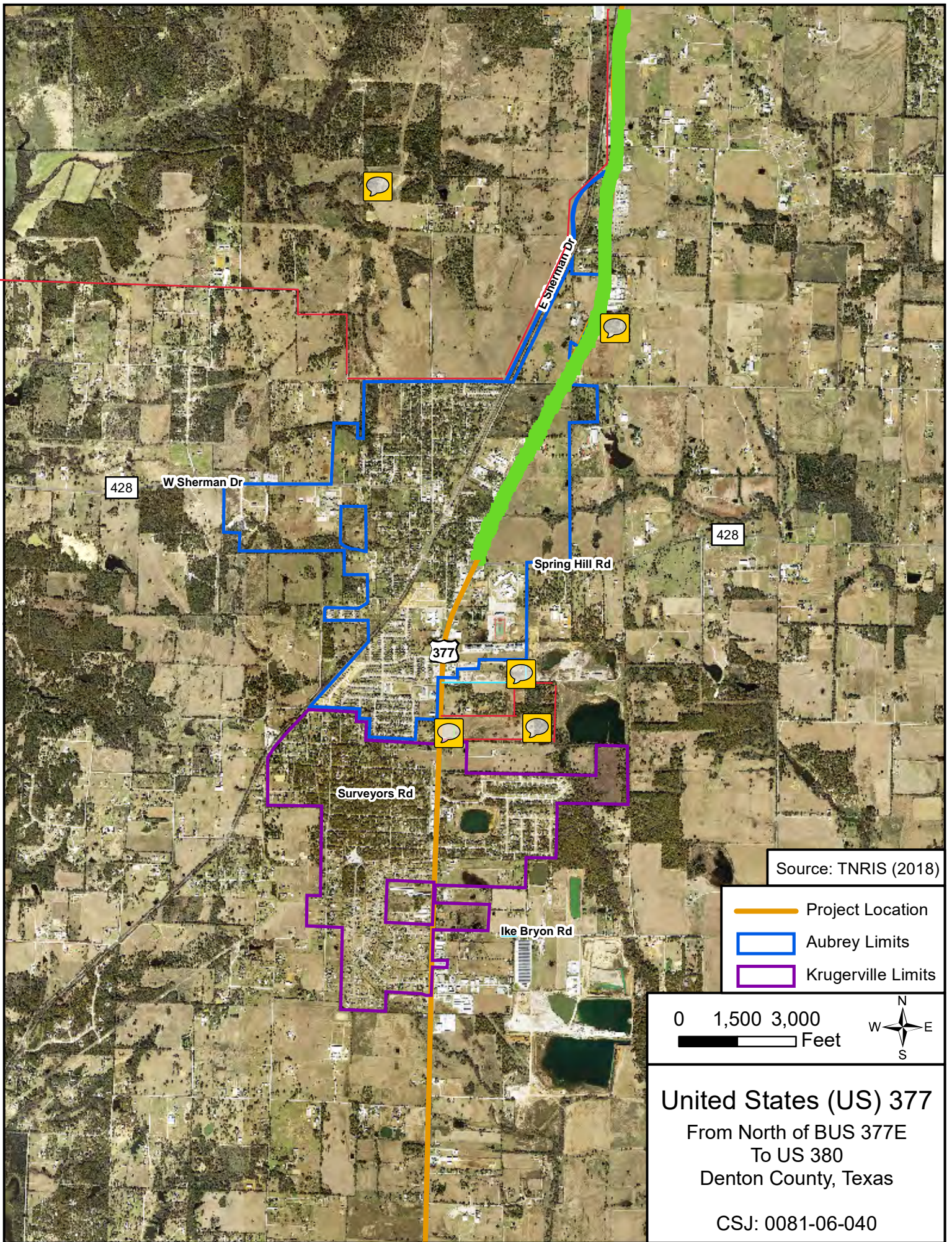
Hello everyone,

Civil Associates, Inc. (CAI) is part of the project team preparing the environmental document for the proposed reconstruction and widening of US 377 in Denton County, Texas. This study is being conducted by the Texas Department of Transportation (TxDOT). CAI has been tasked with completing the Indirect and Cumulative Impacts analysis, and we

need your input. The TxDOT Fort Worth District proposes the widening and reconstruction of the two-lane rural roadway to a six-lane urban roadway with raised median.

Would you be able to provide input on the impact of the project to Aubrey and whether or not it may induce growth to any adjacent or nearby undeveloped properties that otherwise might not develop? Also, would you be able to provide information (name, location, development type) of any current or planned developments within the city limits?

Thank you for your help,



Source: TNRIS (2018)

- Project Location
- Aubrey Limits
- Krugerville Limits



United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas

CSJ: 0081-06-040



Traffic Noise Analysis Report

United States Highway 377 (US 377)

From: North of BUS377E

To: US 380

Denton County, Texas

Control-Section-Job (CSJ): 0081-06-040

TxDOT – Dallas District

May 2020

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

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The Texas Department of Transportation (TxDOT) Dallas District Office proposes the reconstruction and widening of United States Highway US (US 377) from the Denton / Grayson County line to US 380 for approximately 13.747 miles in Denton County, Texas. The proposed project would reconstruct and widen US 377 from a two-lane rural roadway to an urban six-lane section with turn lanes. The Project Description, Project Location Map, Topographic Map, and the US 377 Design Schematic can be found in ECOS.

Introduction

This analysis was accomplished in accordance with TxDOT's (Federal Highway Administration [FHWA] approved) Guidelines for Analysis and Abatement of Roadway Traffic Noise (2011).

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 (**Table 1**).

Table 1. FHWA Noise Abatement Criteria (NAC)

Activity Category	FHWA (dB(A) Leq)	Description of Land Use Activity Areas
A	57 (exterior)	Lands on which serenity and quiet are of extra-ordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	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

Activity Category	FHWA (dB(A) Leq)	Description of Land Use Activity Areas
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 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.

Analysis

The FHWA traffic noise modeling software (TNM 2.5) was used to calculate existing and predicted traffic noise levels. The model primarily considers the number, type and speed of vehicles; highway alignment and grade; cuts, fills and natural berms; surrounding terrain features; and the locations of activity areas likely to be impacted by the associated traffic noise.

The approved traffic data used in this analysis is included in **Attachment B**.

Results

Existing and predicted traffic noise levels were modeled at receiver locations (**Table 2** and the **Noise Receiver Location Map, Attachment A**) that represent the land use activity areas adjacent to the proposed project that might be impacted by traffic noise and potentially benefit from feasible and reasonable noise abatement. Noise levels are expected to increase at most receivers. However, some receivers are not anticipated to experience increased noise levels and some are expected to experience decreased noise levels since the traffic noise modeling software is perceptible to changes in roadway geometry (moving traffic closer to or further from receivers).

Traffic Noise Analysis Report

Table 2. Traffic Noise Levels dB(A) Leq

Representative Receiver	NAC Category	NAC Level	Existing	Predicted 2045	Change (+/-)	Noise Impact (Yes/No)
R1 - Four Horseman Lodge (pool)	E	72	60	62	+2	No
R2 - Sonic (Restaurant, outdoor seating)	E	72	66	68	+2	No
R3 - Single-family Residential	B	67	65	68	+3	Yes
R4 - Single-family Residential	B	67	57	60	+3	No
R5 - Pilot Point Middle School (football bleachers)	C	67	54	57	+3	No
R6 - Single-family Residential	B	67	65	68	+3	Yes
R7 - Single-family Residential	B	67	62	65	+3	No
R8 - Single-family Residential	B	67	63	67	+4	Yes
R9 - Single-family Residential	B	67	66	69	+3	Yes
R10 - Single-family Residential	B	67	62	65	+3	No
R11 - Single-family Residential	B	67	60	62	+2	No
R12 - Single-family Residential	B	67	61	64	+3	No
R13 - Single-family Residential	B	67	57	60	+3	No
R14 - Seventh Day Adventist Church (playground)	C	67	52	55	+3	No
R15 - Single-family Residential	B	67	54	57	+3	No
R16 - Belew Cemetery	C	67	63	64	+1	No
R17 - Midway Church (interior)	D	52	40	41	+1	No
R18 - Single-family Residential	B	67	59	62	+3	No
R19 - Single-family Residential	B	67	64	66	+2	Yes
R20 - Single-family Residential	B	67	60	61	+1	No
R21 - Single-family Residential	B	67	57	58	+1	No
R22 - Single-family Residential	B	67	55	57	+2	No
R23 - Single-family Residential	B	67	58	59	+1	No
R24 - Aubrey MS track (bleachers)	C	67	57	58	+1	No
R25 - Kathy's Kitchen (outdoor seating)	E	72	68	68	0	No

Traffic Noise Analysis Report

Representative Receiver	NAC Category	NAC Level	Existing	Predicted 2045	Change (+/-)	Noise Impact (Yes/No)
R26 - Single-family Residential	B	67	64	64	0	No
R27 - Single-family Residential	B	67	64	67	+3	Yes
R28 - Sonic (Restaurant, outdoor seating)	E	72	67	69	+2	No
R29 - Single-family Residential	B	67	63	65	+2	No
R30 - Horse Breeding Bunkhouse (pool)	E	72	62	63	+1	No
R31 - Single-family Residential	B	67	59	61	+2	No
R32 - Single-family Residential	B	67	64	67	+3	Yes
R33 - Single-family Residential	B	67	66	70	+4	Yes
R34 - Single-family Residential	B	67	64	65	+1	No
R35 - First Baptist Church (Internal)	D	52	40	44	+4	No
R36 - Single-family Residential	B	67	68	73	+5	Yes
R37 - Single-family Residential	B	67	65	66	+1	Yes
R38 - Single-family Residential	B	67	56	58	+2	No
R39 - Single-family Residential	B	67	68	69	+1	Yes
R40 - Single-family Residential	B	67	64	67	+3	Yes
R41 - Single-family Residential	B	67	67	68	+1	Yes
R42 - Covenant Church (internal)	D	52	40	40	0	No
R43 - New Hope Baptist Church (internal)	D	52	40	40	0	No
R44 - Single-family Residential	B	67	49	52	+3	No
R45 - Single-family Residential	B	67	54	57	+3	No
R46 - Single-family Residential	B	67	59	62	+3	No
R47 - Single-family Residential	B	67	63	64	+1	No
R48 - Single-family Residential	B	67	61	64	+3	No

As indicated in **Table 2**, the proposed project would result in a traffic noise impact at 13 representative receiver locations. 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. Noise abatement measures were considered for each location with predicted noise impacts.

Abatement Analysis

Before any abatement measure can be proposed for incorporation into the project, it must be both feasible and reasonable. Feasibility and reasonableness considerations include constructability, the predicted acoustic reductions provided by an abatement measure, a cost allowance, and whether the adjacent receivers desire abatement. Receivers associated with an abatement measure that achieve a noise reduction of five dB(A) or greater are called benefited receivers.

In order to be "feasible," the abatement measure must benefit a minimum of two impacted receivers AND reduce the predicted noise level by at least five dB(A) at greater than 50% of first-row impacted receivers.

In order to be "reasonable," the abatement measure must also reduce the predicted noise level by at least seven dB(A) for at least one benefited receiver (noise reduction design goal) and not exceed the cost-effectiveness criterion of \$25,000 per benefitted receiver.

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.

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

Alteration of horizontal and/or vertical alignments – Any alteration of the existing alignment would displace existing businesses and residences, require additional right of way (ROW) and not be cost effective/reasonable.

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

Noise barriers – Noise barriers in the form of noise walls are the most commonly used noise abatement measures and were considered for this project.

Noise barriers would not be feasible and reasonable for any of the following impacted receivers, and therefore, are not proposed for incorporation into the project:

R3: This receiver represents two single-family residences. A continuous noise barrier along the ROW would restrict access to these residences. Gaps in the noise barriers would satisfy access requirements but the resulting noise barrier 138 feet in length (three barriers, one 44 feet long, one 61 feet long, and one 32 feet long) and 20-foot tall non-continuous barrier segments would fail achieve the minimum feasible reduction of 5 dB(A) for half of these receivers and the 7 dB(A) noise reduction design goal at one of the receivers.

R6 and R8: These receivers represent five single-family residences. A continuous noise barrier along the ROW would restrict access to these residences. Gaps in the noise barriers would satisfy access requirements but the resulting noise barrier 882 feet in length (three barriers, one 219 feet long, 465 feet long, and one 198 feet long) and 18-foot tall non-continuous barrier segments would achieve the minimum feasible reduction of 5 dB(A) for five receivers while meeting the 7 dB(A) noise reduction design goal at one of the receivers. However, the noise barriers would exceed the reasonable, cost-effectiveness criterion of \$25,000 per benefitted receiver.

R9: This receiver represents two single-family residences. A noise barrier along the ROW 176 feet in length and 20-foot tall barrier would fail achieve the minimum feasible reduction of 5 dB(A) for half of these receivers and the 7 dB(A) noise reduction design goal at one of the receivers.

R19: This receiver represents one single-family residence. A noise barrier along the ROW 144 feet in length and 20-foot tall barrier would fail achieve the minimum feasible reduction of 5 dB(A) and the 7 dB(A) noise reduction design goal at this receiver.

R27: This receiver represents two single-family residences. A continuous noise barrier along the ROW would restrict access to these residences. Gaps in the noise barriers would satisfy access requirements but the resulting noise barrier 204 feet in length (three barriers, one 83 feet long, one 74 feet long, and one 47 feet long) and 20-foot tall non-continuous barrier segments would fail achieve the minimum feasible reduction of 5 dB(A) for half of these receivers and the 7 dB(A) noise reduction design goal at one of the receivers.

R32: This receiver represents one single-family residence. A noise barrier along the ROW 93 feet in length and 20-foot tall barrier would fail achieve the minimum feasible reduction of 5 dB(A) and the 7 dB(A) noise reduction design goal at this receiver.

R33: This receiver represents one single-family residence. A noise barrier along the ROW 184 feet in length and 20-foot tall would achieve the minimum feasible reduction of 5 dB(A) for this receiver but would fail to achieve 7 dB(A) noise reduction design goal.

R36: This receiver represents eight single-family residences. A continuous noise barrier along the ROW would restrict access to these residences. Gaps in the noise barriers would satisfy access requirements but the resulting noise barrier 1,633 feet in length (three barriers, one 277 feet long, 1,184 feet long, and one 172 feet long) and 12-foot tall non-continuous barrier segments would achieve the minimum feasible reduction of 5 dB(A) for five receivers while meeting the 7 dB(A) noise reduction design goal at one of the receivers. However, the noise barriers would exceed the reasonable, cost-effectiveness criterion of \$25,000 per benefitted receiver.

R37: This receiver represents one single-family residence. A noise barrier along the ROW 78 feet in length and 20-foot tall barrier would fail achieve the minimum feasible reduction of 5 dB(A) and the 7 dB(A) noise reduction design goal at this receiver.

R39: This receiver represents one single-family residence. A continuous noise barrier along the ROW would restrict access to this residence. Gaps in the noise barriers would satisfy access requirements but the resulting noise barrier 190 feet in length (two barriers, one 93 feet long and one 97 feet long) and 20-foot tall non-continuous barrier segments would fail achieve the minimum feasible reduction of 5 dB(A) and the 7 dB(A) noise reduction design goal at this receiver.

R40: This receiver represents one single-family residence. A noise barrier along the ROW 122 feet in length and 20-foot tall barrier would fail achieve the minimum feasible reduction of 5 dB(A) and the 7 dB(A) noise reduction design goal at this receiver.

R41: This receiver represents one single-family residence. A continuous noise barrier along the ROW would restrict access to this residence. Gaps in the noise barriers would satisfy access requirements but the resulting noise barrier 262 feet in length (two barriers, one 71 feet long and one 191 feet long) and 20-foot tall non-continuous barrier segments would achieve the minimum feasible reduction of 5 dB(A) for this receiver but would fail to achieve 7 dB(A) noise reduction design goal.

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

Noise Contours for Land Use Planning

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, that no new activities are planned or constructed along or within the following predicted (2045) noise impact contours (**Table 3**).

Table 3. Proposed Noise Contours

	Land Use	Impact Contour	Distance from Right of Way
Denton/Grayson County Line to Chestnut Street	NAC category B & C	66 dB(A)	115 feet
	NAC category E	71 dB(A)	40 feet
Chestnut St to FM 424	NAC category B & C	66 dB(A)	140 feet
	NAC category E	71 dB(A)	55 feet
FM 424 to US 380	NAC category B & C	66 dB(A)	85 feet
	NAC category E	71 dB(A)	20 feet

Construction Noise

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

Local Official Notification and Date of Public Knowledge Statement

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

List of Attachments

- A. Noise Receiver Location Map
- B. Traffic Corridor Analysis Information Packet (District Approved)

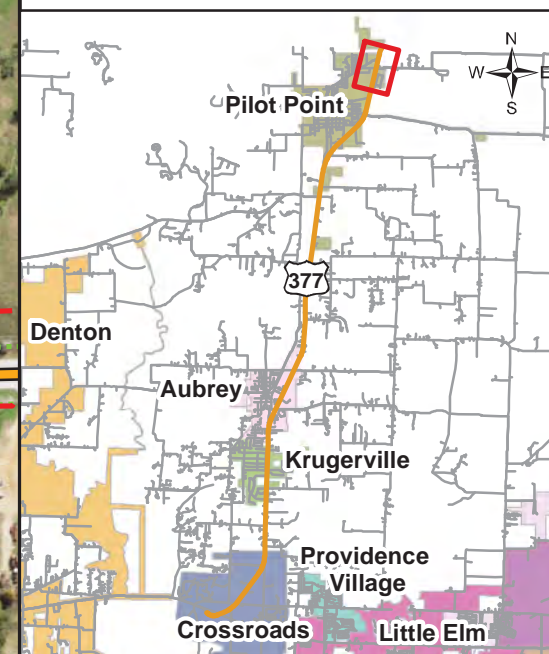
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

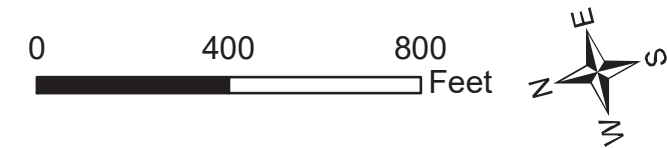
CSJs: 0081-06-040

Page 1 of 15



Legend

- Existing Right-of-way
- Proposed Right-of-Way
- Proposed Easements
- Non-Impacted Receiver
- Impacted Receiver



Base Map Source: TNRIS (2018)

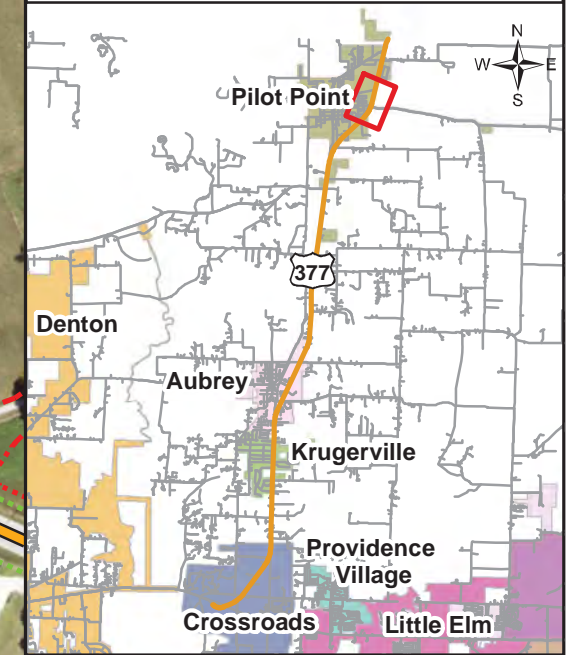
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

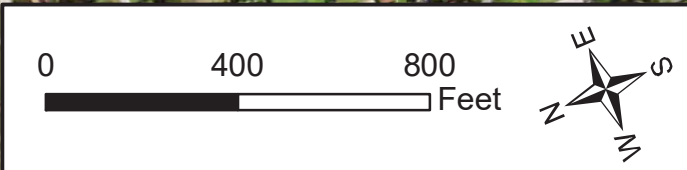
CSJs: 0081-06-040

Page 2 of 15



Legend

- Existing Right-of-way
- Proposed Right-of-Way
- Proposed Easements
- Non-Impacted Receiver
- Impacted Receiver



Base Map Source: TNRIS (2018)

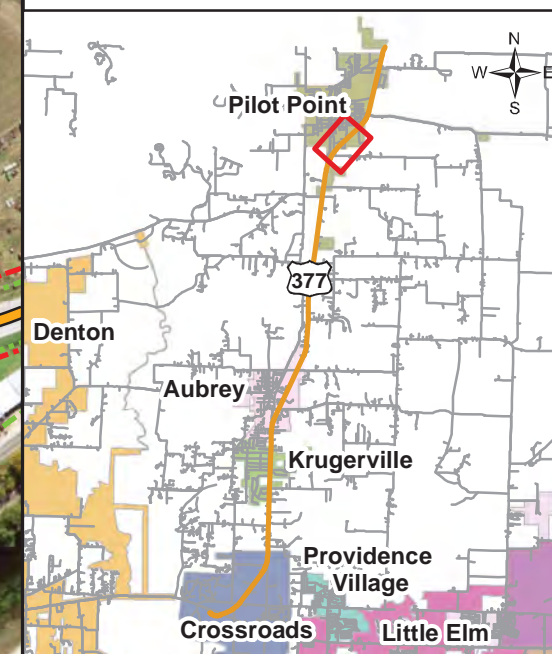
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

CSJs: 0081-06-040

Page 3 of 15



Legend

- Existing Right-of-way
- Proposed Right-of-Way
- Proposed Easements
- Non-Impacted Receiver
- Impacted Receiver

0 400 800 Feet



Base Map Source: TNRIS (2018)



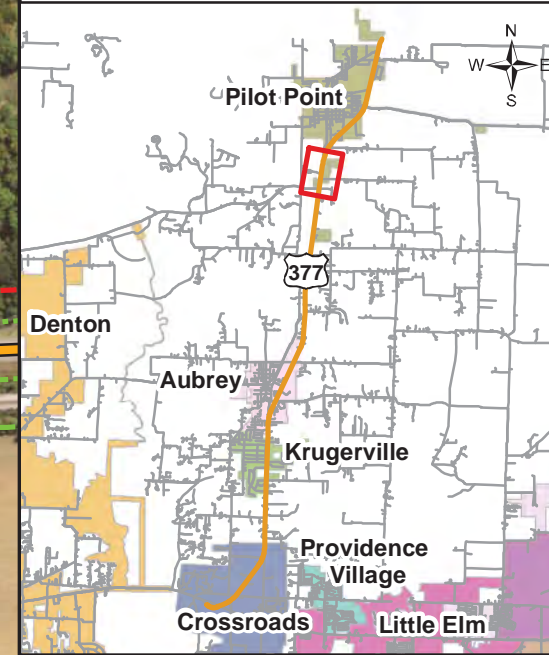
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

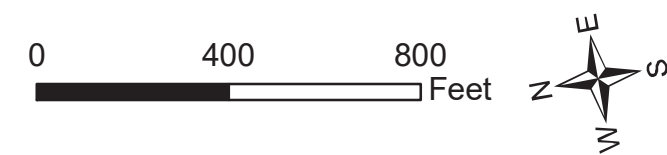
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Page 4 of 15



Legend

- Existing Right-of-way
- Proposed Right-of-Way
- Proposed Easements
- Non-Impacted Receiver
- Impacted Receiver



Base Map Source: TNRIS (2018)

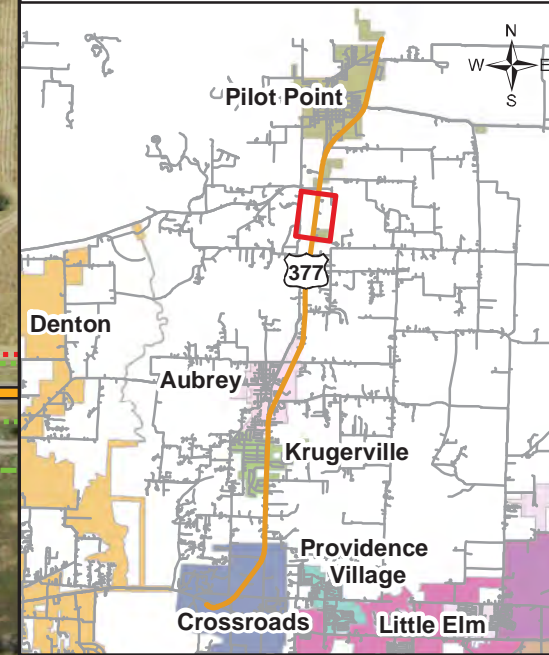
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

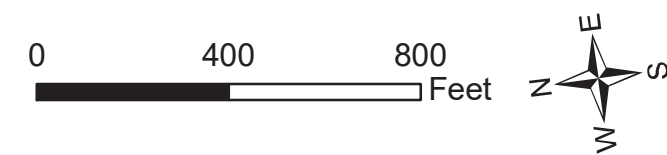
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Page 5 of 15



Legend

- Existing Right-of-way
- Proposed Right-of-Way
- Proposed Easements
- Non-Impacted Receiver
- Impacted Receiver



Base Map Source: TNRIS (2018)

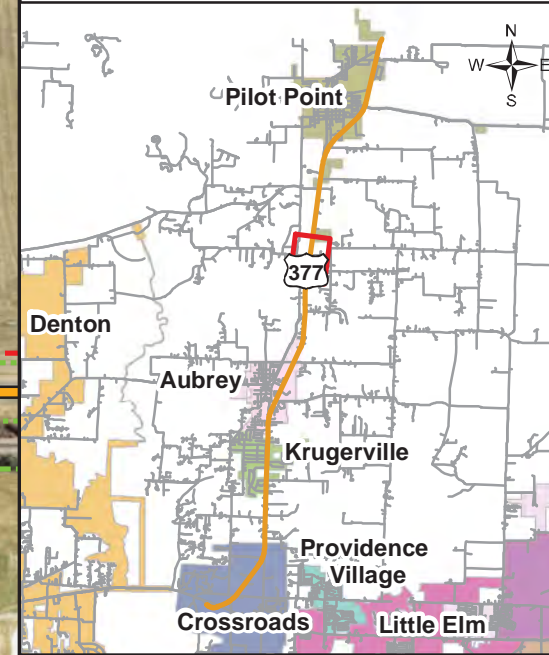
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

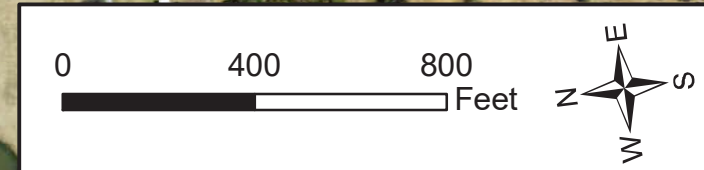
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Page 6 of 15



Legend

- Existing Right-of-way (green dashed line)
- Proposed Right-of-Way (red dashed line)
- Proposed Easements (orange dashed line)
- Non-Impacted Receiver (black dot)
- Impacted Receiver (red dot)



Base Map Source: TNRIS (2018)

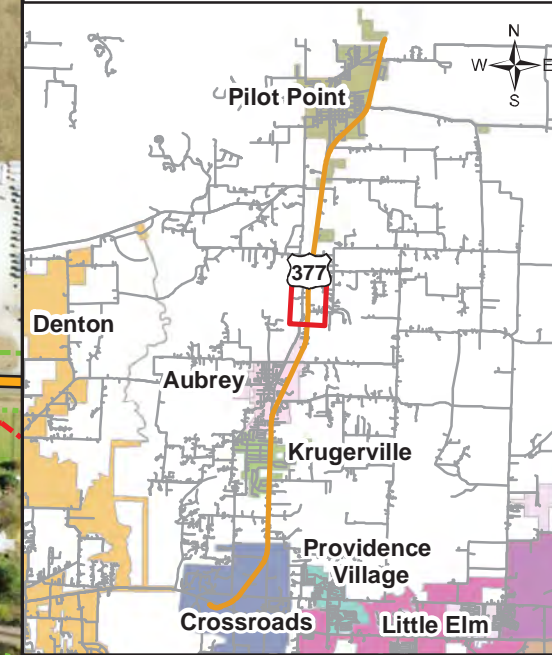
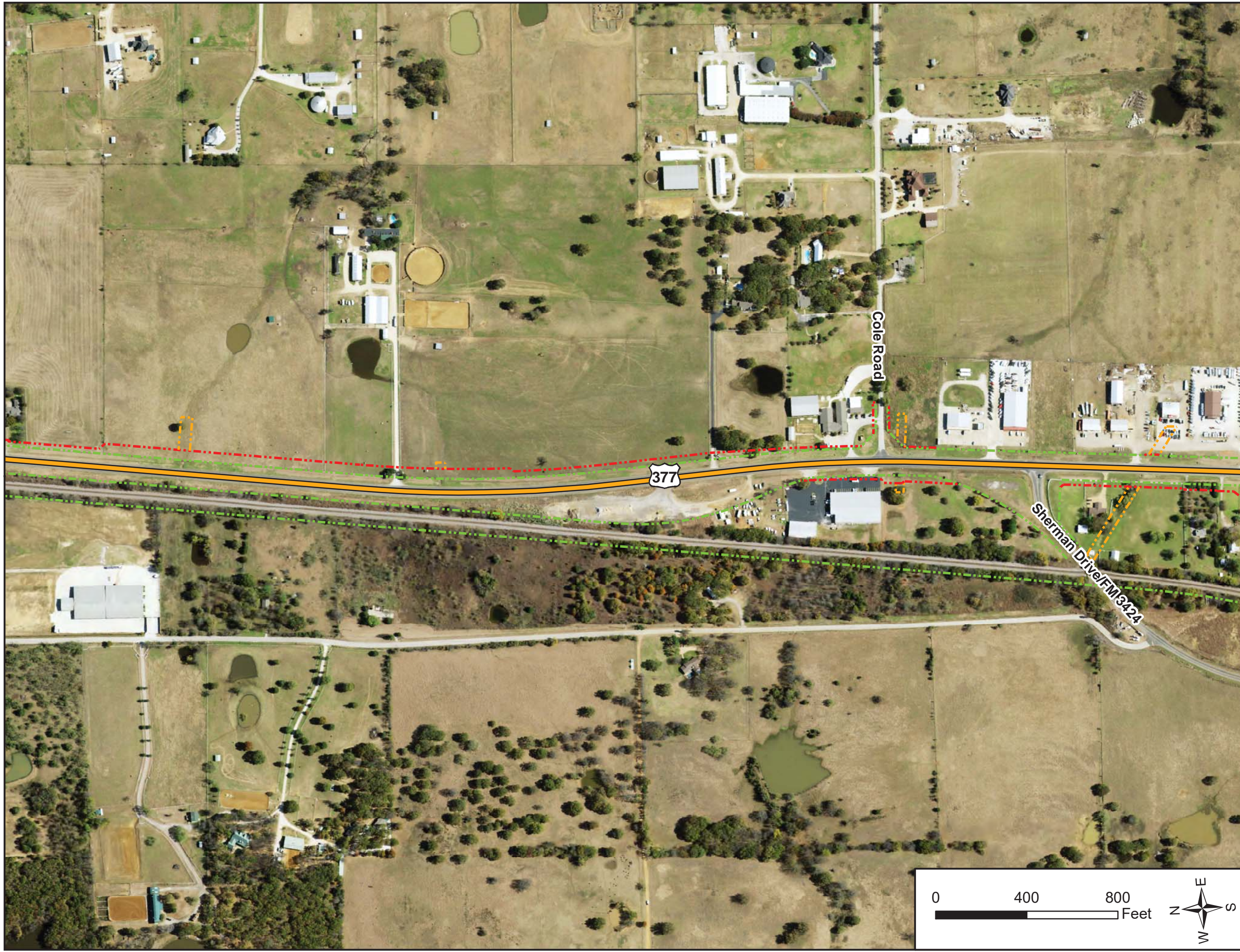
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

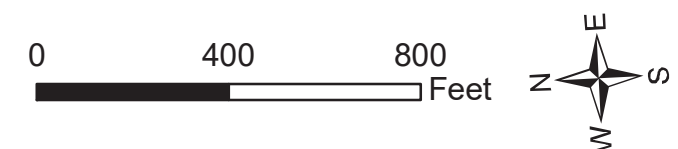
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Legend

- Existing Right-of-way
- Proposed Right-of-Way
- Proposed Easements
- Non-Impacted Receiver
- Impacted Receiver



Base Map Source: TNRIS (2018)

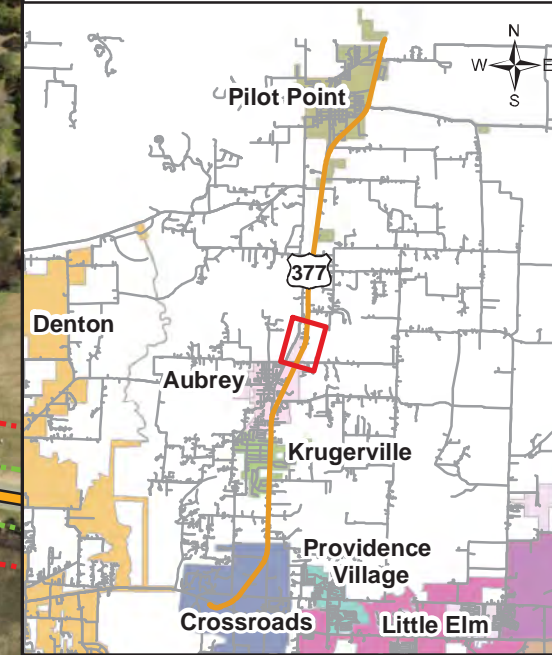
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

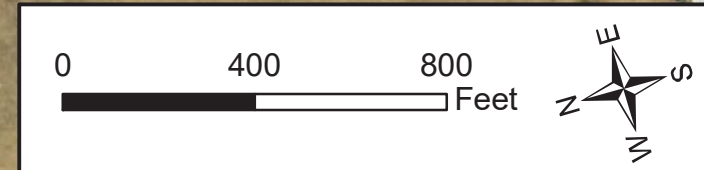
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Page 8 of 15



Legend

- Existing Right-of-way
- Proposed Right-of-Way
- Proposed Easements
- Non-Impacted Receiver
- Impacted Receiver



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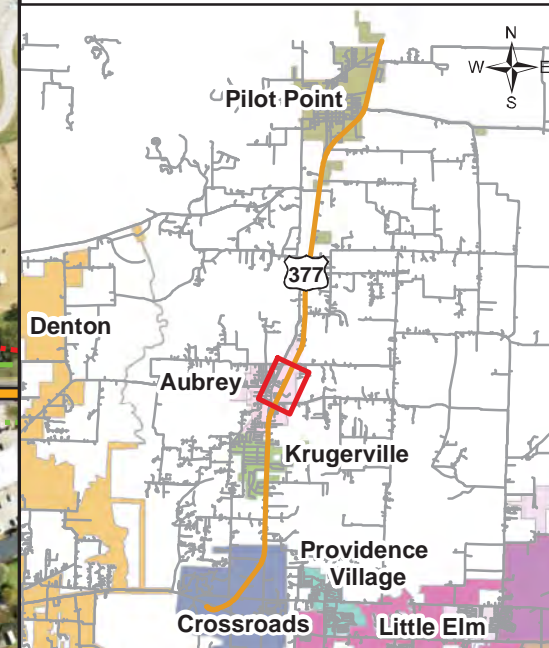
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

CSJs: 0081-06-040

Page 9 of 15



Legend

- Existing Right-of-way
- Proposed Right-of-Way
- Proposed Easements
- Non-Impacted Receiver
- Impacted Receiver



Base Map Source: TNRIS (2018)

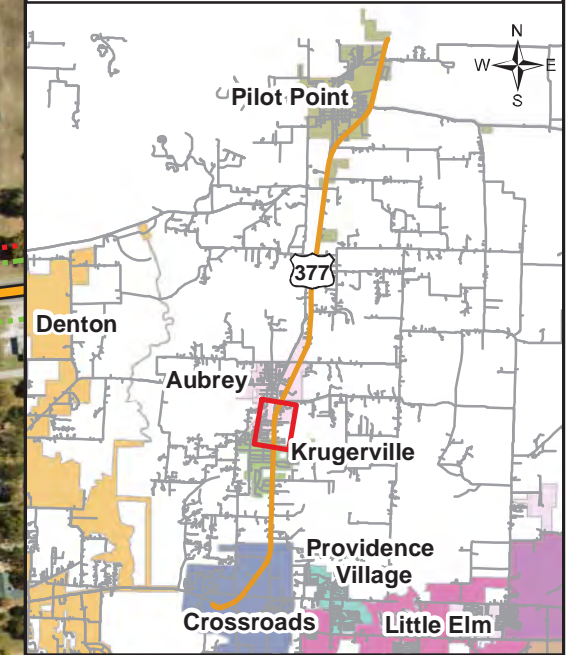
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

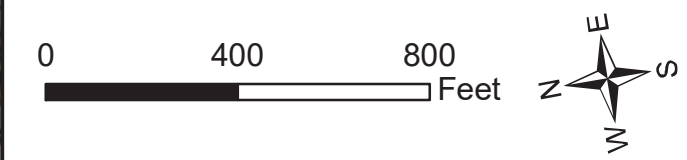
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Legend

- Existing Right-of-way
- Proposed Right-of-Way
- Proposed Easements
- Non-Impacted Receiver
- Impacted Receiver



Base Map Source: TNRIS (2018)

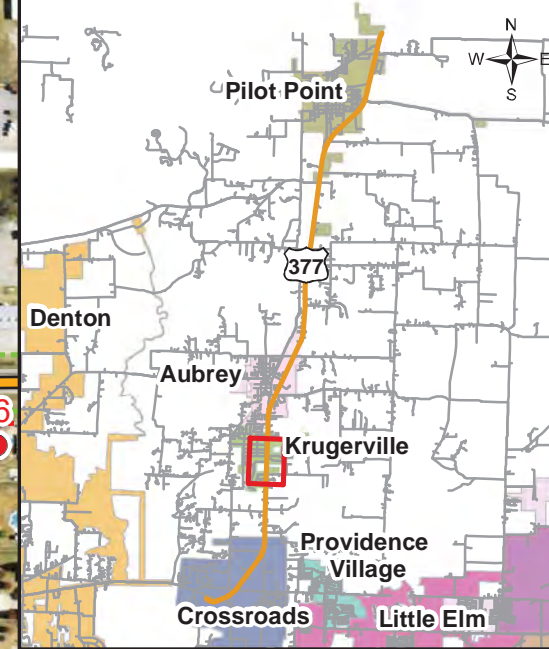
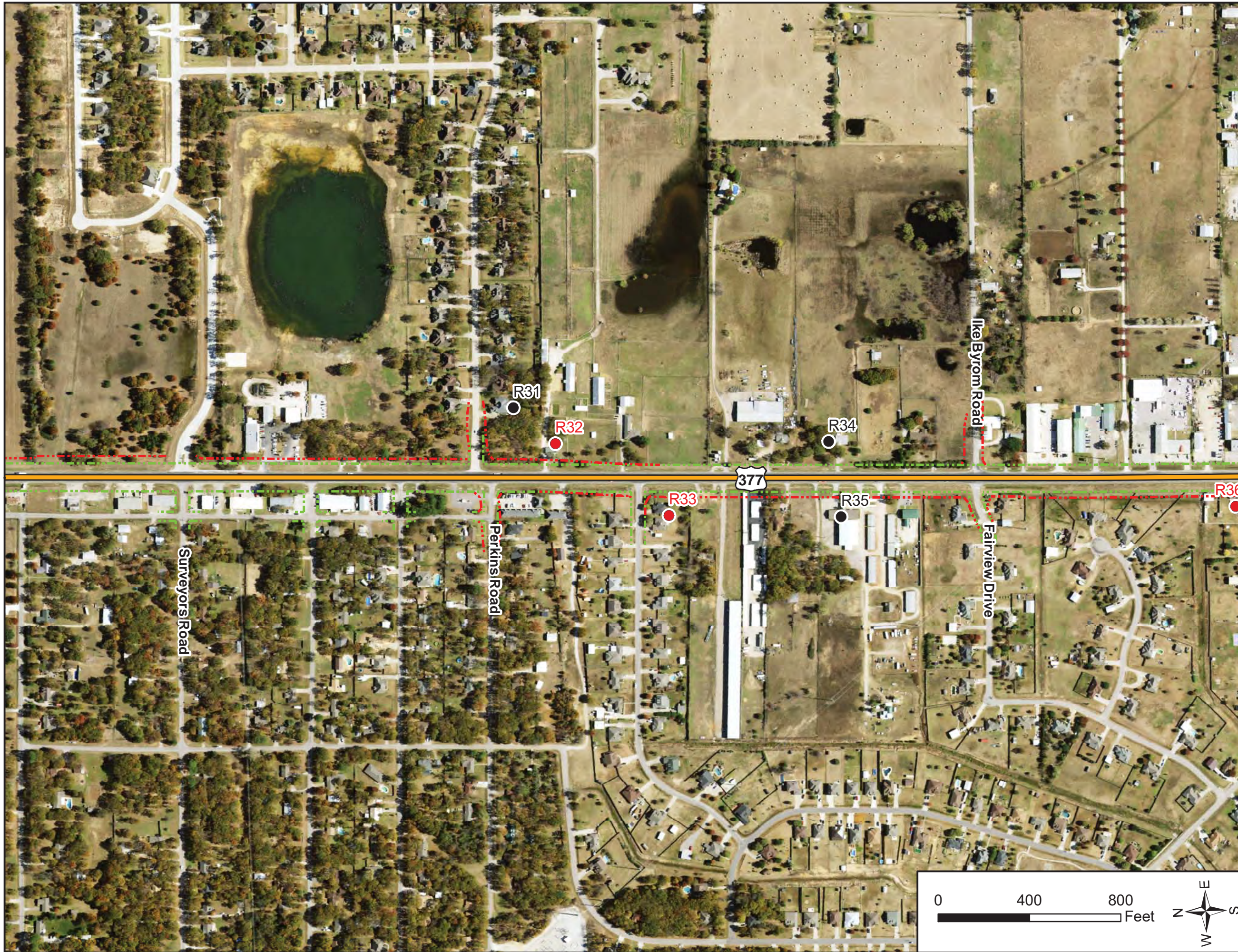
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

CSJs: 0081-06-040

Page 11 of 15



Legend

- Existing Right-of-way
- Proposed Right-of-Way
- Proposed Easements
- Non-Impacted Receiver
- Impacted Receiver

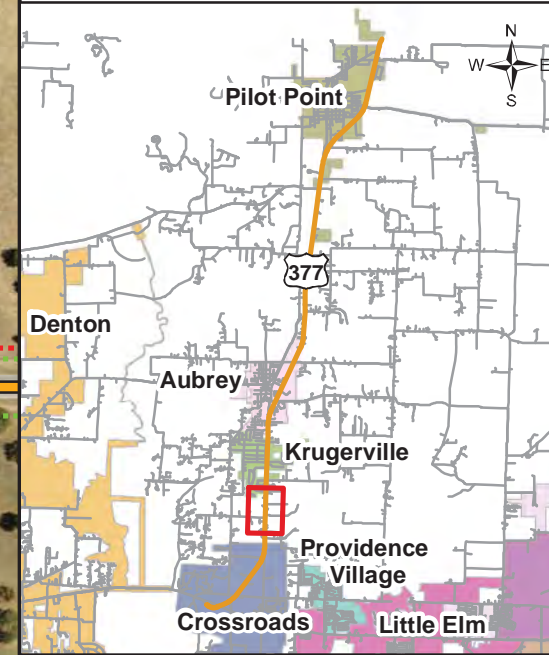
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

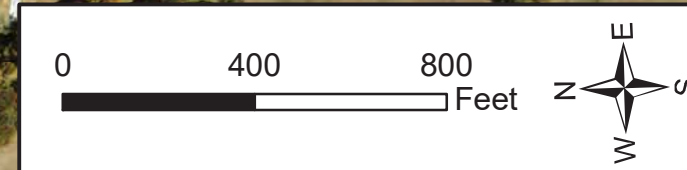
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Page 12 of 15



Legend

- Existing Right-of-way
- Proposed Right-of-Way
- Proposed Easements
- Non-Impacted Receiver
- Impacted Receiver



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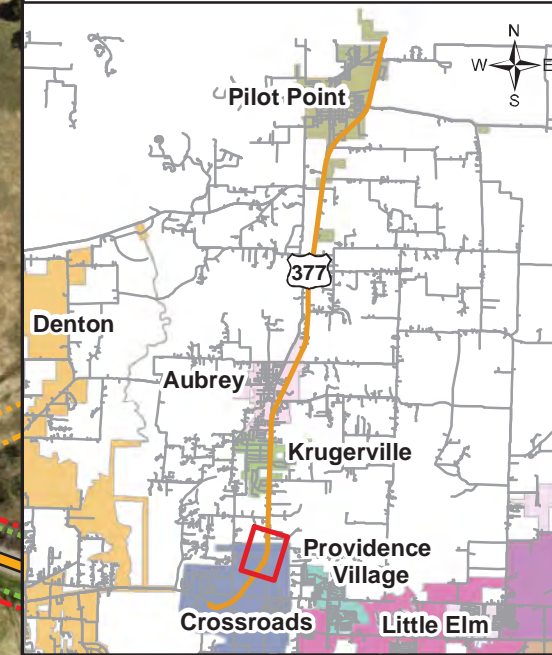
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

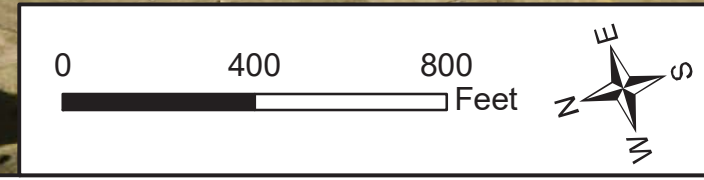
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Page 13 of 15



Legend

- Existing Right-of-way
- Proposed Right-of-Way
- Proposed Easements
- Non-Impacted Receiver
- Impacted Receiver



Base Map Source: TNRIS (2018)

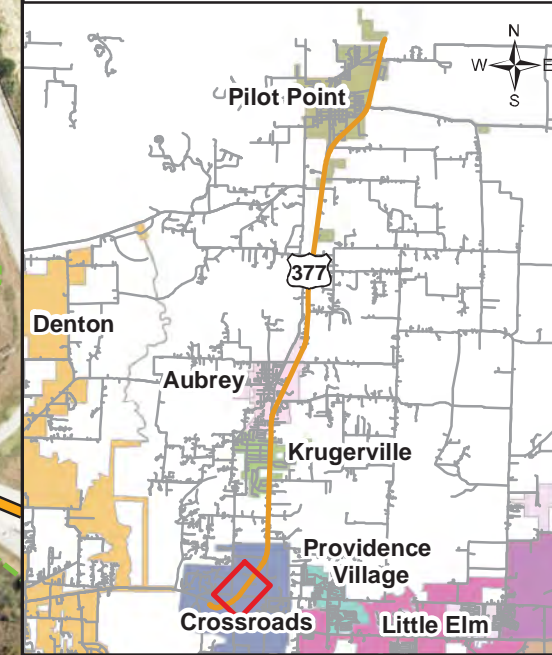
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

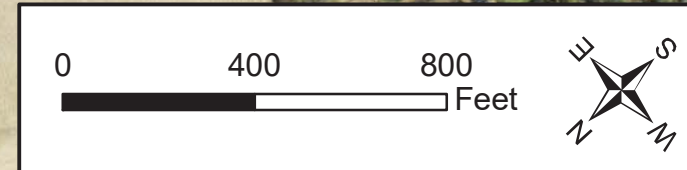
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Legend

- Existing Right-of-way
- Proposed Right-of-Way
- Proposed Easements
- Non-Impacted Receiver
- Impacted Receiver



Base Map Source: TNRIS (2018)

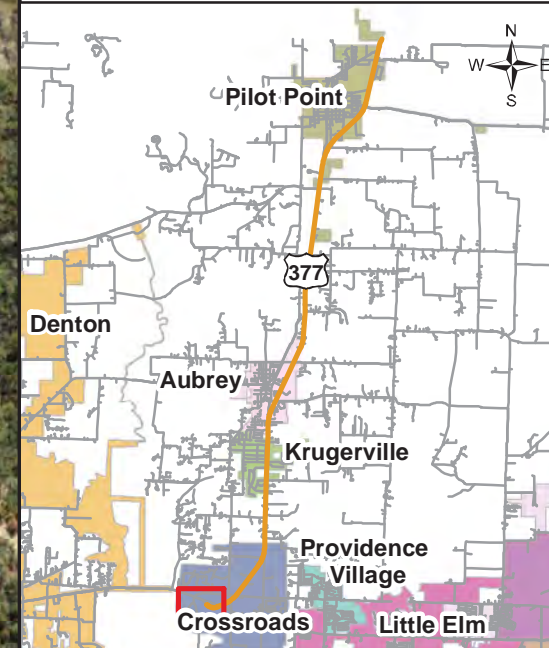
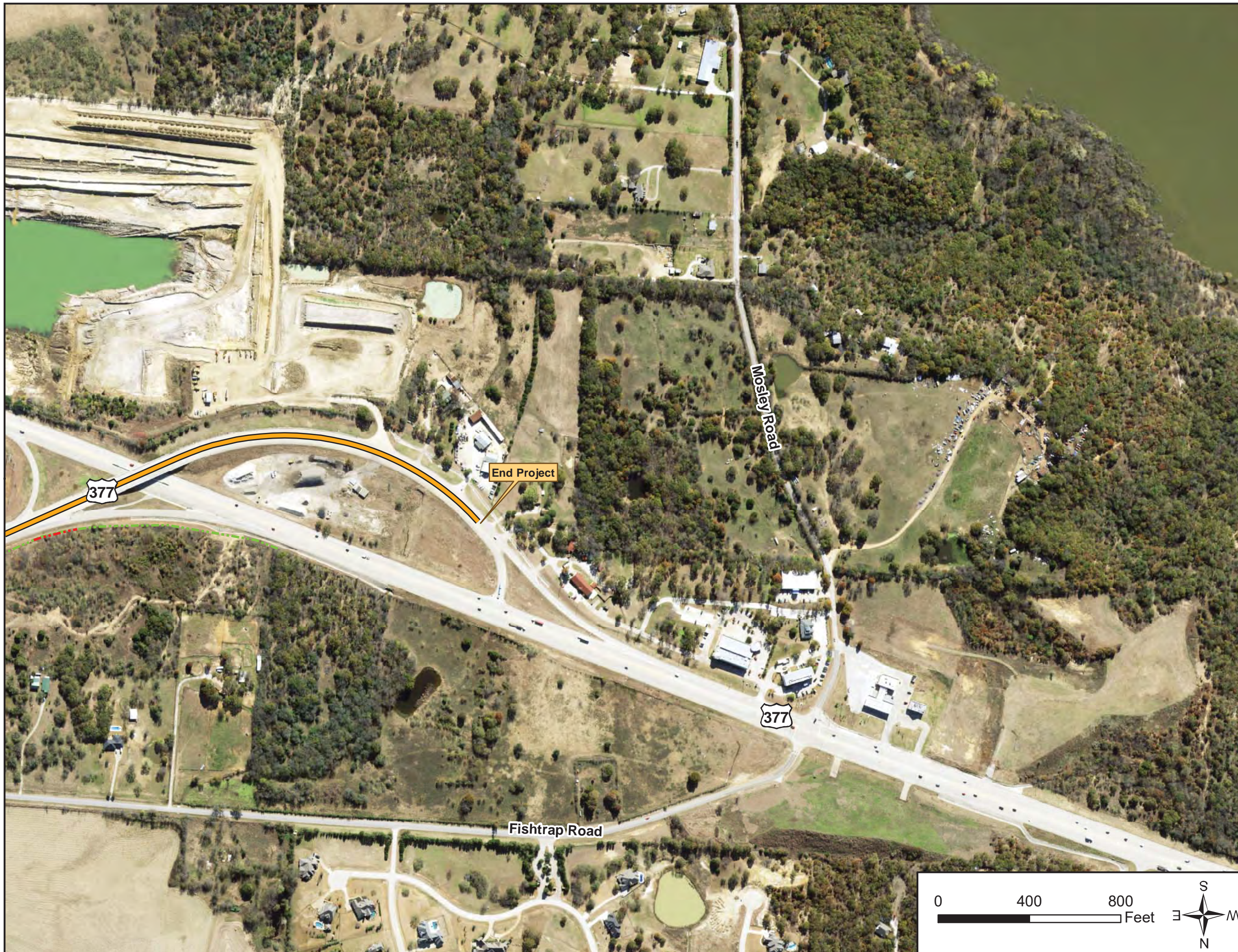
NOISE RECEIVER LOCATION MAP

United States (US) 377

From North of BUS377E
To US 380

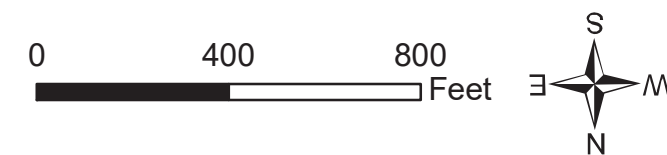
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Page 15 of 15



Legend

- Existing Right-of-way (green dashed line)
- Proposed Right-of-Way (red dashed line)
- Proposed Easements (yellow dashed line)
- Non-Impacted Receiver (black dot)
- Impacted Receiver (red dot)



Base Map Source: TNRIS (2018)

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

CSJ: 0081-06-040

US 377: From US 380 North to Grayson County Line (Denton County)

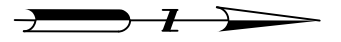
Project: Traffic Projections on US 377: From US 380 North to Grayson County Line (Denton County)

Dallas District

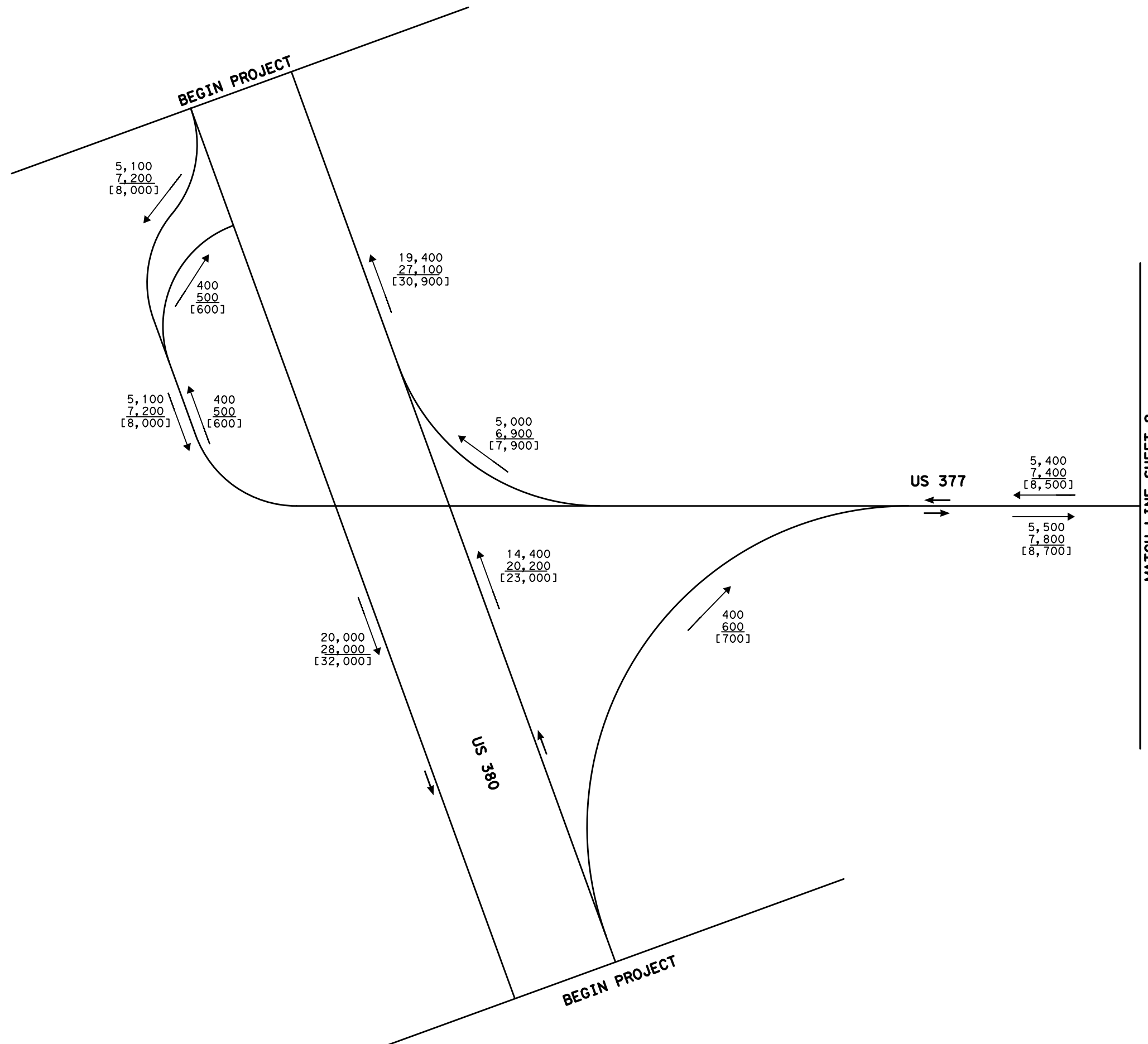
February 26, 2018

										Total Number of Equivalent 18K Single Axle Load Applications One Direction Expected for a 20 Year Period (2025-2045)			
Description of Location	Average Daily Traffic		Dir Dist %	K Factor	Base Year Percent Trucks		ATHWLD	Percent Tandem Axels in ATHWLD	Flexible Pavement	S N	Rigid pavement	SLAB	
	2025	2045			ADT	DHV							
<u>US 377</u>													
From US 380 to N. of FM 455 (Denton County)	20,600	28,500	55-45	9.8	16.0	9.6	0	0	0	3	0	8	
Data for Use in Air & Noise Analysis													
Vehicle Class	Base Year												
	% of ADT		% of DHV										
Light Duty	84.0		90.4										
Medium Duty	6.8		4.1										
Heavy Duty	9.2		5.5										
										Total Number of Equivalent 18K Single Axle Load Applications One Direction Expected for a 30 Year Period (2025-2055)			
Description of Location	Average Daily Traffic		Dir Dist %	K Factor	Base Year Percent Trucks		ATHWLD	Percent Tandem Axels in ATHWLD	Flexible Pavement	S N	Rigid pavement	SLAB	
	2025	2055			ADT	DHV							
<u>US 377</u>													
From US 380 to N. of FM 455 (Denton County)	20,600	32,400	55-45	9.8	16.0	9.6	0	0	0	3	0	8	

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LEGEND
999-YEAR 2025 ADT
999-YEAR 2045 ADT
[999]-YEAR 2055 ADT



MATCH LINE SHEET 2

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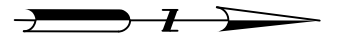
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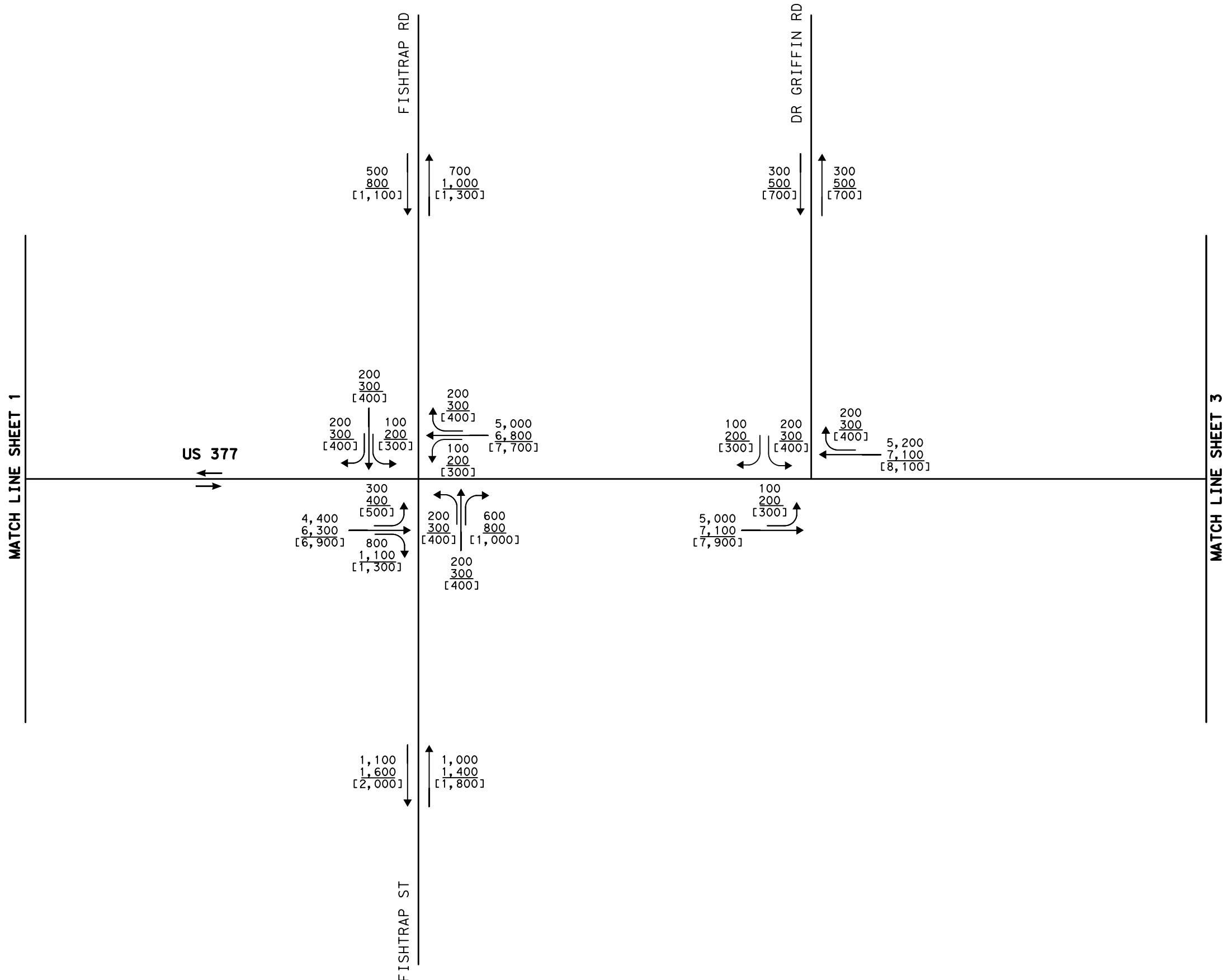
PROJECTED TRAFFIC VOLUMES FOR
US 377
FROM US 380 TO FM 1192/FM 455

DATE: 02/09/2018	DN: JR	CK: JPT	DW:	CK:
CSJ:	DISTRICT	FEDERAL AID PROJECT		
REVISIONS	FTW			SHEET 1
	COUNTY	CONTROL	SECT	JOB
	DENTON			US377

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LEGEND
 999-YEAR 2025 ADT
 999-YEAR 2045 ADT
 [999]-YEAR 2055 ADT



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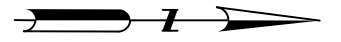
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PROJECTED TRAFFIC VOLUMES FOR
 US 377
 FROM US 380 TO FM 1192/FM 455

DATE: 02/09/2018	DN: JR	CK: JPT	OW:	CK:
CSJ:	DISTRICT			FEDERAL AID PROJECT
REVISIONS	FTW			SHEET
	COUNTY	CONTROL	SECT	JOB
	DENTON			US377

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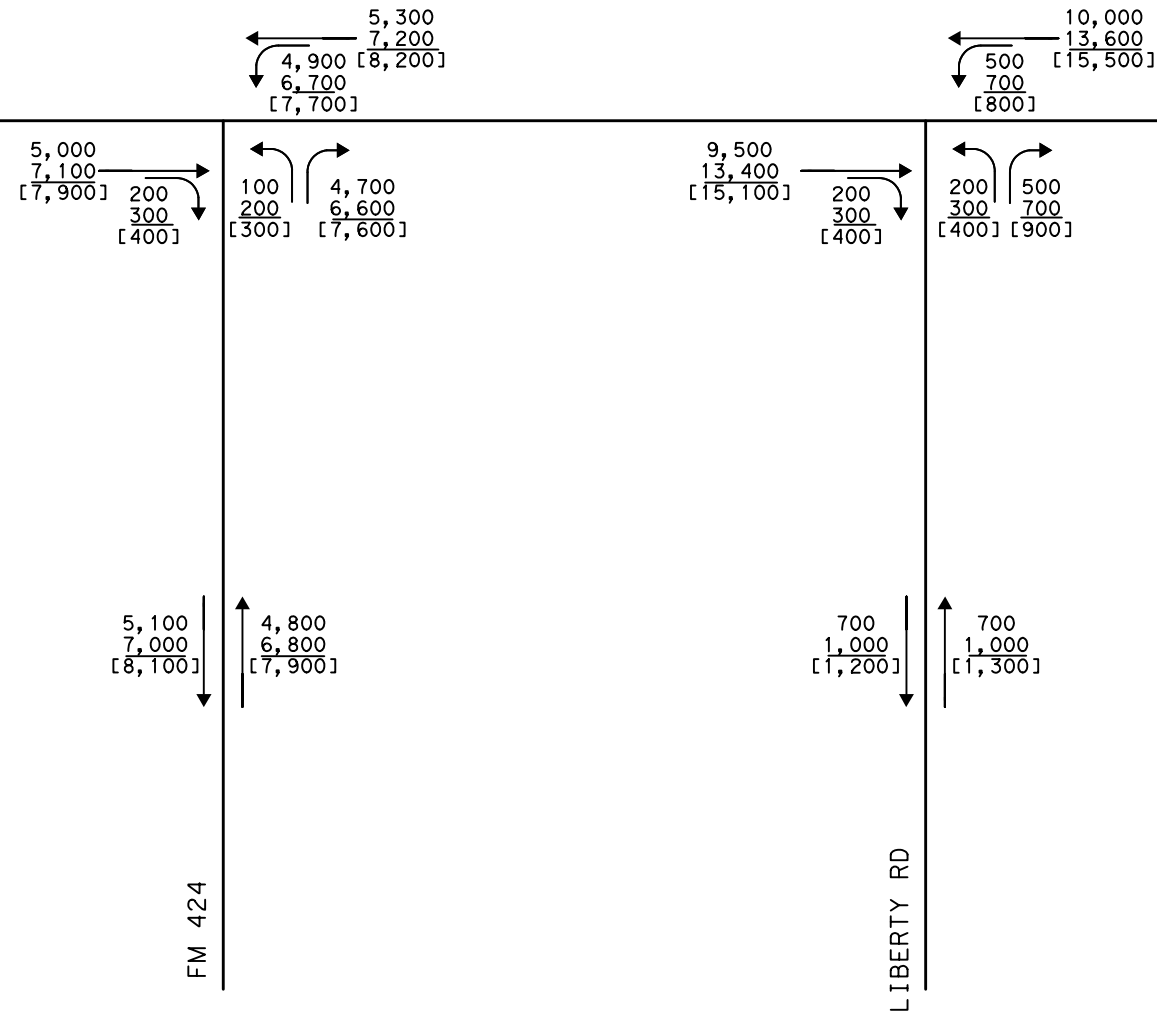


LEGEND
 999-YEAR 2025 ADT
 999-YEAR 2045 ADT
 [999]-YEAR 2055 ADT

MATCH LINE SHEET 2

MATCH LINE SHEET 4

US 377



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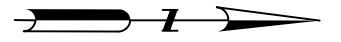
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PROJECTED TRAFFIC VOLUMES FOR
 US 377
 FROM US 380 TO FM 1192/FM 455

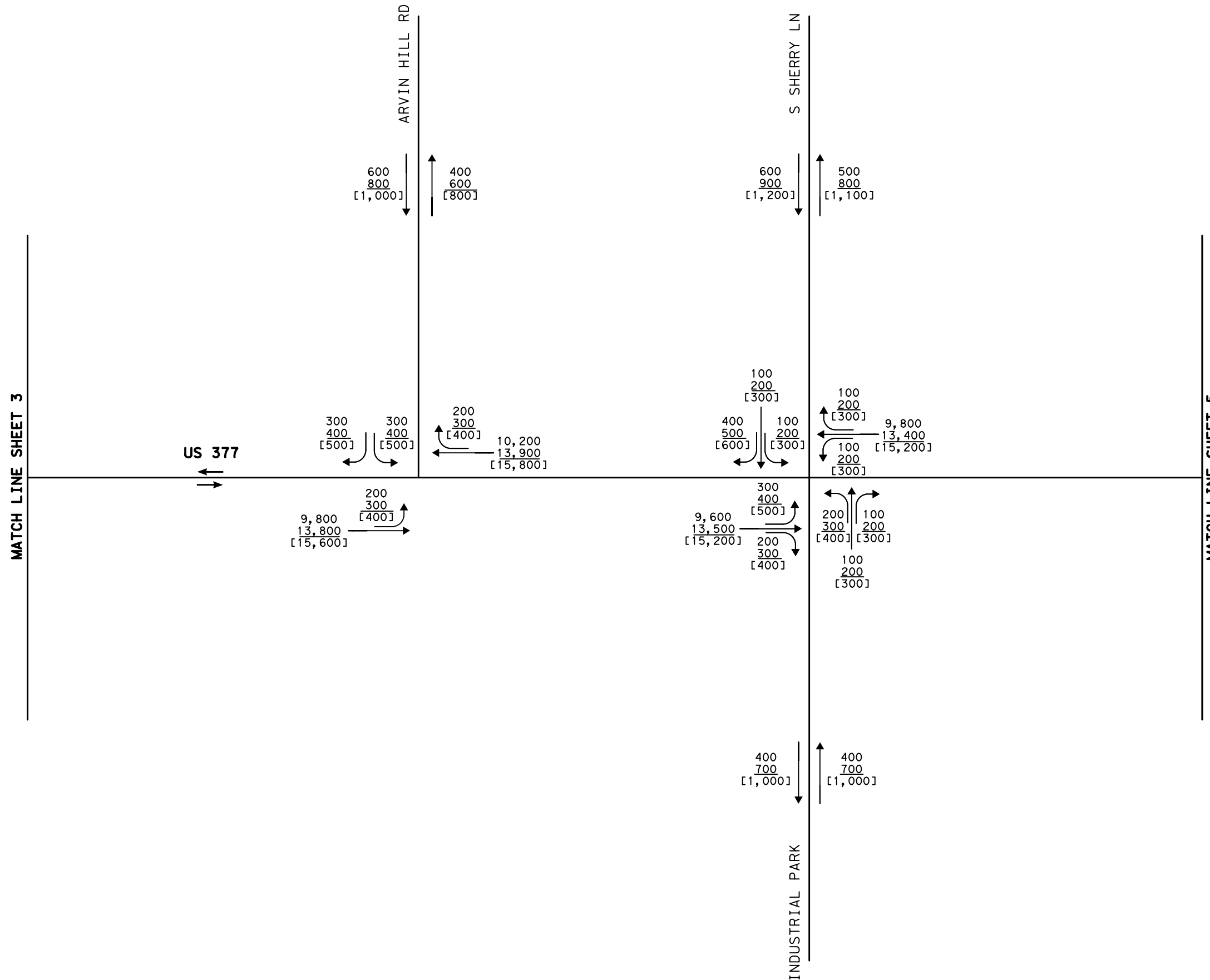
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CSJ:	DISTRICT	FEDERAL AID PROJECT		
REVISIONS	FTW			SHEET 3
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	DENTON			US377

NOT TO SCALE

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LEGEND
 999-YEAR 2025 ADT
 999-YEAR 2045 ADT
 [999]-YEAR 2055 ADT



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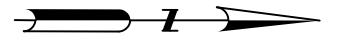
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**PROJECTED TRAFFIC VOLUMES FOR
 US 377
 FROM US 380 TO FM 1192/FM 455**

DATE: 02/09/2018	DN: JR	CK: JPT	OW:	CK:
CSJ:	DISTRICT		FEDERAL AID PROJECT	
REVISIONS	FTW		SHEET	
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	DENTON			US377

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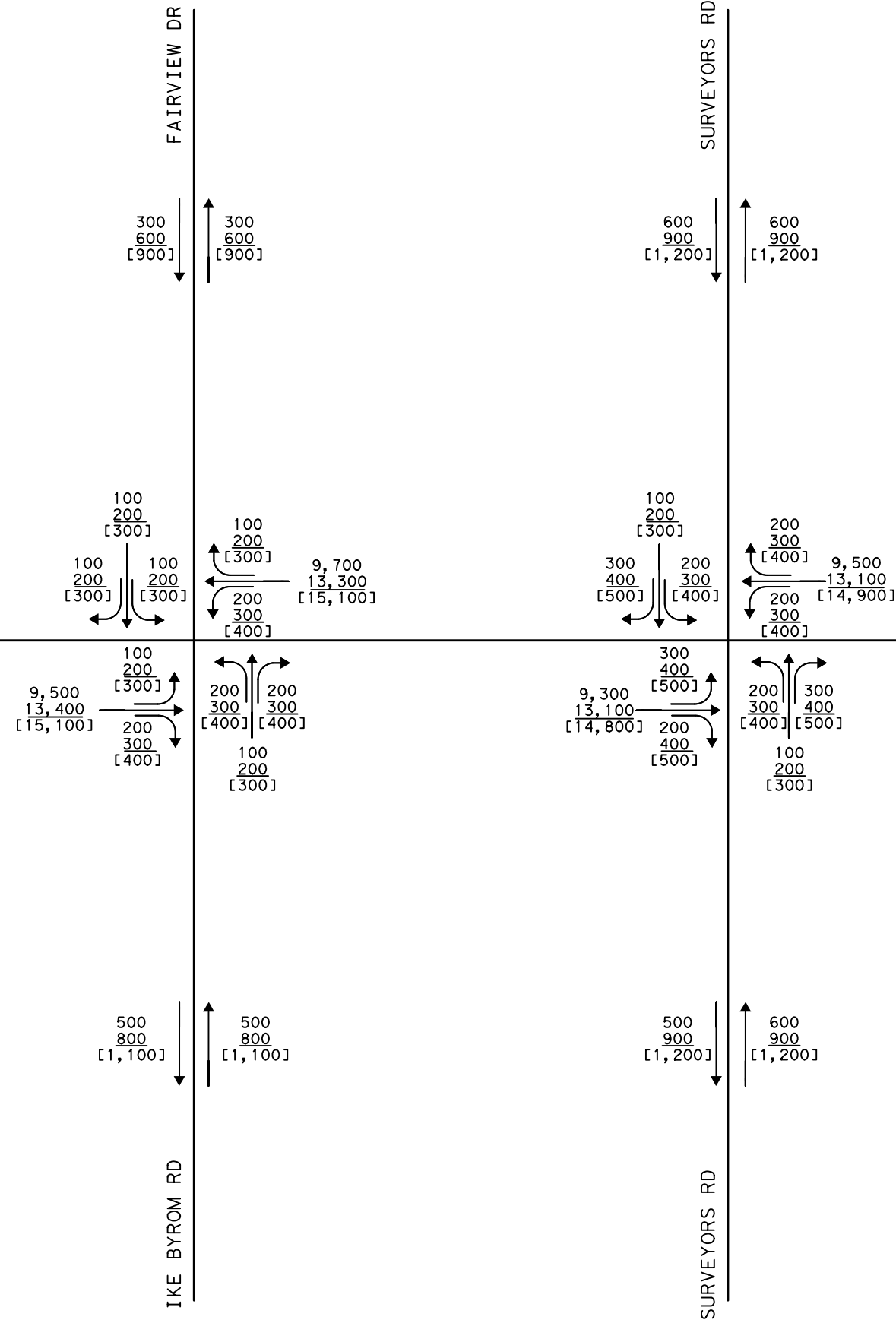


LEGEND
 999-YEAR 2025 ADT
 999-YEAR 2045 ADT
 [999]-YEAR 2055 ADT

MATCH LINE SHEET 4

MATCH LINE SHEET 6

US 377

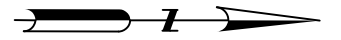


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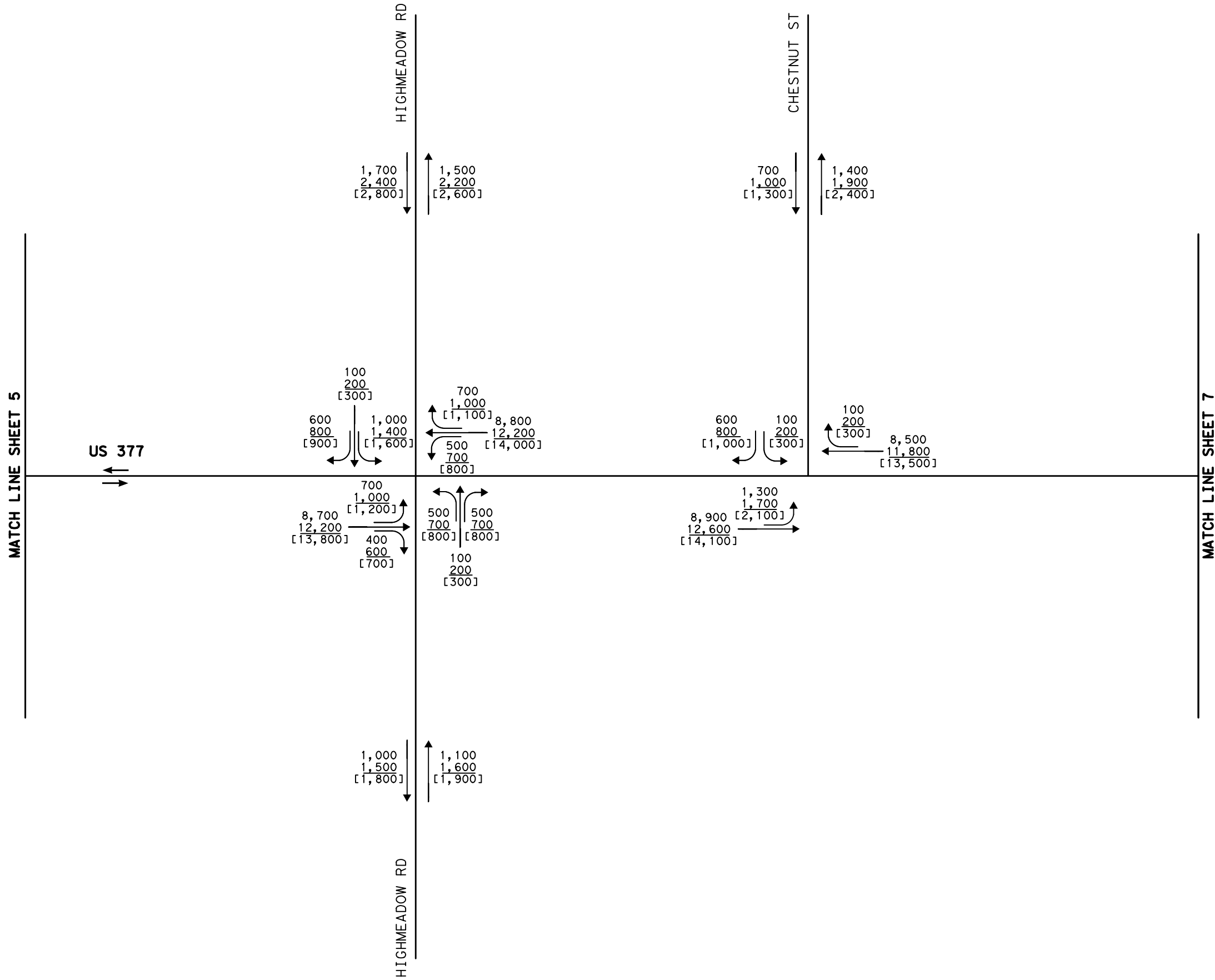
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F-1471 · HOUSTON · DALLAS 2140 Lake Park Boulevard Richardson, Texas 75243 P. 214.340.7344 F. 214.221.7411				
PROJECTED TRAFFIC VOLUMES FOR US 377 FROM US 380 TO FM 1192/FM 455				
DATE: 02/09/2018	DN: JR	CK: JPT	OW:	CK:
CSJ:	DISTRICT:	FEDERAL AID PROJECT		SHEET
REVISIONS:	FTW			5
	COUNTY:	CONTROL:	SECT:	JOB:
	DENTON			US377

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LEGEND
 999-YEAR 2025 ADT
 999-YEAR 2045 ADT
 [999]-YEAR 2055 ADT



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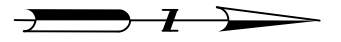
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**PROJECTED TRAFFIC VOLUMES FOR
 US 377
 FROM US 380 TO FM 1192/FM 455**

DATE: 02/09/2018	DN: JR	CK: JPT	DW:	CK:
CSJ:	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	FTW			6
	COUNTY	CONTROL	SECT	JOB
	DENTON			US377

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LEGEND
 999-YEAR 2025 ADT
 999-YEAR 2045 ADT
 [999]-YEAR 2055 ADT

MATCH LINE SHEET 6

MATCH LINE SHEET 8

US 377

FM 428

PINE RIDGE ST

SPRING HILL RD

7,900
11,200
[12,600]

1,100
1,600
[1,800]

1,000
1,400
[1,500]

8,600
12,000
[13,800]

900
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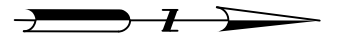


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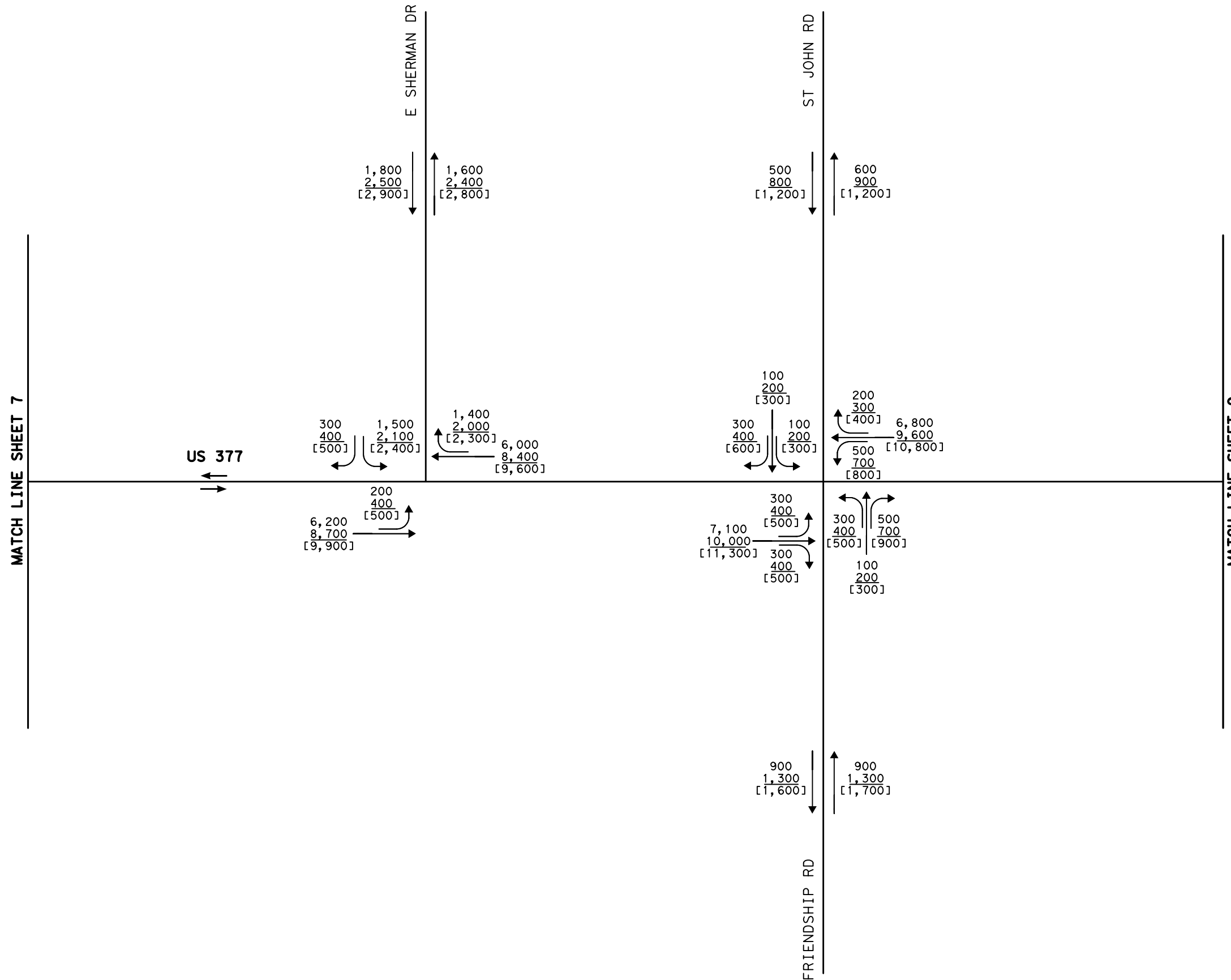
PROJECTED TRAFFIC VOLUMES FOR
 US 377
 FROM US 380 TO FM 1192/FM 455

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REVISIONS:	FTW	SHEET 7		
	COUNTY:	CONTROL:	SECT:	JOB:
	DENTON			US377

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LEGEND
 999-YEAR 2025 ADT
 999-YEAR 2045 ADT
 [999]-YEAR 2055 ADT



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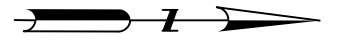
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PROJECTED TRAFFIC VOLUMES FOR US 377 FROM US 380 TO FM 1192/FM 455				
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CSJ:	DISTRICT: FEDERAL AID PROJECT			SHEET: 8
REVISIONS:	FTW			
	COUNTY: DENTON	CONTROL:	SECT:	JOB: US377

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LEGEND
 999-YEAR 2025 ADT
 999-YEAR 2045 ADT
 [999]-YEAR 2055 ADT

MATCH LINE SHEET 8

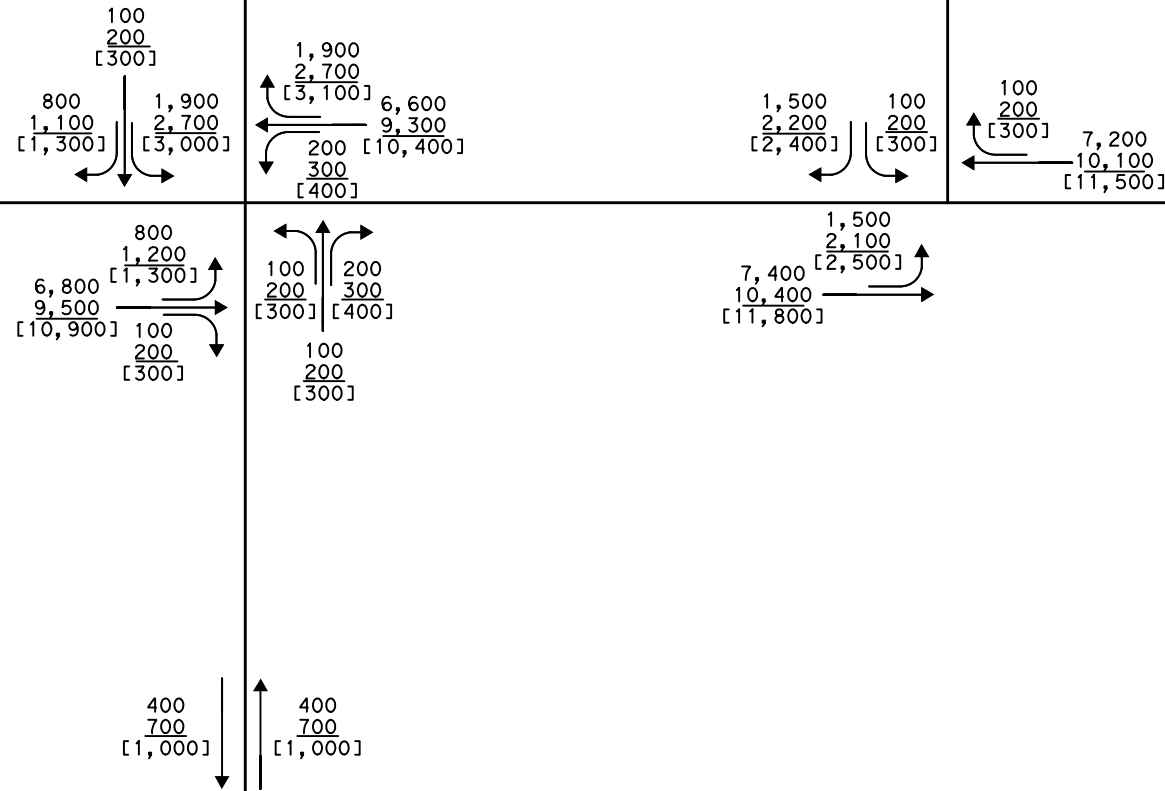
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US 377

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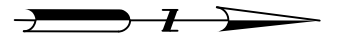


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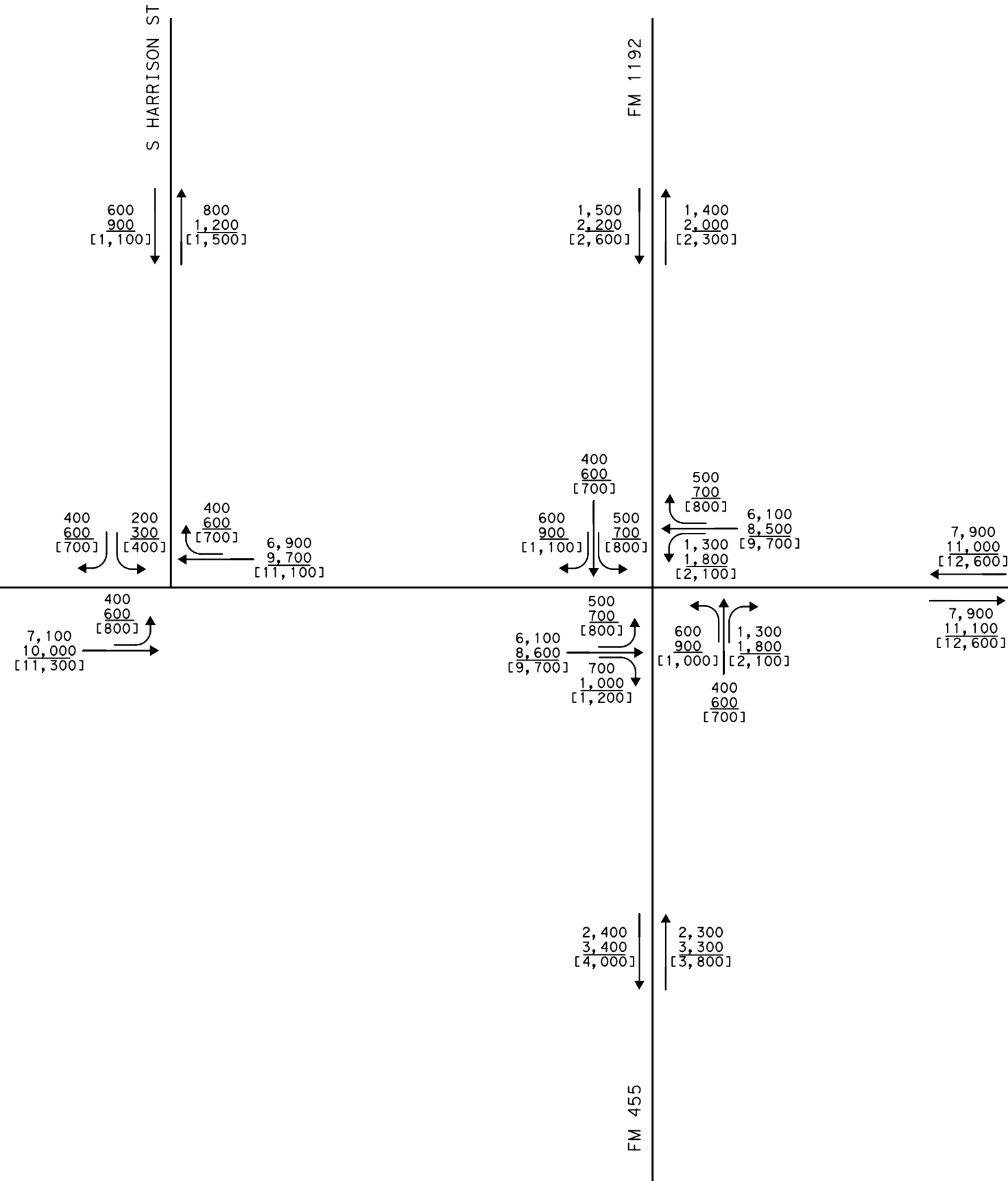
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MATCH LINE SHEET 9

END PROJECT



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PROJECTED TRAFFIC VOLUMES FOR
US 377
FROM US 380 TO FM 1192/FM 455

DATE: 02/09/2018	DN: JR	CK: JPT	DW:	CK:
CSJ:	DISTRICT FEDERAL AID PROJECT			SHEET
REVISIONS	FTW			10
	COUNTY	CONTROL	SECT	JOB
	DENTON			US377



Form Surface Water Analysis

Project Name: **US 377**

CSJ(s): **0081-06-040**

County(ies): **Denton**

Date Analysis Completed: **May 27, 2020**

Prepared by: **A. Canning, Civil Associates, Inc.**

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

I. Section 402 of the Clean Water Act

No project-specific analysis is required as part of the environmental review process under Section 402 of the Clean Water Act for the reasons provided below:

Since TPDES Construction General Permit (CGP) authorization and compliance (and the associated documentation) occur outside of the environmental clearance process, compliance is ensured by the policies and procedures that govern the design and construction phases of the project. The Project Development Process Manual and the Plans, Specifications, and Estimates (PS&E) Preparation Manual require a storm water pollution prevention plan (SWP3) be included in the plans of all projects that disturb one or more acres. The Construction Contract Administration Manual requires that the appropriate CGP authorization documents (notice of intent or site notice) be completed, posted, and submitted, when required by the CGP, to TCEQ and the municipal separate storm sewer system (MS4) operator. It also requires that projects be inspected to ensure compliance with the CGP.

The PS&E Preparation Manual requires that all projects include Standard Specification Item 506 (Temporary Erosion, Sedimentation, and Environmental Controls), and the "Required Specification Checklists" require Special Provision 506-003 on all projects that need authorization under the CGP. These documents require the project contractor to comply with the CGP and SWP3, and to complete the appropriate authorization documents.

For more information regarding Section 402 of the Clean Water Act, see **ENV's Water Resources Handbook**.

II. Section 404 of the Clean Water Act

Select the appropriate statement(s) below:

- This project will not involve any regulated activity in any jurisdictional waters and therefore does not require a United States Army Corps of Engineers (USACE) "dredge and fill" permit under Section 404 of the Clean Water Act.



- Some or all regulated activity in jurisdictional waters will be authorized under a non-reporting nationwide permit (i.e., no pre-construction notification required). If this statement applies, indicate which non-reporting nationwide permit(s) will be used below.

Non-reporting NWP no(s): **<enter non-reporting NWP no(s)>**

- Some or all regulated activity in jurisdictional waters cannot be authorized under a non-reporting nationwide permit; therefore, a nationwide permit with pre-construction notification will be required.

For more information regarding Section 404 of the Clean Water Act, see **ENV’s Water Resources Handbook**.

III. Section 14 of the Rivers and Harbors Act (33 USC 408)

No project-specific analysis is required as part of the environmental review process under Section 14 of the Rivers and Harbors Act (33 USC 408) (“Section 408”) for the reasons provided below:

Any project that involves alterations to, or will temporarily or permanently occupy or use, a USACE federally authorized civil works project (e.g., sea walls, bulkheads, reservoirs, levees, wharfs, or other federal civil works projects, or associated federal land (fee simple) or easements) will require USACE authorization under Section 408 prior to construction of the project. Obtaining any required authorization under Section 408 from the USACE is generally handled by hydraulic and/or design engineers. For any project that requires authorization under both Section 404 and Section 408, the Section 404 authorization cannot be issued until the Section 408 authorization is issued.

For more information regarding Section 408, see **ENV’s Water Resources Handbook**.

IV. Section 303(d) of the Clean Water Act

For a CE project, no project-specific analysis is required as part of the environmental review process under Section 303(d) of the Clean Water Act for the reasons provided below:

To date, TCEQ has not identified (through either a total maximum daily load (TMDL) or the review of projects under the TCEQ MOU) a need to implement control measures beyond those required by the construction general permit (CGP) on road construction projects. Therefore, compliance with the project’s CGP, along with coordination under the TCEQ MOU for certain transportation projects, collectively meets the need to address impaired waters during the environmental review process. As required by the CGP, the project and associated activities will be implemented, operated, and maintained using best management practices to control the discharge of pollutants from the project site.

For an EA or EIS project, further analysis regarding impaired waters is required under TxDOT’s MOU with TCEQ for inclusion in the body of the environmental assessment or environmental impact statement. To do this further analysis, determine whether the project is located within five linear miles (not stream miles) of, is within the watershed of, and drains to, an impaired assessment unit under Section 303(d) of the federal Clean Water Act.

For an EA or EIS project only, provide the date of the Section 303(d) list consulted: **May 25, 2020**



For an EA or EIS project only, check the appropriate box below:

- This project is not located within five linear miles (not stream miles) of, is not within the watershed of, or does not drain to, an impaired assessment unit under Section 303(d) of the federal Clean Water Act.
- This project is located within five linear miles (not stream miles) of, is within the watershed of, and drains to, an impaired assessment unit under Section 303(d) of the federal Clean Water Act.

For an EA or EIS project only, if the second box is checked, fill-in the table below for any impaired assessment units within five miles of the project and within the same watershed as the project:

Watershed	Segment name	Segment number	Assessment unit number
Elm Fork Trinity River-Little Elm Reservoir	Clear Creek	0823C	0823C_01

For more information regarding Section 303(d) of the Clean Water Act, see **ENV's Water Resources Handbook**.

V. General Bridge Act/Section 9 of the Rivers and Harbors Act

Select the appropriate statement below:

- This project will not require a permit, bridge lighting authorization, or exemption from the United States Coast Guard under Section 9 of the Rivers and Harbors Act, which outlines the requirements for approval to construct dams, dikes, bridges, or causeways in or over a navigable waterway.
- This project will require a permit, bridge lighting authorization, or exemption from the United States Coast Guard under Section 9 of the Rivers and Harbors Act, which outlines the requirements for approval to construct dams, dikes, bridges, or causeways in or over a navigable waterway.

For more information regarding the General Bridge Act/Section 9 of the Rivers and Harbors Act, see **ENV's Water Resources Handbook**.

VI. Section 10 of the Rivers and Harbors Act

Select the appropriate statement(s) below:

- This project does not require authorization from the USACE under Section 10 of the Rivers and Harbors Act, which outlines the requirements for approval to construct smaller structures in a navigable waterway.



- This project does require authorization from the USACE under Section 10 of the Rivers and Harbors Act. Some or all regulated activity in a navigable waterway will be authorized under a non-reporting nationwide permit (i.e., no pre-construction notification required). If this statement applies, indicate which non-reporting nationwide permit(s) will be used below.

Non-reporting NWP no(s): **<enter number or numbers of any non-reporting NWPs used>**

- This project does require authorization from the USACE under Section 10 of the Rivers and Harbors Act. Some or all regulated activity in a navigable waterway cannot be authorized under a non-reporting nationwide permit; therefore, a nationwide permit with pre-construction notification, individual permit, letter of permission, regional general permit, or individual Section 10 permit will be required.

For more information regarding Section 10 of the Rivers and Harbors Act, see **ENV's Water Resources Handbook**.

VII. Section 401 of the Clean Water Act

No project-specific analysis is required as part of the surface water analysis under Section 401 of the Clean Water Act for the reasons provided below:

For a project that will use a NWP under Section 404 or Section 10, regardless of whether the NWP is non-reporting (i.e., assumed) or reporting (i.e., requires submittal of a PCN), TxDOT complies with Section 401 of the Clean Water Act by implementing TCEQ's conditions for NWPs. For projects that require authorization under Section 404 or Section 10 beyond a NWP, TxDOT complies with Section 401 of the Clean Water Act by including a Tier I or Tier II checklist (depending upon the amount of disturbance/impact) in the individual permit, letter of permission, or regional general permit application that is submitted to the USACE, and then complying with the conditions of the Tier I or Tier II checklist.

For more information regarding Section 401 of the Clean Water Act, see **ENV's Water Resources Handbook**.

VIII. Executive Order 11990, Protection of Wetlands

Select the appropriate statement below:

- This project is not federally funded and therefore is not subject to Executive Order 11990, Protection of Wetlands.
- This project is federally funded and therefore is subject to Executive Order 11990, Protection of Wetlands, and will not involve construction in any wetlands.
- This project is federally funded and therefore is subject to Executive Order 11990, Protection of Wetlands, and will involve construction in one or more wetlands. Explanation of how the project will comply with Executive Order 11990 is provided below.



Explanation of why there is no practicable alternative to such construction:

Click here to enter text.

For more information regarding Executive Order 11990, Protection of Wetlands, see **ENV’s Water Resources Handbook**.

IX. Executive Order 11988, Floodplain Management

No project-specific analysis is required as part of the environmental review process under Executive Order 11988, Floodplain Management for the reasons provided below:

The department implements this Executive Order on a programmatic basis through its Hydraulic Design Manual. Design of this project will be conducted in accordance with the department’s Hydraulic Design Manual. Adherence to the TxDOT Hydraulic Design Manual ensures that this project will not result in a “significant encroachment” as defined by FHWA’s rules implementing Executive Order 11988 at 23 CFR 650.105(q).

For more information regarding Executive Order 11988, Floodplain Management, see **ENV’s Water Resources Handbook**.

X. Drinking Water Systems

No project-specific analysis is required as part of the environmental review process for drinking water systems for the reasons provided below:

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

XI. Resources Consulted

Indicate which resources were consulted/actions were taken to make the surface water determinations recorded in this form (DO NOT ATTACH TO THIS FORM OR UPLOAD TO ECOS ANY RESOURCES CONSULTED – JUST CHECK THE APPROPRIATE BOX(ES)):

- Aerial Photography (list dates mm/yyyy): 1996, 2005, 2009 - 2019
- Topographic Maps Floodplain Maps
- Site Visit USFWS NWI Maps NRCS Soil Survey
- NHD TCEQ Streams/Waterbodies LIDAR
- USACE Approved JDs USACE Section 10 waters USACE 408 data
- TCEQ 303(d) Impaired Waters
- Contacted resource agency (list agency and reason): _____
- Other (list): _____

CSJ: 0081-06-040

5/27/2020

Waterbody or wetland characteristics							Potentially Jurisdictional?		Total Section 404 impacts for WATERBODY OR WETLAND						Total section 404 impacts for CROSSING						Authorization				Station No.
Crossing number	Waterbody or wetland number	Name	Type	Latitude, Longitude	Acres within project area (all waterbodies and wetlands)	Linear feet within project area (streams only)	Section 404 (waters of the U.S.)	Section 10 (navigable waters)	Temporary			Permanent			Temporary			Permanent			Authorization Type	Number (NWP and RGP only)	Reason (PCN only)	Mitigation Required?	
									Temporary waterbody or wetland impacts (acres)	Temporary stream impacts (linear feet/acres)	Cubic yards (CY) of fill material to be temporarily discharged	Permanent waterbody or wetland impacts (acres)	Permanent stream impacts (linear feet/acres)	Cubic yards (CY) of fill material to be permanently discharged	Temporary waterbody or wetland impacts (acres)	Temporary stream impacts (linear feet/acres)	Cubic yards (CY) of fill material to be temporarily discharged	Permanent waterbody or wetland impacts (acres)	Permanent stream impacts (linear feet/acres)	Cubic yards (CY) of fill material to be permanently discharged					
1	1	unnamed tributary to Pecan Creek	Ephemeral stream	33.41548 -96.93968	0.09	407	Yes	No	0	0	0	0	0	0	0	0	0	0	0	0	NWP - Non-reporting	14	N/A	No	103+00
2	2	unnamed tributary to Pecan Creek	Intermittent stream	33.40346 -96.94346	0.09	247	Yes	No	0	95/0.05	74	0	54/0.01	23	0	95/0.05	74	0	54/0.01	23	NWP - Non-reporting	14	N/A	No	148+00
3	3	unnamed tributary to Pecan Creek	Intermittent stream	33.40002 -96.94446	0.24	1,028	Yes	No	0	76/0.04	120	0	87/0.04	131	0	76/0.04	120	0	87/0.04	131	NWP - Non-reporting	14	N/A	No	161+00
4	4	unnamed tributary to Pecan Creek	Ephemeral stream	33.387578 -96.95392	0.11	492	Yes	No	0	122/0.03	23	0	52/0.02	14	0	122/0.03	23	0	52/0.02	14	NWP - Non-reporting	14	N/A	No	216+50
5	5	unnamed tributary to Pecan Creek	Ephemeral stream	33.38409 -96.95835	0.14	635	Yes	No	0	96/0.05	42	0	113/0.02	16	0	96/0.05	42	0	113/0.02	16	NWP - Non-reporting	14	N/A	No	235+00
6	6	unnamed tributary to Pecan Creek	Ephemeral stream	33.37500 -96.96306	0.06	290	Yes	No	0	95/0.02	14	0	86/0.02	16	0	95/0.02	14	0	86/0.02	16	NWP - Non-reporting	14	N/A	No	271+50
7	7	unnamed tributary to Pecan Creek	Ephemeral stream	33.36532 -96.96473	0.02	128	Yes	No	0	0	0	0	128/0.02	13	0	0	0	0	128/0.02	13	NWP - Non-reporting	14	N/A	No	307+50
8	8	unnamed tributary to Pecan Creek	Intermittent stream	33.34574 -96.96832	0.15	656	Yes	No	0	110/0.05	36	0	115/0.02	15	0	110/0.05	36	0	115/0.02	15	NWP - Non-reporting	14	N/A	No	379+50
9	9	unnamed tributary to Pecan Creek	Ephemeral stream	33.32492 -96.97088	0.05	490	Yes	No	0	0	0	0	53/0.004	10	0	0	0	0	53/0.004	10	NWP - Non-reporting	14	N/A	No	455+50
10	10	unnamed tributary to Pecan Creek	Ephemeral stream	33.3211 -96.97118	0.09	502	Yes	No	0	10/0.002	6	0	66/0.01	27	0	10/0.002	6	0	66/0.01	27	NWP - Non-reporting	14	N/A	No	469+75
11	11	unnamed tributary to Pecan Creek	Intermittent stream	33.30985 -96.97615	0.08	767	Yes	No	0	78/0.01	21	0	130/0.02	25	0	78/0.01	21	0	130/0.02	25	NWP - Non-reporting	14	N/A	No	508+50
12	12A	unnamed tributary to Pecan Creek	Ephemeral stream	33.30233 -96.98048	0.03	240	Yes	No	0	7/0.002	2	0	92/0.01	21	0	13/0.03	4	0	180/0.02	38	NWP - Non-reporting	14	N/A	No	544+00
12	12B	unnamed tributary to Pecan Creek	Ephemeral stream	33.30211 -96.98059	0.07	467	Yes	No	0	6/0.001	2	0	88/0.01	17									No	545+00	
13	13	Running Branch	Intermittent stream	33.29032 -96.98567	0.06	290	Yes	No	0	84/0.03	93	0	75/0.01	38	0	84/0.03	93	0	75/0.01	38	NWP - Non-reporting	14	N/A	No	591+00
14	14	unnamed tributary to Pecan Creek	Intermittent stream	33.26490 -96.98710	0.25	760	Yes	No	0	94/0.05	79	0	123/0.05	81	0	94/0.05	79	0	123/0.05	81	NWP - Non-reporting	14	N/A	No	683+50
15	15	unnamed tributary to Cantrell Slough	Ephemeral stream	33.26021 -96.98714	0.03	188	Yes	No	0	0	0	0	18/0.003	2	0	0	0	0	18/0.003	2	NWP - Non-reporting	14	N/A	No	700+50
16	16	unnamed tributary to Cantrell Slough	Ephemeral stream	33.25149 -96.98771	0.06	550	Yes	No	0	71/0.01	14	0	118/0.01	9	0	71/0.01	14	0	118/0.01	9	NWP - Non-reporting	14	N/A	No	732+50
17	17	unnamed tributary to Cantrell Slough	Ephemeral stream	33.24270 -96.99214	0.03	112	Yes	No	0	7/0.001	2	0	42/0.01	24	0	7/0.001	2	0	42/0.01	24	NWP - Non-reporting	14	N/A	No	768+00
18	18	unnamed tributary to Cantrell Slough	Ephemeral stream	33.23512 -96.99903	0.01	100	Yes	No	0	8/0.001	2	0	22/0.002	4	0	8/0.001	2	0	22/0.002	4	NWP - Non-reporting	14	N/A	No	799+50



Waters of the U.S. Delineation Report-Draft

United States (US) 377
from North of BUS 377 to US 380
(CSJ 0081-06-040)

Texas Department of Transportation, Dallas District

May 2020

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1.0 Introduction

The Texas Department of Transportation (TxDOT) conducted a waters of the U.S. (WOTUS) delineation for a proposed road project on United States (US) 377 from North of BUS 377 to US 380 in Pilot Point, Aubrey, Krugerville, and Cross Roads, Denton County, Texas (CSJ 0081-06-040). The delineation was completed on May 13, 2020.

The delineation was performed to evaluate the presence of jurisdictional WOTUS and identify their boundaries within the project area. It is anticipated that this waters of the U.S. delineation report (WOTUS DR) will be used in support of the jurisdictional determination process for on-site aquatic resources. If it is determined that jurisdictional resources will be impacted, this WOTUS DR will also support applications for regulatory permits that may be required from the United States Army Corps of Engineers (USACE) for proposed construction activities.

Waterbodies were delineated according to USACE Regulatory Guidance Letter (RGL) 05-05 Ordinary High Water Mark (OHWM) Identification for non-tidal waters and the Mean High Tide (MHT) line for tidal waters. As required under Section 404 of the Clean Water Act (CWA), wetlands were delineated using the routine method described in the USACE 1987 Wetlands Delineation Manual (1987 Manual) and the USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0) (March 2010 Regional Supplement). Wetland types and boundaries were determined through initial map review, followed by fieldwork involving the examination of three (3) parameters: hydrology, vegetation, and soils. Delineation criteria and indicators for each of these parameters are outlined in the 1987 Manual and the March 2010 Regional Supplement. The March 2010 Regional Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Great Plains Region, per the regional supplement. Wetlands were classified according to the Cowardin Classification System used for the United States Fish and Wildlife Service's (USFWS) National Wetlands Inventory (NWI).

This document contains the following four (4) attachments:

- Attachment 1 - Figures: contains maps of the project area
- Attachment 2 - Historical Aerial Photographs: contains historical aerial imagery, starting with the oldest photographs first
- Attachment 3 - Site Photographs: contains photographs taken during the site visit(s)
- Attachment 4 - Stream Data Forms

2.0 Project Overview

The proposed project consists of the reconstruction and widening of US 377 from north of BUS 377 to US 380 for approximately 14 miles. Improvements would include the expansion of the current 2-lane rural roadway to a 6-lane urban roadway with a raised median to provide additional capacity and improve safety. Improvements would consist of 12-foot-wide travel lanes, and 14-foot-wide outside shared-use lanes, 5-foot sidewalks with American Disabilities Act curb ramps in both directions. The exception would be no sidewalk on the west side of the road along the parallel section with the Union Pacific Railroad. Proposed drainage would be conveyed by curb and gutter, a storm sewer system and crossing culverts. Other improvements would include realigning the intersection BUS 377 S at US 377 and FM 424 at US 377 for safer operations. The existing right-of-way (ROW) width would increase with the proposed project to the typical 140-foot ROW footprint. The proposed project is anticipated to require 63.2 acres of additional ROW and 1.8 acres of proposed permanent drainage easements to accommodate the proposed improvements.

Attachment 1 - Figures contains seven maps of the project area. Figure 1 provides a vicinity map that depicts the location of the project area, Figure 2 is a 7.5-minute series United States Geological Survey (USGS) topographic overview map, Figure 3 is an aerial overview map of the project area, Figure 4 is the NWI overview map, Figure 5 is the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil overview map of the project area, Figure 6 is the Federal Emergency Management Agency (FEMA) flood insurance rate map (FIRM) overview map of the project area, and Figure 7 provides the project layout of the proposed project in relation to the potential jurisdictional WOTUS.

3.0 Ecological Site Description

The project area is located within the Southwestern Prairies Cotton and Forage Land Resource Region (LRR J) of the Great Plains and is more specifically located in Major Land Resource Area (MLRA) 86C (Eastern Cross Timbers).

The dominant soil orders in this MLRA are Alfisols, Entisols, and Mollisols. They are moderately deep or deep, medium textured to coarse textured, and moderately well drained to somewhat excessively drained. They have a thermic soil temperature regime, an ustic soil moisture regime, and smectitic, siliceous, or mixed mineralogy. Shallow and moderately deep Haplustalfs (Rayex series) and Paleustalfs (Birome series) formed on sandstone-capped hills and ridges. Deep, well drained and moderately well drained Paleustalfs (Callisburg and Crosstell series) formed in clayey material on hillsides. Very deep, well drained, moderately permeable Ultic Paleustalfs (Gasil and Konsil series) formed in sandy material on hillsides. Very deep, well drained Arenic Paleustalfs (Silstid series) and very deep, somewhat excessively drained Psammentic Paleustalfs (Eufaula series) formed in sandy material and have a thick, sandy surface layer. Deep, gently sloping Paleustalfs (Bastrop and Bastsil series) formed on stream terraces and footslopes on erosional remnants. Nearly level Haplustolls (Whitesboro series) and Ustifluvents (Pulexas and Bunyan series) formed on narrow flood plains along tributaries.

The native vegetation in this area consists of mid and tall grasses interspersed with blackjack oak and post oak. The area supports oak savanna vegetation with an understory of tall grasses. Little bluestem, purpletop tridens, Indiangrass, switchgrass, big bluestem, post oak, blackjack oak, elm, coralberry, American beautyberry, bumelia, greenbrier, and elbowbush are some of the dominant species. Engelmann's daisy, lespedezas, and trailing wildbean are among the numerous perennial forbs.

Some of the major wildlife species in this area are whitetailed deer, coyote, fox, bobcat, raccoon, skunk, opossum, cottontail, turkey, bobwhite quail, white-winged dove, and mourning dove.

Most of this area is in farms and ranches, but sizable tracts in the central part of the area are rapidly being converted to urban uses. Some of the large tracts are being fragmented into smaller ranches. Most of this rural area is used as improved pasture, native grass pasture, or noncommercial oak forest and is grazed mainly by beef cattle. Some areas are used for peanuts, small grains, forage sorghum, fruits, or vegetables.

The average annual precipitation in this area is 34 to 41 inches (865 to 1,040 millimeters). Most of the rainfall occurs in spring and fall. The average precipitation during the freeze-free period is about 24 to 26 inches (610 to 660 millimeters). The average annual temperature is 62 to 66 degrees F (17 to 19 degrees C). The freeze-free period averages about 265 days and ranges from 255 to 280 days.

Currently, the project area is located in a rural/suburban setting, with large amount of newly built high-density residential neighborhoods and service establishments. Developed and undeveloped lands are present within the proposed project area. Developed lands include single-family residences, retail, commercial, public facilities, and places of worship. Undeveloped lands comprise of vacant (not utilized), agriculture (ranch and pasture), fenced row vegetation, streams, and ponds. Active agricultural lands exist adjacent to the proposed project. Vegetation in the project vicinity consists primarily of maintained urban grasses, landscaping, and agriculture (crops). Some woodland and mixed shrub areas are also present near the streams. Land use

changes would result in Agriculture; Crosstimbers Woodland and Forest; Disturbed Prairie; Open Water; Riparian; and Tallgrass Prairie, Grassland ecological systems being converted to Urban.

3.1 Map and Database Review

The following information sources were considered and, if applicable, consulted prior to and during the field delineation to assist in the identification of potential waters of the U.S. within the project area.

3.1.1 USGS Topographic Maps

USGS topographic maps illustrate elevation contours, drainage patterns, and hydrography. The Aubrey, Denton East, Little Elm, and Pilot Point, Texas, USGS Quad maps were reviewed to determine the likelihood of the project area containing jurisdictional waterbodies.

3.1.2 USFWS NWI Data

NWI data were reviewed as a contributing resource to help identify potential wetland features located within the project area.

3.1.3 NRCS Soil Survey Data

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) maintains an online Web Soil Survey database. The data provided in the Web Soil Survey provides a good basis for the soil textures and types one can expect to find at a particular delineation area. NRCS-mapped soil types at the project area were reviewed to determine which of the soils exhibit hydric characteristics. NRCS-mapped soil types are assigned a hydric indicator status of “hydric” or “non-hydric” by the National Technical Committee for Hydric Soils.

3.1.4 Aerial Photography

Aerial photography provides good insight to the state and function of land resources. Signs of inundation and vegetative signatures on aerial images indicate whether land might be functioning as a wetland or supporting a stream system. Historic and current aerial photography was reviewed utilizing Google Earth, prior to and during the field delineation, in order to further understand the nature of the project area.

3.1.5 FEMA FIRM

The FEMA maintains FIRMS. The FIRM including the project area was reviewed to determine if the 100-year floodplain is mapped. The USACE utilizes the 100-year floodplain to assist in determining jurisdiction of aquatic features. FEMA FIRM data was reviewed to evaluate the location of any mapped floodplain in relation to aquatic resources located within the project area.

3.1.6 LiDAR

Light detection and ranging (LiDAR) is a remote sensing technique that measures spatial and temporal data. LiDAR information is provided by the TNRIS online database for each USGS Quad. LiDAR data was not available for the project area.

3.2 Waters of the U.S. Delineation

With respect to any non-tidal waterbodies located within the project area, biologists followed the methodology outlined in RGL 05-05.

Data collected for any waterbodies includes average water depth, average width per waterbody, length of linear segments within the project boundary, and water flow classification (i.e., tidal, non-tidal, ephemeral, intermittent, and/or perennial).

Any wetland delineation was conducted based on the 1987 Manual and the March 2010 Regional Supplement, as well as the three (3) parameters described within. The three-parameter approach requires investigation of hydrological characteristics, hydrophytic vegetation, and hydric soils at selected sample points within a project area. Sample points are located to ascertain upland/wetland boundaries and to record significant spatial changes in wetland plant communities. All three (3) indicator parameters must be met in order for the area to be classified as a wetland. See subsections on Hydrology, Vegetation, and Soils, below, for indicator-specific information.

Geospatial data was collected utilizing a Trimble Pathfinder Pro XH Global Positioning System (GPS) receiver and Ranger data logger with sub-meter accuracy.

3.2.1 Hydrology

Wetland hydrology is characterized when, under normal circumstances, the surface is either inundated or the upper horizon(s) of the soil are saturated at a sufficient frequency and duration to create anaerobic conditions. Seasonal and long-term rainfall patterns, local geology and topography, soil type, local water table conditions, and drainage are factors that influence hydrology.

Wetland hydrology indicators include: oxidized rhizospheres along living roots, saturated soils, standing surface water, algal mat, aquatic fauna, high water table, iron deposits, sparsely vegetated concave surface, geomorphic position, moss trim lines, water-stained leaves, crawfish burrows, watermarks, drainage patterns, and surface soil cracks.

During the field survey, these indicators were used to determine if an area exhibited wetland hydrology.

3.2.2 Vegetation

In accordance with the procedure set forth in the 1987 Manual and the March 2010 Regional Supplement, the hydrophytic status of vegetation communities was determined by identifying dominant species and, if necessary, calculating a "Prevalence Index," as defined in the 1987 Manual.

Individual plant species were checked against the current National Wetland Plant List (NWPL), and their regional wetland indicator status was determined. Species are classified as follows:

- Obligate Wetland (OBL) if they almost always occur in wetlands (>99 percent of the time)
- Facultative Wetland (FACW) if they usually occur in wetlands (67-99 percent of the time)
- Facultative (FAC) if they are equally likely to occur in wetlands and non-wetlands (34-66 percent of the time)
- Facultative Upland (FACU) if they usually occur in non-wetlands (67-99 percent of the time)
- Obligate Upland (UPL) if they almost always occur in non-wetlands (>99 percent of the time)
- A no indicator (NI) status is recorded for those species for which insufficient information is available to determine an indicator status.

Hydrophytic (wetland) vegetation is considered prevalent where more than 50% of the dominant species in a plant community have an indicator status of OBL, FACW, or FAC. However, in cases where the vegetation community does not meet this hydrophytic threshold, but indicators of hydric soils and wetlands hydrology are present, the prevalence index can be applied. Calculation of this index is based on consideration of both dominant and non-dominant plants in the vegetation community, whereby each indicator status category is given a numeric code and weighted by absolute percent cover. The prevalence index ranges from 1 to 5 and an index of 3.0 or less signifies that hydrophytic vegetation is present.

3.2.3 Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper horizons. Anaerobic conditions created by repeated or prolonged saturation or flooding result in permanent changes in soil color and chemistry. The changes in soil color are used to differentiate hydric from non-hydric soils.

At each sample point, in areas where the absence of inundation or heavy saturation allowed, a pit was excavated to a depth of at least 16 inches to reveal soil profiles and to determine whether or not positive indicators of hydric soils were present. Hydric soil indicators relate to color, structure, organic content, and the presence of reducing conditions. Color characteristics (Hue, Value, and Chroma) were recorded using Munsell® Charts.

4.0 Results

4.1 Map and Database Review

4.1.1 USGS Topographic Maps

A review of the 1978 Aubrey, 1978 Denton East, 1968 Little Elm, and 1961 Pilot Point, Texas topographic map showed the proposed project is located in the northeast area of Denton County. Tributaries to Pecan Creek, Running Branch, and tributaries to Cantrell Slough cross the proposed project. The elevation varies in the project area from 590 to 720 feet above sea level (Attachment 1, Figure 2).

4.1.2 USFWS NWI Data

The table below summarizes the NWI features within the project area. Refer to Figure 4 in Attachment 1 for an illustration of the NWI features in and surrounding the project area.

Table 1: NWI Features

Classification Code	Code Description	Wetland Type
PUBF	Palustrine Unconsolidated Bottom Semipermanently Flooded	Freshwater Pond
PUBHh	Palustrine Unconsolidated Bottom Permanently Flooded Diked/Impounded	Freshwater Pond

4.1.3 NRCS Soil Survey Data

The table below summarizes the soil units represented within the project area based on information collected from the Web Soil Survey database. Refer to Figure 5 in Attachment 1 for an illustration of the mapped soil units in and surrounding the project area.

Table 2: NRCS Soil Units

Soil Unit	Soil Unit Name	Description	Hydric/Non-hydric
21	Burleson clay, 0 to 1 percent slopes	This deep, nearly level soil is on ancient upland terraces. This soil is moderately well drained. Runoff is slow, and permeability is very slow. Available water capacity is high.	Non-hydric

Table 2: NRCS Soil Units

Soil Unit	Soil Unit Name	Description	Hydric/Non-hydric
		When dry, the soil has deep cracks that extend from the surface to a depth of 30 to 60 or more inches. Water enters the soil rapidly where it is cracked, but very slowly when it is wet and the cracks are sealed. Water is slow to drain from the soil surface.	
23	Callisburg fine sandy loam, 1 to 3 percent slopes	This deep, gently sloping soil is on foot slopes and valley fills of uplands. This soil is well drained. Surface runoff is slow. Permeability is moderately slow. Available water capacity is high.	Non-hydric
24	Callisburg fine sandy loam, 3 to 5 percent slopes	This deep, gently sloping soil is on low sides of ridges. This soil is well drained. Runoff is medium. Permeability is moderately slow. Available water capacity is high. The hazard of erosion is severe.	Non-hydric
27	Crockett fine sandy loam, 1 to 3 percent slopes	This deep, gently sloping soil is on smooth uplands and in valley fill areas. This soil is moderately well drained. Runoff is medium. Permeability is very slow. Available water capacity is high. Erosion is a moderate hazard.	Non-hydric
35	Gasil fine sand loam, 1 to 3 percent slopes	This deep, gently sloping soil is on slight convex ridges and areas that have a smooth surface. This soil is well drained. Runoff is slow, and permeability is moderate. Available water capacity is high. The hazard of erosion is medium.	Non-hydric
36	Gasil fine sandy loam, 3 to 8 percent slopes	This deep, gently sloping to sloping soil is on convex ridges and side slopes. This soil is well drained. Runoff is slow, and permeability is moderate. Available water capacity is high. The hazard of erosion is severe when slopes are bare.	Non-hydric

Table 2: NRCS Soil Units

Soil Unit	Soil Unit Name	Description	Hydric/Non-hydric
48	Justin-Urban land complex, 0 to 3 percent slopes	This complex is made up of nearly level and gently sloping soils in valley fill areas. slow. Surface runoff is medium. Available water capacity is high. Low areas receive runoff water during periods of high rainfall. In areas that are more sloping there is a moderate hazard of erosion.	Non-hydric
50	Konsil fine sandy loam, 1 to 3 percent slopes	This deep, gently sloping soil is on convex ridges and side slopes. This soil is well drained. Runoff is slow. Permeability is moderate. Available water capacity is high. Erosion is a moderate hazard.	Non-hydric
51	Konsil fine sandy loam, 3 to 8 percent slopes	This deep, gently sloping to sloping soil is on convex ridges and sides of ridges. This soil is well drained. Runoff is slow. Permeability is moderate. Available water capacity is high. The hazard of erosion is moderate.	Non-hydric
60	Navo clay loam, 1 to 3 percent slopes	This deep, gently sloping soil is on sides along the drains and low hills. This soil is well drained. Permeability is very slow. Available water capacity is high. Runoff is medium, and the hazard of erosion is high.	Non-hydric
61	Navo clay loam, 3 to 5 percent slopes	This deep, gently sloping soil is on side slopes above the drains. This soil is well drained. Permeability is very slow. Available water capacity is high. Runoff is medium, and the hazard of erosion is severe.	Non-hydric
72	Silstid loamy fine sand, 1 to 5 percent slopes	This deep, gently sloping soil is on gently undulating ridges and sides of ridges. This soil is well drained. Surface runoff is slow. Permeability is moderate. Available water capacity is medium.	Non-hydric
83	Wilson clay loam, 0 to 1 percent slopes	This deep, nearly level soil is on the low part of the landscape along the drainageways and in concave areas. This soil is somewhat	Non-hydric

Table 2: NRCS Soil Units

Soil Unit	Soil Unit Name	Description	Hydric/Non-hydric
		poorly drained. Permeability is very slow. Available water capacity is high. Surface runoff is very slow, and water is ponded on the soil surface for a few hours following rains.	
84	Wilson clay loam, 1 to 3 percent slopes	This deep, gently sloping soil is on the low part of the landscape and side slopes. This soil is somewhat poorly drained. Surface runoff is slow. Permeability is very slow. Available water capacity is high. This soil receives runoff from the higher parts of the landscape. Wetness is a hazard during rainy seasons.	Non-hydric

4.1.4 Aerial Photography

Historic aerial imagery for the project and surrounding areas was evaluated using images provided by Google Earth. The table below summarizes observations for the project area for each year reviewed. Attachment 2 contains copies of the historic aerial photographs reviewed for the project area.

Table 3: Historic Aerial Photography Observations

Year	Observations
1996	US 377 in its present location. Majority of the adjacent properties consists of vacant lands, mostly for agricultural and rangeland uses, with some single-family homes. Commercial buildings were mostly located at the northern and central portions of the proposed project within the cities of Pilot Point and Aubrey.
2005	The addition of commercial developments adjacent to the proposed project was observed around FM 455, St John Rd, and FM 428. Some residential subdivisions were observed adjacent to the proposed project in Aubrey and Krugerville.
2009	The addition of commercial developments adjacent to the proposed project was observed around S Harrison St, and Belew Rd. Some new residential subdivisions were observed adjacent to the proposed project in Aubrey.
2010-2013	No change.
2014	The addition of one commercial development adjacent to the proposed project was observed around the beginning of the project in Grayson County.

Year	Observations
2015 - 18	No change.

2019 The addition of one commercial development adjacent to the proposed project was observed south of Industrial Park. One new residential subdivision under construction was observed adjacent to the project near Stanley Dr and Brumley Ct.

4.1.5 FEMA FIRM

Review of FEMA FIRM Panels 48121C0115G, 48121C0255G, 48121C0265G, 48121C0405G, 48121C0385G (effective 4/18/2011) indicate that the majority of the project area is outside the 100-year floodplain. The sections of the proposed project that cross tributaries to Pecan Creek (Crossings 3, 5, 12 and 14) are situated within Zone A (areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations or flood depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply). Refer to Figures 3 and 6 in Attachment 1 for an illustration of the FEMA FIRM data within and surrounding the project area.

4.1.6 LiDAR

LiDAR data was not available for the project area.

4.2 Waters of the U.S. Delineation

The table below summarizes the waterbodies/wetlands identified within the project area. Refer to Figure 7 in Attachment 1 for a depiction of the boundaries of each waterbody feature. There were no wetland areas within the proposed project area. Refer to Attachment 3, Representative Site Photos, for one or more photographs of each waterbody feature observed within the project area.

Table 4: Summary of Waterbody/Wetland Features

Waterbody or Wetland Number	Name	Type	Latitude, Longitude	Acres within project area (all waterbodies and wetlands)	Linear feet within project area (waterbodies only)	Potentially Jurisdictional (Section 404)?	Potentially Navigable (Section 10)?
1	unnamed tributary to Pecan Creek	Ephemeral stream	33.41548 -96.93968	0.09	407	Yes	No
2	unnamed tributary to Pecan Creek	Intermittent stream	33.40346 -96.94346	0.09	247	Yes	No
3	unnamed tributary to Pecan Creek	Intermittent stream	33.40002 -96.94446	0.24	1,028	Yes	No

Waterbody or Wetland Number	Name	Type	Latitude, Longitude	Acres within project area (all waterbodies and wetlands)	Linear feet within project area (waterbodies only)	Potentially Jurisdictional (Section 404)?	Potentially Navigable (Section 10)?
4	unnamed tributary to Pecan Creek	Ephemeral stream	33.387578 -96.95392	0.11	492	Yes	No
5	unnamed tributary to Pecan Creek	Ephemeral stream	33.38409 -96.95835"	0.14	635	Yes	No
6	unnamed tributary to Pecan Creek	Ephemeral stream	33.37500 -96.96306	0.06	290	Yes	No
7	unnamed tributary to Pecan Creek	Ephemeral stream	33.36532 -96.96473	0.02	128	Yes	No
8	unnamed tributary to Pecan Creek	Intermittent stream	33.34574 -96.96832	0.15	656	Yes	No
9	unnamed tributary to Pecan Creek	Ephemeral stream	33.32492 -96.97088	0.05	490	Yes	No
10	unnamed tributary to Pecan Creek	Ephemeral stream	33.3211 -96.97118	0.09	502	Yes	No
11	unnamed tributary to Pecan Creek	Intermittent stream	33.30985 -96.97615	0.08	767	Yes	No
12A	unnamed tributary to Pecan Creek	Ephemeral stream	33.30233 -96.98048	0.03	240	Yes	No
12B	unnamed tributary to Pecan Creek	Ephemeral stream	33.30211 -96.98059	0.07	467	Yes	No

Waterbody or Wetland Number	Name	Type	Latitude, Longitude	Acres within project area (all waterbodies and wetlands)	Linear feet within project area (waterbodies only)	Potentially Jurisdictional (Section 404)?	Potentially Navigable (Section 10)?
13	Running Branch	Intermittent stream	33.29032 -96.98567	0.06	290	Yes	No
14	unnamed tributary to Pecan Creek	Intermittent stream	33.26490 -96.98710	0.25	760	Yes	No
15	unnamed tributary to Cantrell Slough	Ephemeral stream	33.26021 -96.98714	0.03	188	Yes	No
16	unnamed tributary to Cantrell Slough	Ephemeral stream	33.25149 -96.98771	0.06	550	Yes	No
17	unnamed tributary to Cantrell Slough	Ephemeral stream	33.24270 -96.99214	0.03	112	Yes	No
18	unnamed tributary to Cantrell Slough	Ephemeral stream	33.23512 -96.99903	0.01	100	Yes	No

4.2.1 Hydrology

No wetlands were identified.

4.2.2 Vegetation

Normal circumstances conditions were present within the project area. Representative dominant taxa for each distinct habitat type encountered within the project area are listed in the tables below. Indicator status for each species was obtained from the current NWPL.

Table 5: Upland Dominant Plant Species

Strata	Scientific Name	Common Name	NWPL Classification
Tree	<i>Celtis laevigata</i>	Sugar-Berry	FAC
Tree	<i>Juniperus virginiana</i>	Eastern Red-Cedar	FACU

Strata	Scientific Name	Common Name	NWPL Classification
Tree	<i>Ulmus americana</i>	American Elm	FAC
Sapling/Shrub	<i>Celtis laevigata</i>	Sugar-Berry	FAC
Sapling/Shrub	<i>Juniperus virginiana</i>	Eastern Red-Cedar	FACU
Herb	<i>Sorghum halepense</i>	Johnson grass	FACU
Herb	<i>Ambrosia trifida</i>	Great Ragweed	FAC
Herb	<i>Lolium perenne</i>	Perennial Rye Grass	FACU
Herb	<i>Bromus arvensis</i>	Field Brome	FACU
Woody Vine	<i>Smilax bona-nox</i>	Fringed Greenbrier	FACU
Woody Vine	<i>Toxicodendron radicans</i>	Eastern Poison Ivy	FAC
Woody Vine	<i>Lonicera japonica</i>	Japanese Honeysuckle	FACU

Table 6: Riverine Dominant Plant Species

Strata	Scientific Name	Common Name	NWPL Classification
Tree	<i>Salix nigra</i>	Black Willow	FACW
Tree	<i>Celtis laevigata</i>	Sugar-Berry	FAC
Sapling/Shrub	<i>Salix nigra</i>	Black Willow	FACW
Sapling/Shrub	<i>Celtis laevigata</i>	Sugar-Berry	FAC
Herb	<i>Typha domingensis</i>	Southern Cat-Tail	OBL
Herb	<i>Ambrosia trifida</i>	Great Ragweed	FAC

4.2.3 Soils

No wetlands identified.

No wetlands were identified.

5.0 Vegetation Conclusion

A WOTUS delineation was conducted for the US 377 in Denton County, Texas (CSJ 0081-06-040). The field delineation was completed on May 13, 2020. Refer to Section 5.2, above, for a table summarizing the aquatic resources (i.e., waterbodies/wetlands) identified within the project area.

Crossings 1 to 18 are relatively permanent waters (RPWs) that exhibit a direct downstream connection to a traditional navigable waters (TNW). Due to Crossing 1 to 18's continuous surface connection to a TNW, the USACE will likely assert jurisdiction over these features.

The professional opinion offered in this report is based on best professional judgement. It should be noted that the USACE makes the final determination on the location of waterbody and wetland boundaries and their jurisdictional status. To obtain an official jurisdictional determination (JD) from the USACE, this report must be submitted to the USACE Fort Worth District Office, along with a JD request form and, if appropriate, a pre-construction notification / permit application.

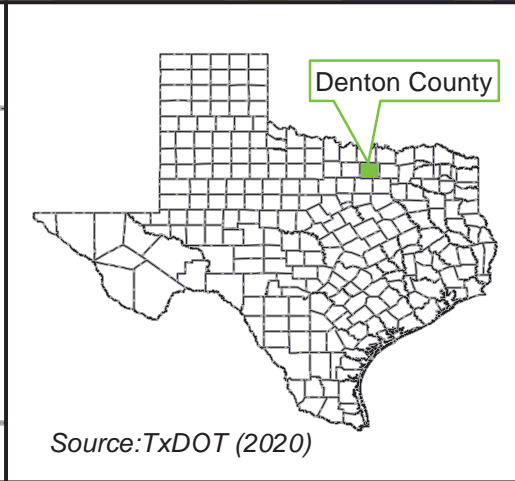
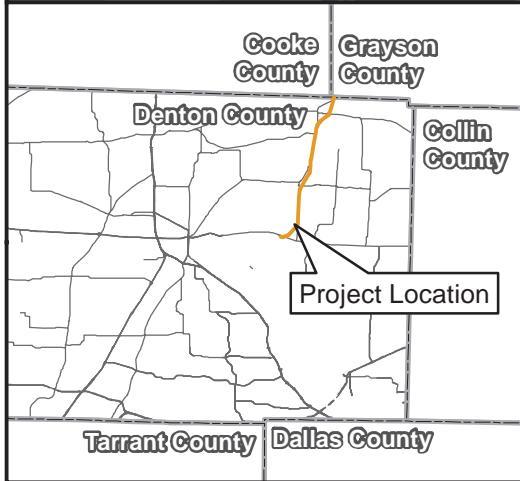
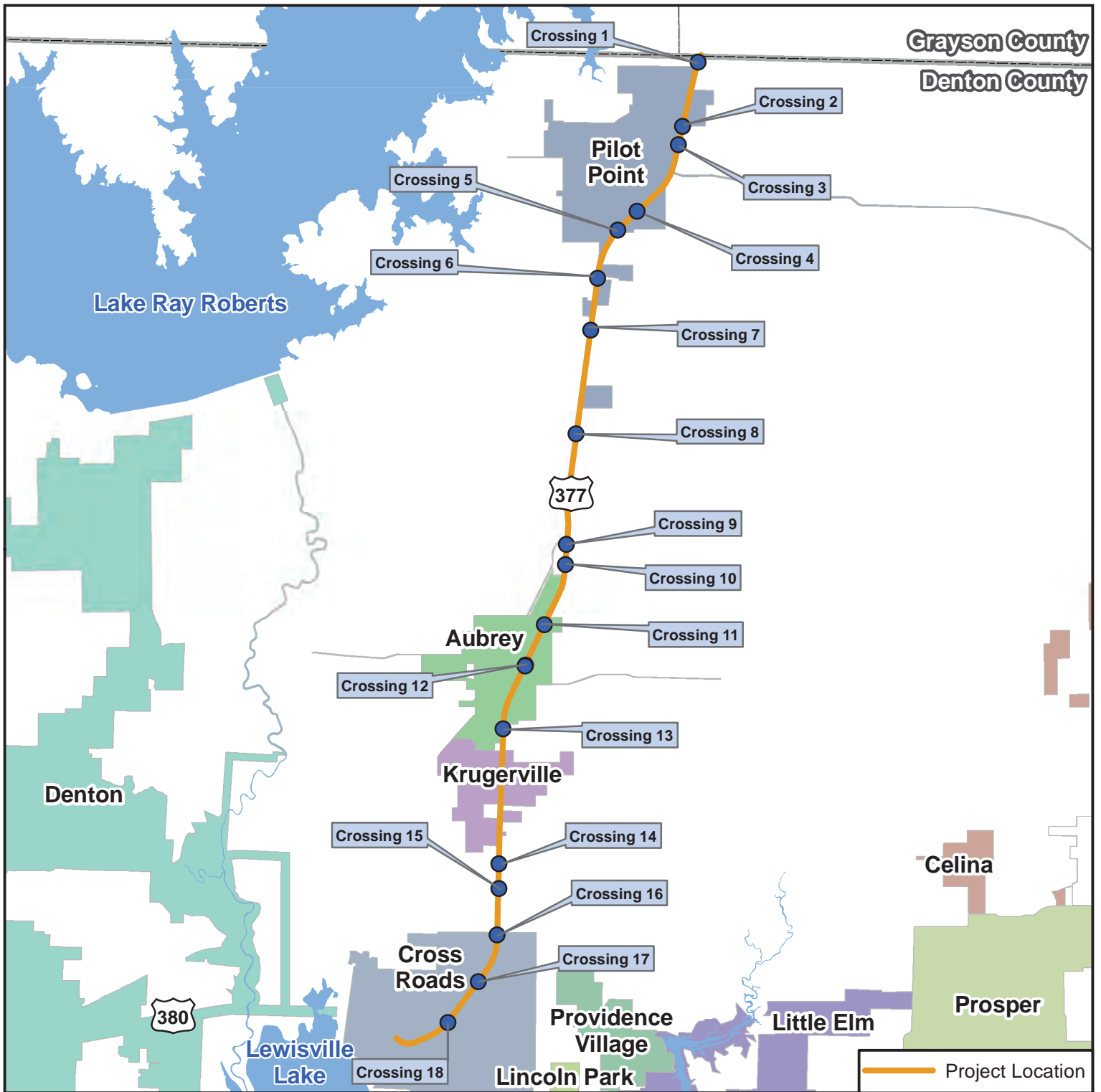
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7.0 Attachments

1. Figures
2. Historical Aerial Photographs
3. Site Photographs
4. Stream Data Forms

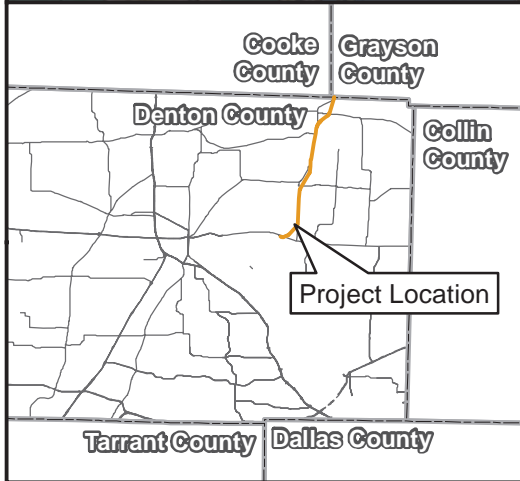
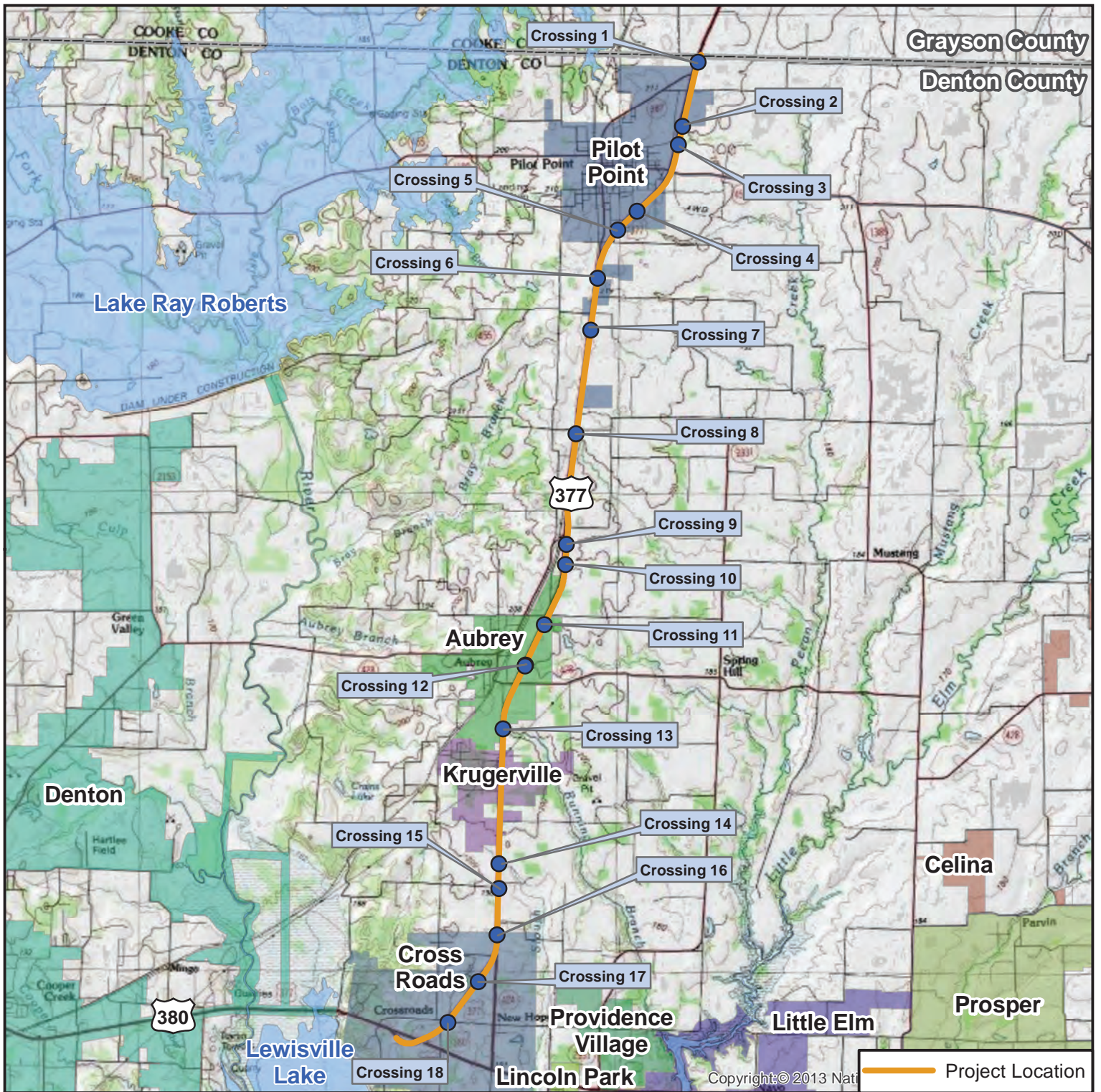
Attachment 1 - Figures



0 1 2 Miles

FIGURE 1
PROJECT LOCATION MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas

CSJ: 0081-06-040



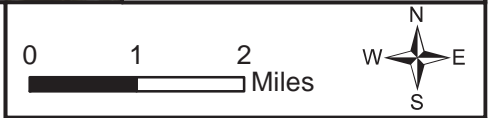
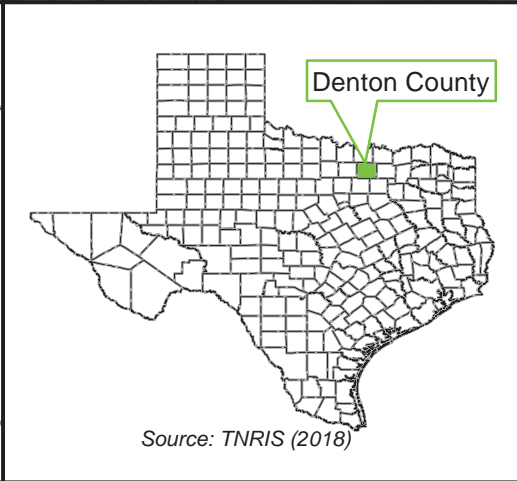
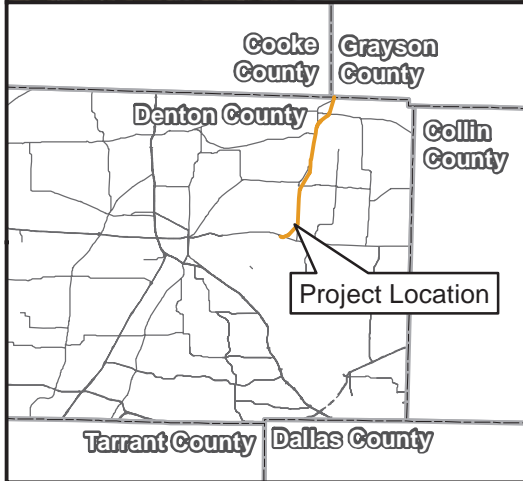
0 1 2 Miles

W N E S

FIGURE 2
TOPOGRAPHIC MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas

CSJ: 0081-06-040

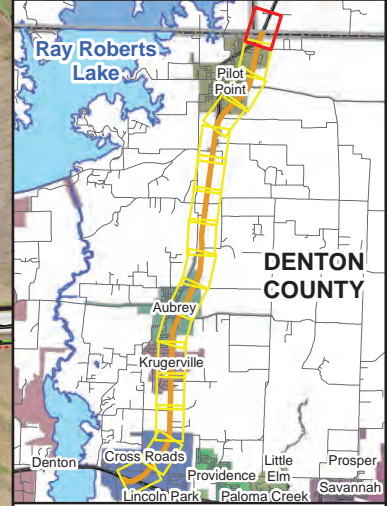
Source: Copyright © 2013 National Geographic Society, i-cubed



**FIGURE 3
AERIAL MAP**
United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040



FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
Page 1 of 16

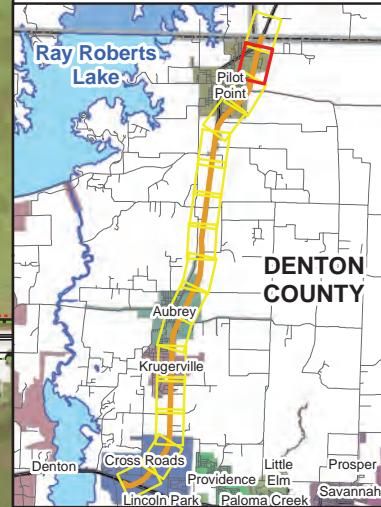


LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

Basemap Source: TNRIS (2018)

FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
Page 2 of 16

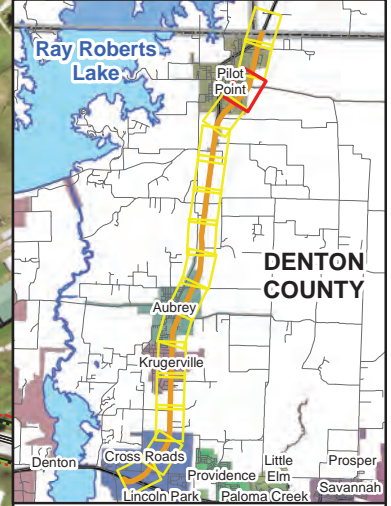


LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

Basemap Source: TNRIS (2018)

**FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP**
United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040
Page 3 of 16

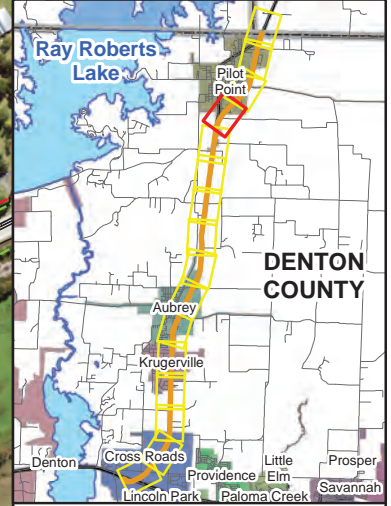


LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

Basemap Source: TNRIS (2018)

**FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP**
United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040
Page 4 of 16



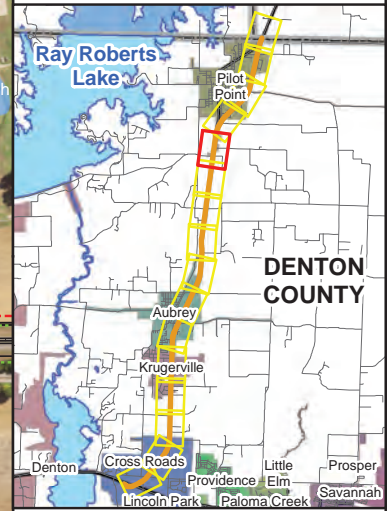
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond



Basemap Source: TNRIS (2018)

FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
Page 5 of 16



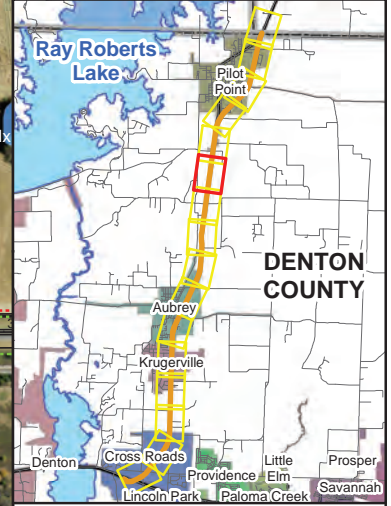
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

Basemap Source: TNRIS (2018)



FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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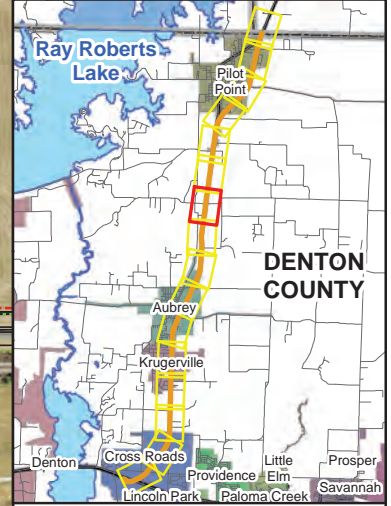
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

Basemap Source: TNRIS (2018)



FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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LEGEND

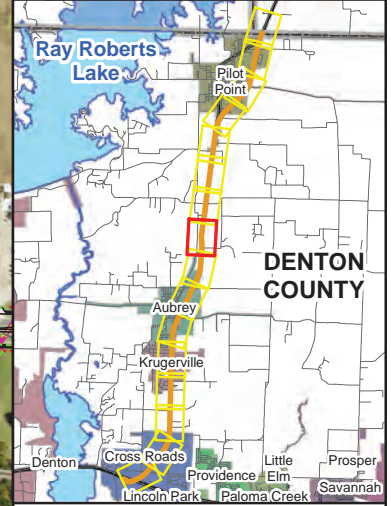
- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- ▨ Freshwater Emergent Wetland
- ▨ Freshwater Forested/Shrub Wetland
- ▭ Freshwater Pond



Basemap Source: TNRIS (2018)



FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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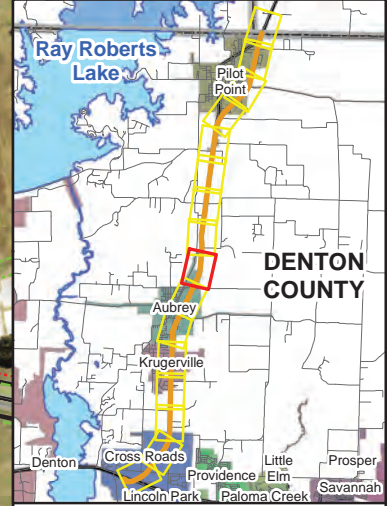


LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

Basemap Source: TNRIS (2018)

FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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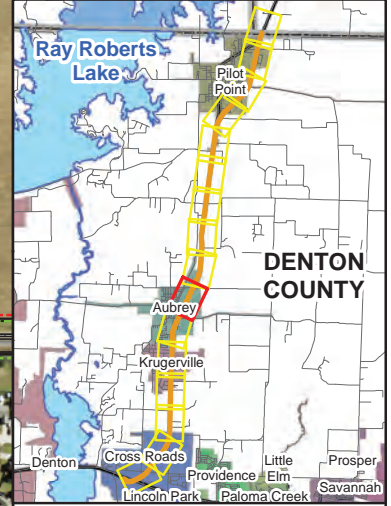
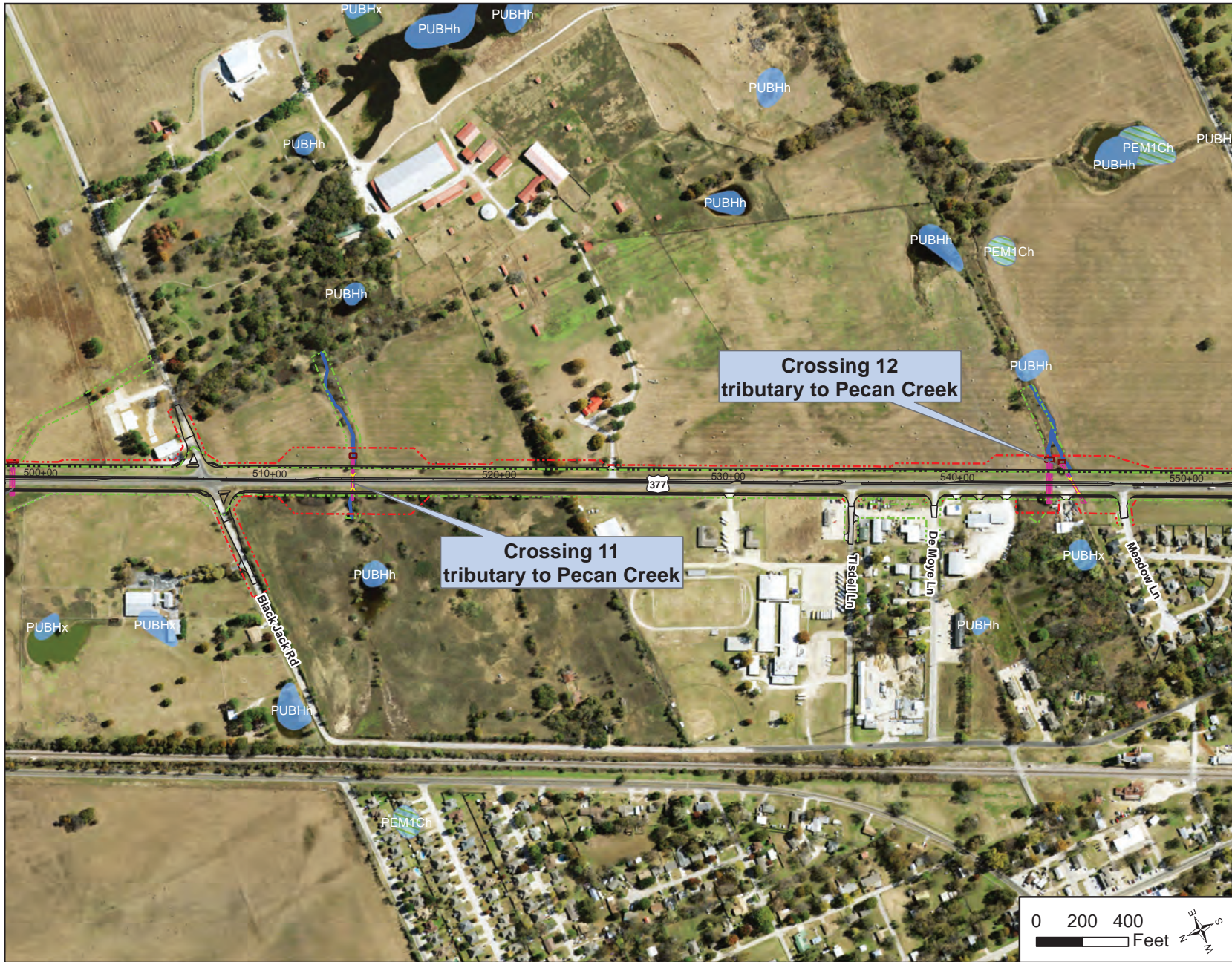


LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

Basemap Source: TNRIS (2018)

FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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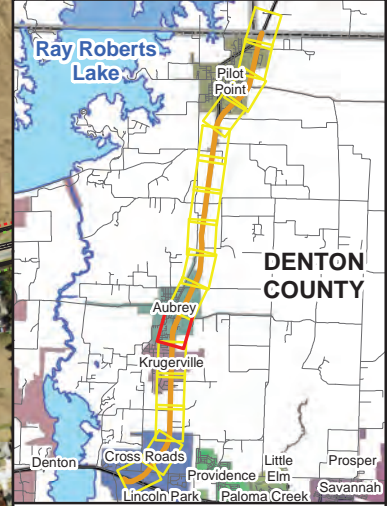


LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

Basemap Source: TNRIS (2018)

FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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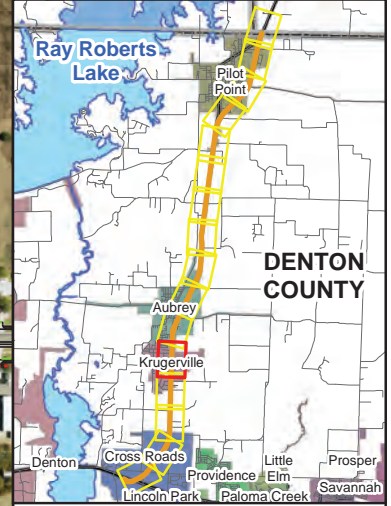


LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

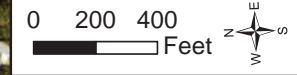
Basemap Source: TNRIS (2018)

FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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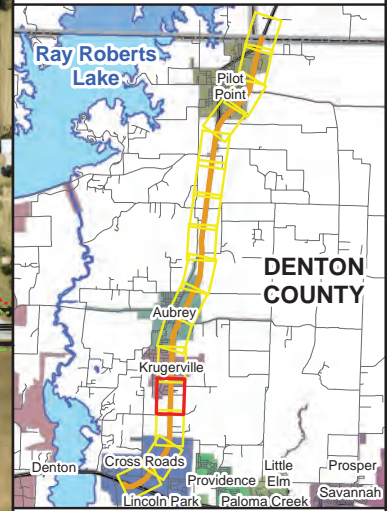
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond



Basemap Source: TNRIS (2018)

FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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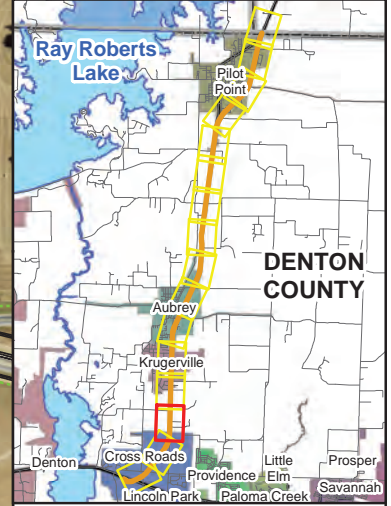


LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

Basemap Source: TNRIS (2018)

**FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP**
United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040
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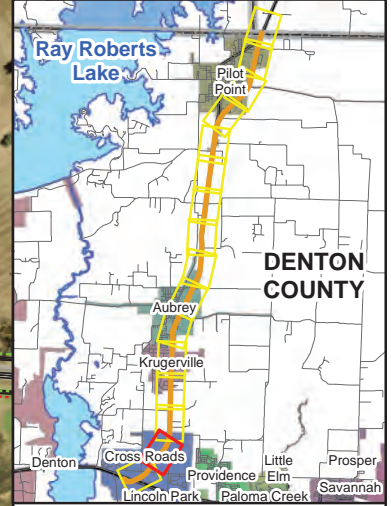
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

Basemap Source: TNRIS (2018)



FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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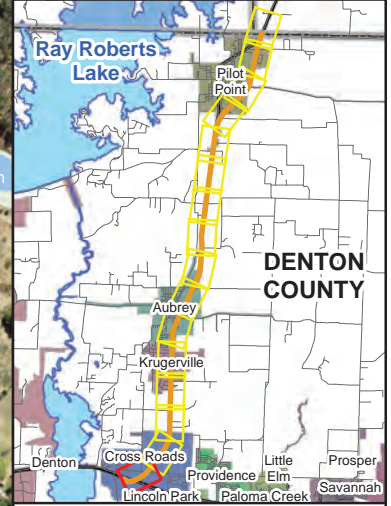
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond



Basemap Source: TNRIS (2018)

FIGURE 4
NATIONAL WETLANDS
INVENTORY MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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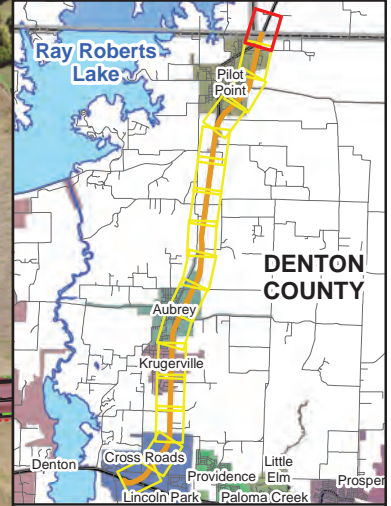


LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

Basemap Source: TNRIS (2018)

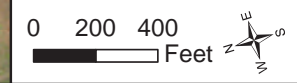
FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
 Page 1 of 16



Crossing 1
 tributary to Pecan Creek

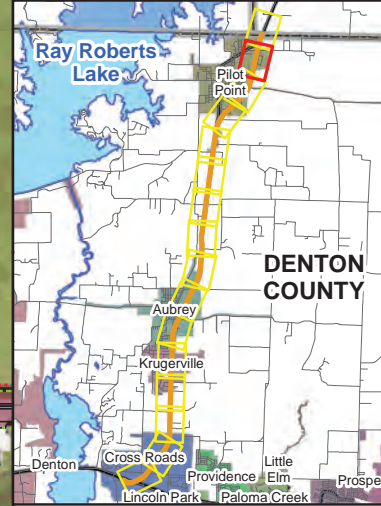
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Burleson clay, 0 to 1 percent slopes
- Callisburg fine sandy loam, 1 to 3 percent slopes
- Callisburg fine sandy loam, 3 to 5 percent slopes
- Crockett fine sandy loam, 1 to 3 percent slopes
- Gasil fine sandy loam, 3 to 8 percent slopes
- Gasil fine sand loam, 1 to 3 percent slopes
- Justin-Urban land complex, 0 to 3 percent slopes
- Konsil fine sandy loam, 1 to 3 percent slopes
- Konsil fine sandy loam, 3 to 8 percent slopes
- Navo clay loam, 1 to 3 percent slopes
- Navo clay loam, 3 to 5 percent slopes
- Silstid loamy fine sand, 1 to 5 percent slopes
- Wilson clay loam, 0 to 1 percent slopes
- Wilson clay loam, 1 to 3 percent slopes



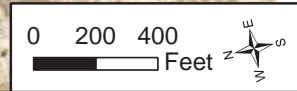
Basemap Source: TNRIS (2018)

FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
 Page 2 of 16



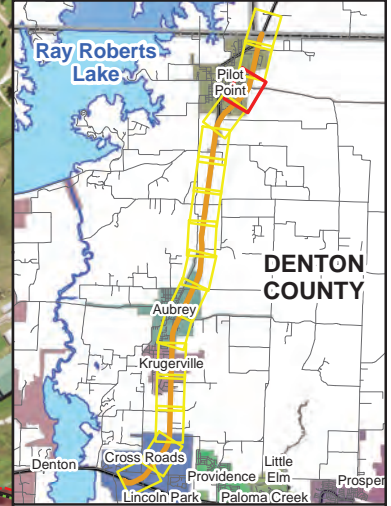
LEGEND

- Existing ROW
- - - Proposed Easement
- - - Proposed ROW
- Pavement
- █ Proposed Retaining Wall
- █ Existing Culvert
- █ Proposed Culvert
- █ Proposed Riprap
- █ Delineated Stream
- █ Burleson clay, 0 to 1 percent slopes
- █ Callisburg fine sandy loam, 1 to 3 percent slopes
- █ Callisburg fine sandy loam, 3 to 5 percent slopes
- █ Crockett fine sandy loam, 1 to 3 percent slopes
- █ Gasil fine sandy loam, 3 to 8 percent slopes
- █ Gasil fine sand loam, 1 to 3 percent slopes
- █ Justin-Urban land complex, 0 to 3 percent slopes
- █ Konsil fine sandy loam, 1 to 3 percent slopes
- █ Konsil fine sandy loam, 3 to 8 percent slopes
- █ Navo clay loam, 1 to 3 percent slopes
- █ Navo clay loam, 3 to 5 percent slopes
- █ Silstid loamy fine sand, 1 to 5 percent slopes
- █ Wilson clay loam, 0 to 1 percent slopes
- █ Wilson clay loam, 1 to 3 percent slopes



Basemap Source: TNRIS (2018)

FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
 Page 3 of 16

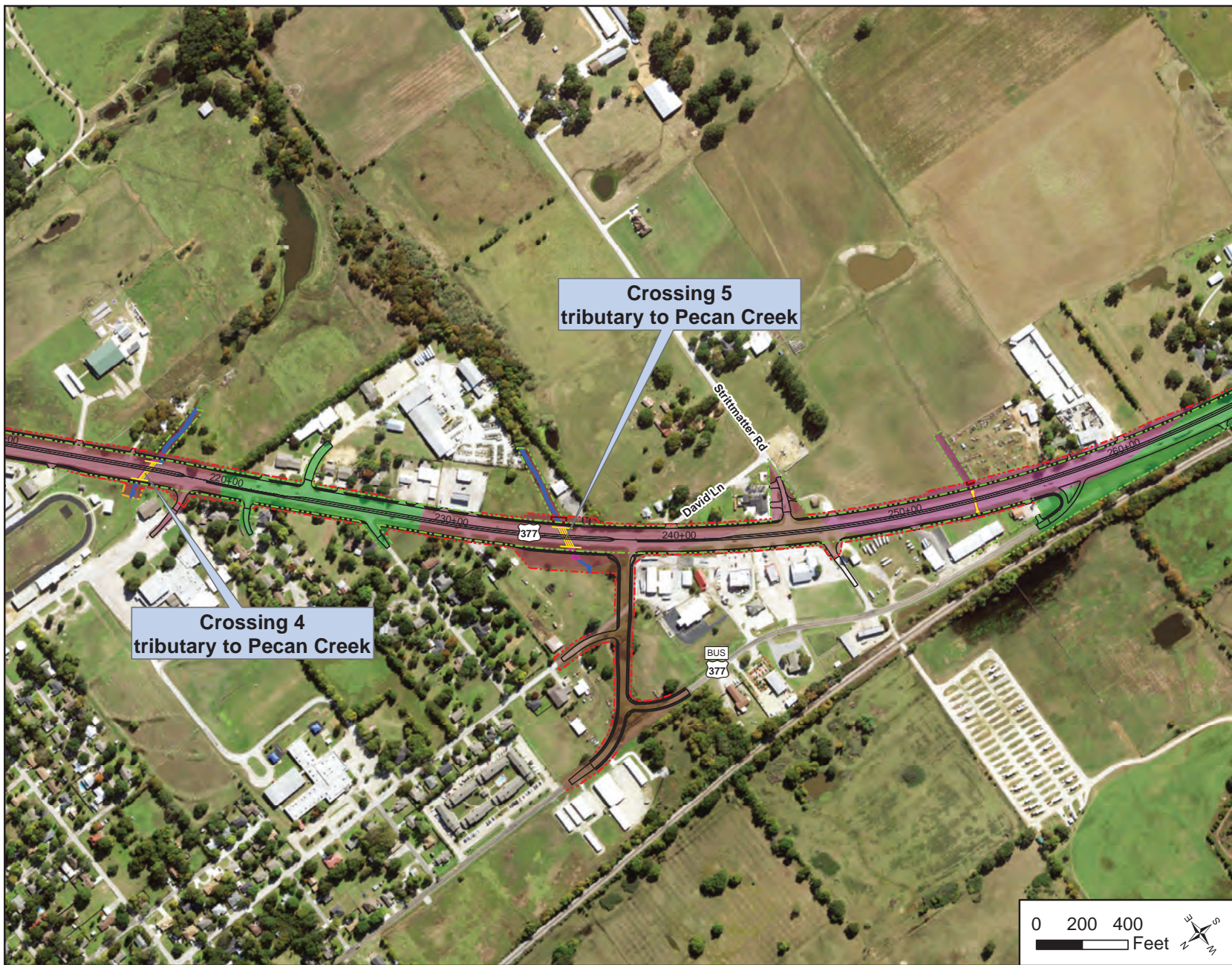
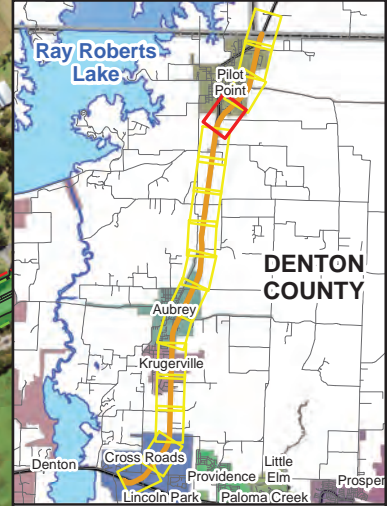


LEGEND

- Existing ROW
- - - Proposed Easement
- - - Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Burleson clay, 0 to 1 percent slopes
- Callisburg fine sandy loam, 1 to 3 percent slopes
- Callisburg fine sandy loam, 3 to 5 percent slopes
- Crockett fine sandy loam, 1 to 3 percent slopes
- Gasil fine sandy loam, 3 to 8 percent slopes
- Gasil fine sand loam, 1 to 3 percent slopes
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- Konsil fine sandy loam, 3 to 8 percent slopes
- Navo clay loam, 1 to 3 percent slopes
- Navo clay loam, 3 to 5 percent slopes
- Silstid loamy fine sand, 1 to 5 percent slopes
- Wilson clay loam, 0 to 1 percent slopes
- Wilson clay loam, 1 to 3 percent slopes

Basemap Source: TNRIS (2018)

FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
 Page 4 of 16



Crossing 5
 tributary to Pecan Creek

Crossing 4
 tributary to Pecan Creek

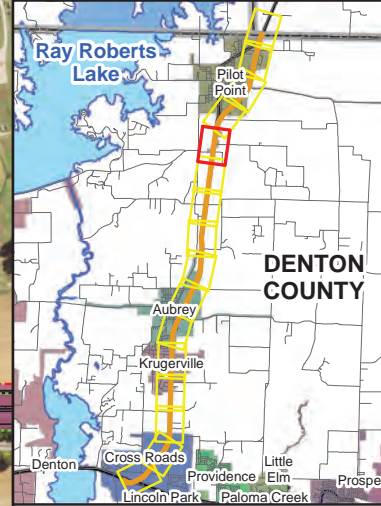
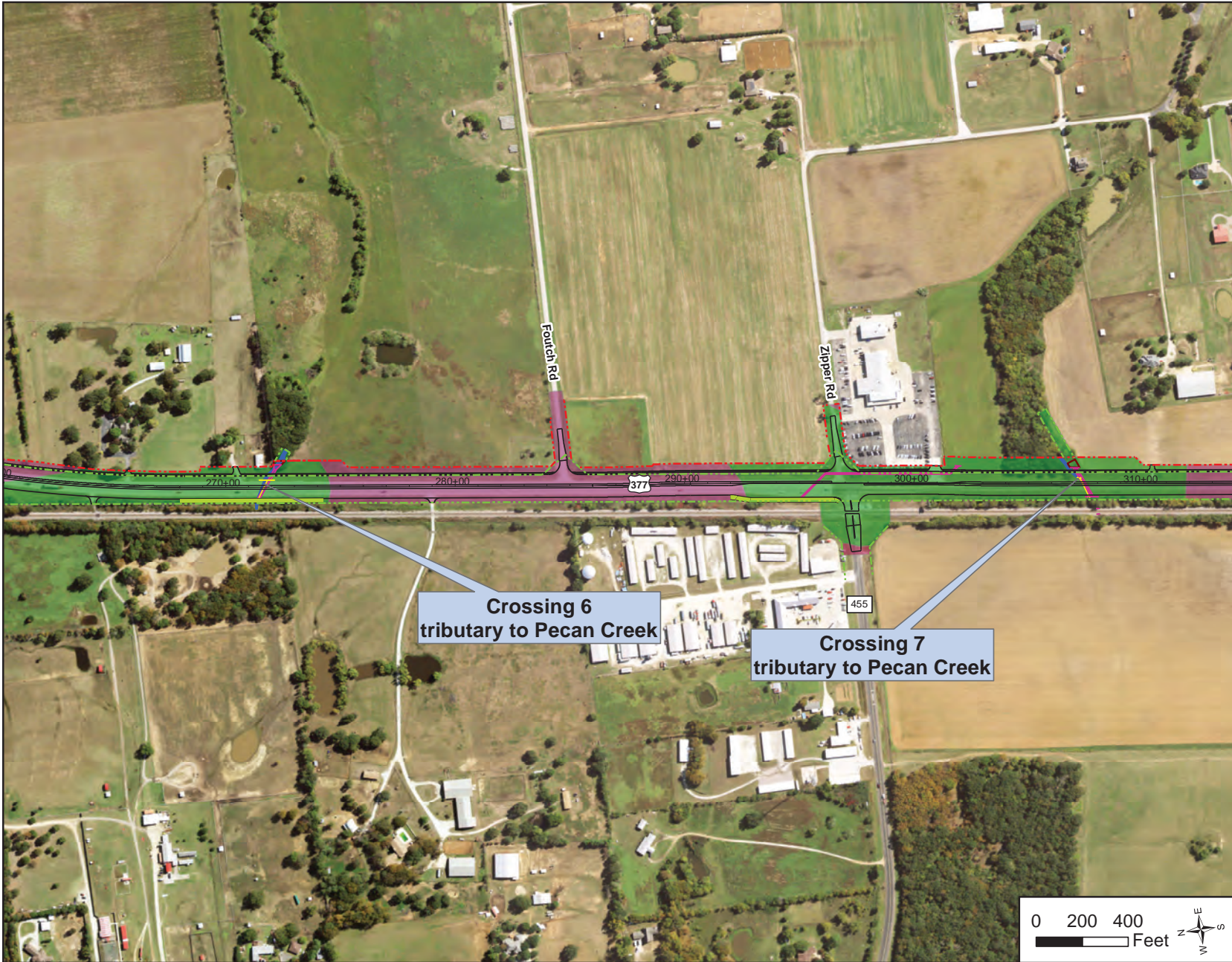
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Burleson clay, 0 to 1 percent slopes
- Callisburg fine sandy loam, 1 to 3 percent slopes
- Callisburg fine sandy loam, 3 to 5 percent slopes
- Crockett fine sandy loam, 1 to 3 percent slopes
- Gasil fine sandy loam, 3 to 8 percent slopes
- Gasil fine sand loam, 1 to 3 percent slopes
- Justin-Urban land complex, 0 to 3 percent slopes
- Konsil fine sandy loam, 1 to 3 percent slopes
- Konsil fine sandy loam, 3 to 8 percent slopes
- Navo clay loam, 1 to 3 percent slopes
- Navo clay loam, 3 to 5 percent slopes
- Silstid loamy fine sand, 1 to 5 percent slopes
- Wilson clay loam, 0 to 1 percent slopes
- Wilson clay loam, 1 to 3 percent slopes



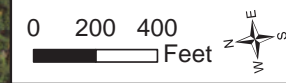
Basemap Source: TNRIS (2018)

FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
 Page 5 of 16



LEGEND

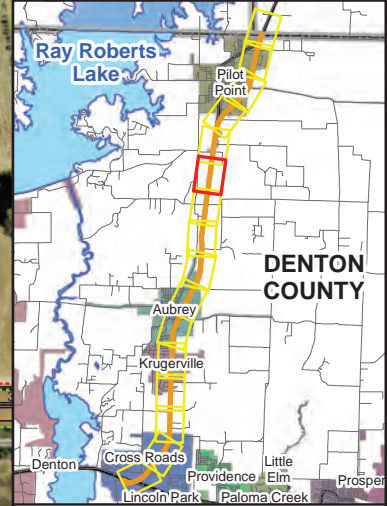
- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Burleson clay, 0 to 1 percent slopes
- Callisburg fine sandy loam, 1 to 3 percent slopes
- Callisburg fine sandy loam, 3 to 5 percent slopes
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- Gasil fine sand loam, 1 to 3 percent slopes
- Justin-Urban land complex, 0 to 3 percent slopes
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- Konsil fine sandy loam, 3 to 8 percent slopes
- Navo clay loam, 1 to 3 percent slopes
- Navo clay loam, 3 to 5 percent slopes
- Silstid loamy fine sand, 1 to 5 percent slopes
- Wilson clay loam, 0 to 1 percent slopes
- Wilson clay loam, 1 to 3 percent slopes



Basemap Source: TNRIS (2018)

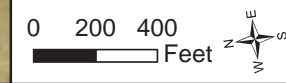


FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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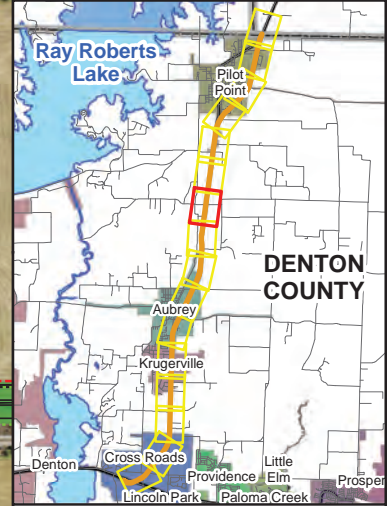
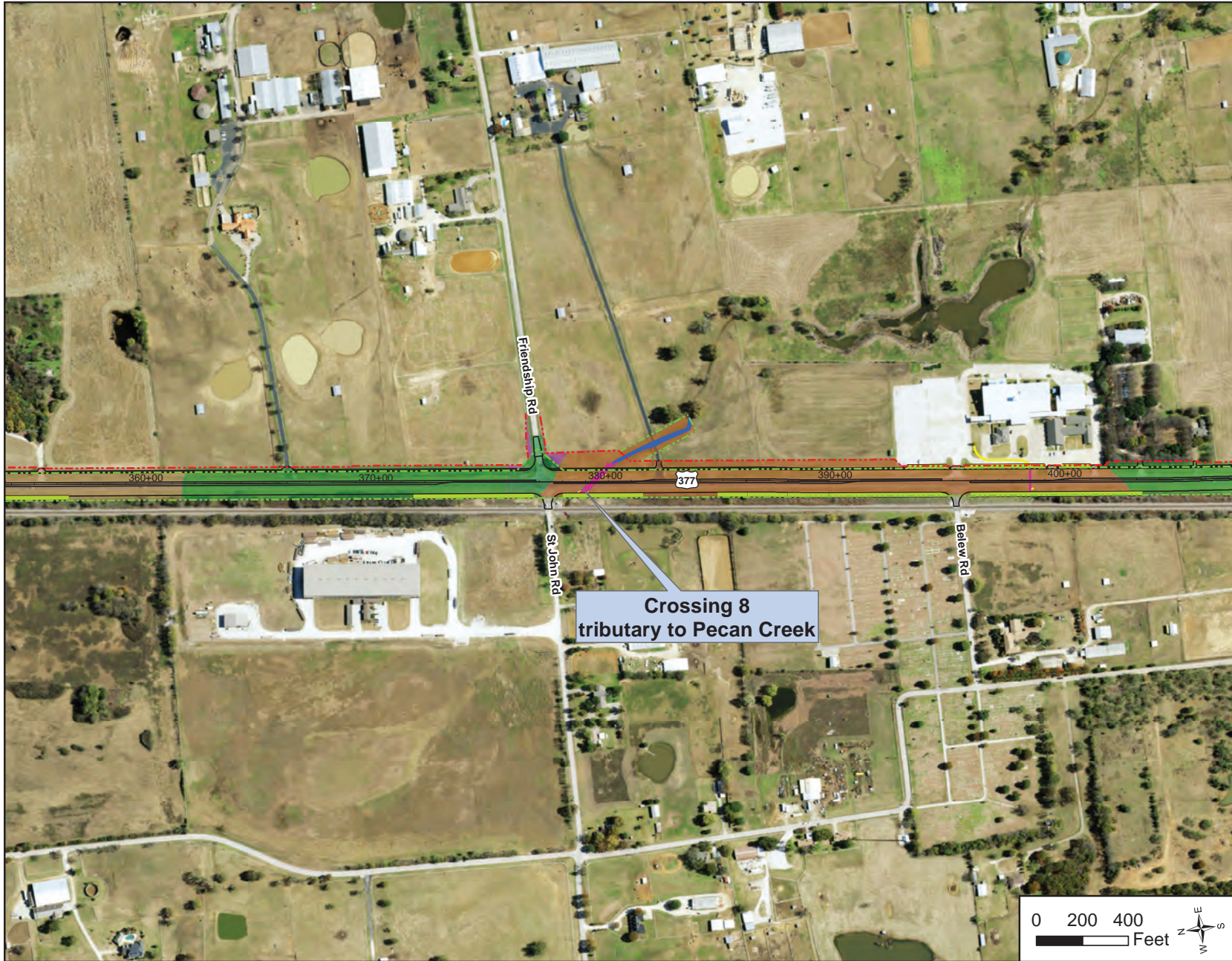
LEGEND

- Existing ROW
- Proposed Easement
- - - Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Burleson clay, 0 to 1 percent slopes
- Callisburg fine sandy loam, 1 to 3 percent slopes
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- Navo clay loam, 3 to 5 percent slopes
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- Wilson clay loam, 0 to 1 percent slopes
- Wilson clay loam, 1 to 3 percent slopes



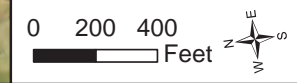
Basemap Source: TNRIS (2018)

FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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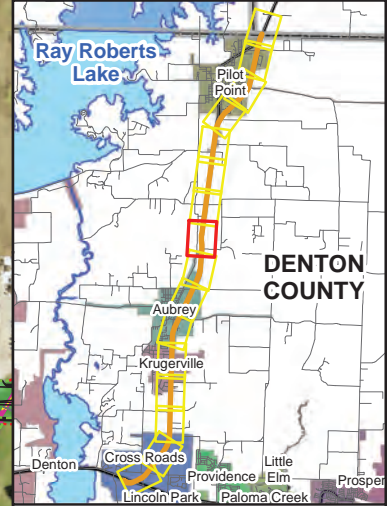
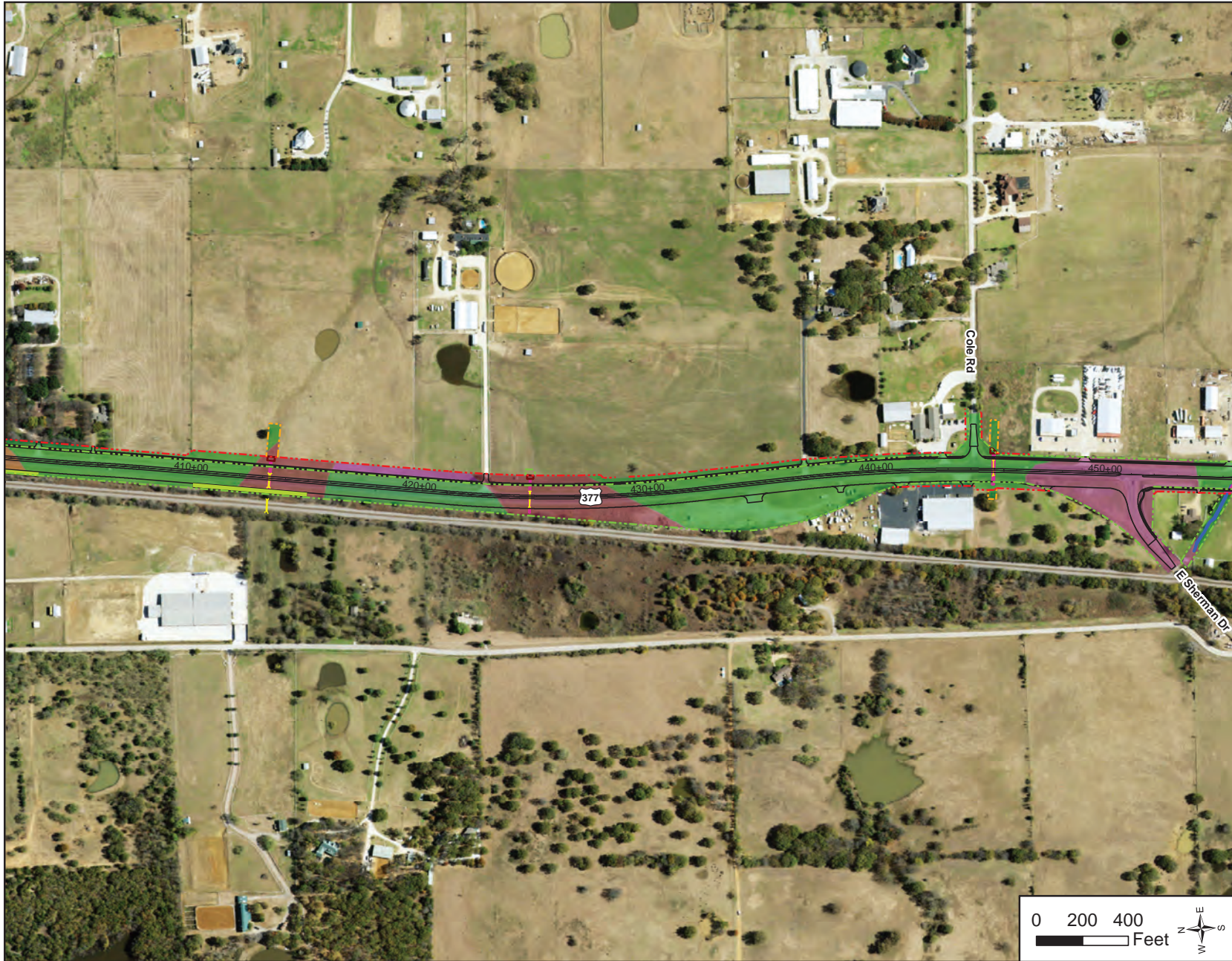
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
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- Burleson clay, 0 to 1 percent slopes
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- Crockett fine sandy loam, 1 to 3 percent slopes
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- Gasil fine sand loam, 1 to 3 percent slopes
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- Navo clay loam, 3 to 5 percent slopes
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- Wilson clay loam, 0 to 1 percent slopes
- Wilson clay loam, 1 to 3 percent slopes



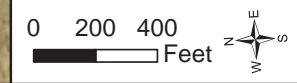
Basemap Source: TNRIS (2018)

FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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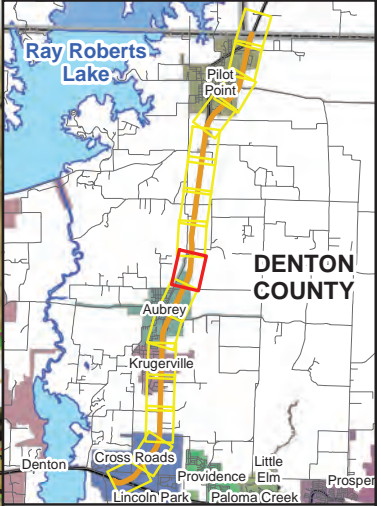
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
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- Callisburg fine sandy loam, 3 to 5 percent slopes
- Crockett fine sandy loam, 1 to 3 percent slopes
- Gasil fine sandy loam, 3 to 8 percent slopes
- Gasil fine sand loam, 1 to 3 percent slopes
- Justin-Urban land complex, 0 to 3 percent slopes
- Konsil fine sandy loam, 1 to 3 percent slopes
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- Navo clay loam, 1 to 3 percent slopes
- Navo clay loam, 3 to 5 percent slopes
- Silstid loamy fine sand, 1 to 5 percent slopes
- Wilson clay loam, 0 to 1 percent slopes
- Wilson clay loam, 1 to 3 percent slopes



Basemap Source: TNRIS (2018)

FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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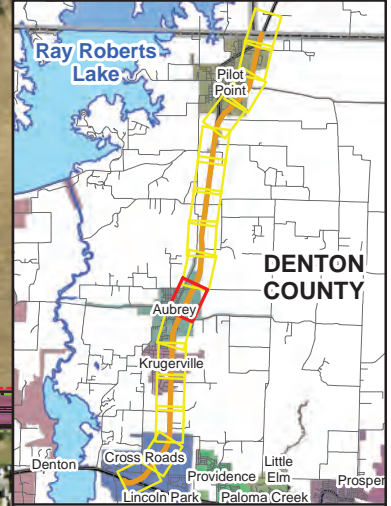
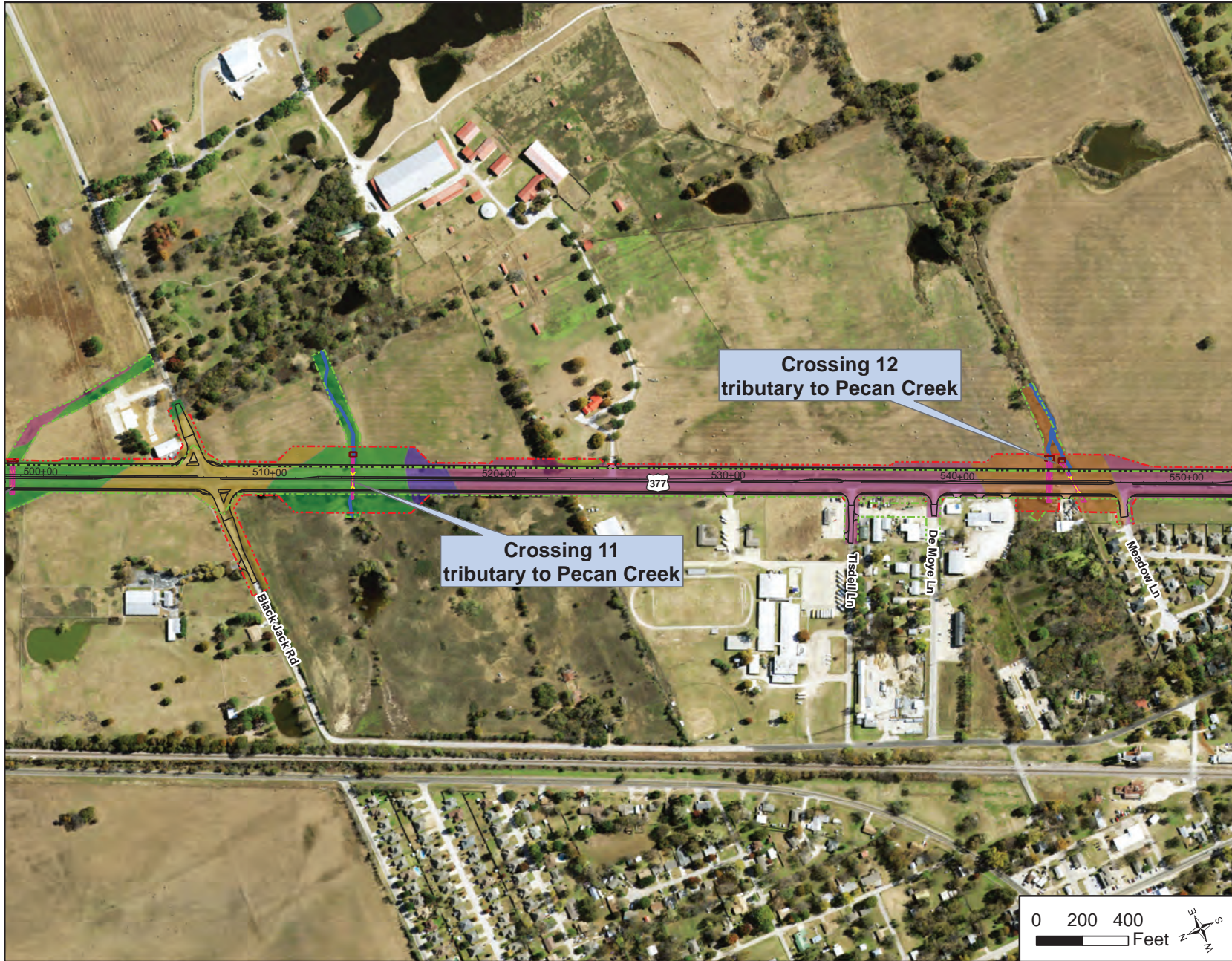
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- █ Proposed Retaining Wall
- █ Existing Culvert
- █ Proposed Culvert
- █ Proposed Riprap
- █ Delineated Stream
- █ Burleson clay, 0 to 1 percent slopes
- █ Callisburg fine sandy loam, 1 to 3 percent slopes
- █ Callisburg fine sandy loam, 3 to 5 percent slopes
- █ Crockett fine sandy loam, 1 to 3 percent slopes
- █ Gasil fine sandy loam, 3 to 8 percent slopes
- █ Gasil fine sand loam, 1 to 3 percent slopes
- █ Justin-Urban land complex, 0 to 3 percent slopes
- █ Konsil fine sandy loam, 1 to 3 percent slopes
- █ Konsil fine sandy loam, 3 to 8 percent slopes
- █ Navo clay loam, 1 to 3 percent slopes
- █ Navo clay loam, 3 to 5 percent slopes
- █ Silstid loamy fine sand, 1 to 5 percent slopes
- █ Wilson clay loam, 0 to 1 percent slopes
- █ Wilson clay loam, 1 to 3 percent slopes



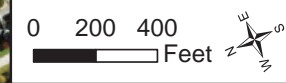
Basemap Source: TNRIS (2018)

FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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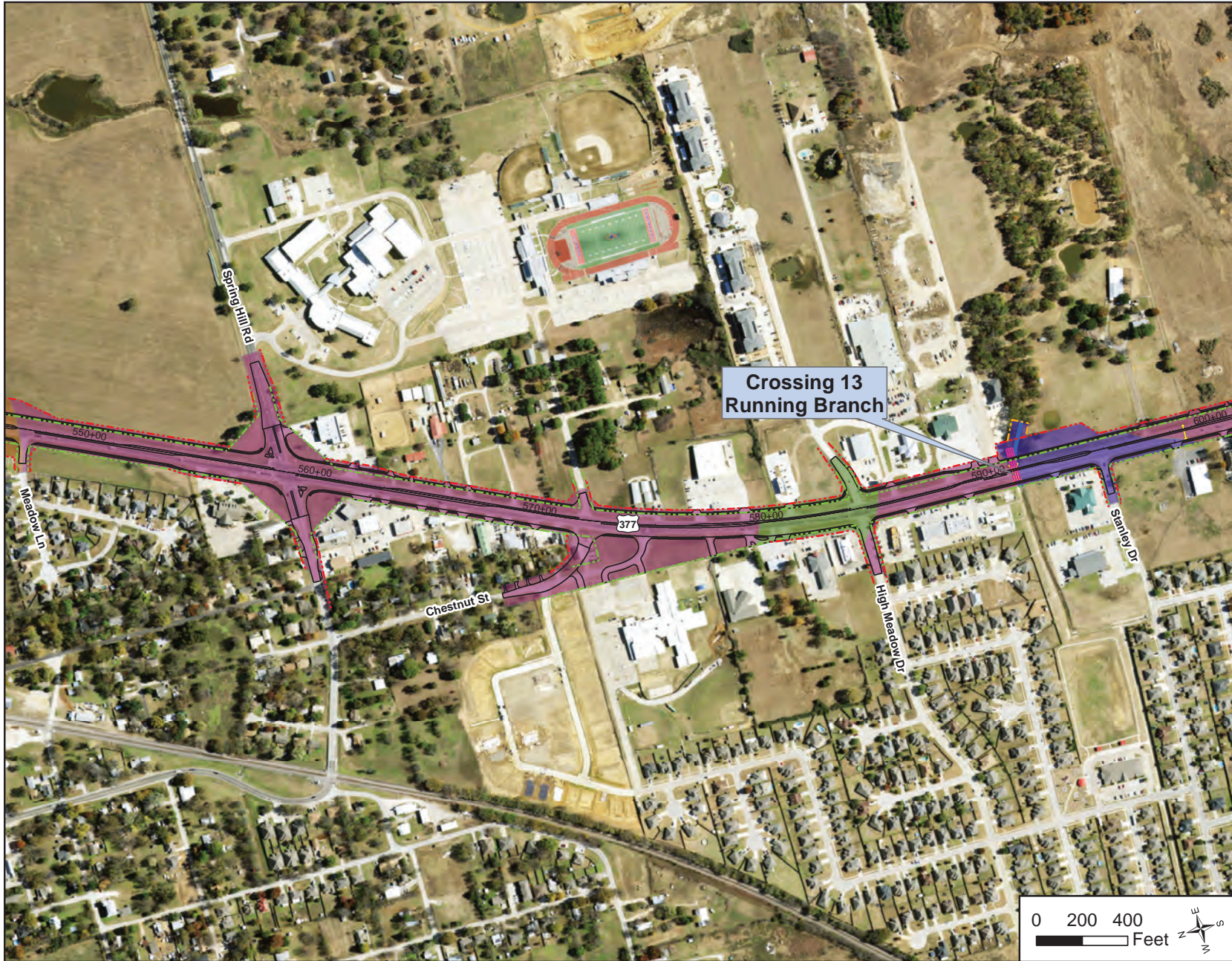
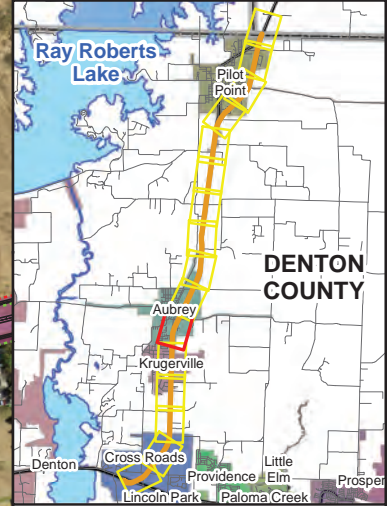
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Burleson clay, 0 to 1 percent slopes
- Callisburg fine sandy loam, 1 to 3 percent slopes
- Callisburg fine sandy loam, 3 to 5 percent slopes
- Crockett fine sandy loam, 1 to 3 percent slopes
- Gasil fine sandy loam, 3 to 8 percent slopes
- Gasil fine sand loam, 1 to 3 percent slopes
- Justin-Urban land complex, 0 to 3 percent slopes
- Konsil fine sandy loam, 1 to 3 percent slopes
- Konsil fine sandy loam, 3 to 8 percent slopes
- Navo clay loam, 1 to 3 percent slopes
- Navo clay loam, 3 to 5 percent slopes
- Silstid loamy fine sand, 1 to 5 percent slopes
- Wilson clay loam, 0 to 1 percent slopes
- Wilson clay loam, 1 to 3 percent slopes



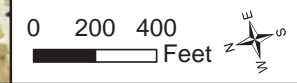
Basemap Source: TNRIS (2018)

FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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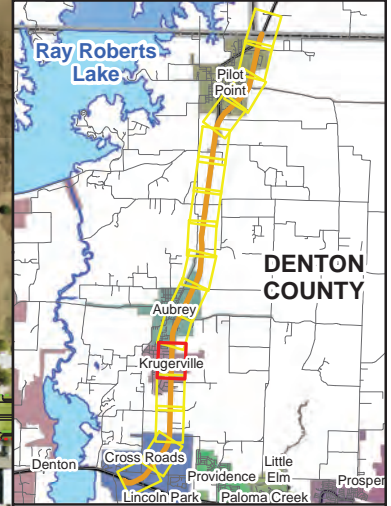
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Burleson clay, 0 to 1 percent slopes
- Callisburg fine sandy loam, 1 to 3 percent slopes
- Callisburg fine sandy loam, 3 to 5 percent slopes
- Crockett fine sandy loam, 1 to 3 percent slopes
- Gasil fine sandy loam, 3 to 8 percent slopes
- Gasil fine sand loam, 1 to 3 percent slopes
- Justin-Urban land complex, 0 to 3 percent slopes
- Konsil fine sandy loam, 1 to 3 percent slopes
- Konsil fine sandy loam, 3 to 8 percent slopes
- Navo clay loam, 1 to 3 percent slopes
- Navo clay loam, 3 to 5 percent slopes
- Silstid loamy fine sand, 1 to 5 percent slopes
- Wilson clay loam, 0 to 1 percent slopes
- Wilson clay loam, 1 to 3 percent slopes



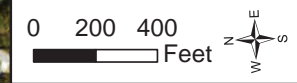
Basemap Source: TNRIS (2018)

FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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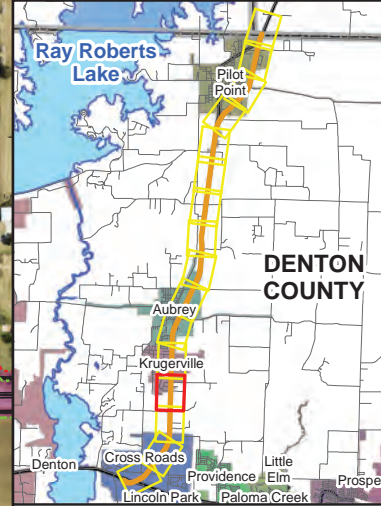
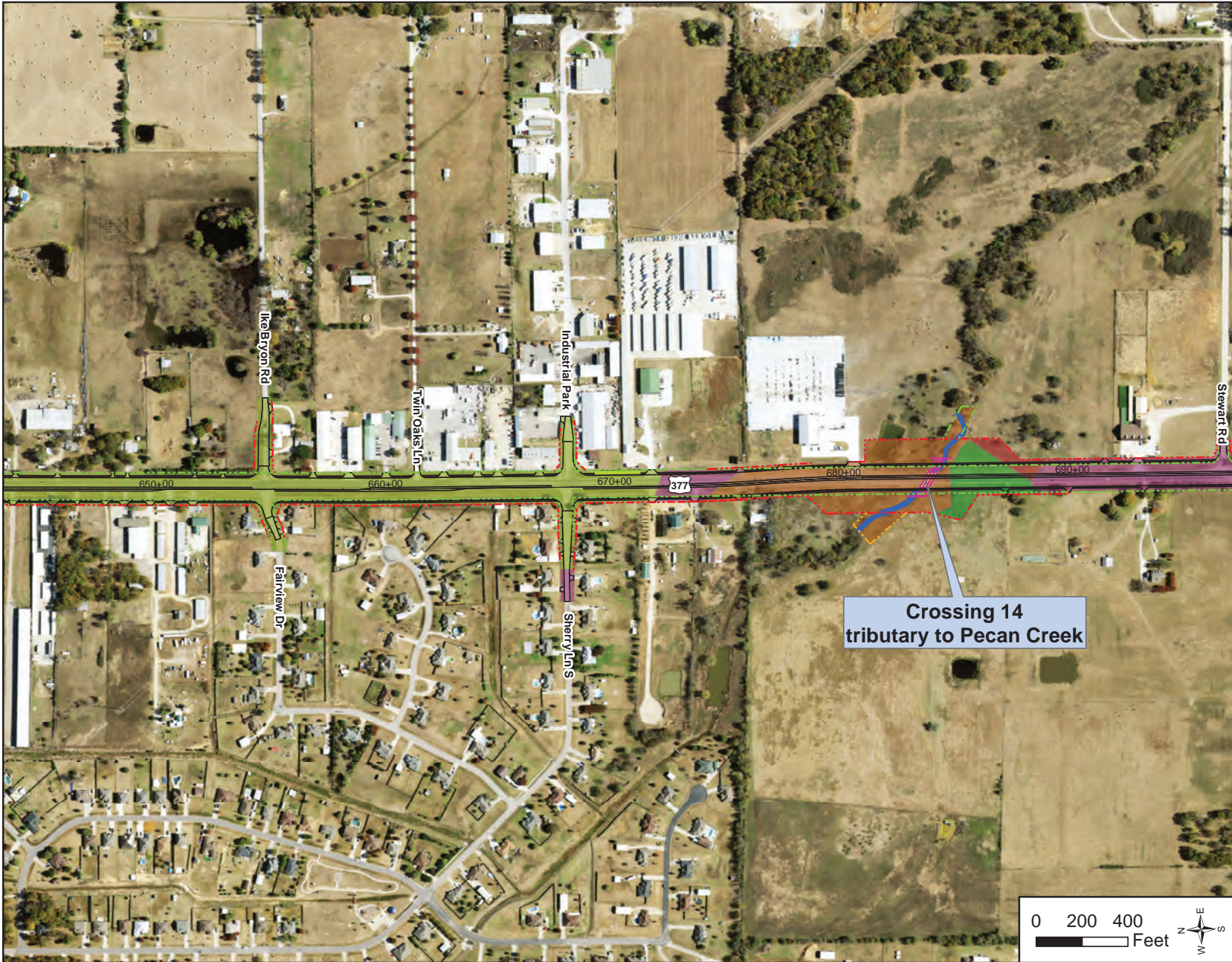
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Burleson clay, 0 to 1 percent slopes
- Callisburg fine sandy loam, 1 to 3 percent slopes
- Callisburg fine sandy loam, 3 to 5 percent slopes
- Crockett fine sandy loam, 1 to 3 percent slopes
- Gasil fine sandy loam, 3 to 8 percent slopes
- Gasil fine sand loam, 1 to 3 percent slopes
- Justin-Urban land complex, 0 to 3 percent slopes
- Konsil fine sandy loam, 1 to 3 percent slopes
- Konsil fine sandy loam, 3 to 8 percent slopes
- Navo clay loam, 1 to 3 percent slopes
- Navo clay loam, 3 to 5 percent slopes
- Silstid loamy fine sand, 1 to 5 percent slopes
- Wilson clay loam, 0 to 1 percent slopes
- Wilson clay loam, 1 to 3 percent slopes



Basemap Source: TNRIS (2018)

FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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Crossing 14
 tributary to Pecan Creek

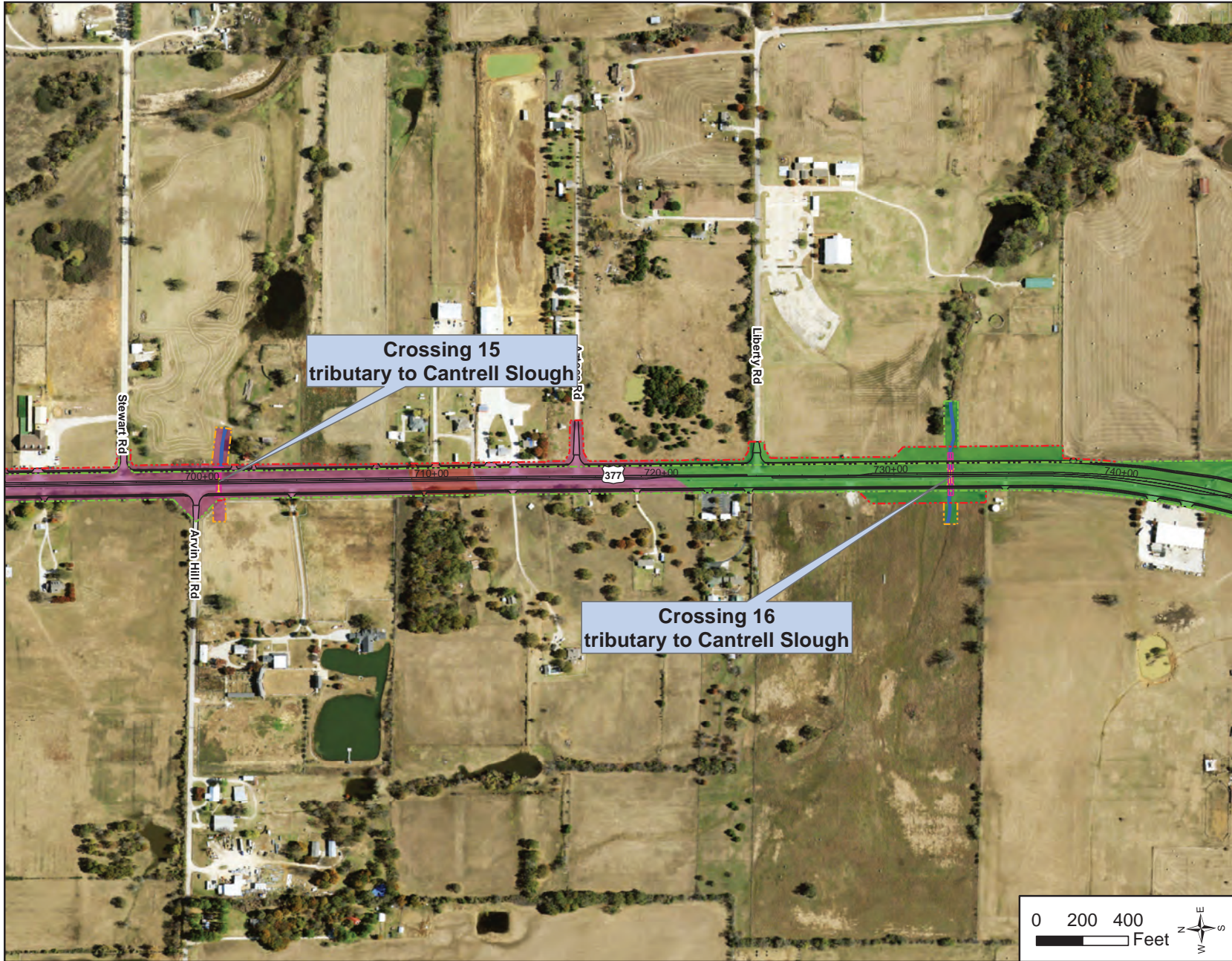
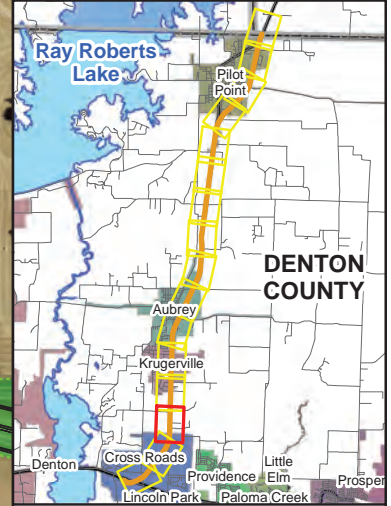
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Delineated Stream
- Burleson clay, 0 to 1 percent slopes
- Callisburg fine sandy loam, 1 to 3 percent slopes
- Callisburg fine sandy loam, 3 to 5 percent slopes
- Crockett fine sandy loam, 1 to 3 percent slopes
- Gasil fine sandy loam, 3 to 8 percent slopes
- Gasil fine sand loam, 1 to 3 percent slopes
- Justin-Urban land complex, 0 to 3 percent slopes
- Konsil fine sandy loam, 1 to 3 percent slopes
- Konsil fine sandy loam, 3 to 8 percent slopes
- Navo clay loam, 1 to 3 percent slopes
- Navo clay loam, 3 to 5 percent slopes
- Silstid loamy fine sand, 1 to 5 percent slopes
- Wilson clay loam, 0 to 1 percent slopes
- Wilson clay loam, 1 to 3 percent slopes

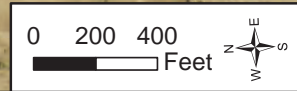


Basemap Source: TNRIS (2018)

FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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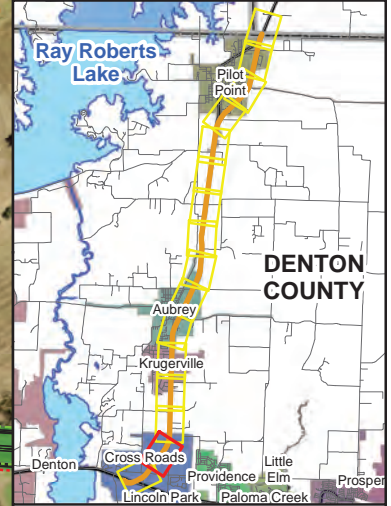
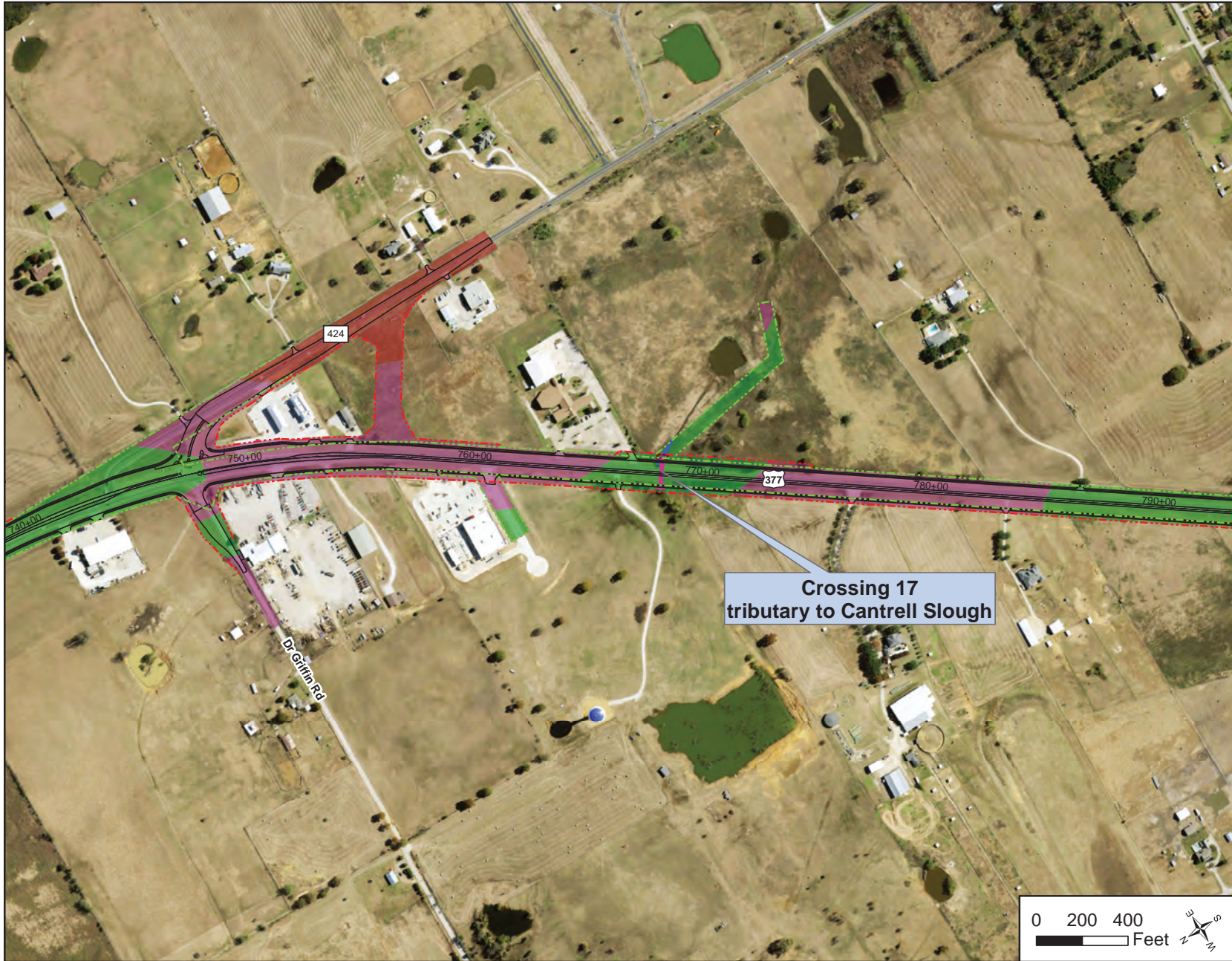


- LEGEND**
- Existing ROW
 - Proposed Easement
 - Proposed ROW
 - Pavement
 - Proposed Retaining Wall
 - Existing Culvert
 - Proposed Culvert
 - Proposed Riprap
 - Delineated Stream
 - Burleson clay, 0 to 1 percent slopes
 - Callisburg fine sandy loam, 1 to 3 percent slopes
 - Callisburg fine sandy loam, 3 to 5 percent slopes
 - Crockett fine sandy loam, 1 to 3 percent slopes
 - Gasil fine sandy loam, 3 to 8 percent slopes
 - Gasil fine sand loam, 1 to 3 percent slopes
 - Justin-Urban land complex, 0 to 3 percent slopes
 - Konsil fine sandy loam, 1 to 3 percent slopes
 - Konsil fine sandy loam, 3 to 8 percent slopes
 - Navo clay loam, 1 to 3 percent slopes
 - Navo clay loam, 3 to 5 percent slopes
 - Silstid loamy fine sand, 1 to 5 percent slopes
 - Wilson clay loam, 0 to 1 percent slopes
 - Wilson clay loam, 1 to 3 percent slopes



Basemap Source: TNRIS (2018)

FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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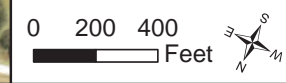
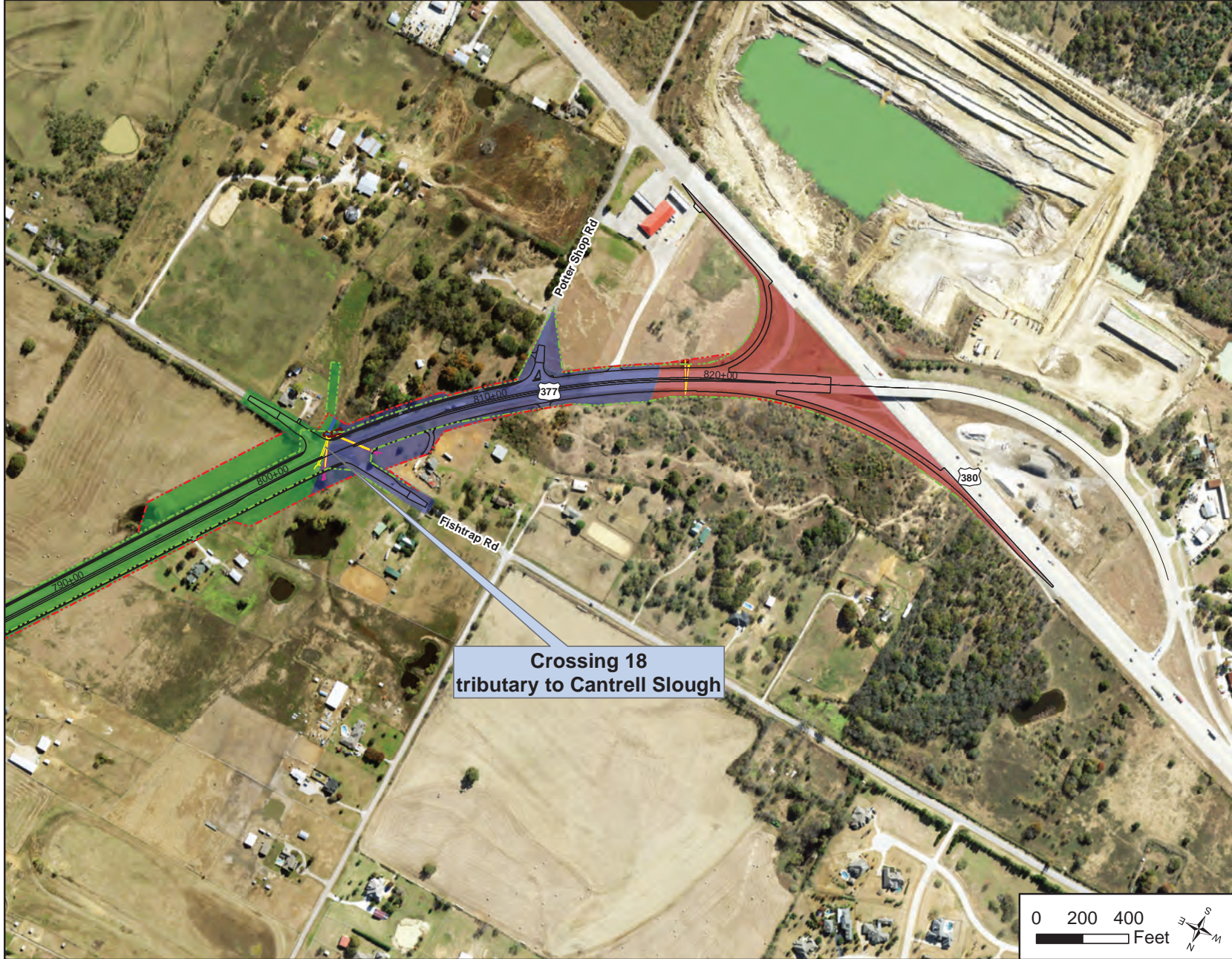
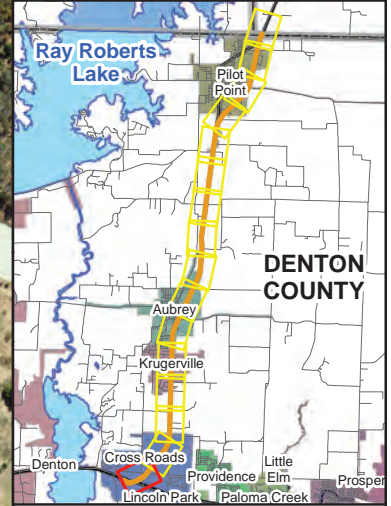
Crossing 17
 tributary to Cantrell Slough

- LEGEND**
- Existing ROW
 - Proposed Easement
 - Proposed ROW
 - Pavement
 - Proposed Retaining Wall
 - Existing Culvert
 - Proposed Culvert
 - Proposed Riprap
 - Delineated Stream
 - Burleson clay, 0 to 1 percent slopes
 - Callisburg fine sandy loam, 1 to 3 percent slopes
 - Callisburg fine sandy loam, 3 to 5 percent slopes
 - Crockett fine sandy loam, 1 to 3 percent slopes
 - Gasil fine sandy loam, 3 to 8 percent slopes
 - Gasil fine sand loam, 1 to 3 percent slopes
 - Justin-Urban land complex, 0 to 3 percent slopes
 - Konsil fine sandy loam, 1 to 3 percent slopes
 - Konsil fine sandy loam, 3 to 8 percent slopes
 - Navo clay loam, 1 to 3 percent slopes
 - Navo clay loam, 3 to 5 percent slopes
 - Silstid loamy fine sand, 1 to 5 percent slopes
 - Wilson clay loam, 0 to 1 percent slopes
 - Wilson clay loam, 1 to 3 percent slopes



Basemap Source: TNRIS (2018)

FIGURE 5
NRCS SOIL MAP
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040
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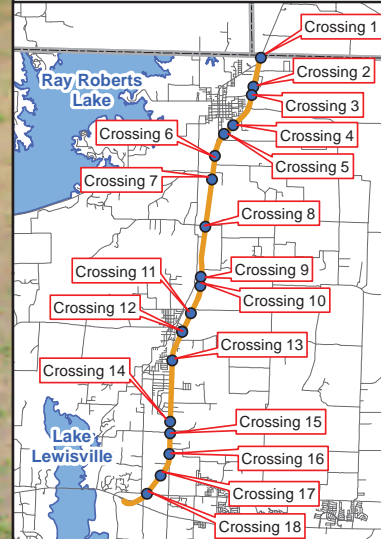


Basemap Source: TNRIS (2018)

Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
1	unnamed tributary to Pecan Creek	Ephemeral	Yes	407	0.09	10	1	0	0

FIGURE 7 PROJECT LAYOUT MAP CROSSING 1

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040

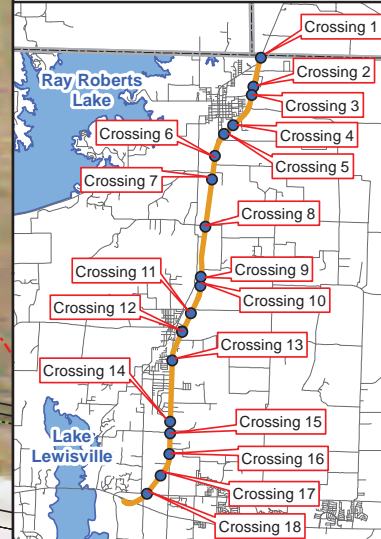


- LEGEND**
- Existing ROW
 - Proposed Easement
 - Proposed ROW
 - Pavement
 - Proposed Retainaing Wall
 - Existing Culvert
 - Proposed Culvert
 - Proposed Riprap
 - Stream (No Impact)
 - Stream (Permanent Impact)
 - Stream (Temporary Impact)
 - Floodplain Area
 - Flow Direction

Basemap Source: TNRIS (2018)

**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 2**

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040



LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- █ Stream (No Impact)
- █ Stream (Permanent Impact)
- █ Stream (Temporary Impact)
- █ Floodplain Area
- Flow Direction

Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
2	unnamed tributary to Pecan Creek	Intermittent	Yes	247	0.09	8	1	95 LF (0.05 ac)	54 LF (0.01 ac)

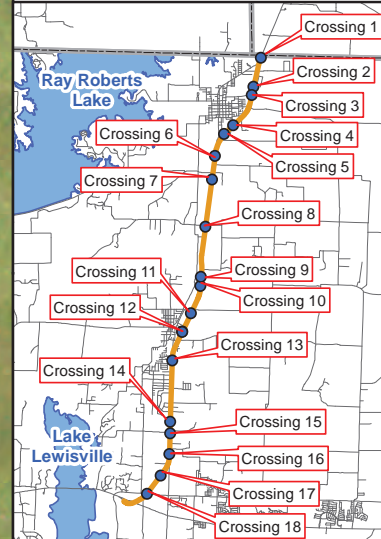
Basemap Source: TNRIS (2018)

Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
3	unnamed tributary to Pecan Creek	Intermittent	Yes	1,028	0.24	8	2	76 LF (0.04 ac)	87 LF (0.04 ac)



FIGURE 7 PROJECT LAYOUT MAP CROSSING 3

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040



LEGEND

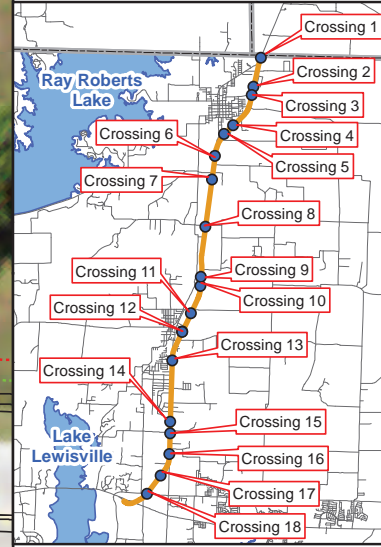
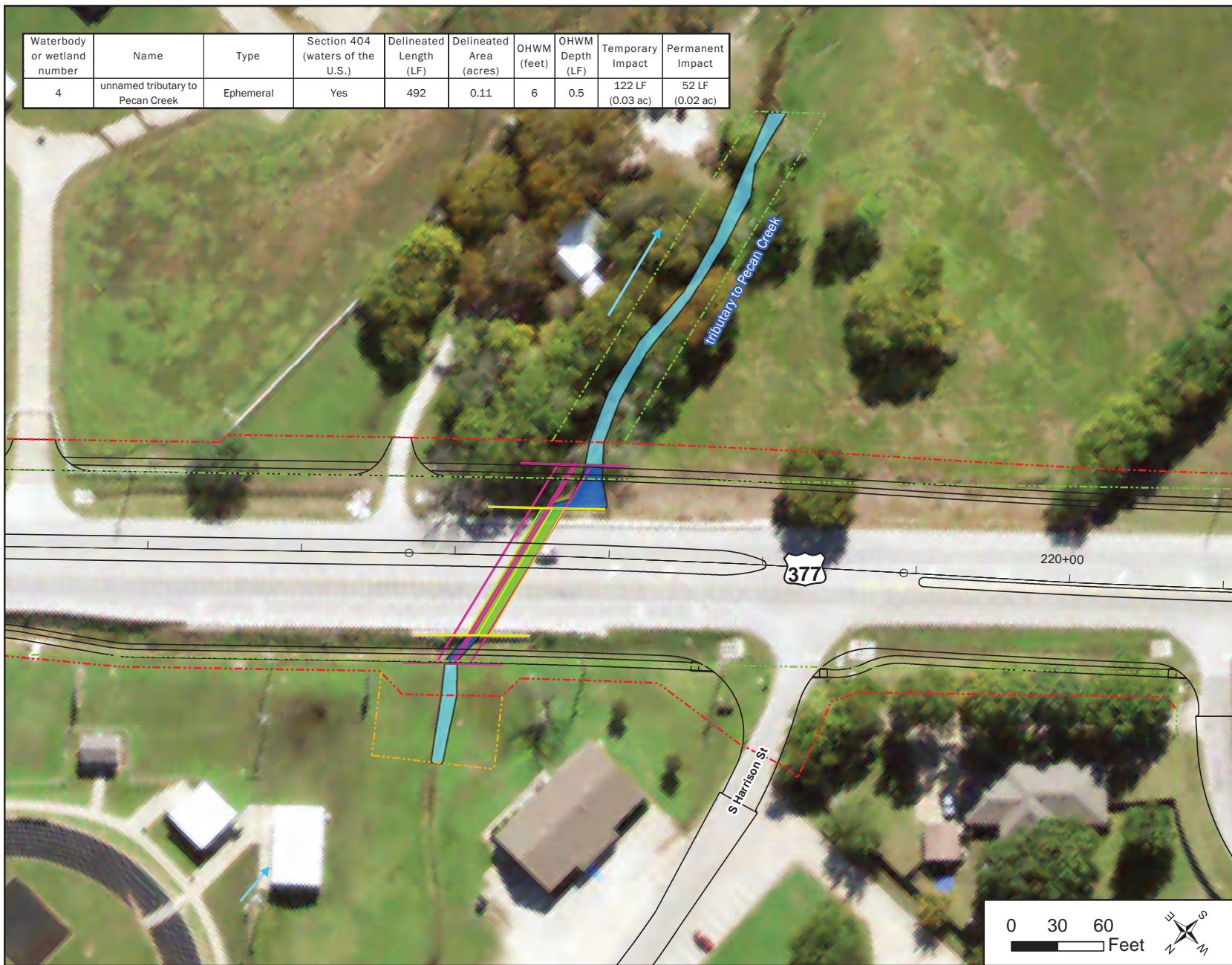
- - - Existing ROW
- - - Proposed Easement
- - - Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- ▭ Stream (No Impact)
- ▭ Stream (Permanent Impact)
- ▭ Stream (Temporary Impact)
- ▭ Floodplain Area
- ➔ Flow Direction

Basemap Source: TNRIS (2018)

Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
4	unnamed tributary to Pecan Creek	Ephemeral	Yes	492	0.11	6	0.5	122 LF (0.03 ac)	52 LF (0.02 ac)

**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 4**

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040

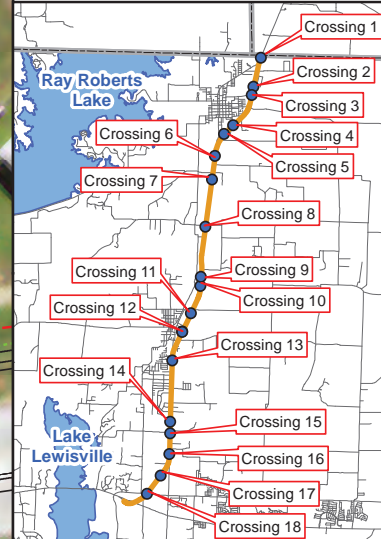
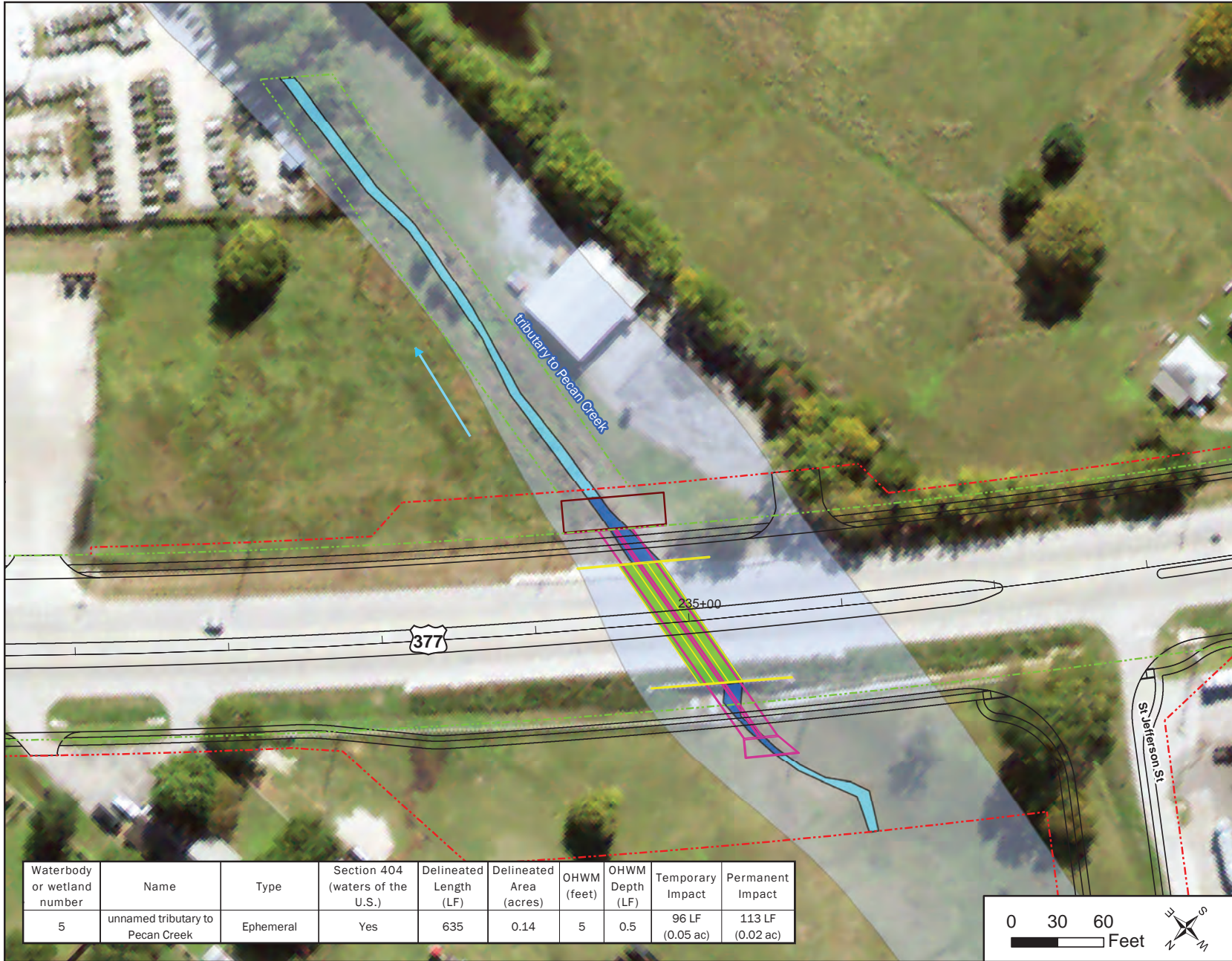


- LEGEND**
- Existing ROW
 - - - Proposed Easement
 - - - Proposed ROW
 - Pavement
 - Proposed Retaining Wall
 - Existing Culvert
 - Proposed Culvert
 - Proposed Riprap
 - Stream (No Impact)
 - Stream (Permanent Impact)
 - Stream (Temporary Impact)
 - Floodplain Area
 - Flow Direction

Basemap Source: TNRIS (2018)

**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 5**

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040



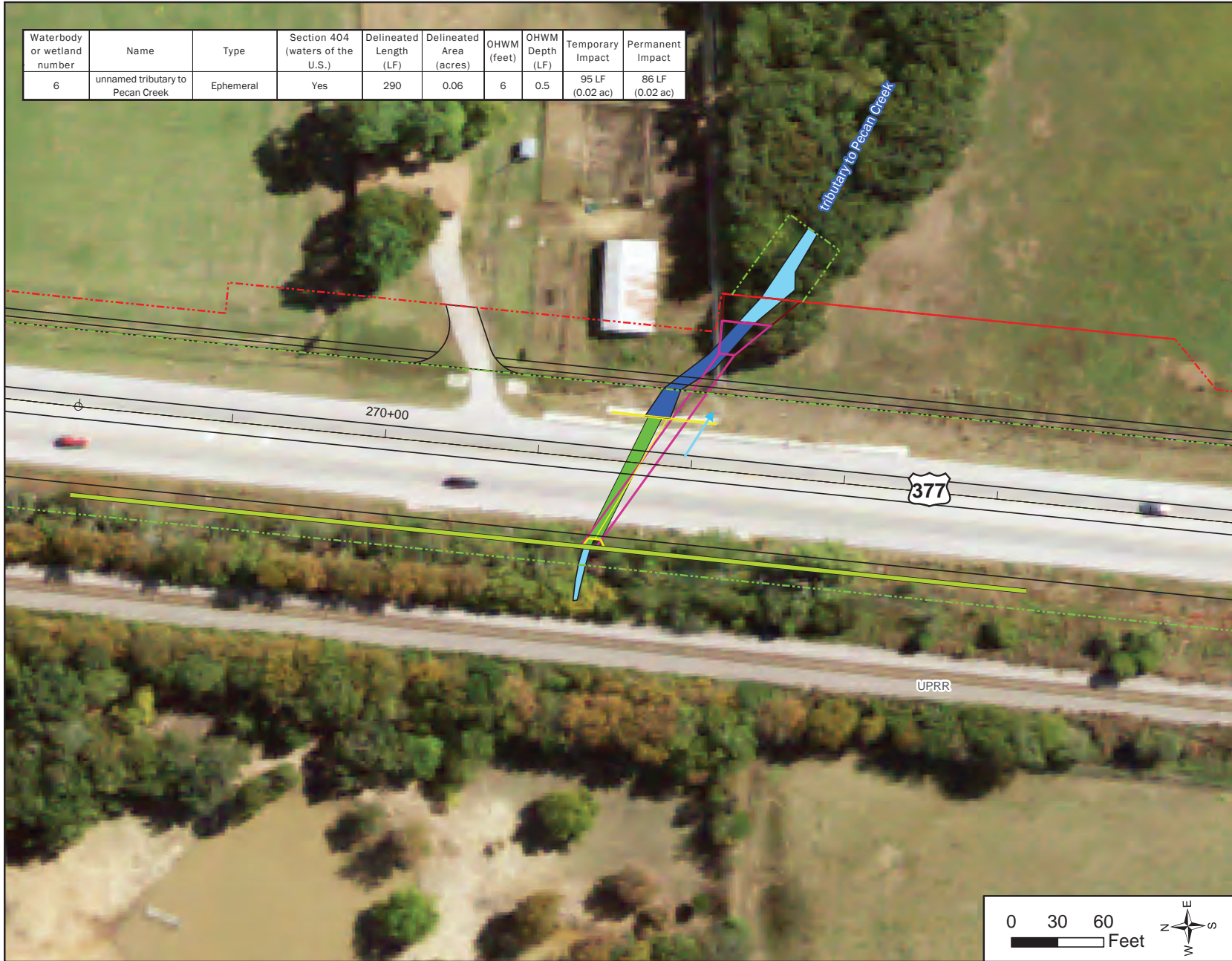
LEGEND

- - - Existing ROW
- - - Proposed Easement
- - - Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- █ Stream (No Impact)
- █ Stream (Permanent Impact)
- █ Stream (Temporary Impact)
- Floodplain Area
- Flow Direction

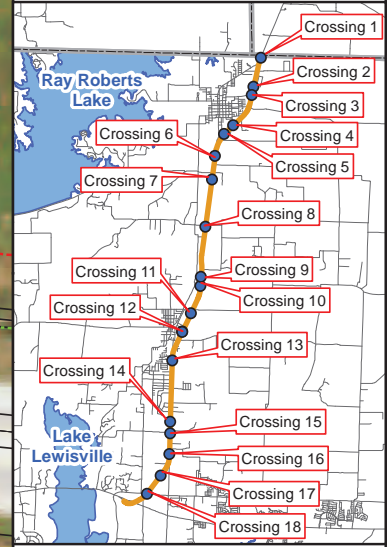
Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
5	unnamed tributary to Pecan Creek	Ephemeral	Yes	635	0.14	5	0.5	96 LF (0.05 ac)	113 LF (0.02 ac)

Basemap Source: TNRIS (2018)

Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
6	unnamed tributary to Pecan Creek	Ephemeral	Yes	290	0.06	6	0.5	95 LF (0.02 ac)	86 LF (0.02 ac)

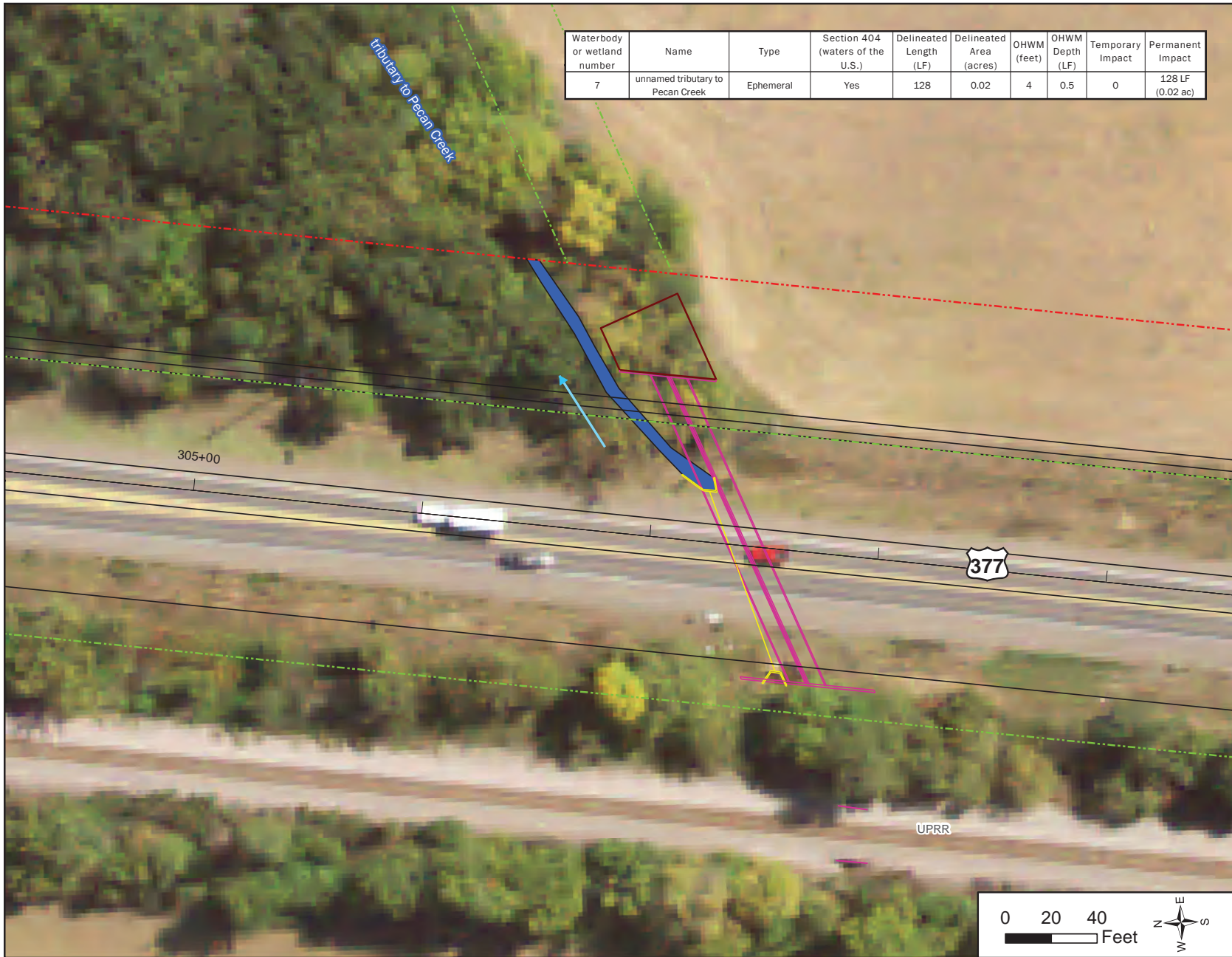


**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 6**
United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040



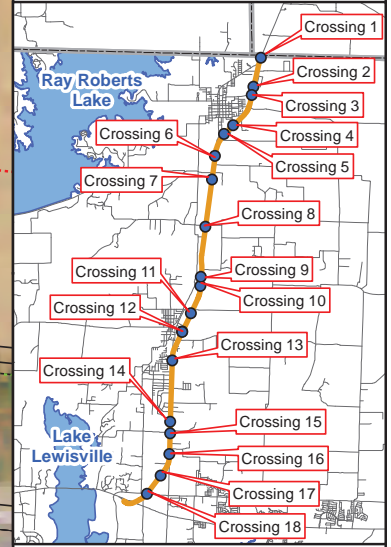
- LEGEND**
- Existing ROW
 - - - Proposed Easement
 - Proposed ROW
 - Pavement
 - Proposed Retaining Wall
 - Existing Culvert
 - Proposed Culvert
 - Proposed Riprap
 - Stream (No Impact)
 - Stream (Permanent Impact)
 - Stream (Temporary Impact)
 - Floodplain Area
 - Flow Direction

Basemap Source: TNRIS (2018)

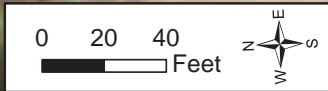


Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
7	unnamed tributary to Pecan Creek	Ephemeral	Yes	128	0.02	4	0.5	0	128 LF (0.02 ac)

**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 7**
United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040



- LEGEND**
- - - Existing ROW
 - - - Proposed Easement
 - - - Proposed ROW
 - Pavement
 - Proposed Retaining Wall
 - Existing Culvert
 - Proposed Culvert
 - Proposed Riprap
 - Stream (No Impact)
 - Stream (Permanent Impact)
 - Stream (Temporary Impact)
 - Floodplain Area
 - Flow Direction

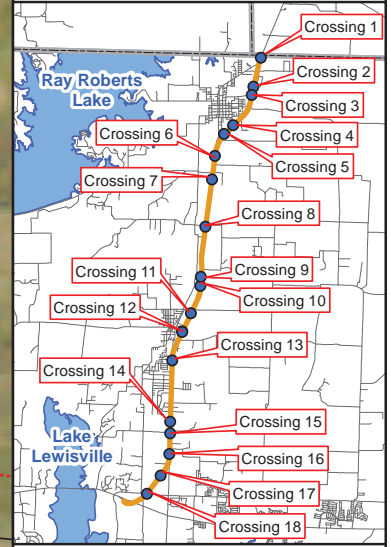
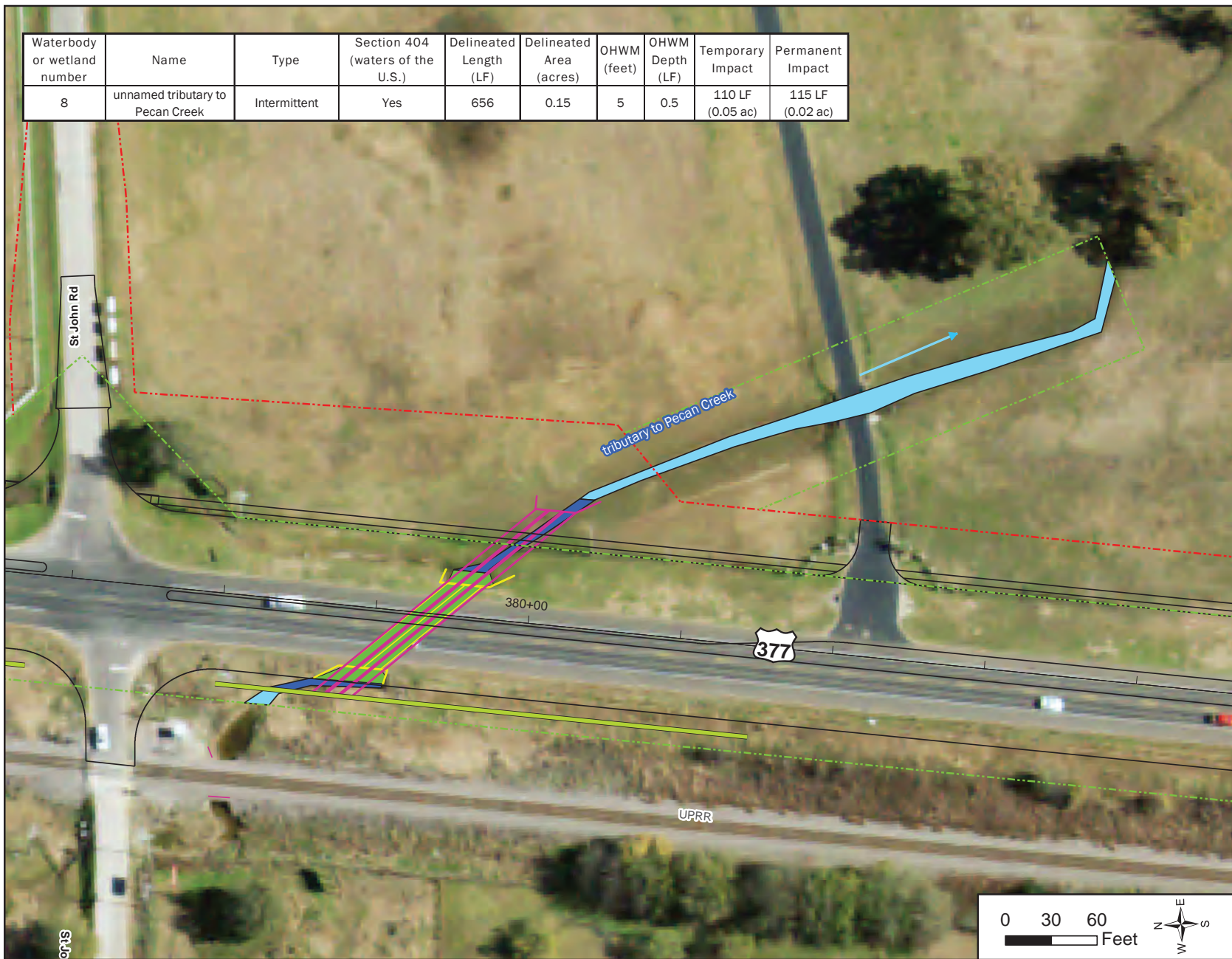


Basemap Source: TNRIS (2018)

Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWL (feet)	OHWL Depth (LF)	Temporary Impact	Permanent Impact
8	unnamed tributary to Pecan Creek	Intermittent	Yes	656	0.15	5	0.5	110 LF (0.05 ac)	115 LF (0.02 ac)

**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 8**

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040



- LEGEND**
- Existing ROW
 - Proposed Easement
 - Proposed ROW
 - Pavement
 - Proposed Retaining Wall
 - Existing Culvert
 - Proposed Culvert
 - Proposed Riprap
 - █ Stream (No Impact)
 - █ Stream (Permanent Impact)
 - █ Stream (Temporary Impact)
 - █ Floodplain Area
 - Flow Direction

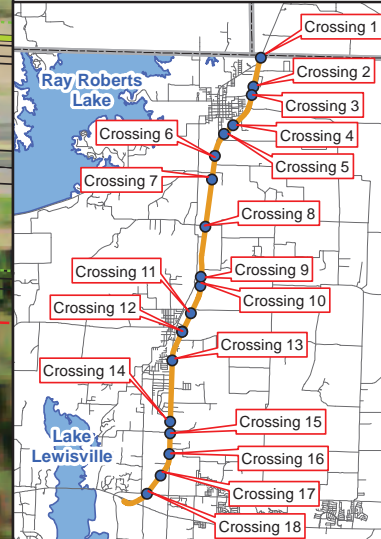
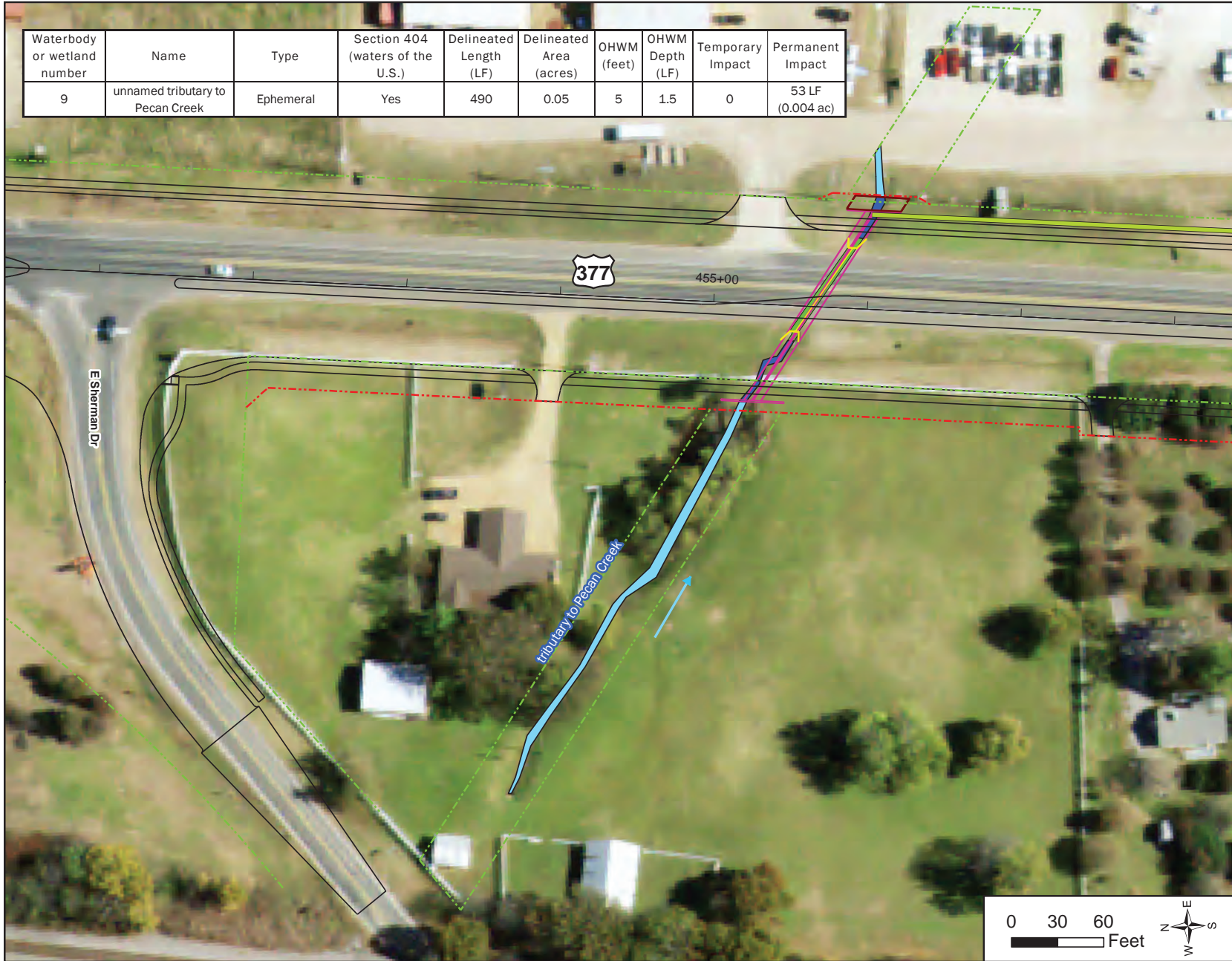
Basemap Source: TNRIS (2018)

07-18

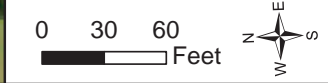
Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
9	unnamed tributary to Pecan Creek	Ephemeral	Yes	490	0.05	5	1.5	0	53 LF (0.004 ac)

**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 9**

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040



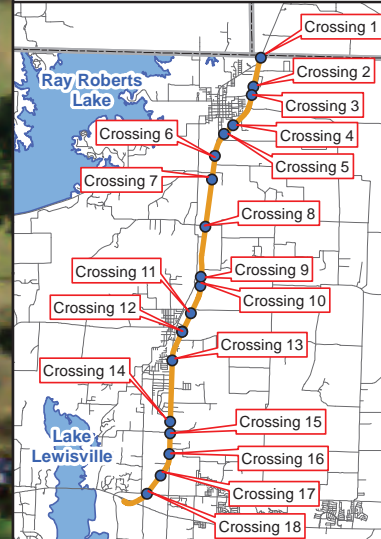
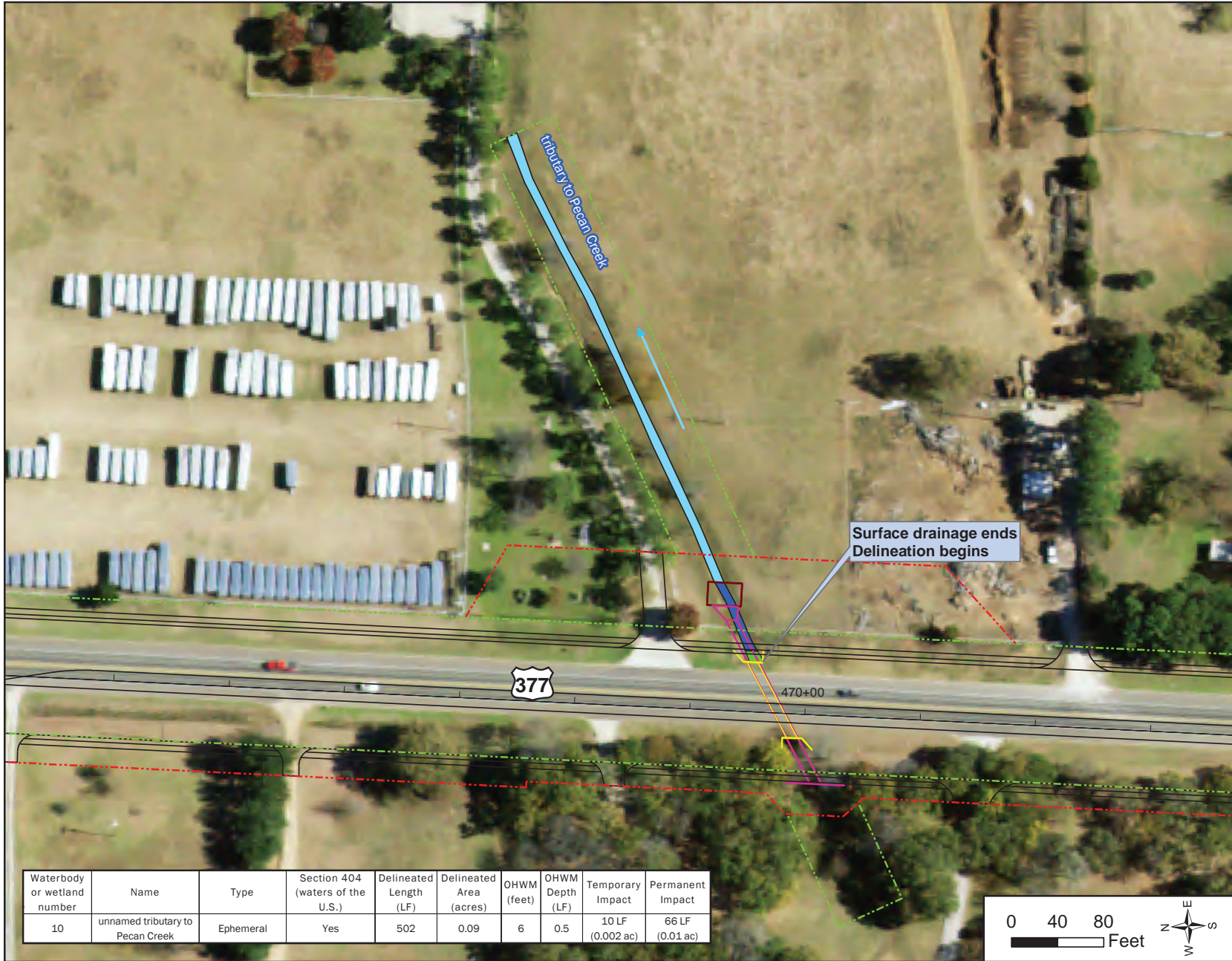
- LEGEND**
- Existing ROW
 - Proposed Easement
 - Proposed ROW
 - Pavement
 - Proposed Retaining Wall
 - Existing Culvert
 - Proposed Culvert
 - Proposed Riprap
 - █ Stream (No Impact)
 - █ Stream (Permanent Impact)
 - █ Stream (Temporary Impact)
 - █ Floodplain Area
 - Flow Direction



Basemap Source: TNRIS (2018)

**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 10**

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040



- LEGEND**
- - - Existing ROW
 - - - Proposed Easement
 - - - Proposed ROW
 - Pavement
 - Proposed Retaining Wall
 - Existing Culvert
 - Proposed Culvert
 - Proposed Riprap
 - Stream (No Impact)
 - Stream (Permanent Impact)
 - Stream (Temporary Impact)
 - Floodplain Area
 - Flow Direction

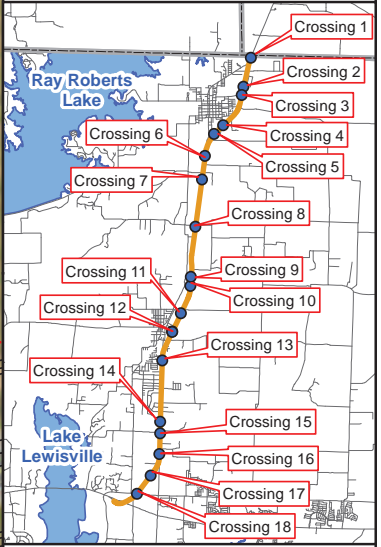
Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
10	unnamed tributary to Pecan Creek	Ephemeral	Yes	502	0.09	6	0.5	10 LF (0.002 ac)	66 LF (0.01 ac)



Basemap Source: TNRIS (2018)

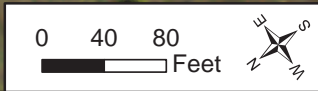
Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
11	unnamed tributary to Pecan Creek	Intermittent	Yes	767	0.08	6	1	78 LF (0.01 ac)	130 LF (0.02 ac)

**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 11**
United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040



LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Stream (No Impact)
- Stream (Permanent Impact)
- Stream (Temporary Impact)
- Floodplain Area
- Flow Direction

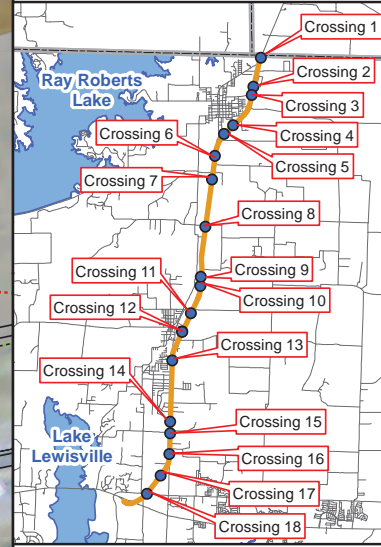
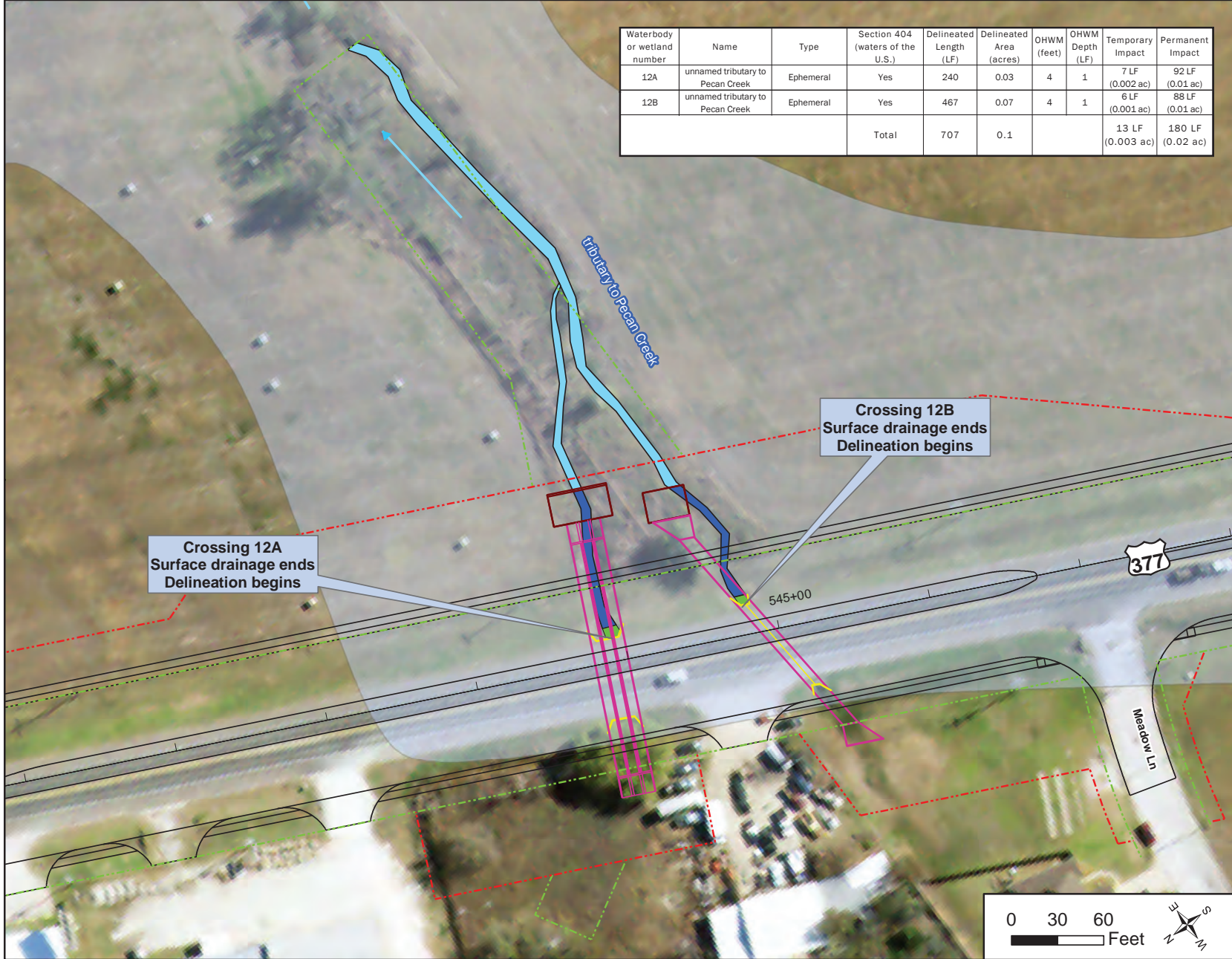


Basemap Source: TNRIS (2018)

**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 12**

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040

Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWL (feet)	OHWL Depth (LF)	Temporary Impact	Permanent Impact
12A	unnamed tributary to Pecan Creek	Ephemeral	Yes	240	0.03	4	1	7 LF (0.002 ac)	92 LF (0.01 ac)
12B	unnamed tributary to Pecan Creek	Ephemeral	Yes	467	0.07	4	1	6 LF (0.001 ac)	88 LF (0.01 ac)
Total				707	0.1			13 LF (0.003 ac)	180 LF (0.02 ac)



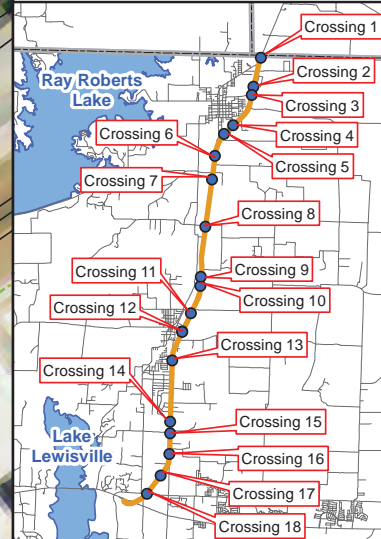
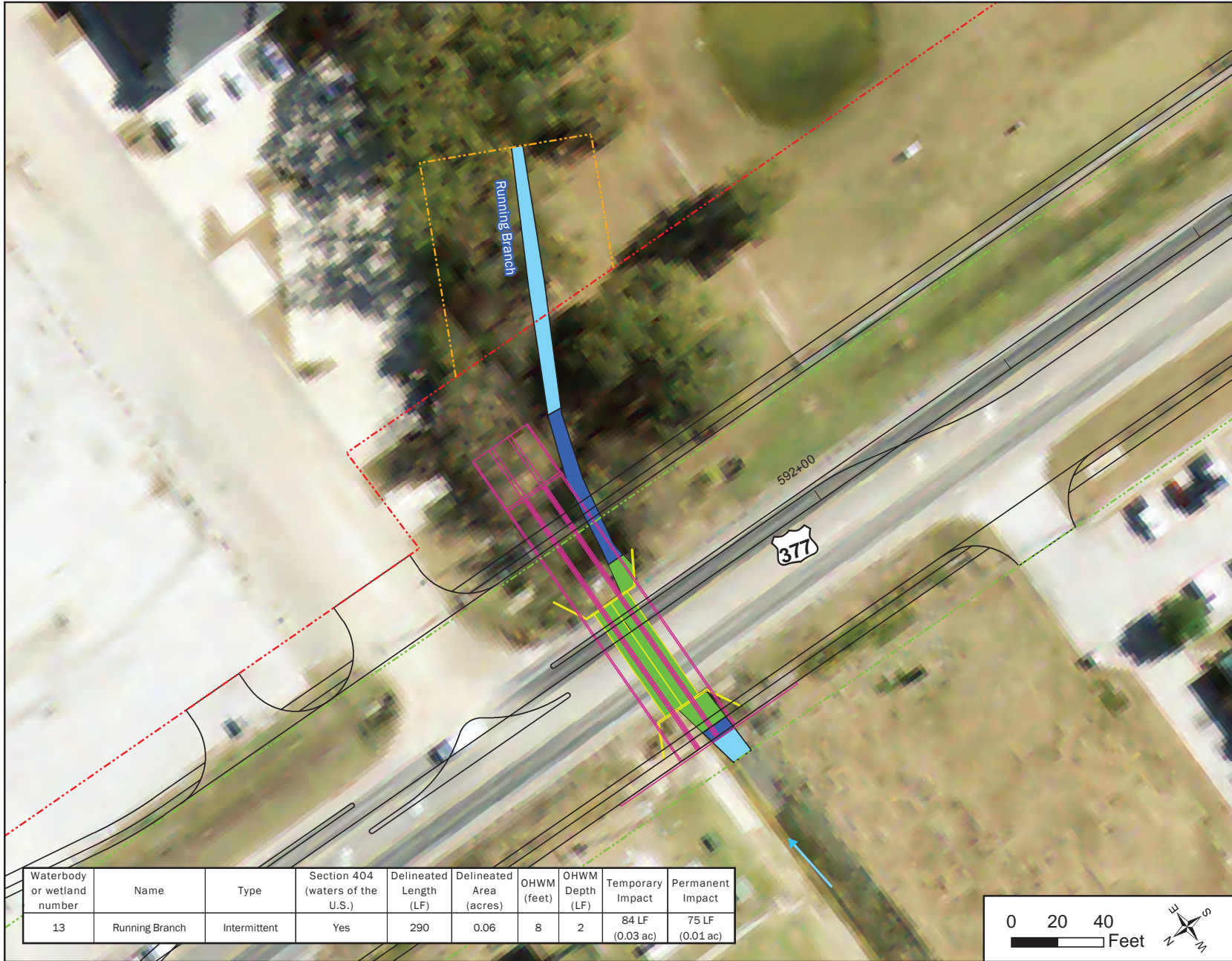
LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- █ Stream (No Impact)
- █ Stream (Permanent Impact)
- █ Stream (Temporary Impact)
- █ Floodplain Area
- Flow Direction

Basemap Source: TNRIS (2018)

**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 13**

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040



Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
13	Running Branch	Intermittent	Yes	290	0.06	8	2	84 LF (0.03 ac)	75 LF (0.01 ac)

LEGEND

- Existing ROW
- - - Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Stream (No Impact)
- Stream (Permanent Impact)
- Stream (Temporary Impact)
- Floodplain Area
- Flow Direction

Basemap Source: TNRIS (2018)

Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
14	unnamed tributary to Pecan Creek	Intermittent	Yes	760	0.25	15	1	94 LF (0.05 ac)	123 LF (0.05 ac)

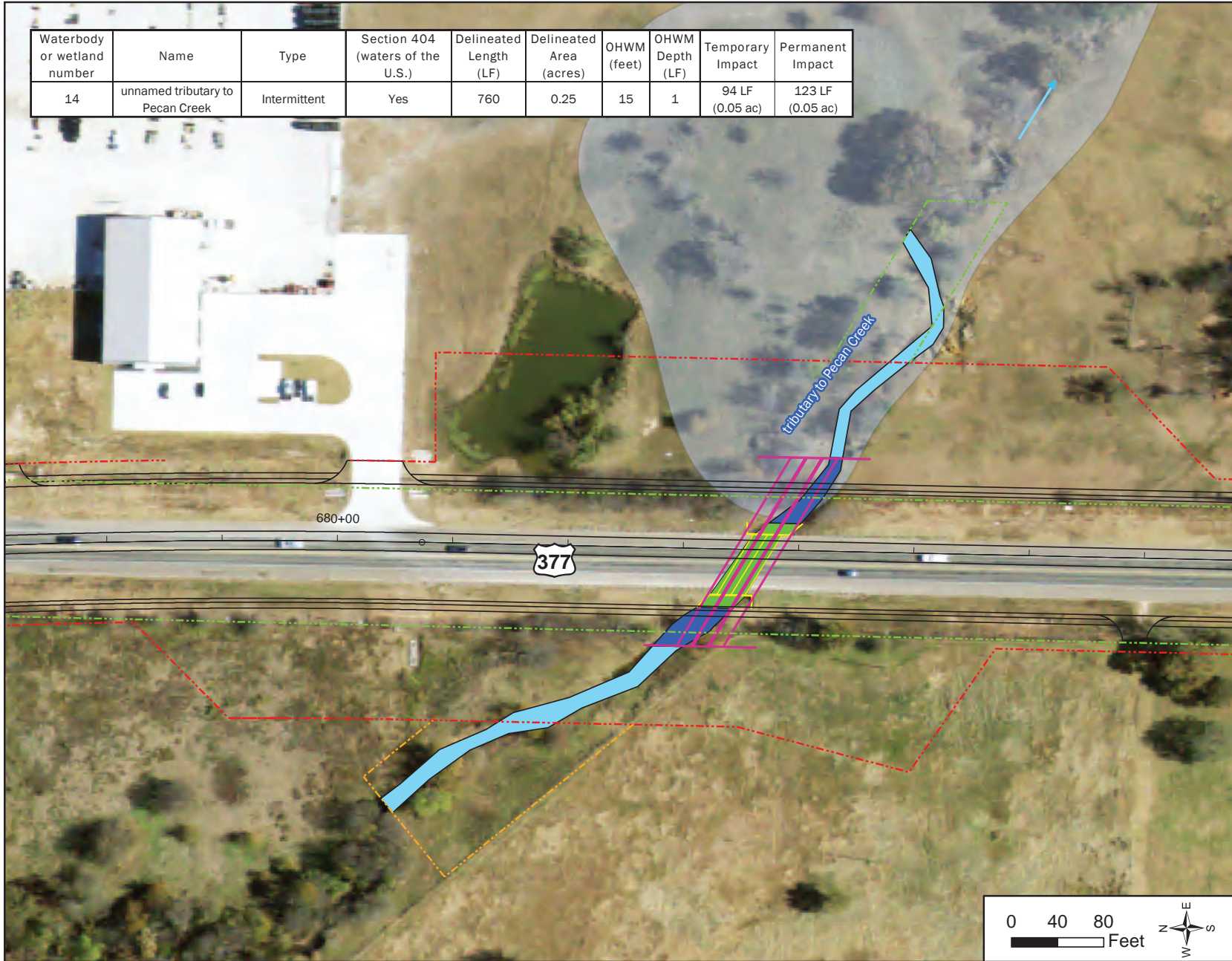
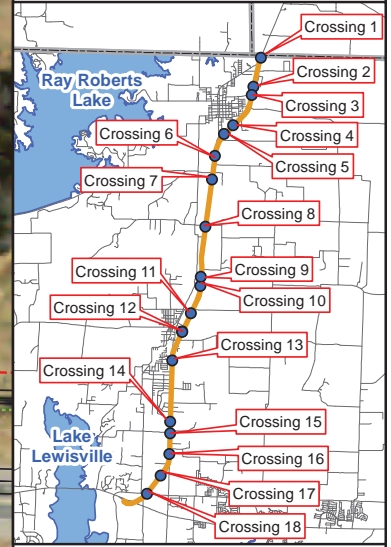


FIGURE 7
PROJECT LAYOUT MAP
CROSSING 14
 United States (US) 377
 From North of BUS 377E
 To US 380
 Denton County, Texas
 CSJ: 0081-06-040

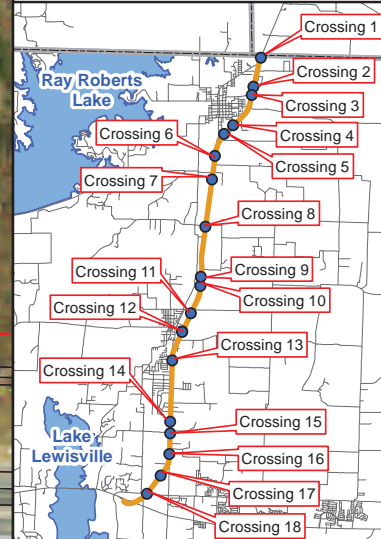
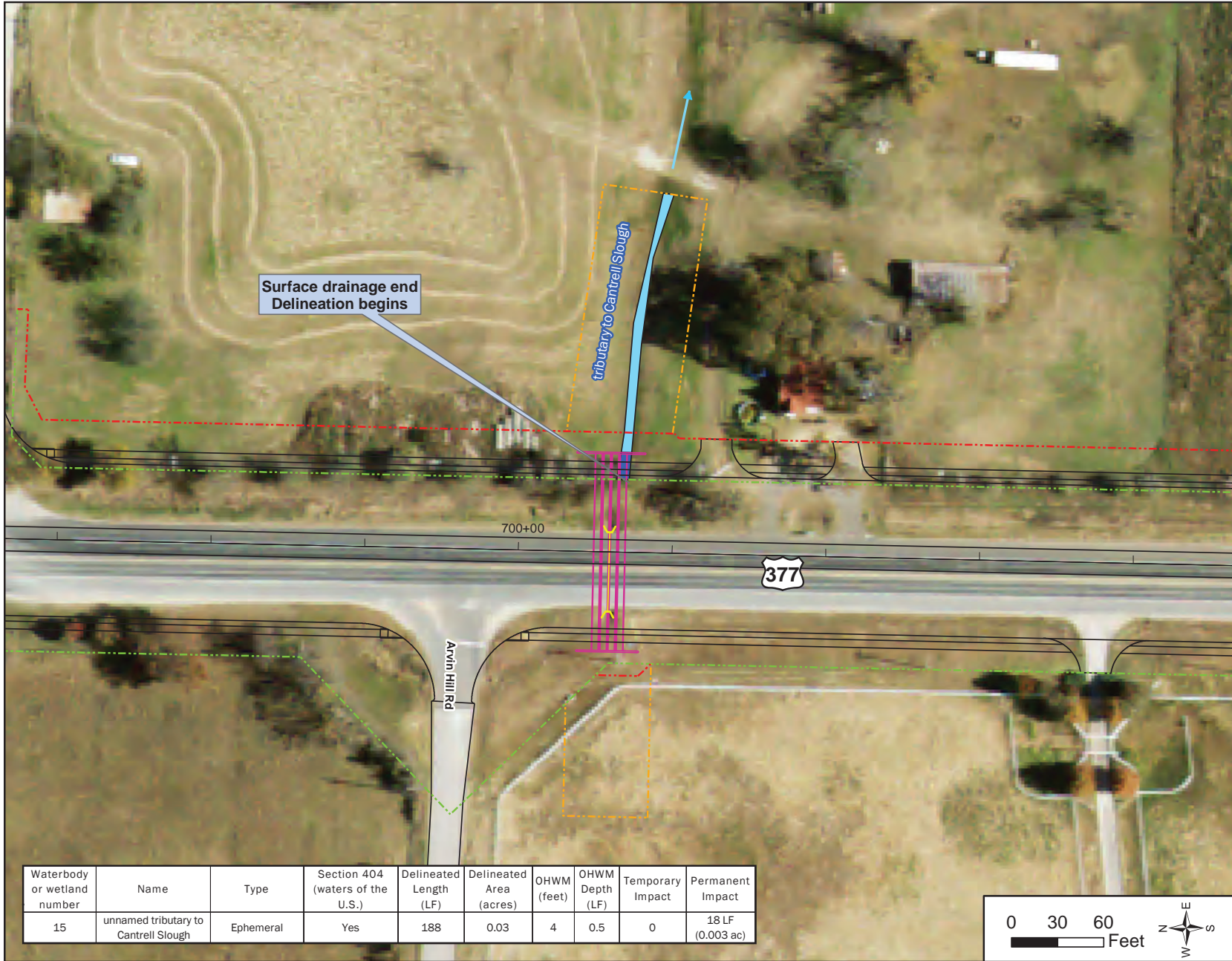


- LEGEND**
- - - Existing ROW
 - - - Proposed Easement
 - - - Proposed ROW
 - Pavement
 - Proposed Retaining Wall
 - Existing Culvert
 - Proposed Culvert
 - Proposed Riprap
 - Stream (No Impact)
 - Stream (Permanent Impact)
 - Stream (Temporary Impact)
 - Floodplain Area
 - Flow Direction

Basemap Source: TNRIS (2018)

**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 15**

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040



LEGEND

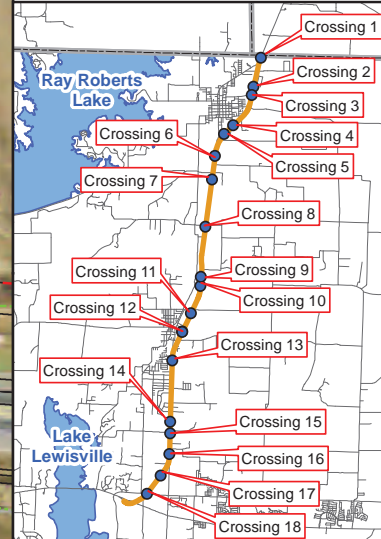
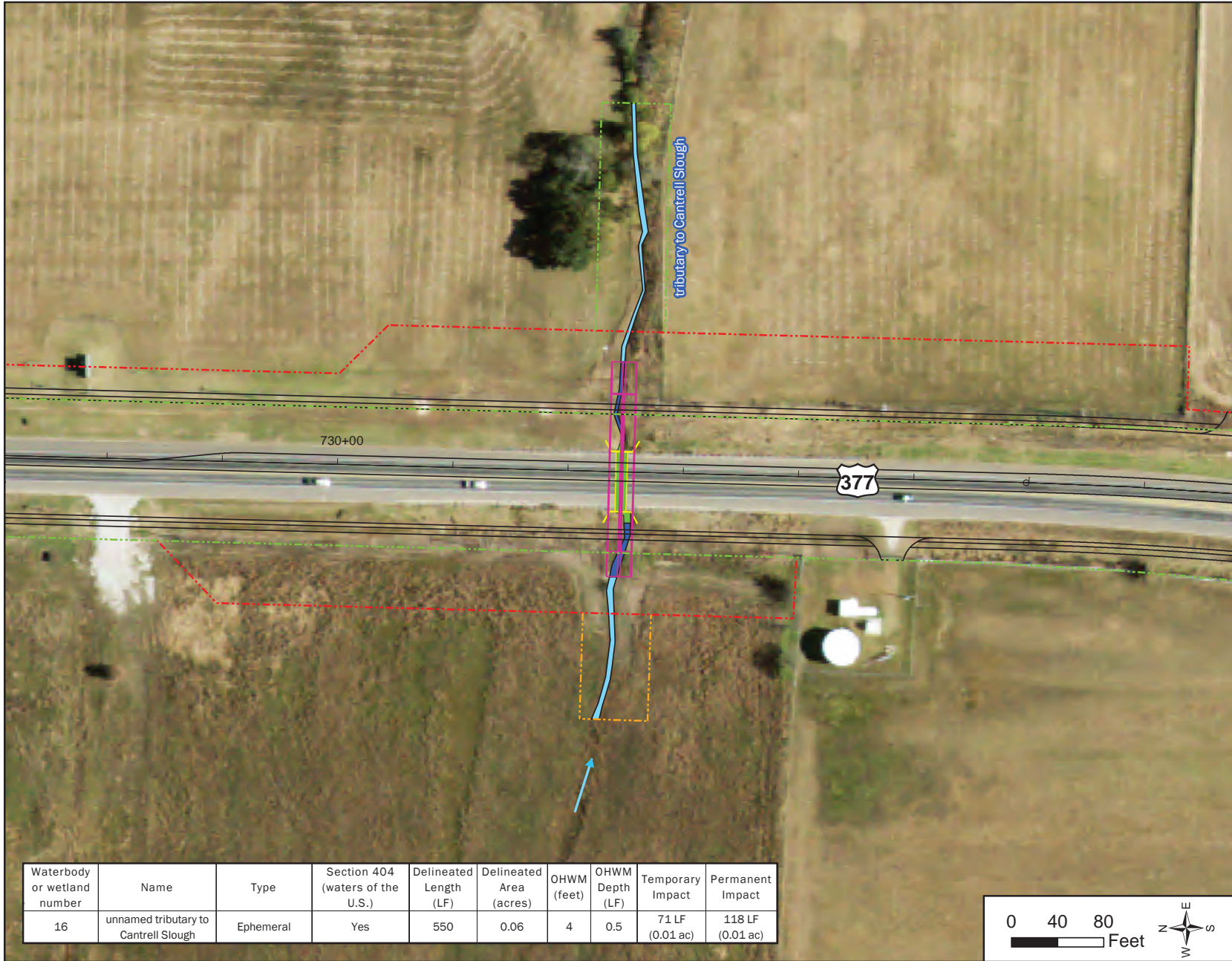
- - - Existing ROW
- - - Proposed Easement
- - - Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- █ Stream (No Impact)
- █ Stream (Permanent Impact)
- █ Stream (Temporary Impact)
- █ Floodplain Area
- Flow Direction

Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
15	unnamed tributary to Cantrell Slough	Ephemeral	Yes	188	0.03	4	0.5	0	18 LF (0.003 ac)

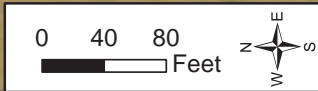
Basemap Source: TNRIS (2018)

**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 16**

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040



Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
16	unnamed tributary to Cantrell Slough	Ephemeral	Yes	550	0.06	4	0.5	71 LF (0.01 ac)	118 LF (0.01 ac)

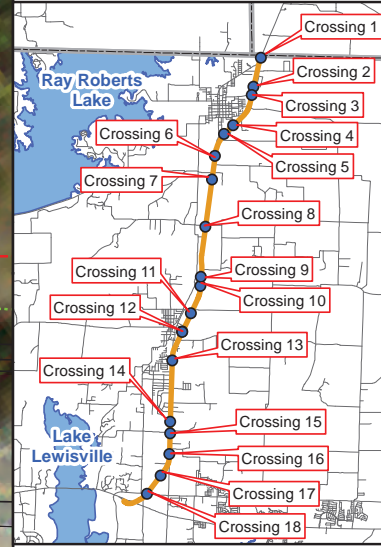
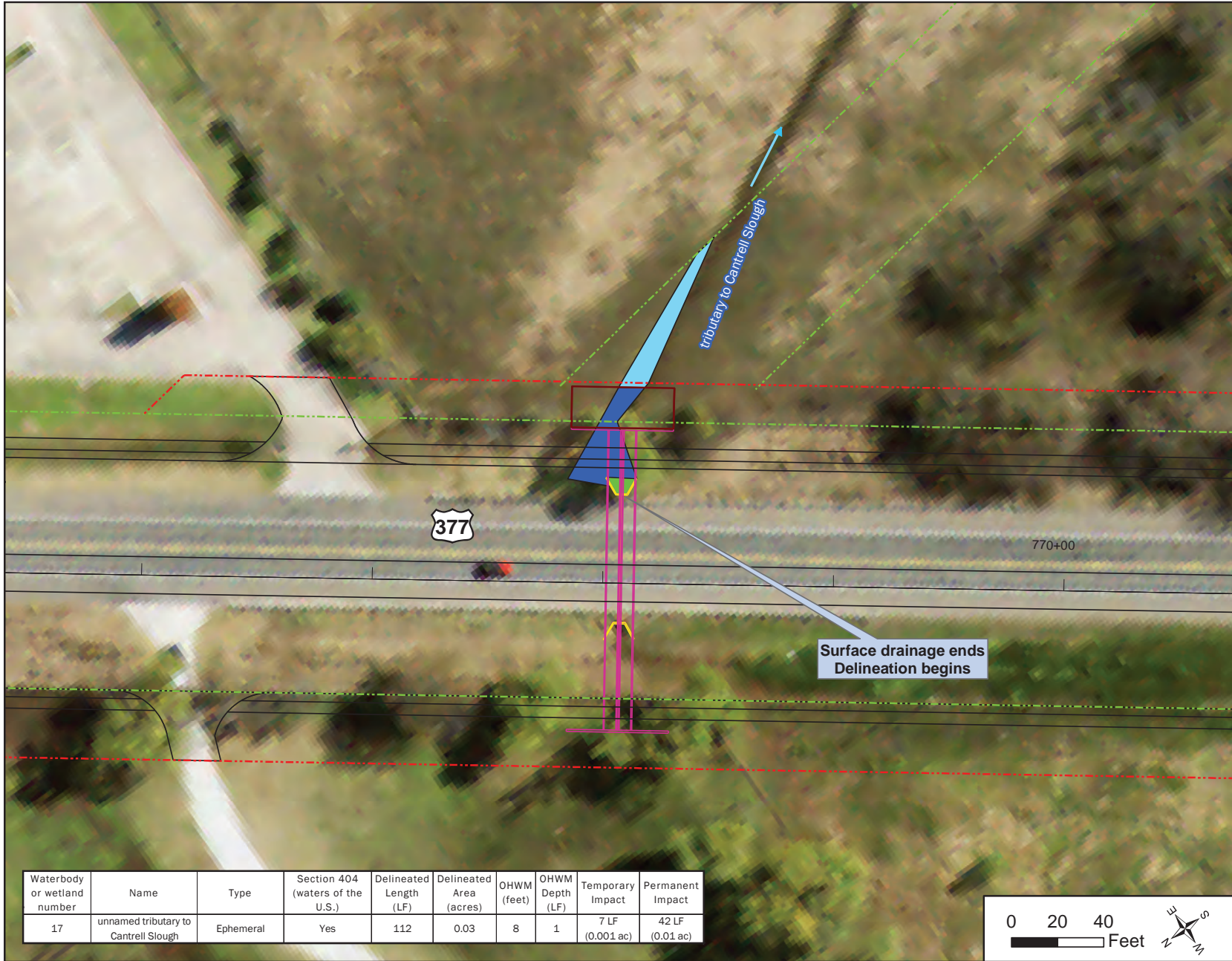


- LEGEND**
- Existing ROW
 - Proposed Easement
 - Proposed ROW
 - Pavement
 - Proposed Retaining Wall
 - Existing Culvert
 - Proposed Culvert
 - Proposed Riprap
 - █ Stream (No Impact)
 - █ Stream (Permanent Impact)
 - █ Stream (Temporary Impact)
 - █ Floodplain Area
 - Flow Direction

Basemap Source: TNRIS (2018)

**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 17**

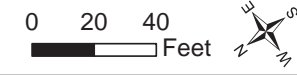
United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040



LEGEND

- - - Existing ROW
- - - Proposed Easement
- - - Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- Stream (No Impact)
- Stream (Permanent Impact)
- Stream (Temporary Impact)
- Floodplain Area
- Flow Direction

Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
17	unnamed tributary to Cantrell Slough	Ephemeral	Yes	112	0.03	8	1	7 LF (0.001 ac)	42 LF (0.01 ac)

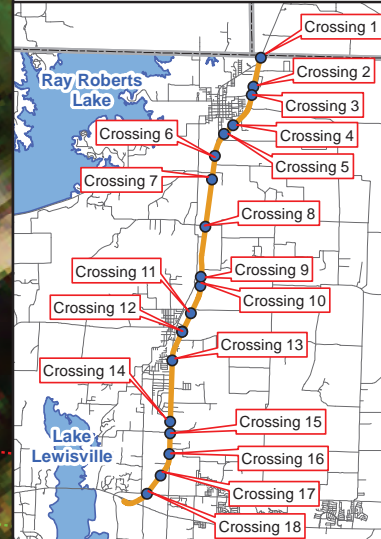
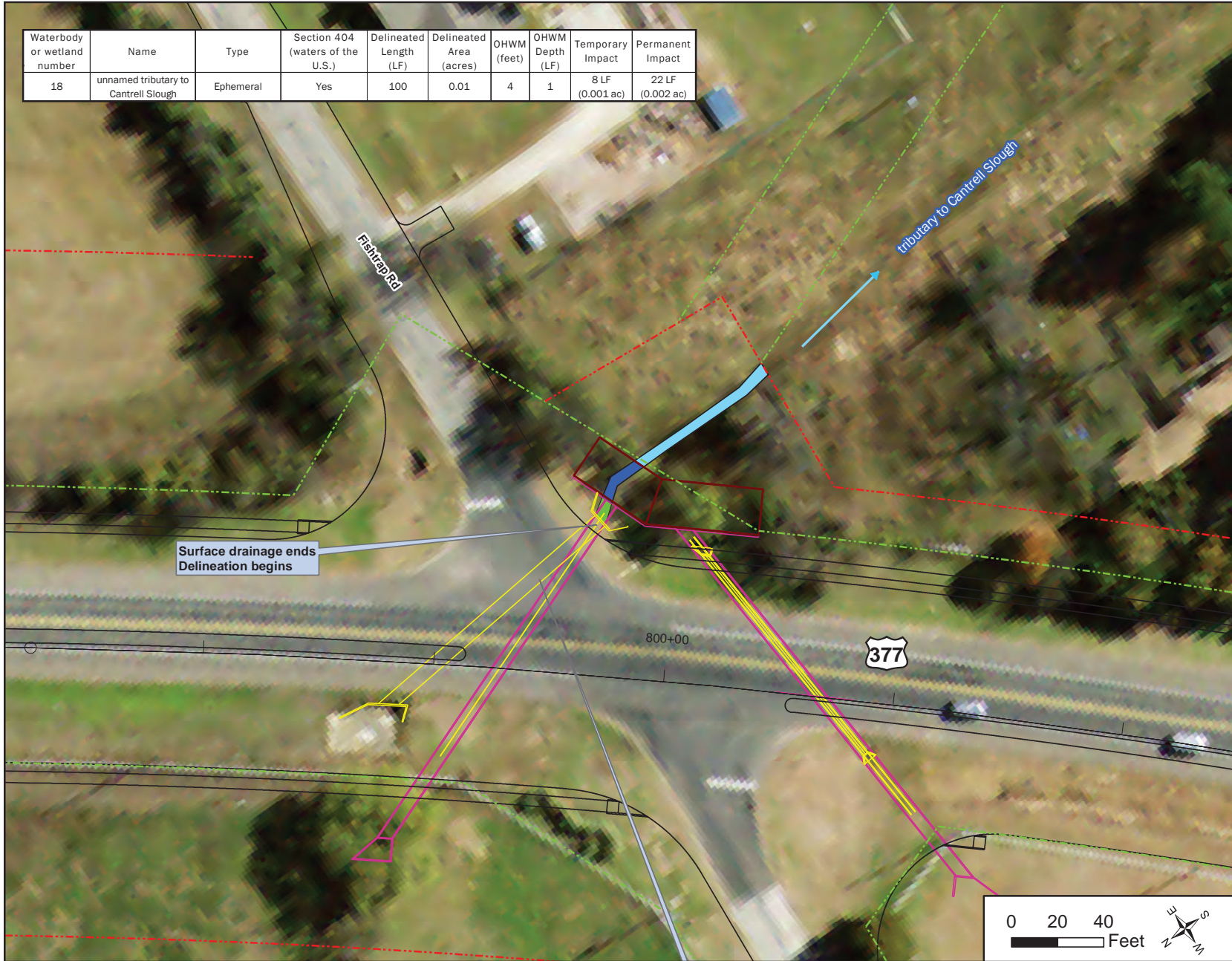


Basemap Source: TNRIS (2018)

Waterbody or wetland number	Name	Type	Section 404 (waters of the U.S.)	Delineated Length (LF)	Delineated Area (acres)	OHWM (feet)	OHWM Depth (LF)	Temporary Impact	Permanent Impact
18	unnamed tributary to Cantrell Slough	Ephemeral	Yes	100	0.01	4	1	8 LF (0.001 ac)	22 LF (0.002 ac)

**FIGURE 7
PROJECT LAYOUT MAP
CROSSING 18**

United States (US) 377
From North of BUS 377E
To US 380
Denton County, Texas
CSJ: 0081-06-040



LEGEND

- Existing ROW
- Proposed Easement
- Proposed ROW
- Pavement
- Proposed Retaining Wall
- Existing Culvert
- Proposed Culvert
- Proposed Riprap
- █ Stream (No Impact)
- █ Stream (Permanent Impact)
- █ Stream (Temporary Impact)
- █ Floodplain Area
- Flow Direction

Basemap Source: TNRIS (2018)

Attachment 3 - Site Photographs



Photograph 1: View looking east toward Crossing 1 - tributary to Pecan Creek (US 377 northbound side).



Photograph 2: View looking west toward Crossing 1 - tributary to Pecan Creek (US 377 northbound side).



Photograph 3: View looking east toward Crossing 2 - tributary to Pecan Creek (US 377 northbound side).



Photograph 4: View looking west toward Crossing 2 - tributary to Pecan Creek (US 377 northbound side).



Photograph 5: View looking west toward Crossing 2 - tributary to Pecan Creek (US 377 southbound side).



Photograph 6: View looking north toward Crossing 2 - tributary to Pecan Creek (US 377 southbound side).



Photograph 7: View looking west toward Crossing 3 - tributary to Pecan Creek (US 377 southbound side).



Photograph 8: View looking east toward Crossing 3 - tributary to Pecan Creek (US 377 southbound side).



Photograph 9: View looking north toward Crossing 3 - tributary to Pecan Creek (US 377 northbound side).



Photograph 10: View looking northwest toward Crossing 3 - tributary to Pecan Creek (US 377 northbound side).



Photograph 11: View looking southeast toward Crossing 4 - tributary to Pecan Creek (US 377 southbound side).



Photograph 12: View looking northwest toward Crossing 4 - tributary to Pecan Creek (US 377 southbound side).



Photograph 13: View looking north toward Crossing 4 - tributary to Pecan Creek (US 377 northbound side).



Photograph 14: View looking south toward Crossing 4 - tributary to Pecan Creek (US 377 northbound side).



Photograph 15: View looking northeast toward Crossing 5 - tributary to Pecan Creek (US 377 southbound side).



Photograph 16: View looking west toward Crossing 5 - tributary to Pecan Creek (US 377 northbound side).



Photograph 17: View looking west toward Crossing 5 - tributary to Pecan Creek (US 377 southbound side).



Photograph 18: View looking southeast toward Crossing 5 - tributary to Pecan Creek (US 377 southbound side).



Photograph 19: View looking east toward Crossing 6 – tributary to Pecan Creek (US 377 northbound side).



Photograph 20: View looking west toward Crossing 6 – tributary to Pecan Creek (US 377 northbound side) – stream is heavily vegetated.



Photograph 21: View looking northwest toward Crossing 6 – tributary to Pecan Creek (US 377 southbound side).



Photograph 22: View looking southeast toward Crossing 6 – tributary to Pecan Creek (US 377 southbound side).



Photograph 23: View looking southwest toward Crossing 7 - tributary to Pecan Creek (US 377 northbound side).



Photograph 24: View looking northeast toward Crossing 7 - tributary to Pecan Creek (US 377 northbound side).



Photograph 25: View looking east toward Crossing 8 - tributary to Pecan Creek (US 377 southbound side).



Photograph 26: View looking north toward Crossing 8 - tributary to Pecan Creek (US 377 southbound side).



Photograph 27: View looking west toward Crossing 8 - tributary to Pecan Creek (US 377 northbound side).



Photograph 28: View looking southeast toward Crossing 8 - tributary to Pecan Creek (US 377 northbound side).



Photograph 29: View looking northwest toward Crossing 9 – tributary to Pecan Creek (US 377 southbound side)



Photograph 30: View looking southeast toward Crossing 9 – tributary to Pecan Creek (US 377 southbound side).



Photograph 31: View looking northeast toward Crossing 10 - tributary to Pecan Creek (US 377 southbound side).



Photograph 32: View looking southwest toward Crossing 10 - tributary to Pecan Creek (US 377 southbound side).



Photograph 33: View looking southwest toward Crossing 10 - tributary to Pecan Creek (US 377 northbound side).



Photograph 34: View looking northeast toward Crossing 10 - tributary to Pecan Creek (US 377 northbound side).



Photograph 35: View looking southeast toward Crossing 11 – tributary to Pecan Creek (US 377 southbound side).



Photograph 36: View looking northwest toward Crossing 11 – tributary to Pecan Creek (US 377 southbound side).



Photograph 37: View looking northwest toward Crossing 11 – tributary to Pecan Creek (US 377 northbound side).



Photograph 38: View looking east toward Crossing 11 – tributary to Pecan Creek (US 377 northbound side).



Photograph 39: View looking northwest toward Crossing 12A - tributary to Pecan Creek (US 377 northbound side).



Photograph 40: View looking southeast toward Crossing 12A - tributary to Pecan Creek (US 377 northbound side).



Photograph 41: View looking west toward Crossing 12B – tributary to Pecan Creek (US 377 northbound side).



Photograph 42: View looking west toward Crossing 12B – tributary to Pecan Creek (US 377 northbound side).



Photograph 43: View looking east toward Crossing 13 - Running Branch (US 377 southbound side).



Photograph 44: View looking west toward Crossing 13 - Running Branch (US 377 southbound side).



Photograph 45: View looking west toward Crossing 13 – Running Branch (US 377 northbound side).



Photograph 46: View looking east toward Crossing 13 – Running Branch (US 377 northbound side).



Photograph 47: View looking southeast toward Crossing 14 - tributary to Pecan Creek (US 377 southbound side).



Photograph 48: View looking northwest toward Crossing 14 - tributary to Pecan Creek (US 377 southbound side).



Photograph 49: View looking northwest toward Crossing 14 - tributary to Pecan Creek (US 377 northbound side).



Photograph 50: View looking southeast toward Crossing 14 - tributary to Pecan Creek (US 377 northbound side).



Photograph 51: View looking west toward Crossing 15 - tributary to Cantrell Slough (US 377 northbound side).



Photograph 52: View looking east toward Crossing 15 - tributary to Cantrell Slough (US 377 northbound side).



Photograph 53: View looking north toward Crossing 16 – tributary to Cantrell Slough (US 377 southbound side).



Photograph 54: View looking west toward Crossing 16 – tributary to Cantrell Slough (US 377 southbound side).



Photograph 55: View looking west toward Crossing 16 - tributary to Cantrell Slough (US 377 northbound side).



Photograph 56: View looking east toward Crossing 16 - tributary to Cantrell Slough (US 377 northbound side).



Photograph 57: View looking northwest toward Crossing 17 - tributary to Cantrell Slough (US 377 northbound side).



Photograph 58: View looking southeast toward Crossing 17 - tributary to Cantrell Slough (US 377 northbound side).



Photograph 59: View looking north toward Crossing 18 – tributary to Cantrell Slough (US 377 northbound side).



Photograph 60: View looking south toward Crossing 18 – tributary to Cantrell Slough (US 377 northbound side).

Attachment 4 – Stream Data Forms

Stream Data Form #: 1 (Crossing 1)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: Unnamed tributary to Pecan Creek
USGS Topo Quad Name: Pilot Point, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.41548 N -96.93968 W

Stream Type: Ephemeral Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):

Natural
Stable

Stream Flow Direction: E
OHWM Width (ft): 10

OHWM Height (in): 12

Stream Bottom composition:

Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Herbaceous Percent Cover: 30%

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Crawfish, frogs

Riparian Vegetation: List species observed.

Black Willow (*Salix nigra*), Sugar-Berry (*Celtis laevigata*), Perennial Rye-Grass (*Lolium perenne*), Great Ragweed (*Ambrosia trifida*), Field Brome (*Bromus arvensis*), Canada Goldenrod (*Solidago canadensis*), Curly Dock (*Rumex crispus*), Poison Ivy (*Toxicodendron radicans*)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

None.

Stream Data Form #: 1
 Project Name: US 377
 CSJ: 0081-06-040

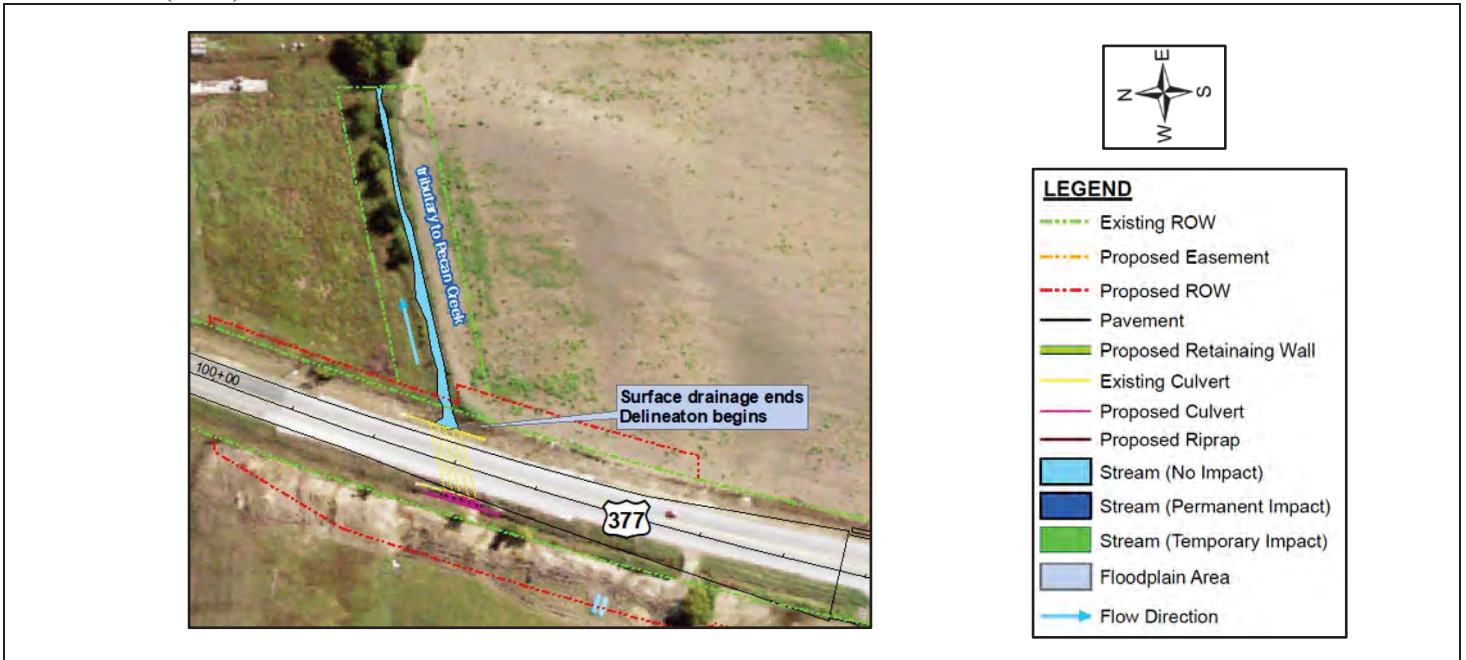
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

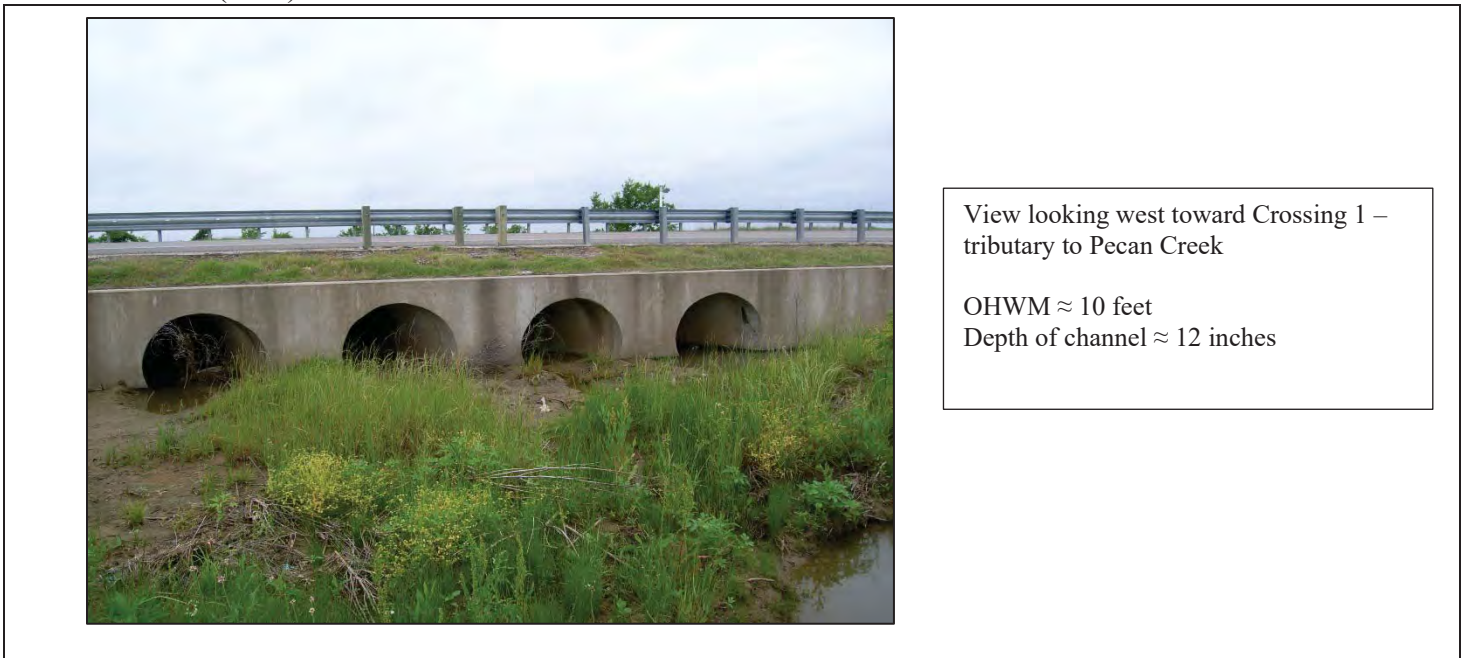
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 2 (Crossing 2)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: Unnamed tributary to Pecan Creek
USGS Topo Quad Name: Pilot Point, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.40346 N -96.94346 W

Stream Type: Intermittent Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: SE
OHWM Width (ft): 8

Natural
Stable
OHWM Height (in): 12

Stream Bottom composition:

Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Herbaceous Percent Cover: 50%

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
None observed.

Riparian Vegetation: List species observed.

Black Willow (*Salix nigra*), Sugar-Berry (*Celtis laevigata*), Perennial Rye Grass (*Lolium perenne*), Johnson Grass (*Sorghum halepense*), Curly Dock (*Rumex crispus*), Japanese Honeysuckle (*Lonicera japonica*)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

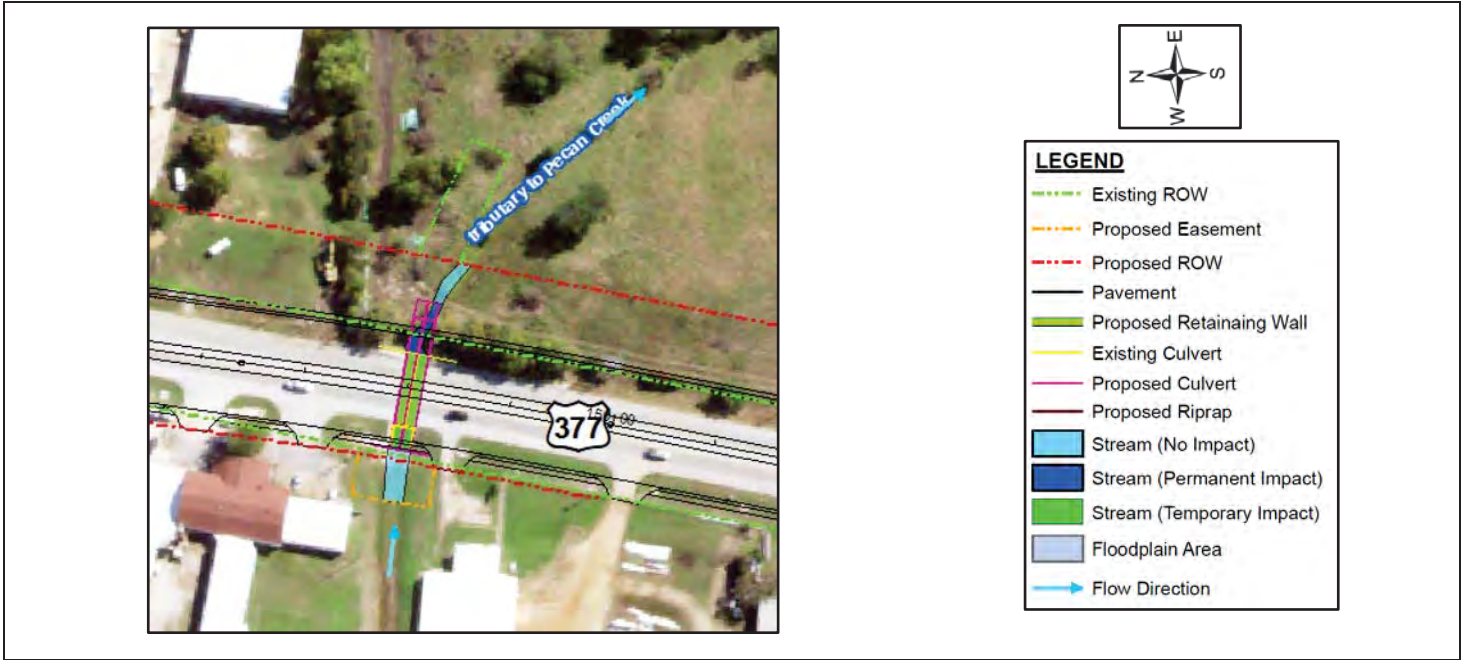
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

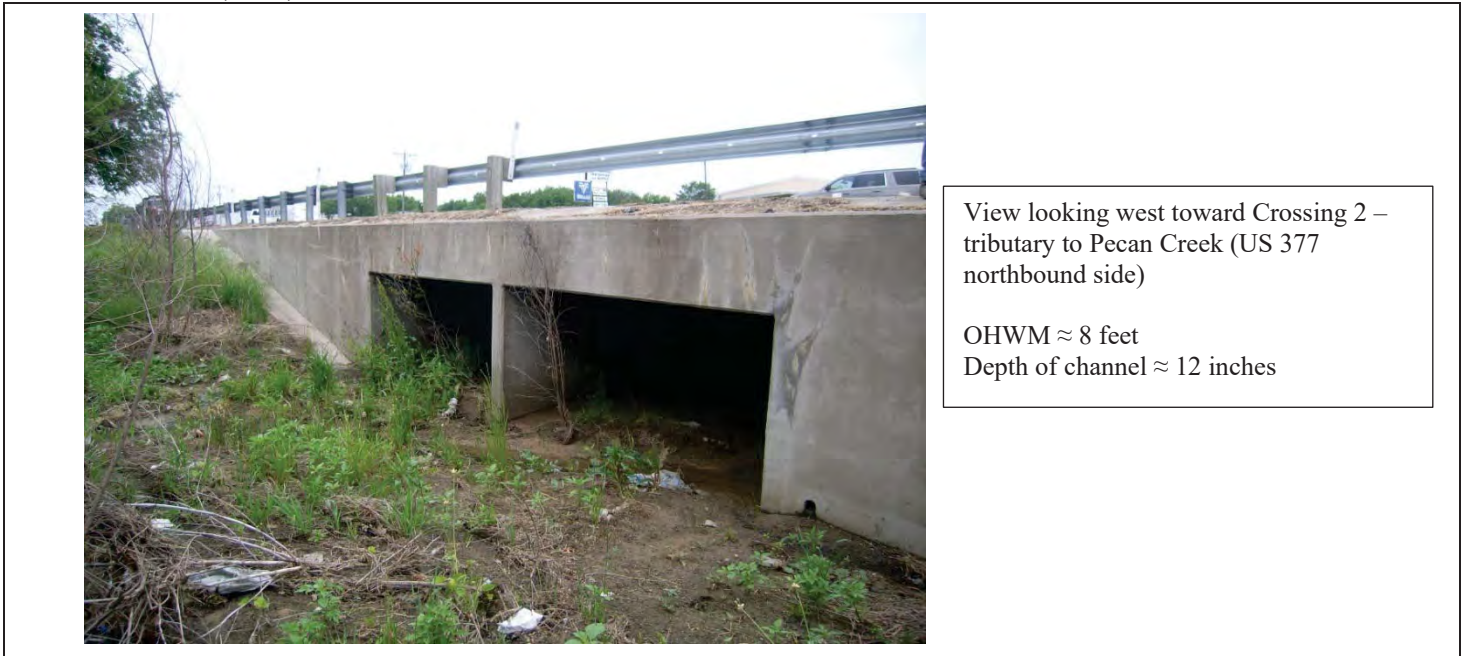
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 3 (Crossing 3)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: Unnamed tributary to Pecan Creek
USGS Topo Quad Name: Pilot Point, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.40003 N -96.94446 W

Stream Type: Intermittent Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: E
OHWM Width (ft): 8

Natural
Slightly eroding
OHWM Height (in): 24

Stream Bottom composition:
 Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Herbaceous Percent Cover: 50%

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.
 Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:
 Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:
 Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Minnows

Riparian Vegetation: List species observed.
American Elm (*Ulmus americana*), Black Willow (*Salix nigra*), Perennial Rye Grass (*Lolium perenne*), Southern Cat-Tail (*Typha domingensis*), Canadian Goldenrod (*Solidago canadensis*)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

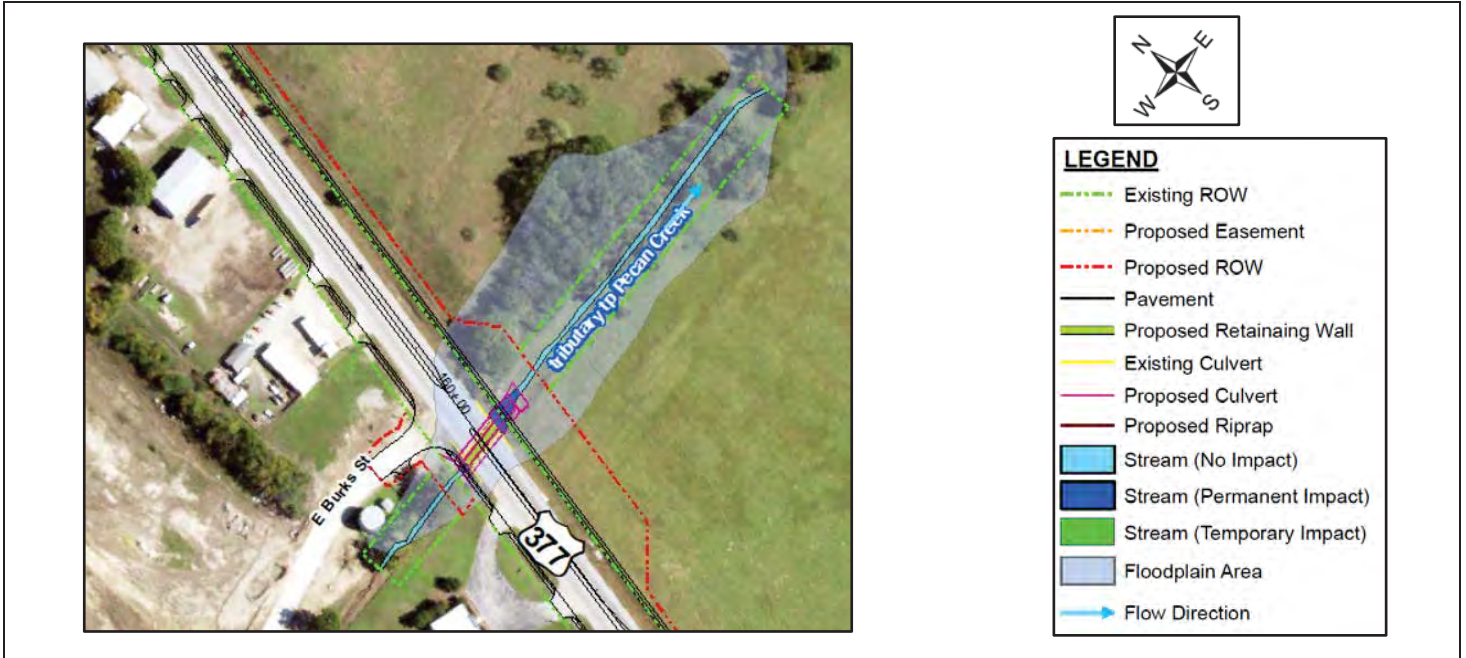
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

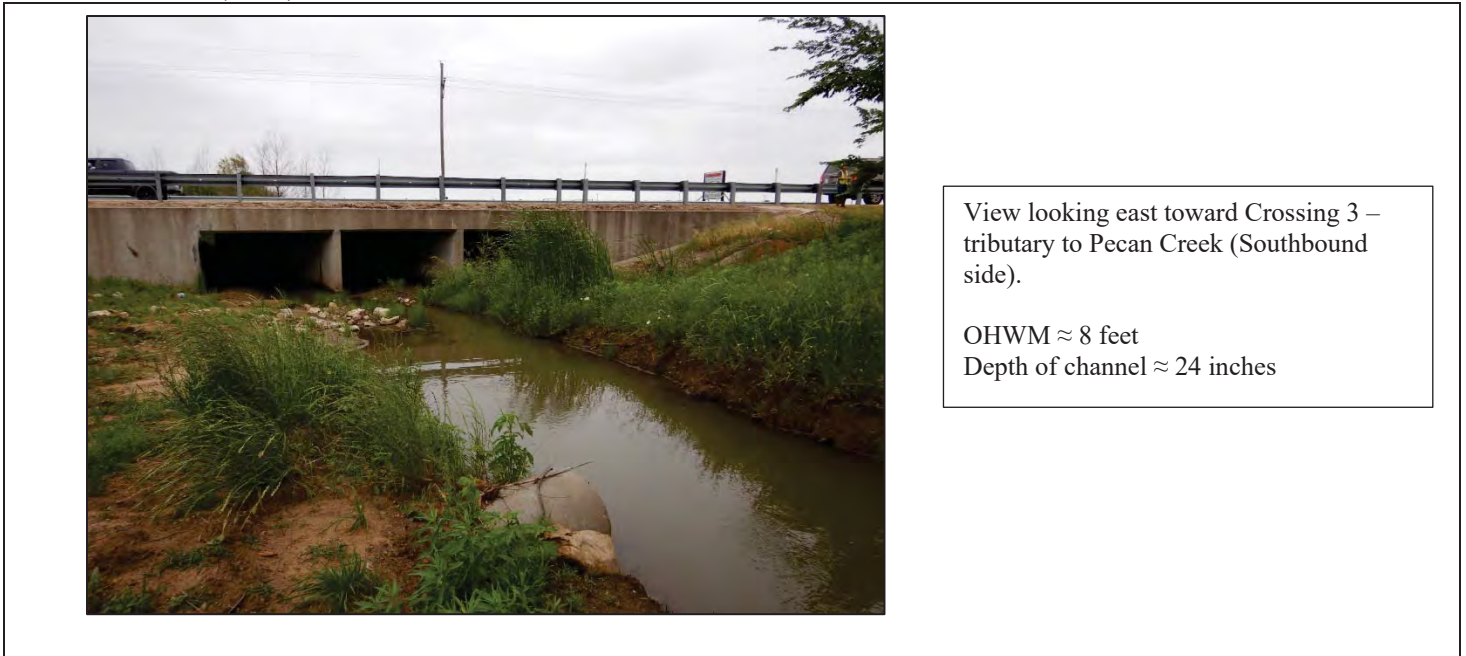
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 4 (Crossing 4)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: Unnamed tributary to Pecan Creek
USGS Topo Quad Name: Pilot Point, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.38410 N -96.95835 W

Stream Type: Ephemeral Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: SE
OHWM Width (ft): 6

Natural
Slightly eroding
OHWM Height (in): 6

Stream Bottom composition:

Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Herbaceous Percent Cover: 50%

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
None observed.

Riparian Vegetation: List species observed.

American Elm (*Ulmus americana*), Black Willow (*Salix nigra*), Southern Cat-Tail (*Typha domingensis*), Great Ragweed (*Ambrosia trifida*)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

None.

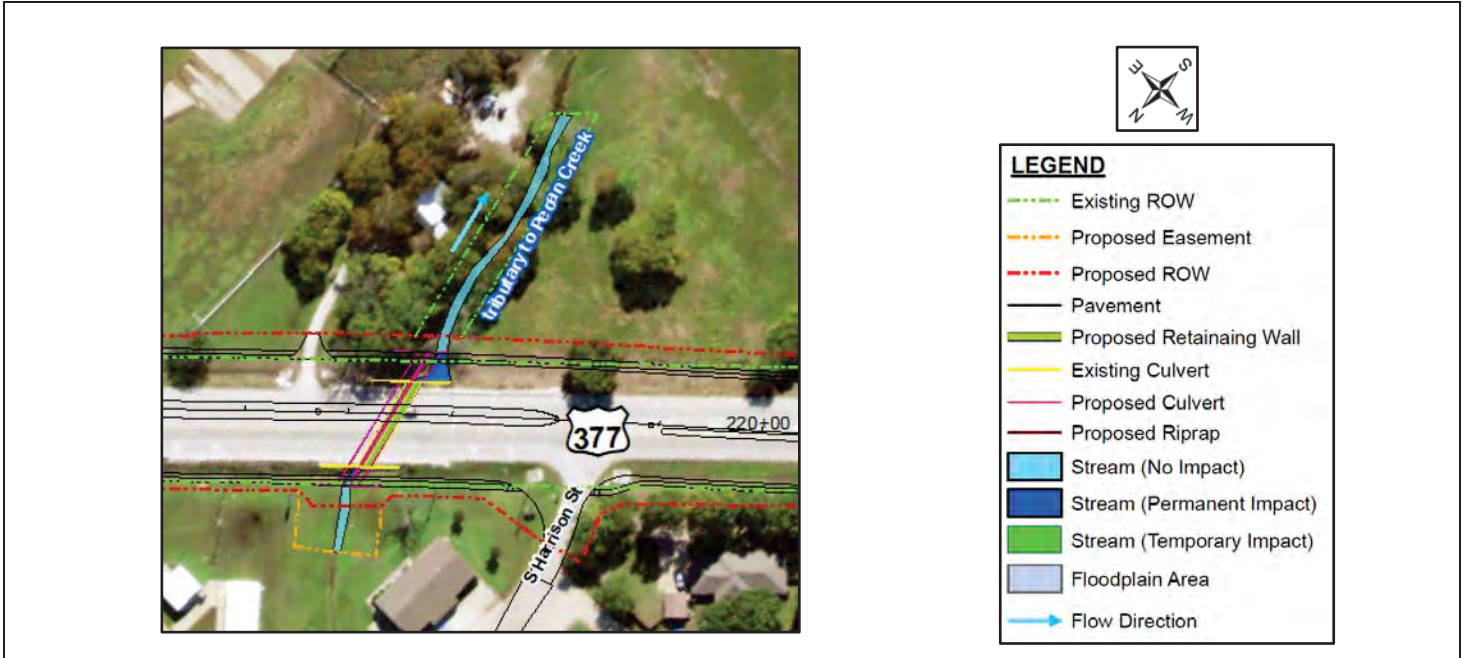
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 5 (Crossing 5)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: Unnamed tributary to Pecan Creek
USGS Topo Quad Name: Pilot Point, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.37500 N -96.96306 W

Stream Type: Ephemeral Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: E
OHWM Width (ft): 5

Natural
Slightly eroding
OHWM Height (in): 6

Stream Bottom composition:

Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Herbaceous Percent Cover: 60%

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
None observed.

Riparian Vegetation: List species observed.
None within ROW.

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

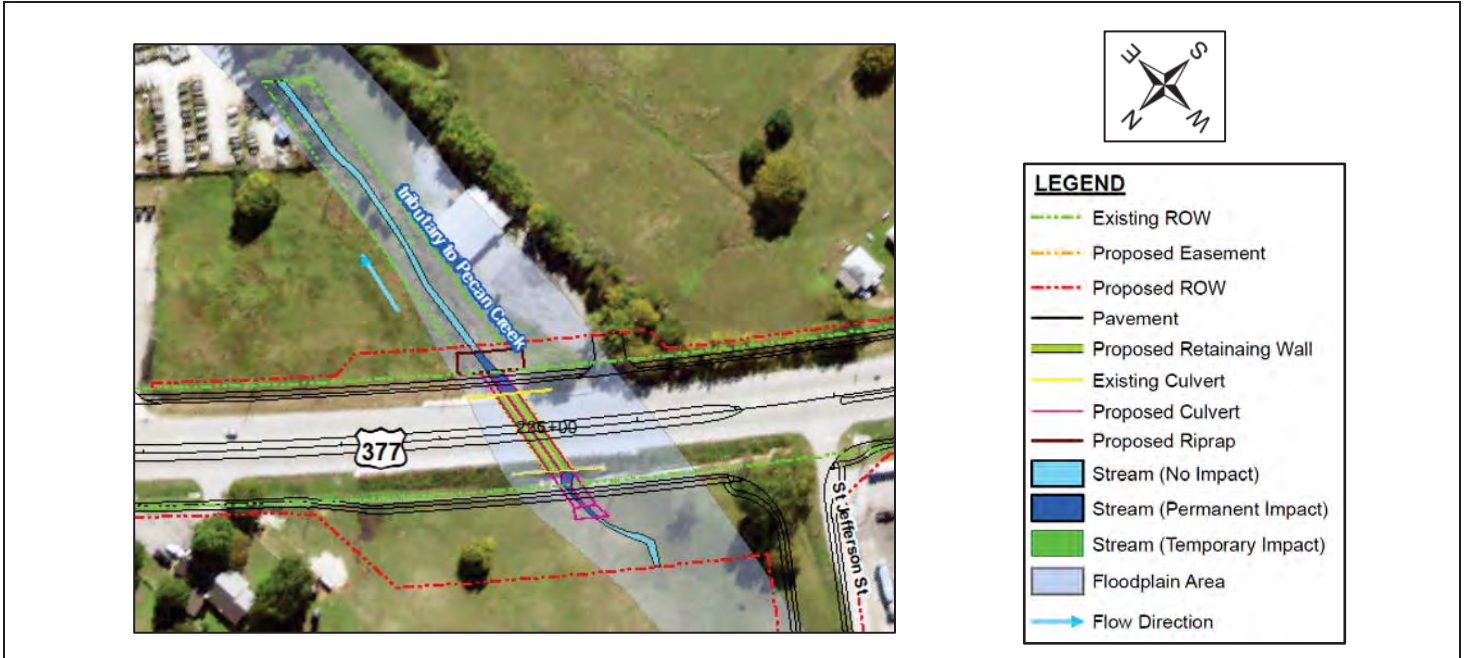
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

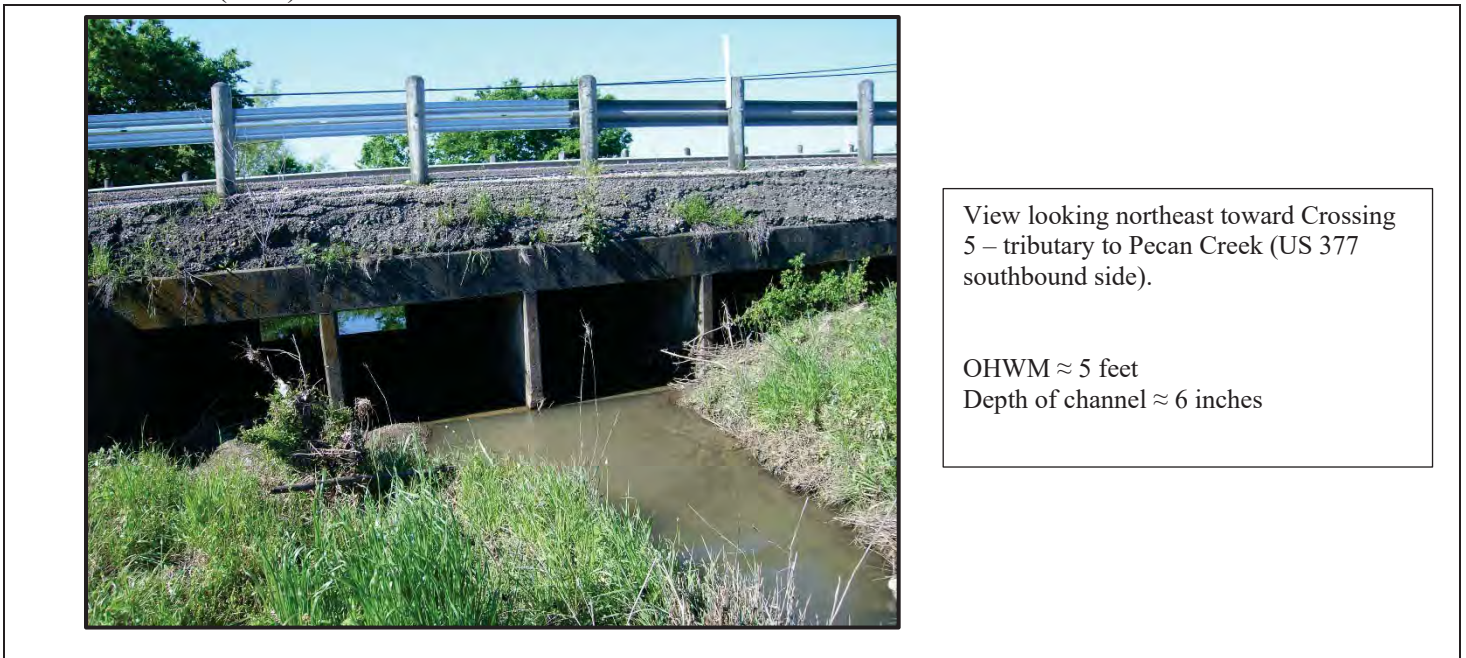
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 6 (Crossing 6)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: Unnamed tributary to Pecan Creek
USGS Topo Quad Name: Aubrey, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.37500 N -96.96306 W

Stream Type: Ephemeral Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: E
OHWM Width (ft): 6

Natural
Slightly eroding
OHWM Height (in): 6

Stream Bottom composition:
 Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Percent Cover: _____

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

- Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

- Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
None observed.

Riparian Vegetation: List species observed.

American Elm (*Ulmus americana*), Southern Red Oak (*Quercus falcata*), Perennial Rye Grass (*Lolium perenne*), Johnson Grass (*Sorghum halepense*), Great Ragweed (*Ambrosia trifida*), Bermuda Grass (*Cynodon dactylon*)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

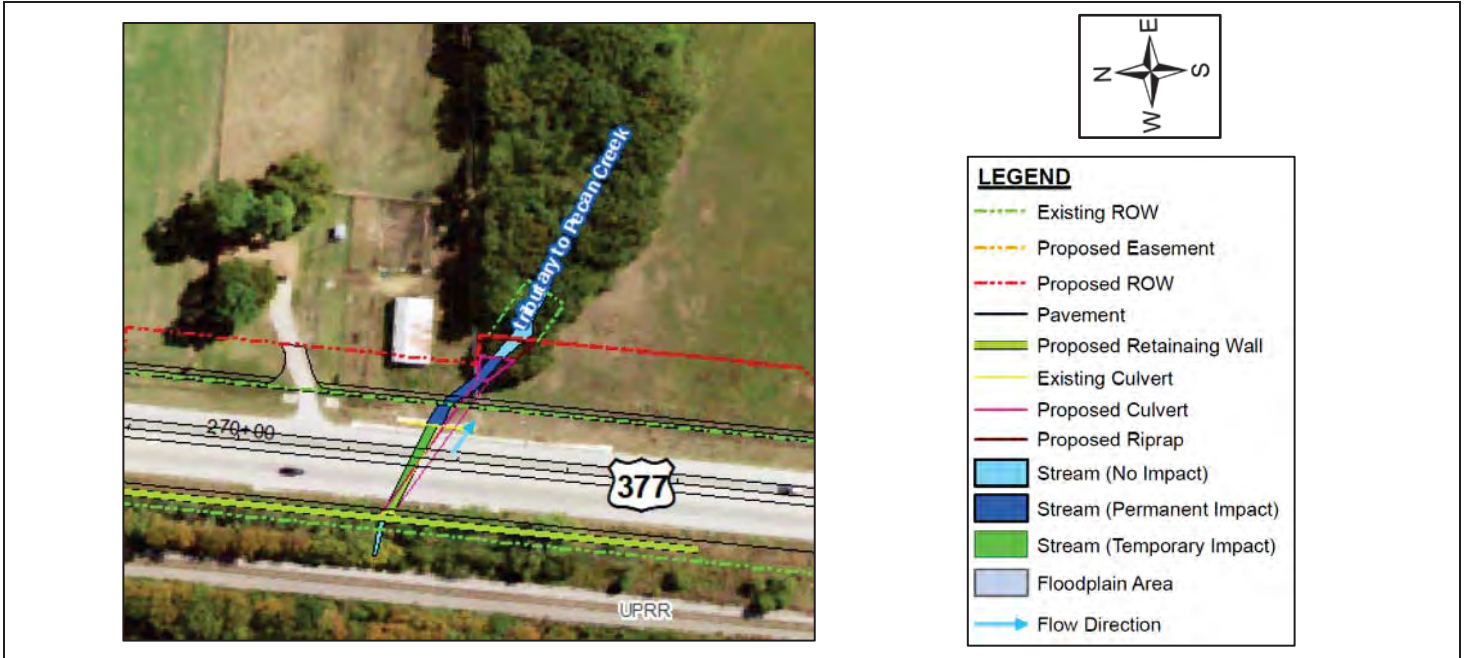
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

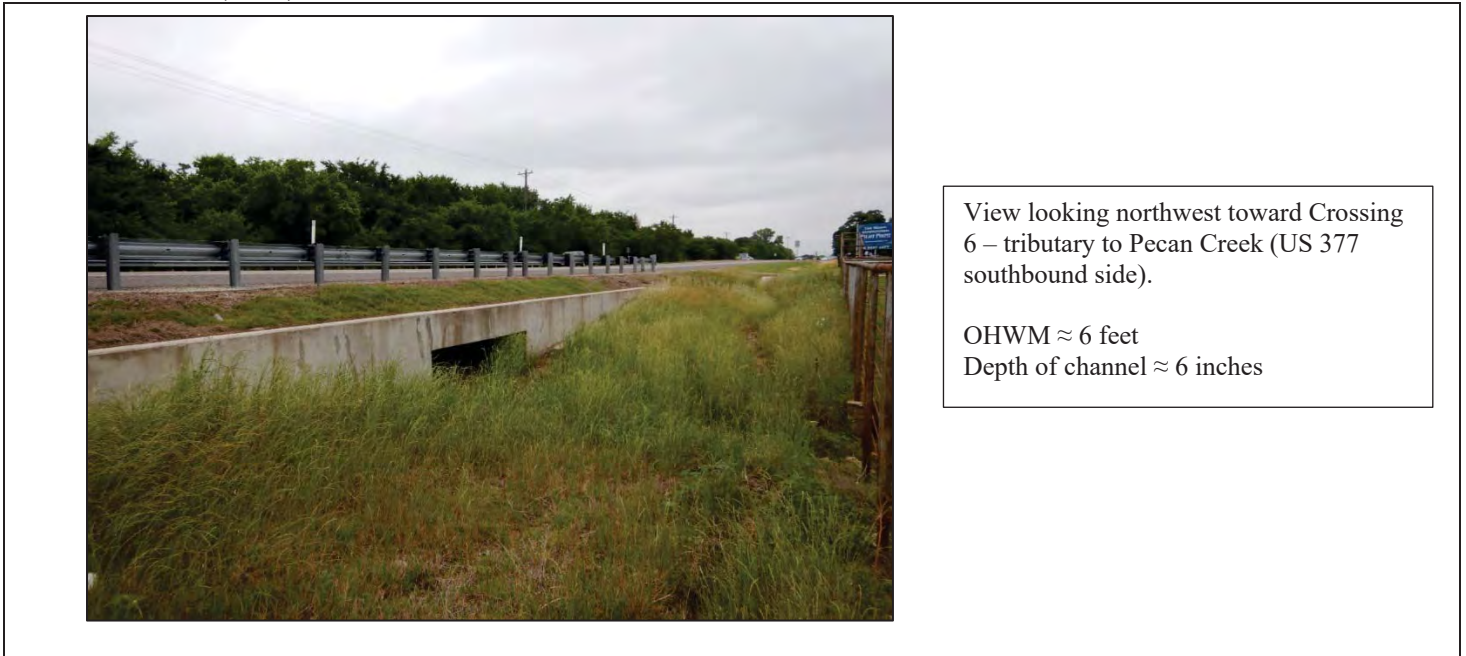
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 7 (Crossing 7)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: Unnamed tributary to Pecan Creek
USGS Topo Quad Name: Aubrey, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.36532 N -96.96473 W

Stream Type: Ephemeral Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):

Natural
Slightly eroding

Stream Flow Direction: NE
OHWM Width (ft): 4

OHWM Height (in): 6

Stream Bottom composition:

Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Herbaceous Percent Cover: 20%

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Frogs

Riparian Vegetation: List species observed.

American Elm (*Ulmus americana*), Sugar-Berry (*Celtis laevigata*), Perennial Rye Grass (*Lolium perenne*), Bermuda Grass (*Cynodon dactylon*)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

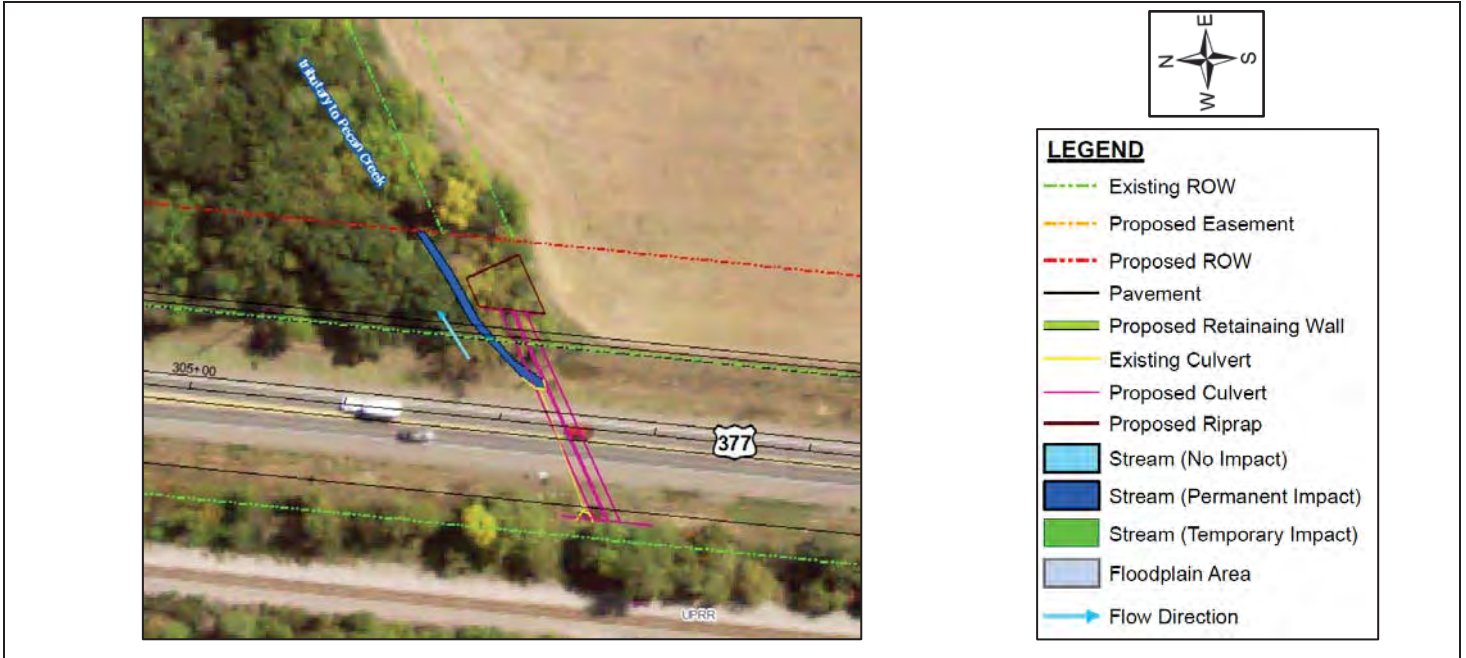
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

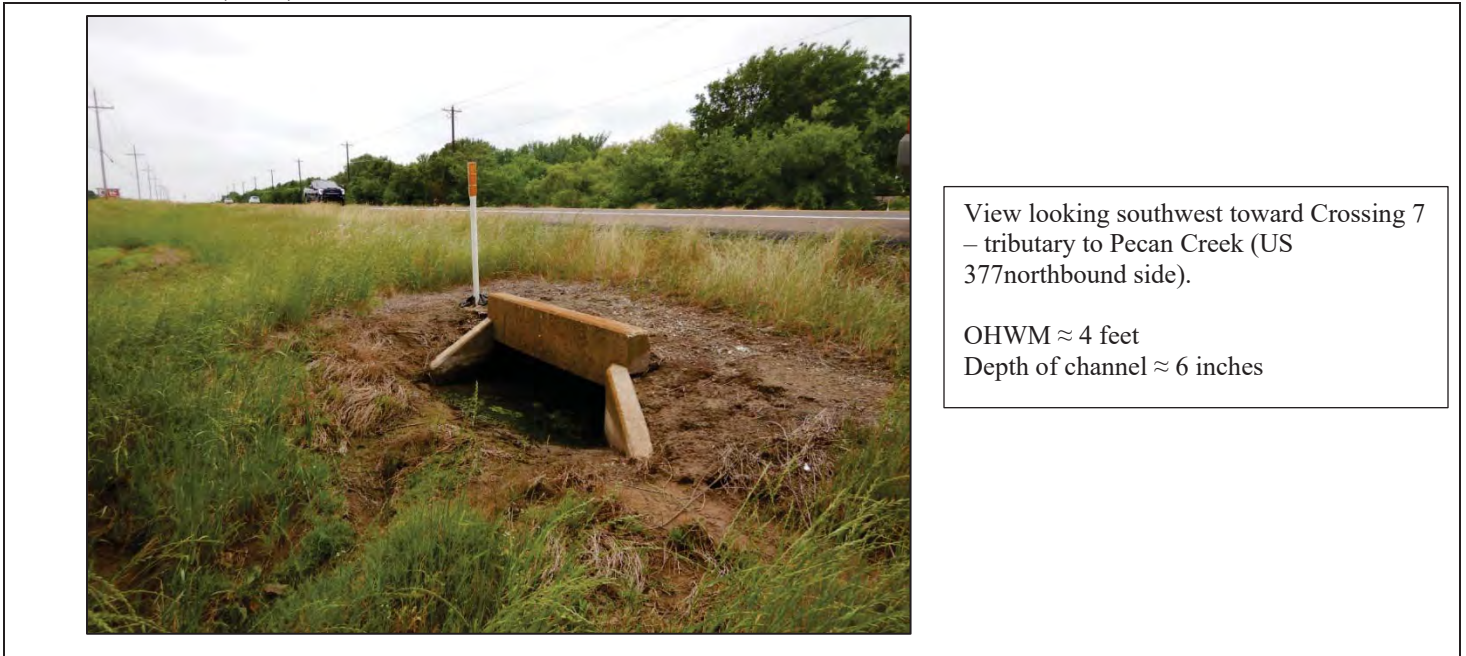
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 8 (Crossing 8)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: Unnamed tributary to Pecan Creek
USGS Topo Quad Name: Aubrey, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.34574 N -96.96832 W

Stream Type: Intermittent Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: SE
OHWM Width (ft): 5

Natural
Slightly eroding
OHWM Height (in): 6

Stream Bottom composition:
 Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Percent Cover: _____

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

- Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

- Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Frogs

Riparian Vegetation: List species observed.
None.

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

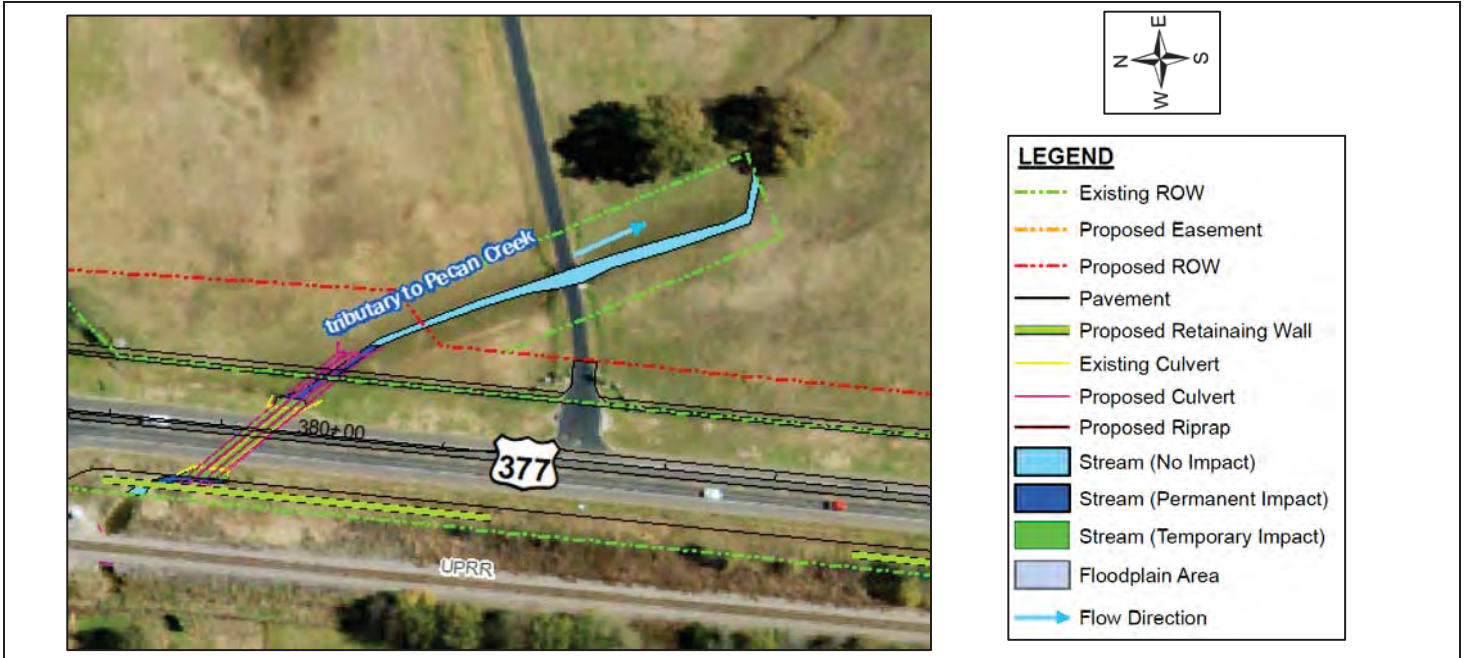
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

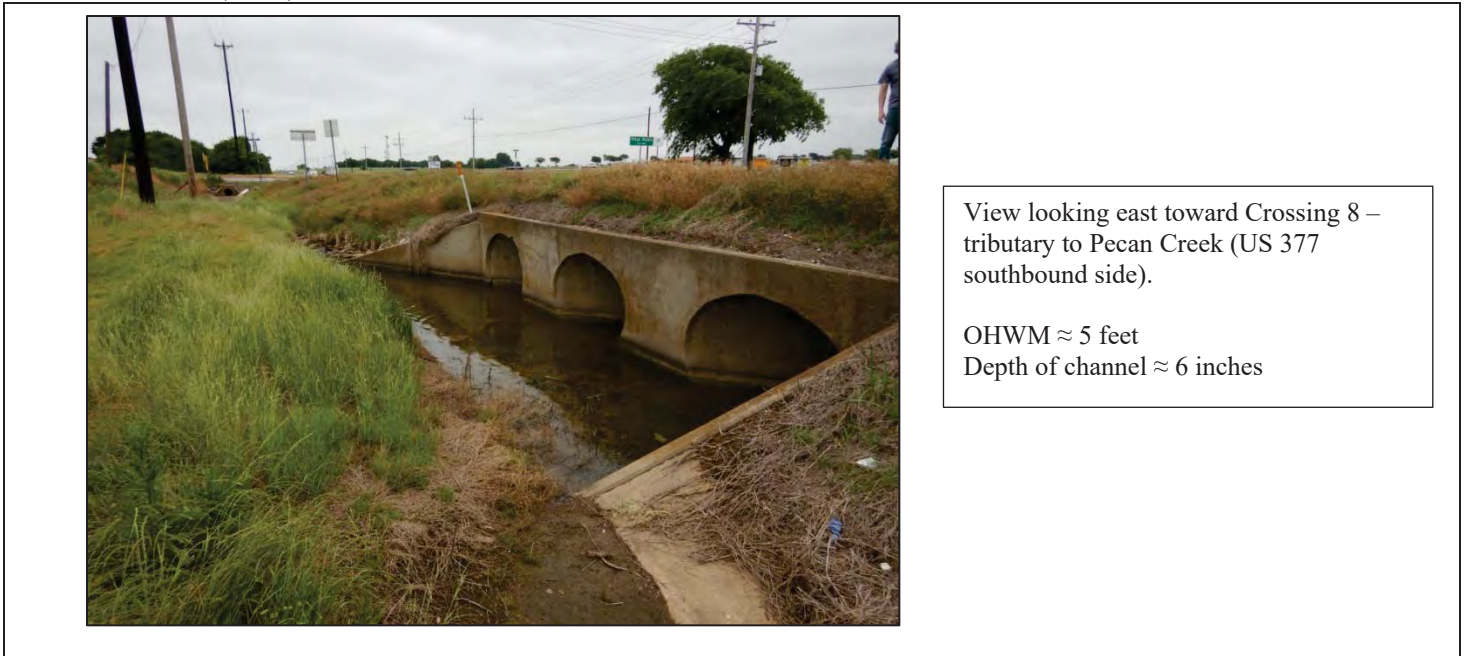
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 9 (Crossing 9)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: Unnamed tributary to Pecan Creek
USGS Topo Quad Name: Aubrey, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.32492 N -96.97088 W

Stream Type: Ephemeral Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: SE
OHWM Width (ft): 3

Natural
Stable
OHWM Height (in): 6

Stream Bottom composition:
 Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Herbaceous Percent Cover: 20%

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

- Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

- Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) Dry

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
None observed.

Riparian Vegetation: List species observed.

Black Willow (*Salix nigra*), Sugar-Berry (*Celtis laevigata*), Perennial Rye Grass (*Lolium perenne*), Johnson Grass (*Sorghum halepense*)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

None.

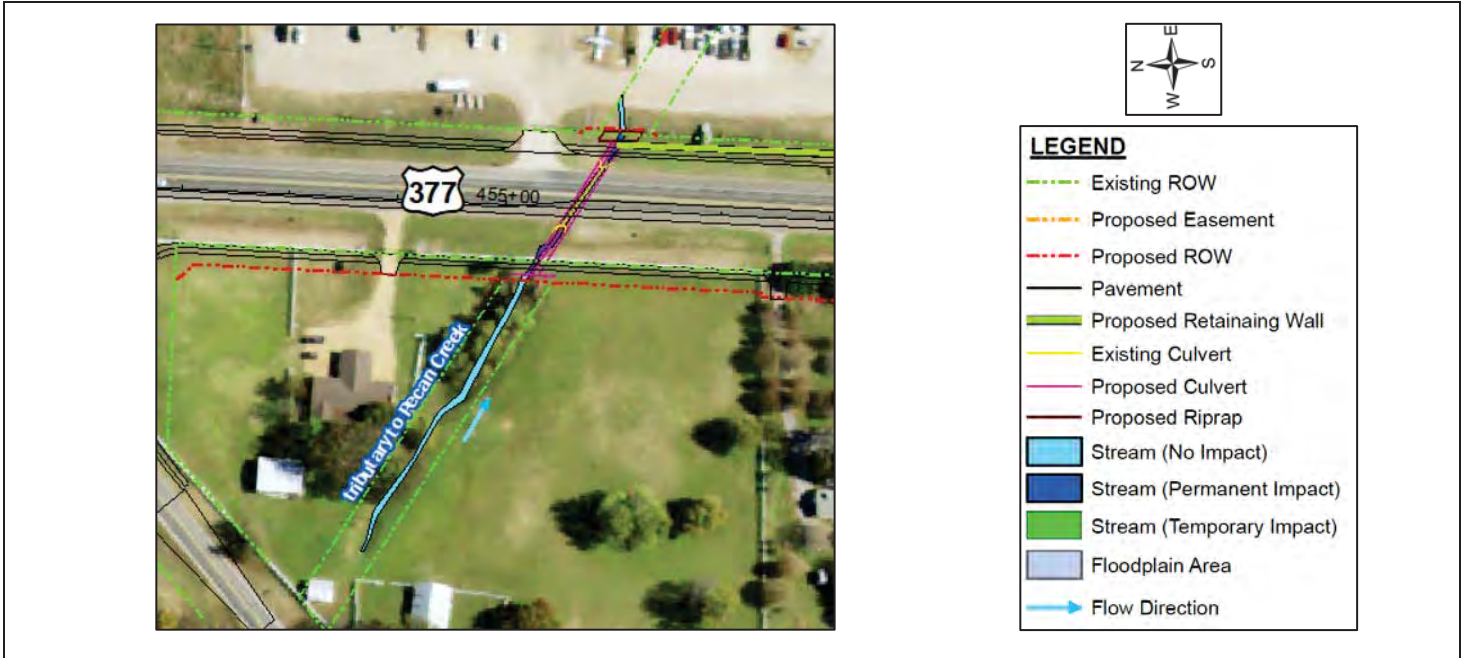
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

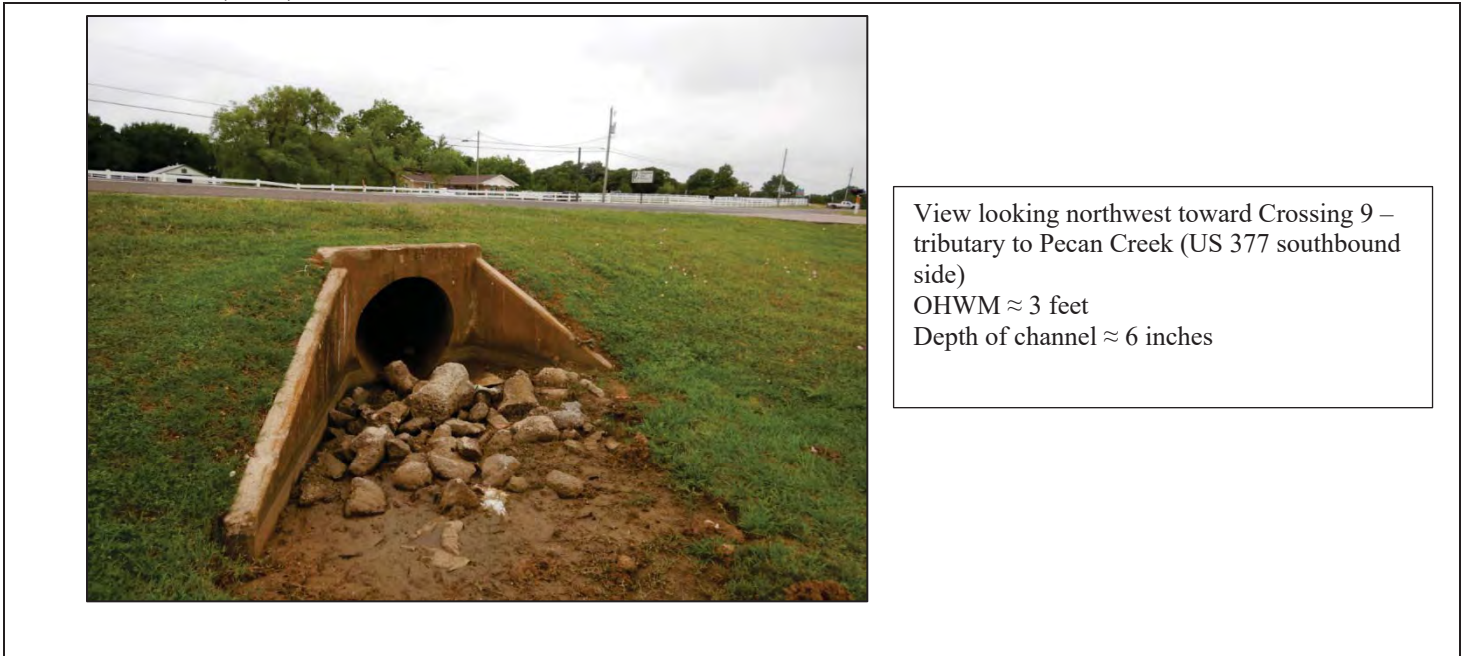
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 10 (Crossing 10)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: Unnamed tributary to Pecan Creek
USGS Topo Quad Name: Aubrey, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.32110 N -96.97118 W

Stream Type: Ephemeral Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: NE
OHWM Width (ft): 6

Natural
Stable
OHWM Height (in): 6

Stream Bottom composition:

Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Herbaceous Percent Cover: 30%

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Frogs.

Riparian Vegetation: List species observed.
None within ROW.

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

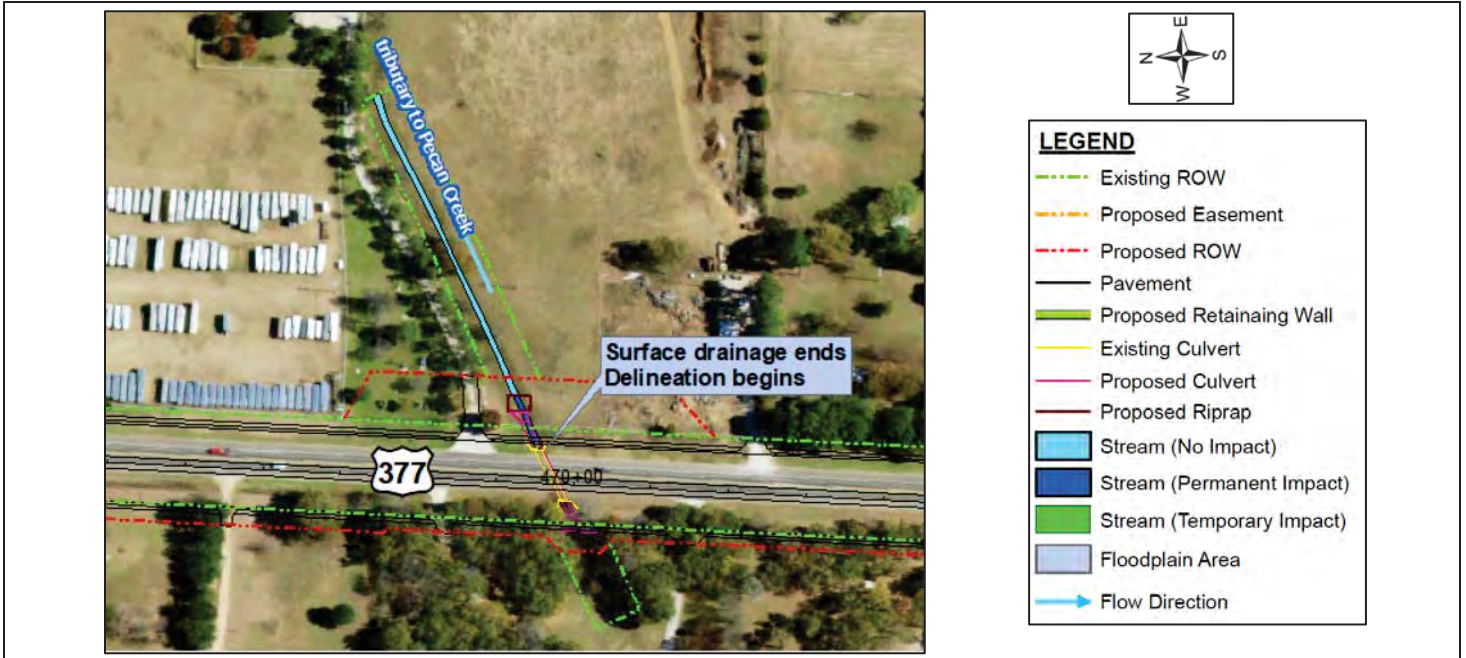
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

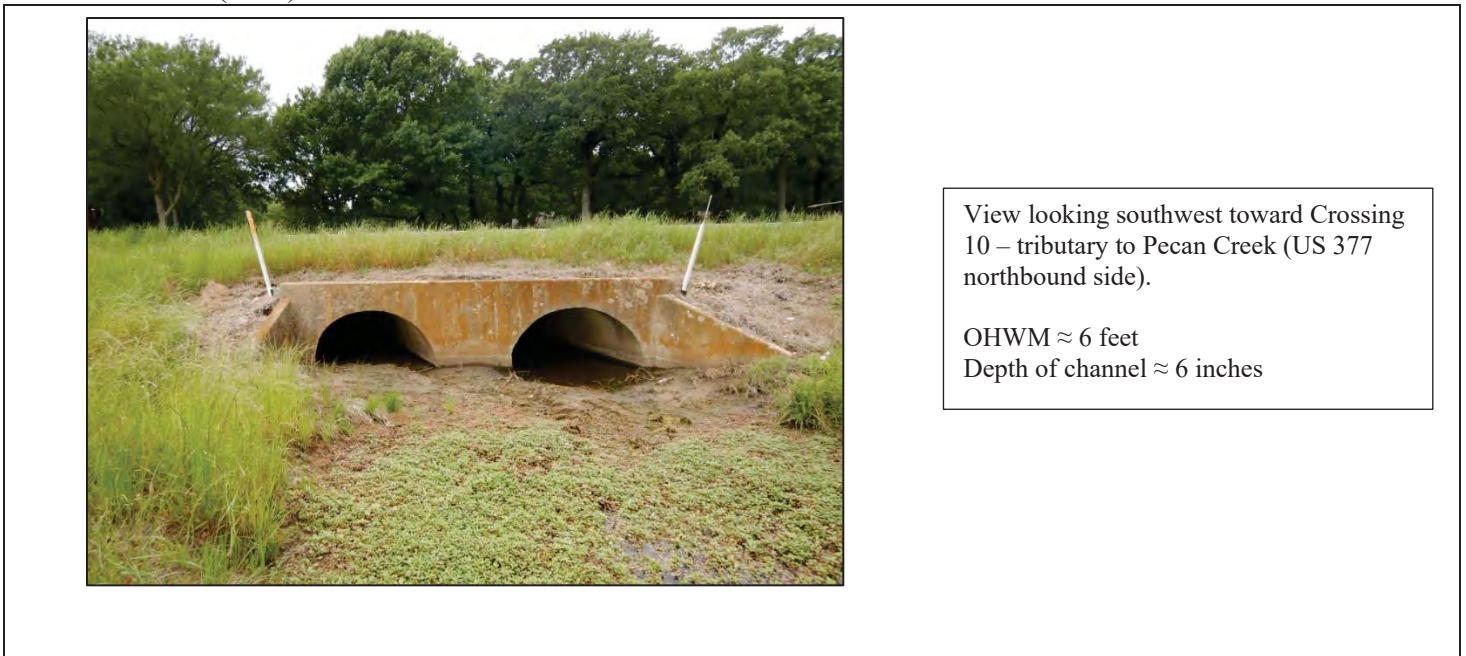
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 11 (Crossing 11)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: Unnamed tributary to Pecan Creek
USGS Topo Quad Name: Aubrey, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.30986 N -96.97615 W

Stream Type: Intermittent Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):

Natural
Slightly eroding

Stream Flow Direction: NE
OHWM Width (ft): 6

OHWM Height (in): 12

Stream Bottom composition:

Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Herbaceous Percent Cover: 50%

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Frogs.

Riparian Vegetation: List species observed.

American Elm (*Ulmus americana*), Black Willow (*Salix nigra*), Eastern Red-Cedar (*Juniperus virginiana*), Cedar Elm (*Ulmus crassifolia*), Perennial Rye Grass (*Lolium perenne*), American Water-Willow (*Justicia americana*), Poison Ivy (*Toxicodendron radicans*)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

None.

Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

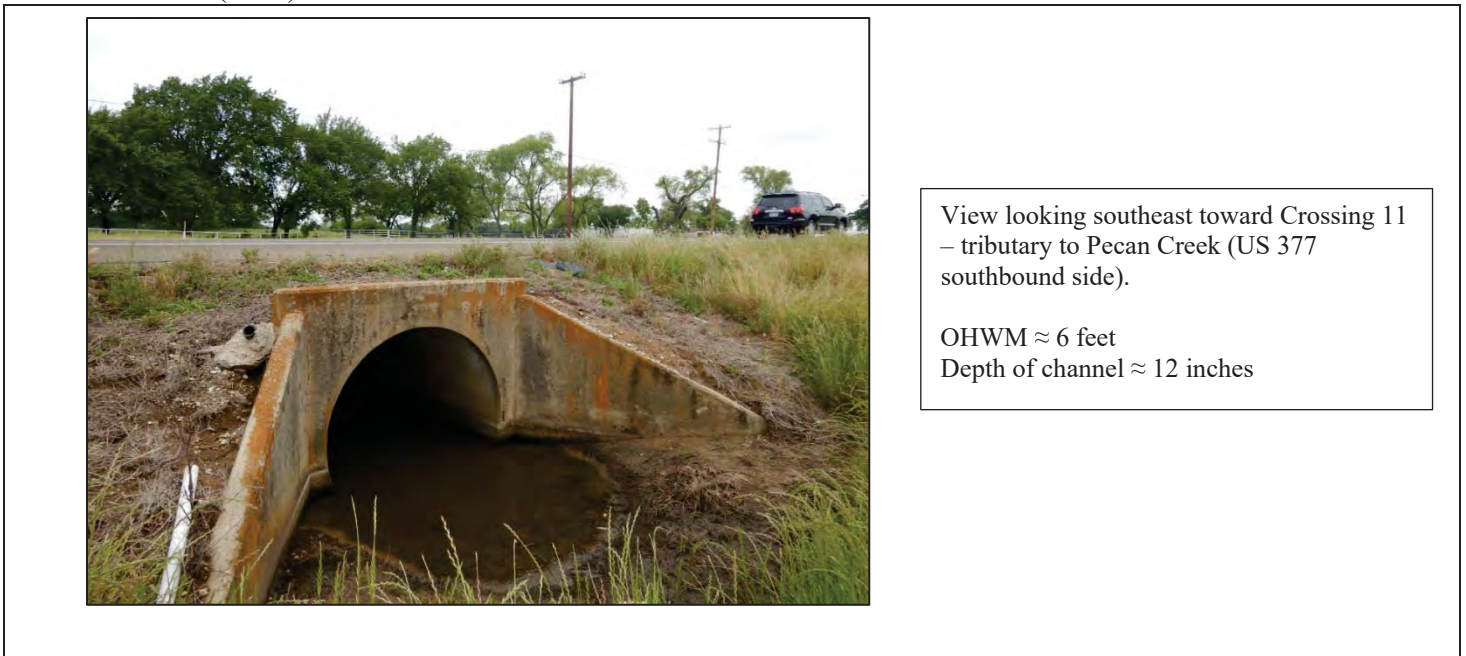
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 12 (Crossing 12A)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: Unnamed tributary to Pecan Creek
USGS Topo Quad Name: Aubrey, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.30233 N -96.98048 W

Stream Type: Ephemeral Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: SE
OHWM Width (ft): 4

Natural
Stable
OHWM Height (in): 12

Stream Bottom composition:
 Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Herbaceous Percent Cover: 30%

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

- Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

- Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Frogs.

Riparian Vegetation: List species observed.
None.

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

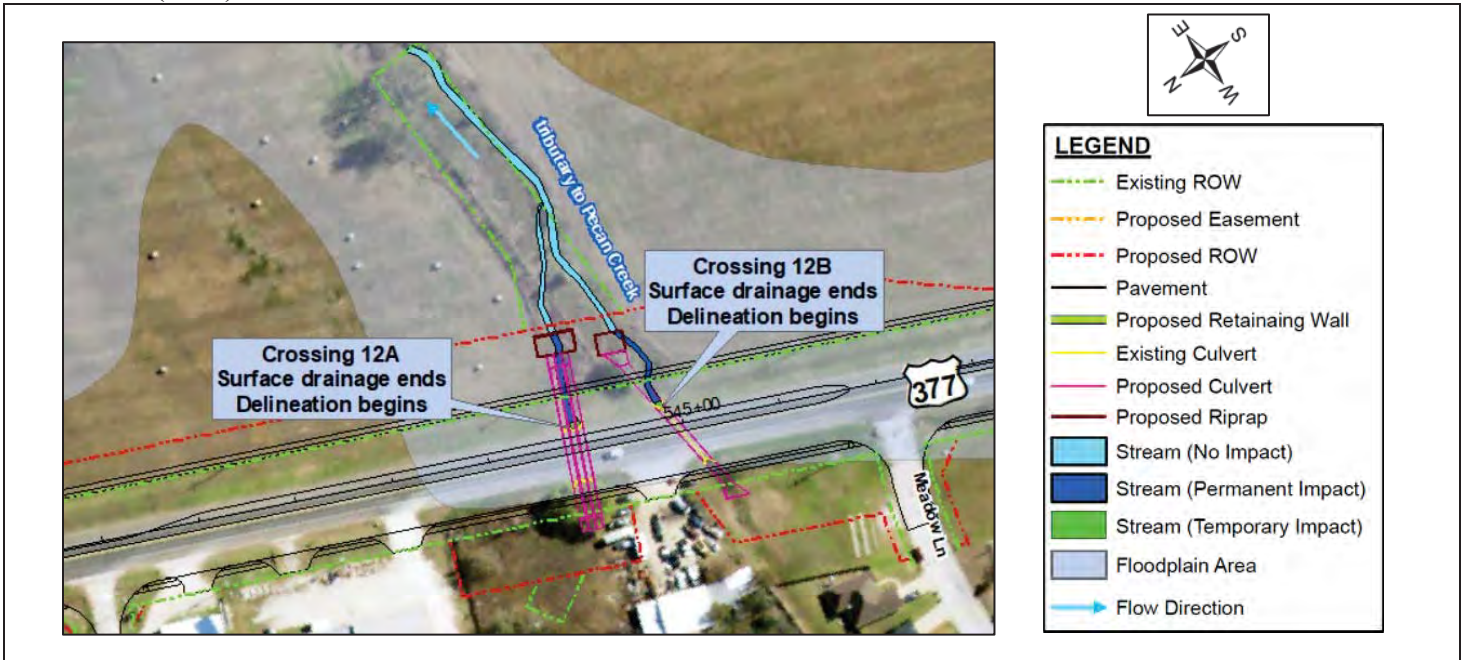
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

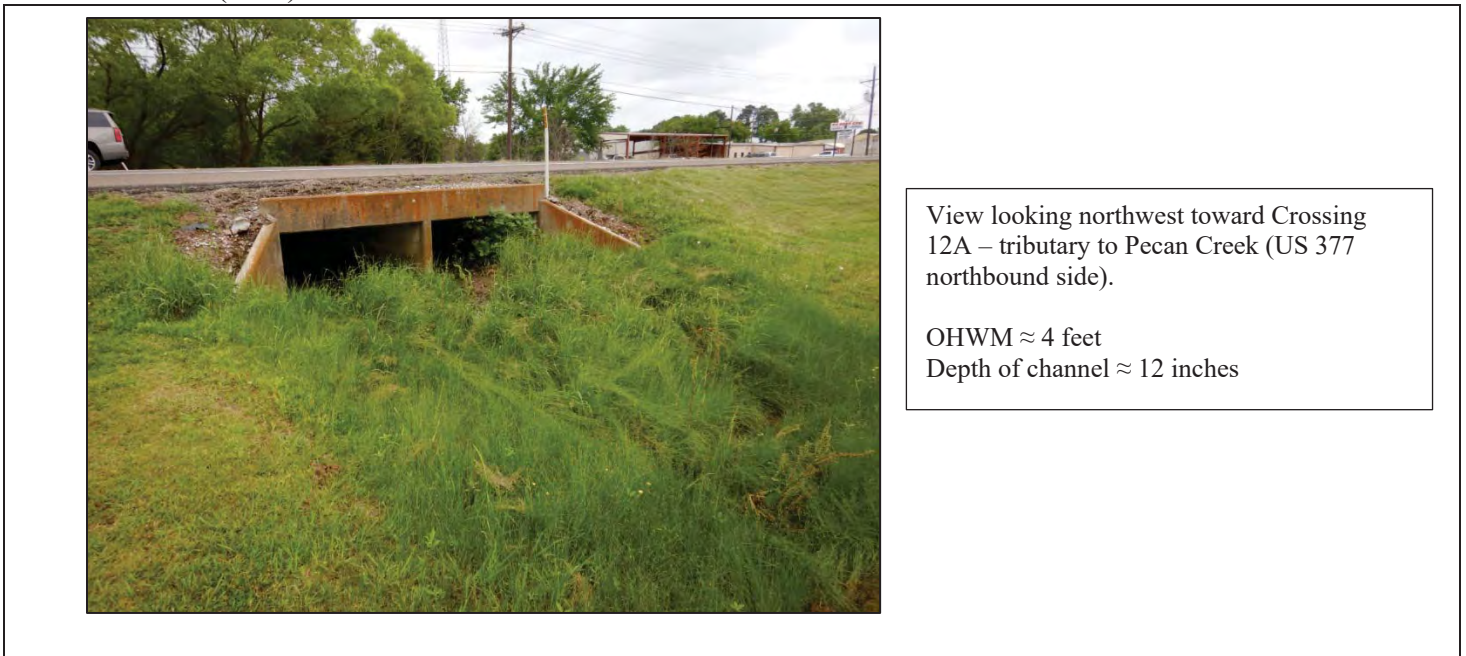
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 13 (Crossing 12B)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: Unnamed tributary to Pecan Creek
USGS Topo Quad Name: Aubrey, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.30211 N -96.98059 W

Stream Type: Ephemeral Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: E
OHWM Width (ft): 4

Natural
Stable
OHWM Height (in): 12

Stream Bottom composition:
 Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Herbaceous Percent Cover: 30%

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

- Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

- Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Frogs.

Riparian Vegetation: List species observed.
None.

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

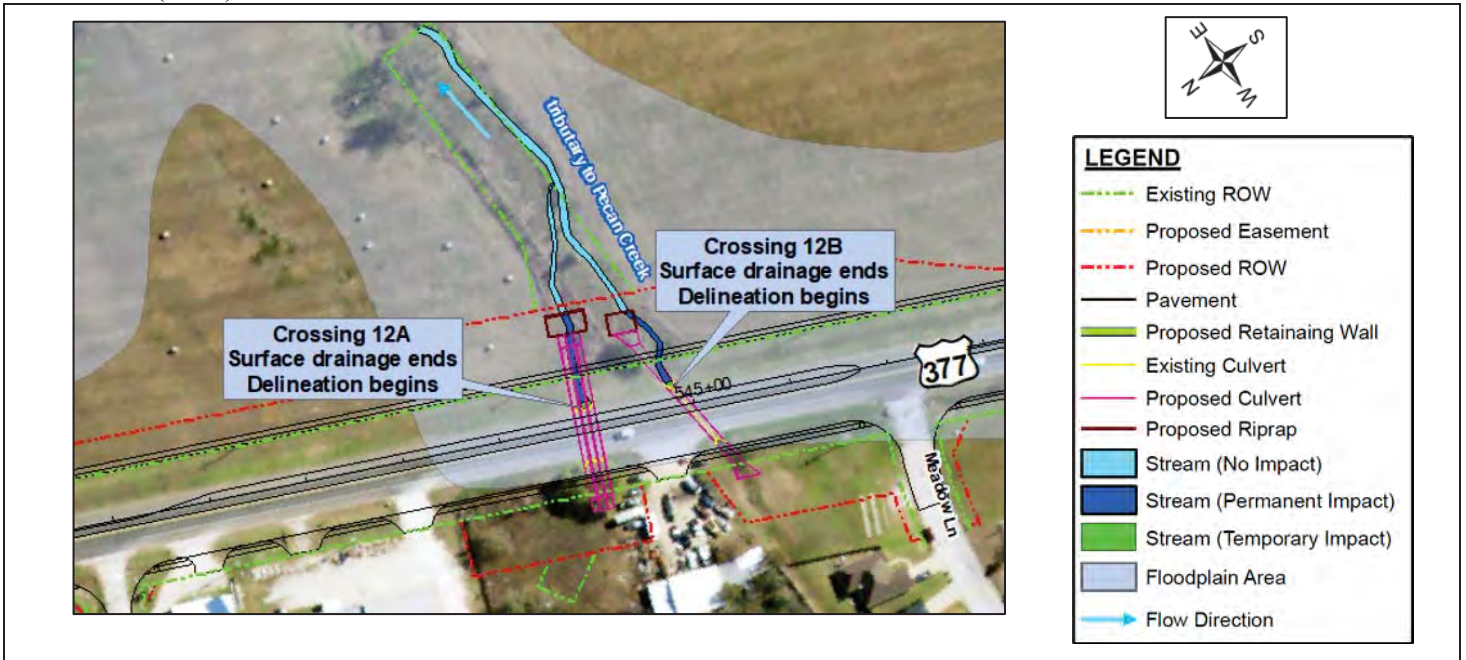
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

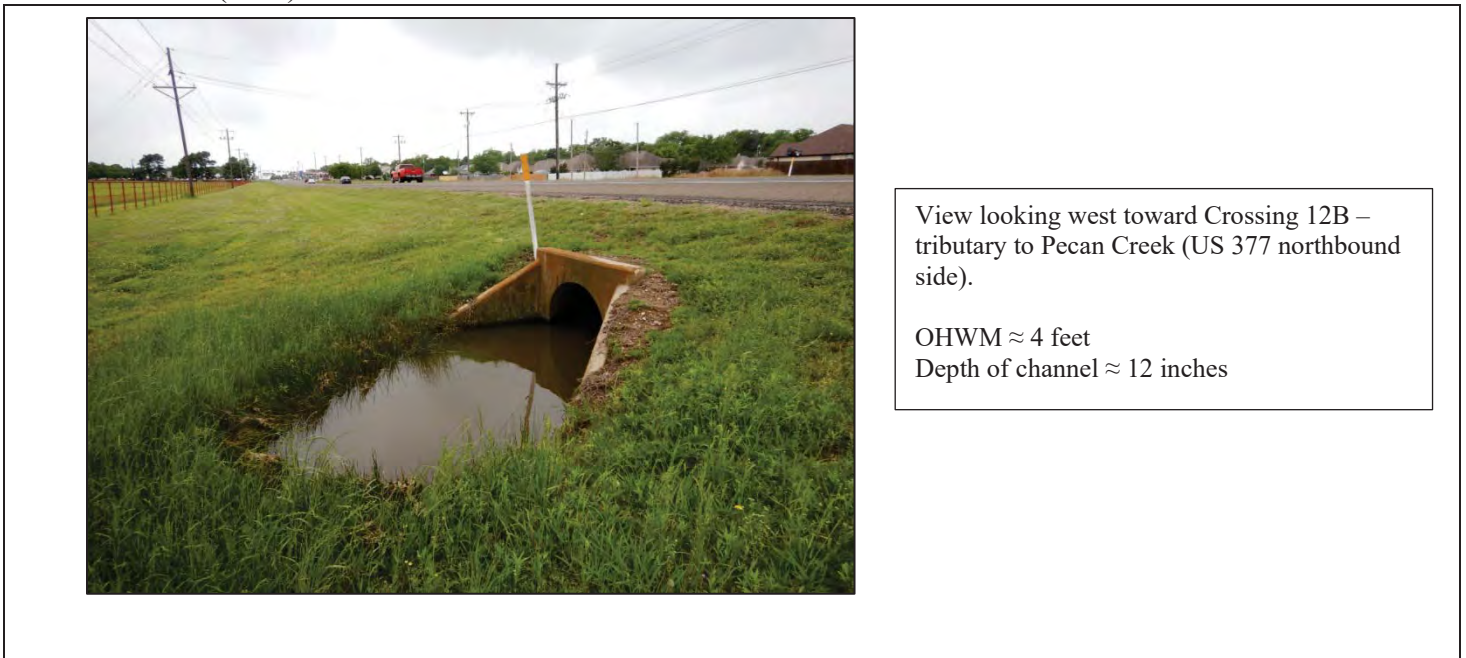
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel;
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 14 (Crossing 13)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: Running Branch
USGS Topo Quad Name: Aubrey, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.29032 N -96.98567 W

Stream Type: Intermittent Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):

Natural
Stable

Stream Flow Direction: E
OHWM Width (ft): 8

OHWM Height (in): 24

Stream Bottom composition:

Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Cover: _____

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Frogs.

Riparian Vegetation: List species observed.

American Elm (*Ulmus americana*), Black Locust (*Robinia pseudoacacia*), Sugar-Berry (*Celtis laevigata*), Canadian goldenrod (*Solidago canadensis*), Southern Cat-Tail (*Typha domingensis*), Great Ragweed (*Ambrosia trifida*), Muscadine (*Vitis rotundifolia*)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

None.

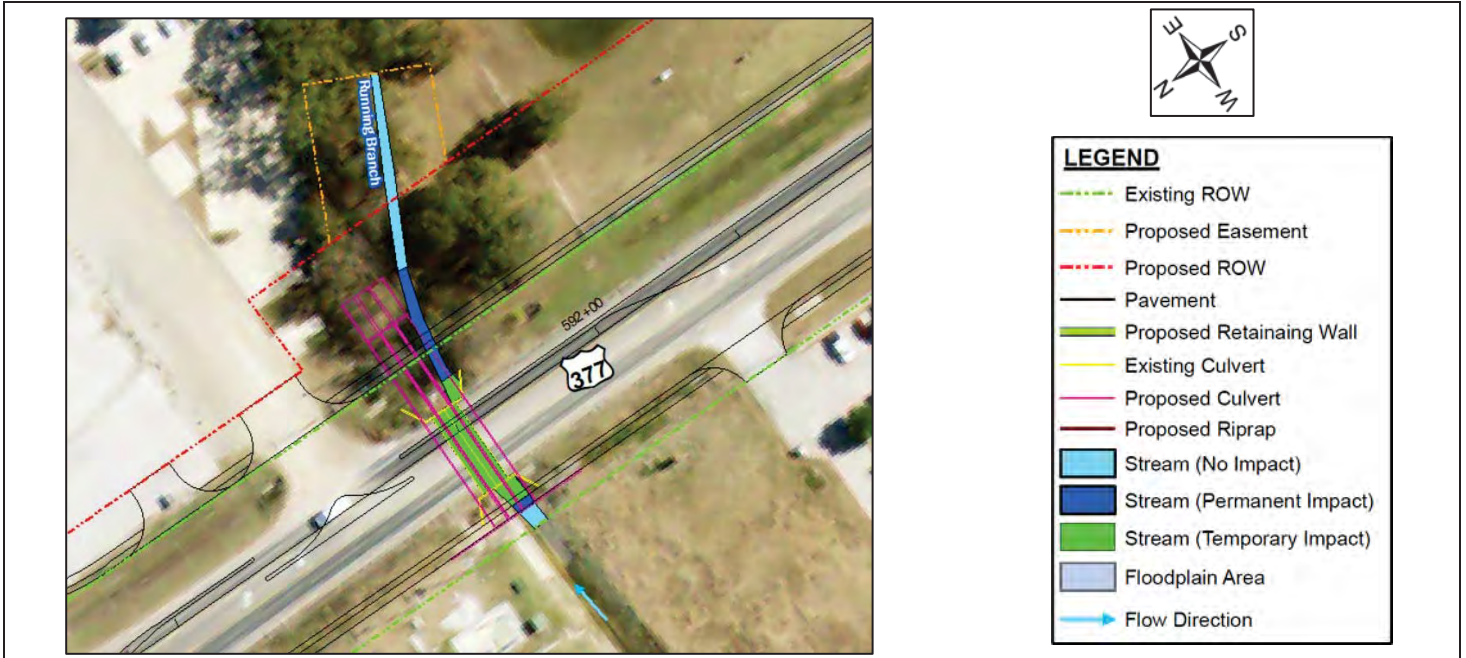
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

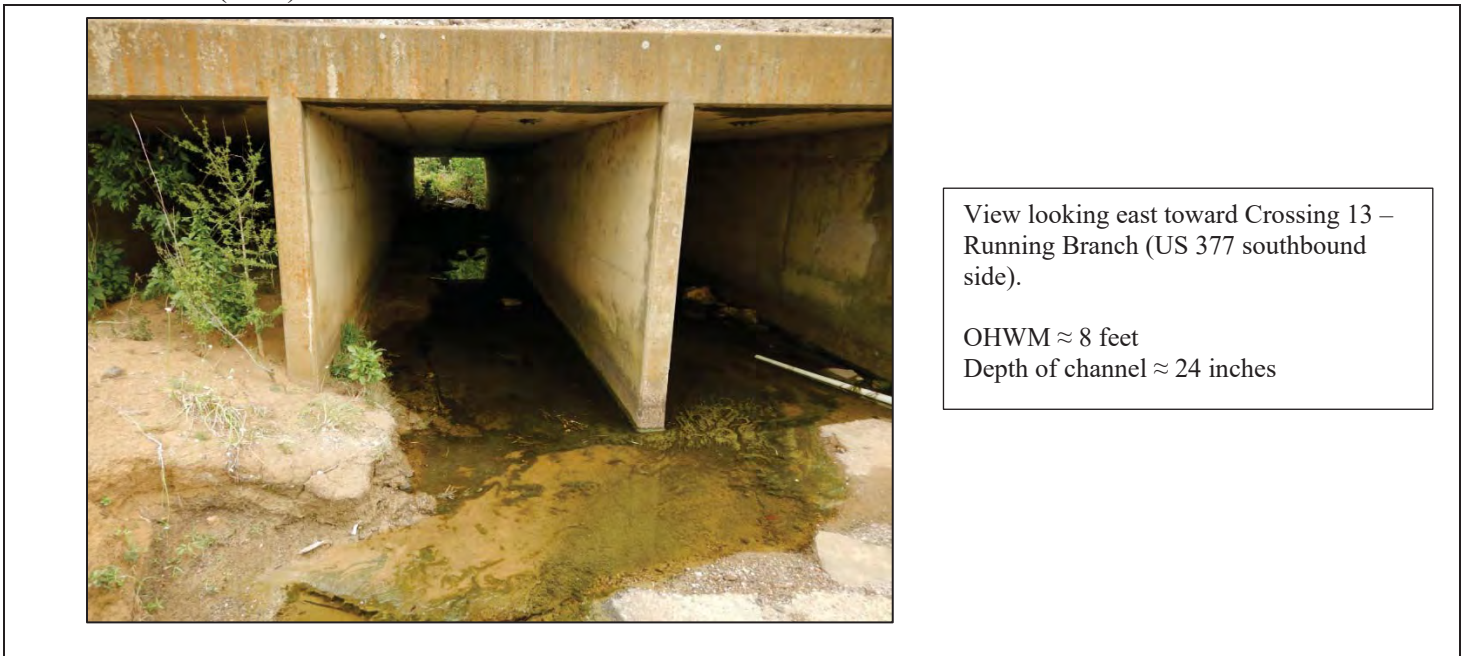
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 15 (Crossing 14)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: unnamed tributary to Pecan Creek
USGS Topo Quad Name: Aubrey, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.26490 N -96.98710 W

Stream Type: Intermittent Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):

Natural
Stable

Stream Flow Direction: SE
OHWM Width (ft): 15

OHWM Height (in): 12

Stream Bottom composition:

Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Cover: _____

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Frogs, fish, minnows

Riparian Vegetation: List species observed.

Sugar-Berry (*Celtis laevigata*), Perennial Rye-Grass (*Lolium perenne*), Field Brome (*Bromus arvensis*), Common Vetch (*Vicia sativa*), Poison Ivy (*Toxicodendron radicans*), Fringed Greenbrier (*Smilax bona-nox*)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

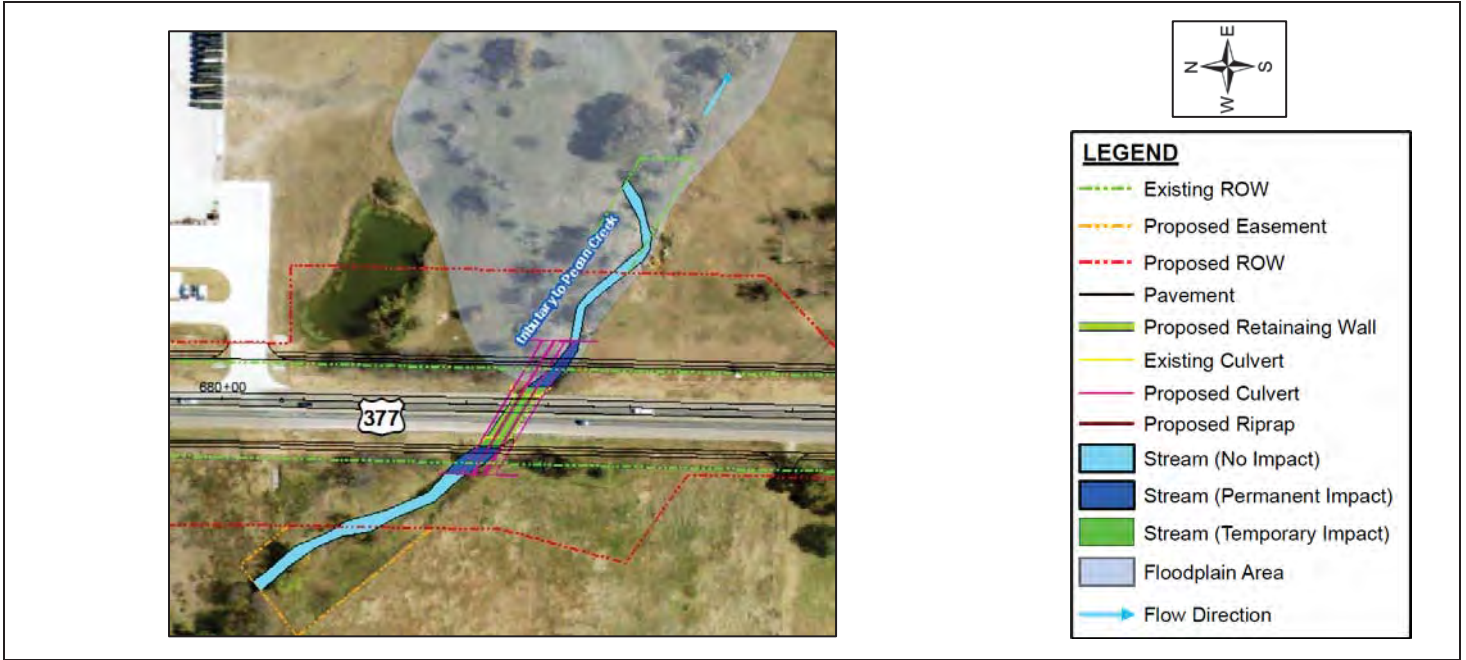
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

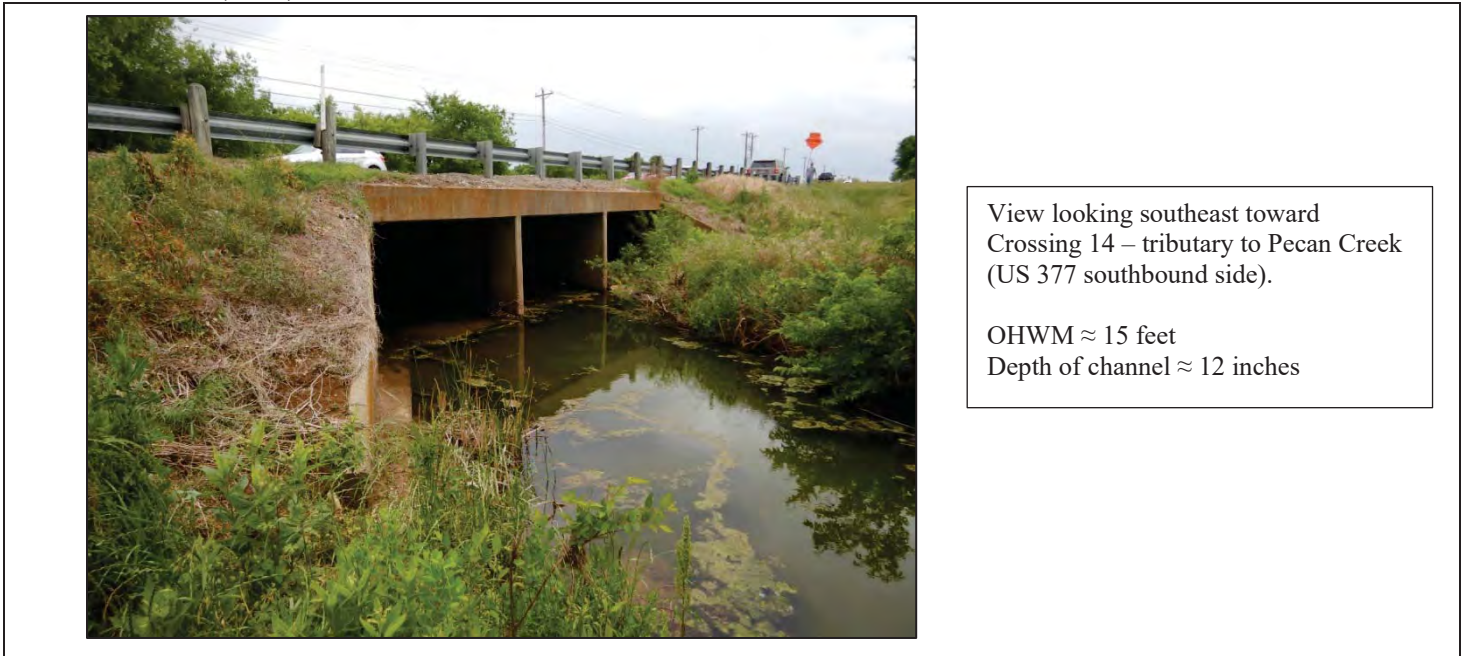
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 16 (Crossing 15)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: unnamed tributary to Cantrell Slough
USGS Topo Quad Name: Aubrey, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.26021 N -96.98714 W

Stream Type: Ephemeral Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):

Natural
Stable

Stream Flow Direction: E
OHWM Width (ft): 4

OHWM Height (in): 6

Stream Bottom composition:

Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Cover: _____

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) Dry

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
None observed.

Riparian Vegetation: List species observed.
None.

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

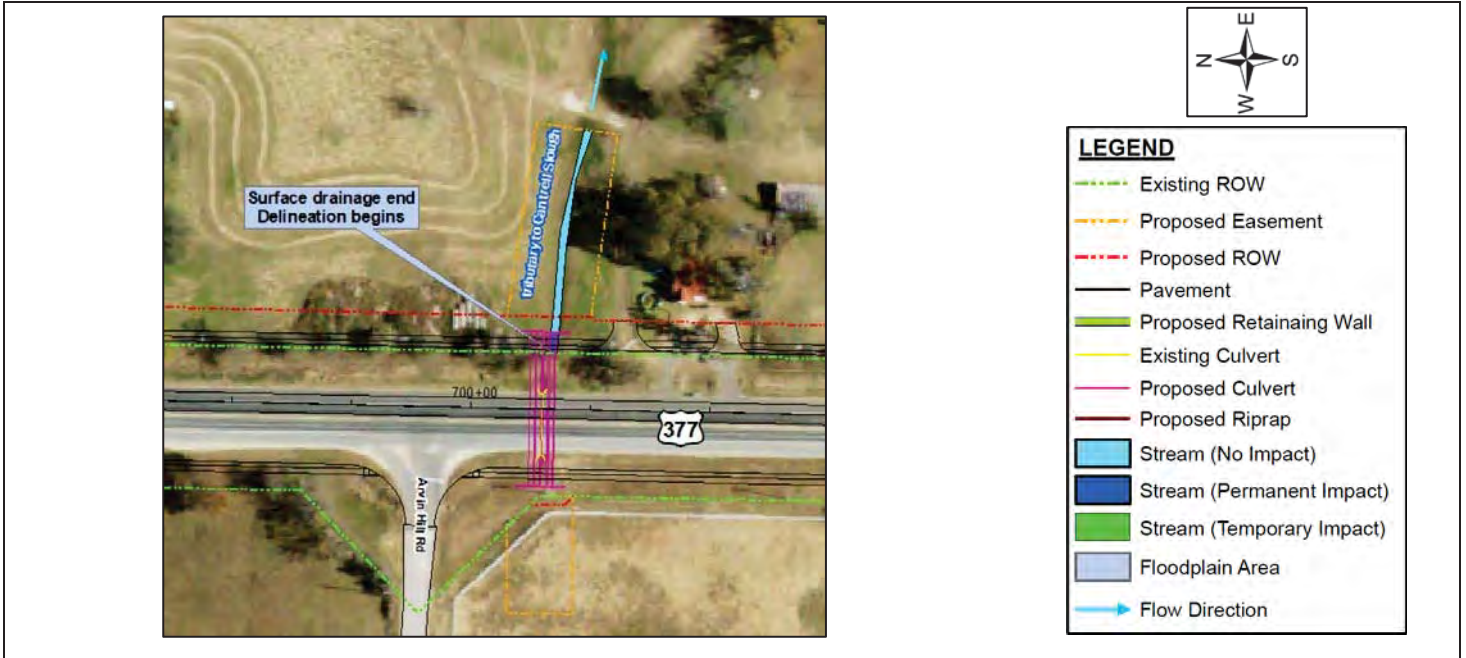
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



View looking west toward Crossing 15 – tributary to Cantrell Slough (US 377 northbound side).

 OHWM \approx 4 feet
 Depth of channel \approx 6 inches

Stream Data Form #: 17 (Crossing 16)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: unnamed tributary to Cantrell Slough
USGS Topo Quad Name: Aubrey, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.25149 N -96.98771 W

Stream Type: Ephemeral Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: E
OHWM Width (ft): 4

Natural
Slightly eroding
OHWM Height (in): 6

Stream Bottom composition:
 Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Cover: _____

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

- Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

- Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
None observed.

Riparian Vegetation: List species observed.

Black Willow (*Salix nigra*), Sugar-Berry (*Celtis laevigata*), Perennial Rye Grass (*Lolium perenne*), Johnson Grass (*Sorghum halepense*)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

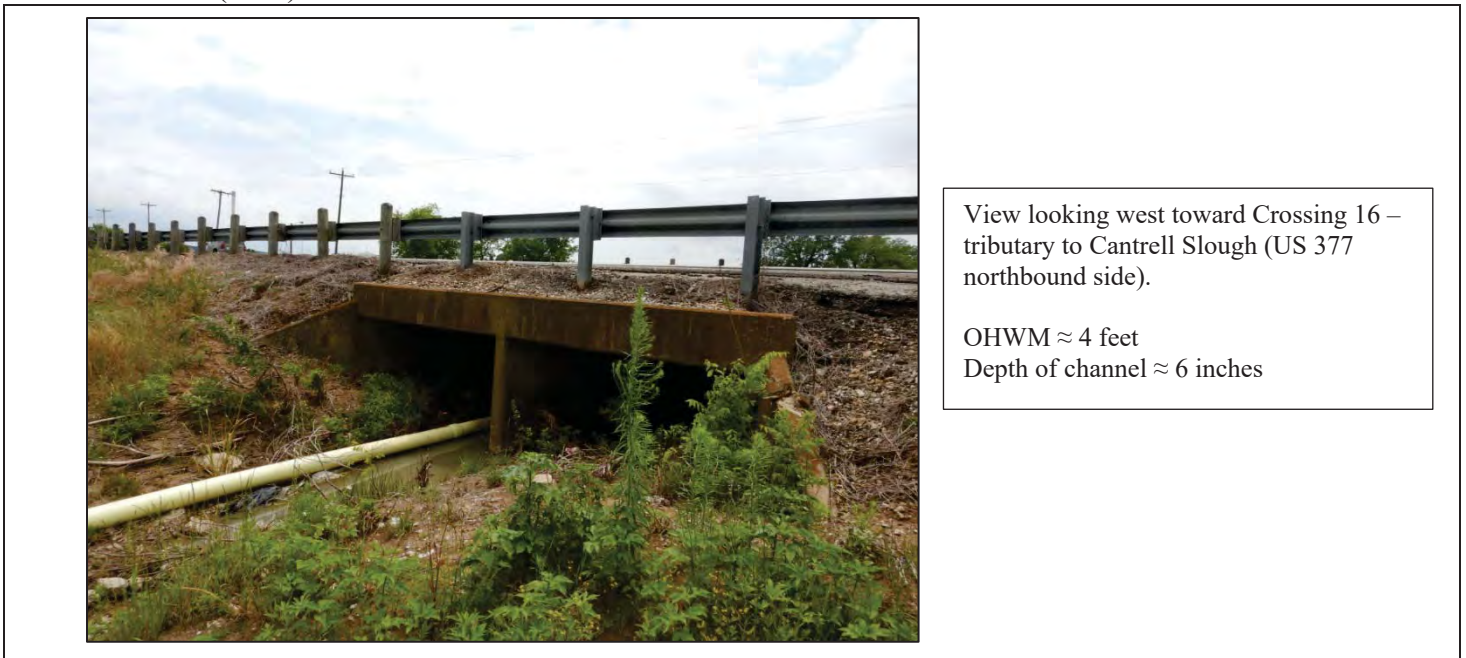
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 18 (Crossing 17)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: unnamed tributary to Cantrell Slough
USGS Topo Quad Name: Little Elm, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.24270 N -96.99214 W

Stream Type: Ephemeral Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):

Natural
Slightly eroding

Stream Flow Direction: SE
OHWM Width (ft): 8

OHWM Height (in): 12

Stream Bottom composition:

Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Cover: _____

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
None observed.

Riparian Vegetation: List species observed.

Black Willow (*Salix nigra*), Canada Goldenrod (*Solidago canadensis*), Field Brome (*Bromus arvensis*), Poison Ivy (*Toxicodendron radicans*)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

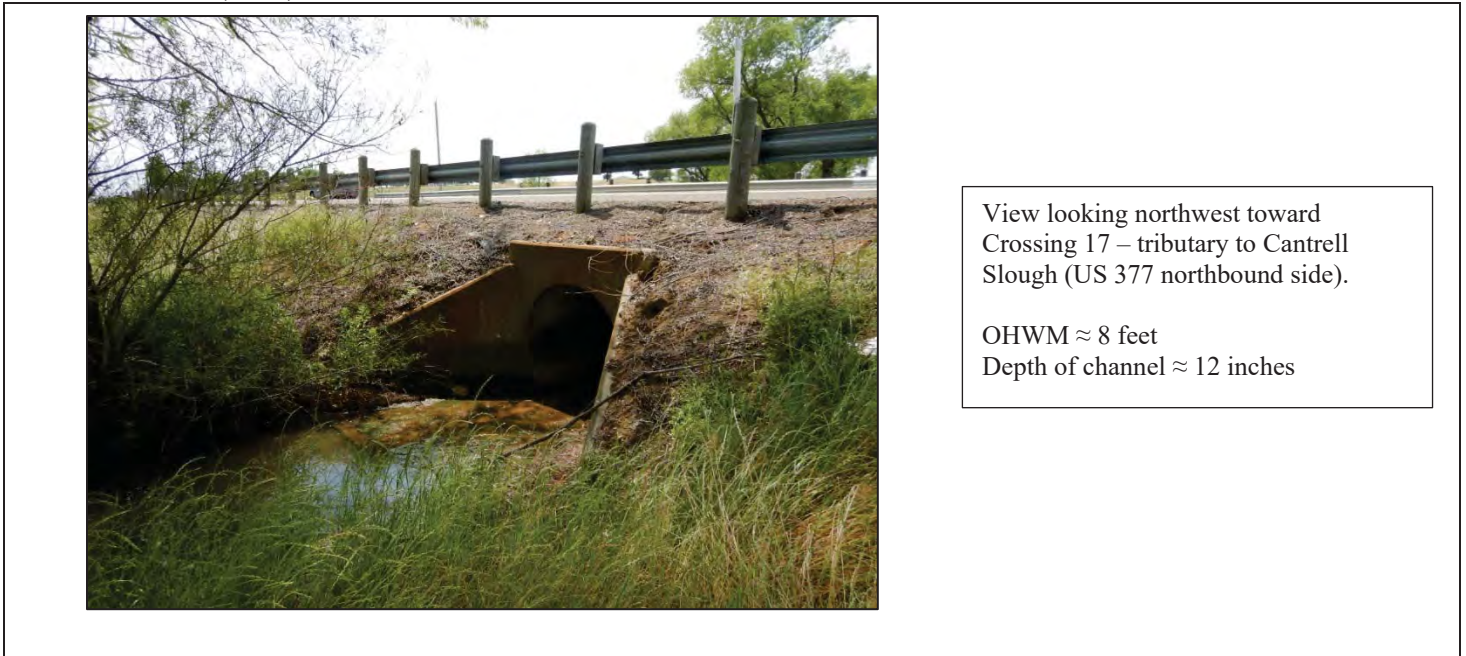
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



Stream Data Form #: 19 (Crossing 18)
Project Name: US 377
CSJ: 0081-06-040

Stream Data Form

Surveyor(s): AC, JL, AG
USGS Stream Name: unnamed tributary to Cantrell Slough
USGS Topo Quad Name: Little Elm, TX
Associated Wetland(s): None

Date of Field Work: 5-13-20
County/State: Denton, TX
Stream Number [303(d) List]: N/A
GPS Data: 33.23512 N -96.99903 W

Stream Type: Ephemeral Characteristics
Bank Stability (e.g. highly eroding, sloughing banks, etc.):

Natural
Stable

Stream Flow Direction: SE
OHWM Width (ft): 4

OHWM Height (in): 12

Stream Bottom composition:

Silts Cobbles Concrete Other: _____
 Sands Bedrock Muck
 Gravel Vegetation Type: Cover: _____

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

Sand bar Sand/Gravel beach/bar Gravel riffles Aquatic vegetation
 Overhanging trees/shrubs Deep pool/ hole/ channel Other: _____

Stream has the following characteristics:

Bed and banks
 OHWM (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list): _____

Water Quality:

Clear Slightly Turbid Turbid Very Turbid Oily film High organic content
 Other characteristics (pollutants, etc.) _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Frogs.

Riparian Vegetation: List species observed.

Sugar-Berry (*Celtis laevigata*), Black Willow (*Salix nigra*), Perennial Rye-Grass (*Lolium perenne*), Fringed Greenbrier (*Smilax bona-nox*)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

None.

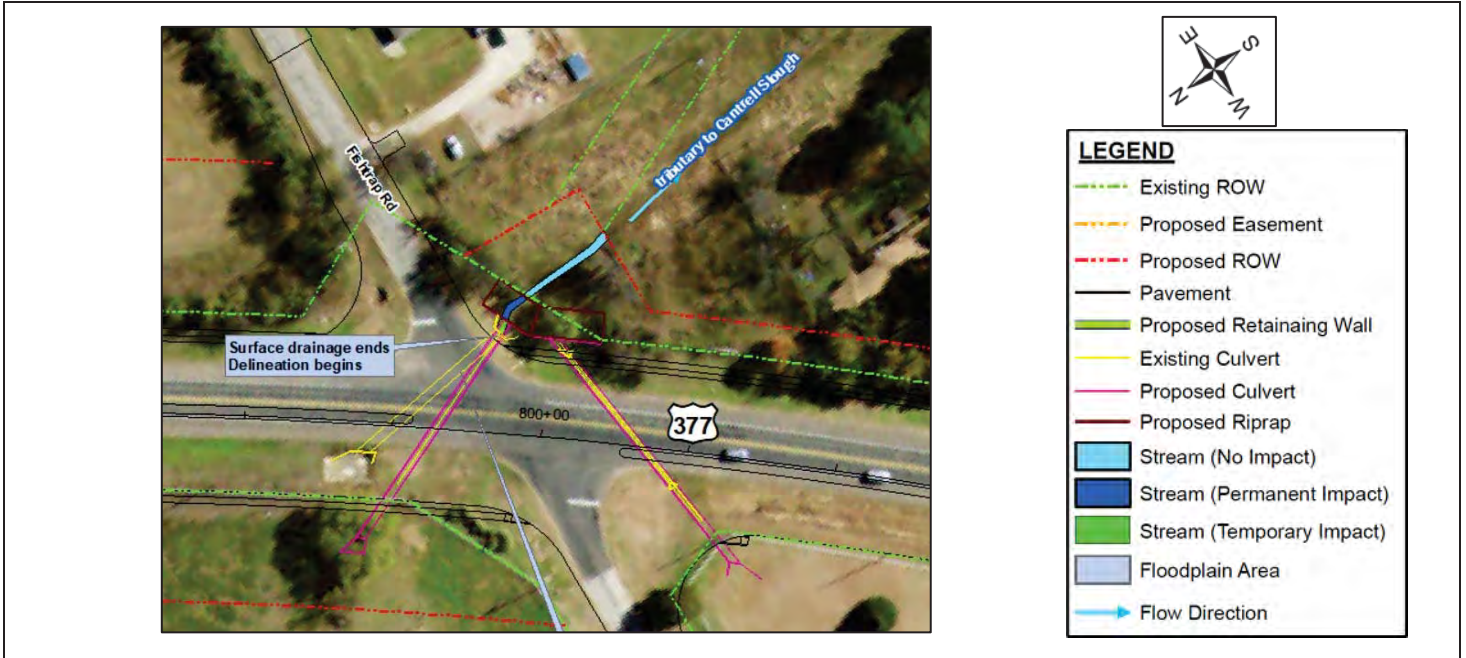
Stream Data Form (continued)

Please provide a plan and section view sketch of the stream channel.

Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View (NTS)



Sectional View (NTS)



View looking north toward Crossing 18 – tributary to Cantrell Slough (US 377 northbound side).
 OHWM \approx 4 feet
 Depth of channel \approx 12 inches



MEMO

July 29, 2020

To: Mohammed Shaikh
Project Manager, Project Development, Dallas District

From: Jonathan Stewart, Alma Canning
Civil Associates, Inc.

Subject: Water Resources Technical Report Memorandum of Change
United States Highway (US) 377 from North of Business 377E to US 380
Denton County
CSJs: 0081-06-040

The US 377 Water Resources Technical Report was submitted to TxDOT on May 28, 2020, and approved June 16, 2020. Since approval, the design has been revised based on public comments received following a Virtual Public Meeting held April 28, 2020. The design changes based on public comments resulted in a reduction of proposed Right-of-Way (ROW), and subsequently a revision on impacts to Waters of the U.S.

At the time of submission, the proposed ROW required was 63.2 acres, and the proposed easements required was 1.8 acres. However, revisions to the design have resulted in the reduction of proposed ROW to 54.7 acres, and proposed easements to 1.1 acres.

Eighteen waters of the U.S. crossing were identified within the proposed project comprising of the tributaries to Pecan Creek, Running Branch, and tributaries to Cantrell Slough. Crossings 1 through 18 would be impacted by replacement of culverts from the roadway pavement expansion. These crossings would utilize Nationwide Permit (NWP) 14 – *Linear Transportation Projects*. Each of the 18 crossings have been identified as single and complete projects.

The reduction of proposed ROW did not change the number of crossings or the type of permit. However, the alteration of the project's drainage design caused minor changes on crossing impacts. **Table 1** lists the Waters of the U.S. in the proposed project area, amount of impacts to the water bodies that would result from implementation of the proposed project, and the applicable U.S. Army Corps of Engineers permit.

Table 1: Impacts to Waters of the U.S.

Crossing No.	Name of Water Body or other location indicator	Approx. OHWM (feet)	Existing Structure	Proposed Work or Structure	Delineated Open Waters (acres and linear feet)	Delineated Wetlands or other Special Aquatic Sites (acres)	Permanent Fill		Temporary Fill		NWP	PCN (Y/N)
							Open Waters (acres and linear feet)	Wetlands or other Special Aquatic Sites (acres)	Open Waters (acres and linear feet)	Wetlands or other Special Aquatic Sites (acres)		
1	Ephemeral tributary to Pecan Creek	10	Culvert	Culvert replacement	0.09 ac 407 LF	0	0.01 ac 24 LF	0	0	0	14	N
2	Intermittent tributary to Pecan Creek	8	Culvert	Culvert replacement	0.08 ac 224 LF	0	0.02 ac 66 LF	0	0.04 ac 88 LF	0	14	N
3	Intermittent tributary to Pecan Creek	9	Culvert	Culvert replacement	0.24 ac 1,028 LF	0	0.04 ac 87 LF	0	0.04 ac 76 LF	0	14	N
4	Ephemeral tributary to Pecan Creek	6	Culvert	Culvert replacement	0.11 ac 492 LF	0	0.02 ac 52 LF	0	0.03 ac 97 LF	0	14	N
5	Ephemeral tributary to Pecan Creek	5	Culvert	Culvert replacement	0.12 ac 580 LF	0	0.02 ac 110 LF	0	0.05 ac 97 F	0	14	N
6	Ephemeral tributary to Pecan Creek	6	culvert	Culvert replacement	0.06 ac 267 LF	0	0.01 ac 45 LF	0	0.01 ac 96 LF	0	14	N
7	Ephemeral tributary to Pecan Creek	4	Culvert	Culvert replacement	0.02 ac 115 LF	0	0.01 ac 86 LF	0	0	0	14	N
8	Intermittent tributary to Pecan Creek	5	Culvert	Culvert replacement	0.15 ac 656 LF	0	0.02 ac 93 LF	0	0.05 ac 114 LF	0	14	N
9	Ephemeral tributary to Pecan Creek	5	Culvert	Culvert replacement	0.05 ac 490 LF	0	0.01 ac 79 LF	0	0	0	14	N
10	Ephemeral tributary to Pecan Creek	6	Culvert	Culvert replacement	0.09 ac 502 LF	0	0.01 ac 32 LF	0	0	0	14	N
11	Intermittent tributary to Pecan Creek	6	Culvert	Culvert replacement	0.08 ac 767 LF	0	0.01 ac 62 LF	0	0.01 ac 78 LF	0	14	N
12A	Ephemeral tributary to Pecan Creek	1	Culvert	Culvert replacement	0.03 ac 240 LF	0	0.01 ac 44 LF	0	0	0	14	N
12B	Ephemeral tributary to Pecan Creek	4	Culvert	Culvert replacement	0.07 ac 467 LF	0	0.01 ac 66 LF	0	0	0	14	N
13	Running Branch (intermittent)	4	Culvert	Culvert replacement	0.06 ac 290 LF	0	0.01 ac 42 LF	0	0.03 ac 82 LF	0	14	N
14	Intermittent tributary to Pecan Creek	15	Culvert	Culvert replacement	0.18 ac 487 LF	0	0.04 ac 87 LF	0	0.05 ac 92 LF	0	14	N
15	Ephemeral tributary to Cantrell Slough	4	Culvert	Culvert replacement	0.04 ac 188 LF	0	0	0	0	0	14	N

Table 1: Impacts to Waters of the U.S.

Crossing No.	Name of Water Body or other location indicator	Approx. OHWM (feet)	Existing Structure	Proposed Work or Structure	Delineated Open Waters (acres and linear feet)	Delineated Wetlands or other Special Aquatic Sites (acres)	Permanent Fill		Temporary Fill		NWP	PCN (Y/N)
							Open Waters (acres and linear feet)	Wetlands or other Special Aquatic Sites (acres)	Open Waters (acres and linear feet)	Wetlands or other Special Aquatic Sites (acres)		
16	Ephemeral tributary to Cantrell Slough	4	Culvert	Culvert replacement	0.06 ac 563 LF	0	0.01 ac 145 LF	0	0.01 ac 72 LF	0	14	N
17	Ephemeral tributary to Cantrell Slough	8	Culvert	Culvert replacement	0.04 ac 176 LF	0	0.04 ac 176 LF	0	0	0	14	N
18	Ephemeral tributary to Cantrell Slough	4	Culvert	Culvert replacement	0.01 ac 100 LF	0	0.002 ac 23 LF	0	0.001 ac 9 LF	0	14	N

ac - acre
 LF - Linear Feet
 OHWM - Ordinary High Water Mark
 NWP - Nationwide Permit
 PCN - Preconstruction Notification